The L2 Acquisition of Tense-Aspect Morphology

Edited by
Rafael Salaberry
Yasuhiro Shirai

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Abbreviations used in glosses

ACC	accusative
ASP	aspect
CL	classifier
F	feminine
FUT	future
GEN	genitive
GER	gerund
IMP	imperfective
INF	ìnfinitive
IO	indirect object
LOC	locative
M	masculine
NEG	negation
NOM	nominative
NPAST	nonpast
NVIR	non-virile
PART	partitive
PASS-PROSS	passato prossimo
PASS-REM	passato remoto
PAST	past
PC	passé composé
PFV	perfective
PL	plural
POL	polite form
PP	past participle
PRES	present
PROG	progressive
PRET	preterit
Q	question
REFL	reflexive
SG	singular
TOP	topic
1	first person
2	second person
3	third person

L2 acquisition of tense-aspect morphology

Rafael Salaberry and Yasuhiro Shirai

Introduction

This volume grew out of a Colloquium on "Description and explanation in L2 acquisition of tense-aspect morphology: Complementary perspectives" organized by the editors of this volume at the 21st Annual Meeting of AAAL (American Association for Applied Linguistics) held at Stamford, CT, in March 1999. We asked the presenters to update, revise and expand their papers, and we also invited additional contributions, in an effort to present complementary, multiple perspectives on the analysis of the development of tense and aspect in L2. Indeed, data-based studies included in this volume deal with a wide variety of languages — English, Spanish, Italian, French, Chinese and Japanese. On the other hand, theoretical frameworks range from generative grammar to functional-typological linguistics. Several studies focus on the issues related to the Aspect Hypothesis, but other issues such as the acquisition of a future marker are also addressed. The papers submitted for inclusion in the volume went through a rigorous review process and we believe the final product represents a state-of-the-art of the field, which builds on, and goes beyond the recent comprehensive reviews on this topic (Bardovi-Harlig 2000; Li & Shirai 2000). To provide as comprehensive a view as possible, the present volume also includes a chapter that offers a substantive review of first language acquisition of tense-aspect morphology. Additionally, in the present chapter, we have outlined some theoretical and methodological issues that may serve as relevant preliminary reading for the chapters included in this volume. In sum, we believe that this volume will make significant contributions to our understanding of how L2 learners acquire tense-aspect morphology. Most important, we hope this volume will serve as a foundation for future studies in this area, and for theory building in second language acquisition in general.

Tense and aspect

Tense and aspect are semantic notions concerning temporality encoded implicitly and explicitly on the verb. Tense is a deictic category that places a situation in time with respect to some other time, usually the moment of speech. Aspect "concerns the different perspectives which a speaker can take and express with regard to the temporal course of some event, action, process, etc." (Klein 1994: 16). Aspect can be expressed lexically by the inherent lexical semantics of the verb and its interaction with direct and indirect arguments and adjuncts or morphosyntactically through verbal endings or periphrastic constructions (Dowty 1986; Smith 1991; Tenny 1994; Verkuyl 1994). The latter is traditionally called grammatical aspect (or viewpoint aspect) and the former is called lexical aspect (Andersen 1986) or situation type (Smith 1991).[1]

Within the purview of lexical aspect, Vendler (1957) classified verbal predicates into four semantic types: states, activities, accomplishments and achievements. The following are some examples of verbs typically associated with specific lexical aspectual categories: states (*be, have, love*), activities (*walk, run, laugh*), accomplishments (*run a mile, paint a house, build a bridge*), and achievements (*reach the peak, break a stick, notice something*). Because the classification of verbs according to inherent lexical aspectual values is dependent on the verb constellation (i.e., internal arguments, external arguments and adjuncts) it is not necessarily true that any verb type will always be assigned to any given category of lexical aspect. For instance, the verbal predicate "to feel dizzy" may be classified as an achievement in the phrase "Suddenly she felt dizzy", but as a state in the phrase "All afternoon she felt dizzy." The reason is that the specific adverbial phrase changes the telicity of the verb, thereby, changing its composite value of lexical aspect. The classification of verb types can also be made in terms of three basic semantic dimensions: *dynamicity*, *durativity* and *telicity* (Comrie 1976; Andersen 1989; Smith 1991). Of Vendler's four classes, only achievements are non-durative (i.e., punctual). On the other hand, dynamicity contrasts stative versus dynamic (non-stative) verbs (i.e., activities, accomplishments and achievements). Finally, in terms of telicity, states and activities are atelic (no inherent endpoint) whereas accomplishments and achievements are telic.

Smith (1991) distinguishes situation aspect (verb + arguments + adverbials) from viewpoint aspect. While situation aspect constitutes a covert category of grammar instantiated in all languages, viewpoint aspect refers to the partial or full view of a particular situation type as marked by an overt grammatical morpheme. That is, aspect is also expressed morphosyntactically on the verb by inflectional morphemes (e.g., Preterite and Imperfect in Spanish) or periphrastic expressions (e.g., progressive aspect in English) to indicate the internal temporal constituency

of a situation. Perfective aspect is concerned with the beginning and end of a situation and is thus "bounded". Imperfective aspect, being "unbounded," focuses on the internal structure of the situation instead, viewing it as ongoing, with no specific endpoint. Notice that grammatical aspect makes reference to complete versus ongoing situations. However, while telicity is used to describe the aspectual nature of events at the lexical level, the notion of "boundedness" (Depraetre 1993), which is also related to endpoints, is relevant to describe the properties of grammatical aspect. Furthermore, viewpoint aspect is not categorical, i.e. it is based on the speaker's choice. Comrie (1976: 4) points out that "it is quite possible for the same speaker to refer to the same situation once with a perfective form, then with an imperfective, without in any way being self-contradictory." For instance, Comrie explains that *reading* may be used with the progressive or the simple past to refer to the same event: John read that book yesterday; while he was reading it, the postman came.[2] Furthermore, verbal morphology may override the lexical aspectual value of verb phrases. While the use of telic predicates (lexical aspect) tends to correlate with the use of perfective (grammatical aspect) and atelic with imperfective endings (i.e., prototypical, unmarked combinations), it is possible for the verbal morphology encoding perfective aspect to appear with stative verbs and the imperfective form with achievements. Smith (1991: 12) argues that "the speaker expresses a given aspectual meaning according to the grammar of the language and the conventions of use for that language." To summarize, the lexical value of aspect is composed of the inherent semantic value of the interaction between the verb and its arguments, as well as other elements that are not arguments of the verb proper, such as adverbials. Linguistic tests are often used to decide whether predicates are telic or atelic, or stative or non-stative, etc. In addition, the expression of viewpoint through verbal morphology contributes to aspectual interpretations, adding another layer of analysis.

Theoretical approaches

In the short time-span dedicated to the research of tense-aspect development in L2 acquisition, there have been several theoretical approaches to the analysis of this phenomenon. The first coherent theoretical proposal was the one provided by Roger Andersen based on the pioneering work of Vendler, Weist, and others: the Aspect Hypothesis. Andersen esentially claimed that the selection and use of perfective/past marking is initially restricted to the marking of telic predicates (i.e., achievements and accomplishments). In contrast, imperfective marking is initially restricted to marking atelic predicates (states and activities), whereas progressive marking is restricted to marking dynamic and atelic predicates (i.e. activities).

This form-meaning association has received much attention in the literature both in L1 and L2 (see Li & Shirai 2000, Salaberry 2000; Weist, Chapter 2) and many empirical studies have been carried out to uncover the nature of this form-meaning correlation.

Several studies of L1 and L2 acquisition indicate that the learners' interpretation of verbal morphology appears to be correlated to lexical aspect rather than tense in itself. There is still much disagreement, however, at the level of both description and explanation. Many of the chapters in this volume directly address the validity of this hypothesis from theoretical, empirical, and methodological viewpoints (see in particular chapters by Weist, Andersen, Bardovi-Harlig, Housen, Rohde, Giacalone-Ramat, Salaberry, Rocca, and Shirai). What will become apparent after reading these chapters is that a simple form-meaning correlation is only part of the larger picture conditioned by various factors — L1 transfer, input data and its processing, formation of prototypes, discourse functions, instructional variables, cognitive/universal constraints, and perhaps many more. As Shirai and Kurono (1998) pointed out, it is important to understand why so many studies follow the acquisitional pattern predicted by the hypothesis, and why some studies do not (see also Andersen, Chapter 3). For example, Giacalone-Ramat (Chapter 9) points out that some recent studies have uncovered some discrepancies with the proposed tenets of the Aspect Hypothesis. In order to solve this dilemma, she proposes two courses of action: (1) to analyze in more detail the possible effect that particular features of the native language may have on the processing and development of the target language, and (2) to emphasize the notion of prototypicality as the main phenomenon that makes the aspect hypothesis valid, which is in line with proposals by Andersen and Shirai (Andersen 1991; Shirai 1991; Andersen & Shirai 1994, 1996; Andersen this volume; Shirai this volume). It is interesting to note that Giacalone-Ramat suggests that prototypical semantic notions may be correlated with the frequency with which some forms may be reflected in language use (cf. The Distributional Bias Hypothesis, Andersen 1993; Andersen & Shirai 1994). Giacalone-Ramat proposes that the analysis of L2 developmental data of verbal morphology be done from the perspective of a functional theoretical framework that combines universal semantic cognitive structures (the relevance of lexical aspect, learning strategies) as well as language specific factors (e.g., L1 transfer, morphological typology of the language). Similarly, Andersen (Chapter 3) advocates the use of multiple perspectives for the analysis of learners developmental data, and discourse-functional linguistics as a framework of analysis of learner data. Andersen claims that a multiple factor approach is an attempt to look at complex phenomena as complex phenomena without too much simplification (see also Shirai's spreading activation model: Chapter 15). Of course it is important not to forget the effects of potential *interactions* among various factors at the level of interpretations.

A complementary perspective is provided by studies carried out within the purview of a generative approach. For instance, Slabakova and Montrul (Chapter 12) argue that if we make a principled distinction between lexical and functional categories — as advocated in phrase structure representations of grammar — functional categories and their feature specifications are to be considered the locus of all cross-linguistic differences. It follows that grammatical aspect (e.g., Spanish Preterite/Imperfect) represents a UG-constrained phenomenon. Slabakova and Montrul claim further that viewpoint aspect falls within the range of UG phenomena (contra Coppieters 1987) and is encoded in a functional category OuterAspP where the features [+/−bounded] are checked overtly through Preterite/Imperfect morphology. Following Giorgi and Pianesi (1997) they state that this functional category is not instantiated in English. The question that arises — within the aforementioned perspective — is whether learners who master the Preterite/Imperfect morphology have also acquired the semantic properties of this functional category. A crucial theoretical assumption of the approach adopted by Slabakova and Montrul is that if and when learners show evidence of use of the relevant target language inflectional morphology (in this case Spanish Preterite-Imperfect) they will also have demonstrated knowledge about the semantic properties associated with the required functional projection of Spanish past tense aspect. In other words, "if learners have acquired a specific functional projection, they will have knowledge both of the inflectional morphology (or other closed-class lexical items) and the conceptual-interpretive properties (i.e., semantics) associated with this projection." In more general terms, Slabakova and Montrul claim that it is the mapping between syntactic structures and semantic interpretation (mediated by UG principles and constraints) that guides the development of interlanguage grammars.

Methodological issues

The reader will notice that the papers in this volume reflect not only a variety of theoretical perspectives, but also several methodological differences as well. These research design contrasts are unavoidable as each study deals with specific factors isolated from a very complex phenomenon that spans syntactic, morphological, semantic and even pragmatic levels of analysis. The reader should approach the chapters with several caveats in mind in order to understand potentially contradictory results from one study to the next. For that purpose, in this section we alert the reader to some potential sources of discrepancy among the findings in the chapters that make up this volume.

We start off with potential variation in the operational classification of lexical aspectual classes. As briefly discussed above, the concept of a division of verbal

predicates into lexical aspectual classes (e.g., Vendler's states, activities, accomplishments and achievements) has been adopted by researchers from a wide variety of backgrounds: from syntacticians (e.g., Tenny 1994) to semanticists (e.g., Dowty 1979) to philosophers (e.g., Verkuyl 1989). Temporality, however, is not only encoded in the lexical semantics of the verbal predicate, but in components beyond the head of the verb phrase such as particles (e.g., to eat vs. to eat up), adverbials (e.g., Suddenly I was asleep), etc. As a consequence, it is important to distinguish the combined effects of each of the elements that make up the temporal framework of verb phrases. Since aspect is such a complex phenomenon, it is not surprising that linguists cannot agree on the system of verbal semantic classification in one language, not to mention in different languages. Although the linguistic tests first introduced by Weist et al. (1984) have refined the classification method greatly, they still are only an operationalization of a theoretical construct. For example, in some studies, the construct of states is defined by asking the question 'Does the predicate have a habitual interpretation in simple present tense?' but the classification is not foolproof, as can be seen in the reliability of classification of some studies (e.g. Shirai & Andersen 1995). Furthermore, researchers use different systems (e.g., 3, 4, 5, or 6-way classifications) depending on the objectives of the study and relevant methodological considerations. For instance, whereas Salaberry (Chapter 13) uses a three-way classification system, Shirai (Chapter 15) uses a four-way classification system. The difference is given by the decision to discriminate telic events into accomplishments and achievements or not. Another important source of discrepancy among studies is the effect of cross-linguistic differences. That is, the specific selection of L1–L2 combinations may generate specific findings that may not correlate to findings that would be obtained should we analyze a different L1–L2 pairing. For instance, morphological transparency together with saliency of morphological endings may be what triggers the early emergence of tense-aspect marking in some Romance languages compared to English in which such transparency and saliency are not as pronounced as in, for instance, L2 Italian or L2 Spanish. Indeed, Noyau (Chapter 4) analyzed the specific interaction between the typological make-up of the native and target language. Noyau argues that for a given population of learners (let us say L1 English speakers), Italian appears to be more transparent than, for instance, French with regards to the identification of semantic concepts such as temporality in verb inflectional paradigms. Additionally, Noyau claims that some semantic concepts may also be more transparent or, otherwise, more cognitively processable than others. She provides the example of French again, where the difficulty to acquire the *Imparfait* is compounded by the fact that this temporal marker conveys so many semantic nuances (including modality). Finally, Rohde (Chapter 7) also argues that the particular combination of L1 and L2 that he

studied (L1 German and L2 English) results in specific patterns of development in verb morphology.

Another potential source of discrepancy among studies is the identification and selection of developmental stages to be analyzed. For instance, Giacalone Ramat's (Chapter 9) review of previous data reveals that the Imperfect is acquired only after the Present and *Passato Prossimo* have already become part of the learner's L2 morphological system. Additionally, she claims that the first uses of the imperfective occur with the copula *essere.* The imperfective is then marked on modal verbs (*potere, volere*), and eventually used with all other verbs. It is also important to analyze what happens with near-native speakers as Kihlstedt did (Chapter 11). Indeed, in her study a developmental difference seemed to exist between learners who restricted their use of French *Imparfait* to states and those who extended it to dynamic verbs. This factor correlated with other features, such as use of non-target like base forms, use of pluperfect and lexical variation. At the discourse level, short narratives and the marking of temporal moves between past events by specific syntactic and morphological means (pluperfect, narrative present) were observed only at a more advanced level and in the native data. Idiosyncratic morphology appeared in contexts of aspecto-temporal and/or syntactic complexity: in subordinate clauses involving two time spans in the past as well as in contexts where the actual time of the event only partly overlapped with the time spoken about. Kihlstedt's analysis focused on the impact of text type (dialogues), potential L1 influence and gains in discourse autonomy at 'post-basic' stages.

Finally, another methodological factor that needs to be considered is the contrast between L1 and L2 acquisition. For instance, the aspect hypothesis is often associated with four predictions concerning form-meaning association (Shirai 1991; Andersen and Shirai 1996), although the fourth one may be restricted to L1 acquisition processes only: (1) past/perfective form with telic verbs, (2) imperfective form with atelic verbs, (3) progressive form with activity verbs, (4) progressive form with dynamic verbs only (i.e. lack of overgeneralization). In the present volume, Rocca (Chapter 8) echoes the previous theoretical distinction and claims that studies of child SLA are crucial to integrate the findings from L1 and L2 acquisition of tense-aspect morphology. In her chapter, Rocca analyzes bi-directional longitudinal data: L1-Italian children learning English in England compared with L1-English children learning Italian in Italy. The aim of her study was to compare and integrate the role of universal factors with the role of language transfer. The chapters by Rohde and Housen also investigate child L2 acquisition of English.

Organization of chapters

The chapters that make up this volume have been organized into two separate sections. The first section comprises the chapters that present an overview of the research field that deals with various tense-aspect phenomena in language acquisition (chapters by Weist, Andersen, Noyau and Bardovi-Harlig). The second section comprises the chapters that provide an analysis of specific empirical data that was used to substantiate various theoretical perspectives previously advocated in this volume or the general research literature.

Introductory chapters

Chapter 2 by **Weist** reviews the acquisition of tense-aspect morphology in first language acquisition. Since many of the chapters in this volume refer to the relationship between verb semantics and the development of tense-aspect morphology, on the heels of similar research in first language (e.g., Bronckart & Sinclair 1973; Antinucci & Miller 1976), it is important to have a comprehensive review of the relevant L1 literature as a background to the chapters on L2 acquisition. Weist presents a thorough review of wide coverage ranging from Tomasello's functional-cognitive approach to generative approaches by Wexler, Hyams, and Meisel, as well as the debate concerning the relationship between tense-aspect morphology and verb semantics and a more recent debate on regular vs. irregular morphology. Not only is the review comprehensive, but it also presents a synthetic discussion reviewing the strengths and limitations of each approach with an additional analysis of child language corpus. In sum, Weist compares L1 and L2 acquisition, suggesting that they are diametrically opposed if L2 learners are assumed to acquire tense before aspect (e.g. Dietrich et al 1995) given that in L1 acquisition it is often argued that aspect is acquired before tense. At the same time, he points out, both L1 and L2 learners show an acquisition pattern which is congruent with the Aspect Hypothesis. This indeed is an important theoretical and empirical issue that needs to be addressed by L2 researchers. In Chapter 3 **Andersen** updates his previous proposal with his Expanded Aspect Hypothesis. Elaborating on the developmental hierarchy proposed in Andersen and Shirai (1996), he posits six dimensions that form the basis of the prototypical past tense form; namely, verb semantics (i.e. inherent aspect), event types (unitary vs. repeated), realis/irrealis, pragmatic role (direct assertion vs. pragmatic softener), grounding (foreground vs. background), and discourse structure. In this chapter, Andersen urges other researchers to go beyond the description of how morphology develops in relation to verb semantics, and explore the important question of explaining how learners create form–meaning/function relationships in their developing grammar. To do so, he argues that

discourse-functional linguistic principles should be used as a framework for the analysis of the development of tense-aspect distinctions in L2s.

In Chapter 4 **Noyau** analyzes the contextual effects of discourse and related communication constraints that help to shape the developmental processes that guide the acquisition of tense-aspect marking. In particular Noyau claims that during the beginning stages of acquisition, speakers can and do mark temporality with means other than inflectional morphology. For instance, L2 speakers can make use of their basic lexical inventory (e.g., adverbials, interlocutor scaffolding, narrative sequences) to mark temporality. Noyau argues that the question that we should ask ourselves at this juncture is: what motivates learners to go beyond this (arguably, communicatively successful) initial stage and use redundant markers of temporality as exemplified in French *Imparfait-Passé Composé*? Noyau explains that learners are faced with two major problems: the identification of L2 forms that serve to mark specific semantic concepts and the connection between forms and their function in the target language. During this type of process, the learner will hence, develop lexical hypotheses (specific verbal endings are associated with specific verb types), semantic hypotheses (specific verbal endings are associated with specific temporal concepts) and discourse hypotheses (specific verbal endings are associated with specific discursive structures). Borrowing from Bates and MacWhinney's (1989) competition model, Noyau claims that learners go through a period of systematic uncertainty in which there is a simultaneous competition among different levels of analysis of the target language. Noyau substantiates her point with examples of the development of past tense in L2 French. For instance, she claims that when a past event is to appear in the background of a narrative, or, vice versa, when a stative is moved to the foreground of a narrative, learners have to make difficult choices to appropriately mark such temporal nuances. For instance, if, in the first case, the past event is marked with present tense, we may then conclude that the level of discourse structure prevailed over the one of semantic function (signaled through morphological means). Finally, in Chapter 5, **Bardovi-Harlig** focuses on a methodological factor. In the studies that have addressed the Aspect Hypothesis, there have been two major approaches in calculating form-meaning correlations — one that asks the question of which morphological form is correlated with which semantic types of verbs, and another one that asks which semantic types of verbs are marked by which morphological form. She called the former the across-category analysis, and the latter the within-category analysis. Through the reanalyses of Bardovi-Harlig (1998) and Salaberry (1999), she shows that the two calculation methods reveal different aspects of data, and that we need to be more cautious in interpreting the percentages provided by researchers. By reanalyzing Salaberry (1999), she argues that it does follow the developmental predictions made by the Aspect Hypothesis, even though Salaberry presented the data as a

counterexample to the hypothesis. She also discusses the implicational scaling of Bayley (1999) as an alternative method of analysis for tense–aspect research.

Empirical studies

In Chapter 6 **Housen** reports on a large-scale study on the acquisition of verb morphology by English L2 learners in Belgium, with two different L1 groups (French and Dutch). In the main section of the chapter Housen presents a detailed analysis of longitudinal data of Ema, a 9-year-old child whose L1 is Dutch. An important finding of Housen is that, although the development of progressive marking supported the prediction of the Aspect Hypothesis, the prediction for past tense was not supported clearly. First, state verbs were marked for past tense beginning in the early stages of development, in fact, much more than expected. It is important to notice, however, that early state verbs were mostly irregular verbs. Second, type analysis, as opposed to token analysis, did not support the proposed early association of past tense marking with the lexical aspectual class of achievements, given that frequent use of a few achievement verbs (i.e. *said* and *got*) inflated the token count of achievement verbs. Based on these finding, Housen argued that the aspect hypothesis for past tense may be valid for regular past only, whereas a different processing mechanism is involved for irregular past, which is more prone to rote learning than regular past. **Rohde** (Chapter 7) also focuses on child L2 acquisition of English, and along the lines of Housen's argument, he raises some important questions about the straightforward application of the tenets of the Aspect Hypothesis. Building on his earlier study (Rohde 1996), he discusses various types of non-target like uses of verbal morphology by four German children acquiring English in a naturalistic setting. Rohde claims that the analysis of his data does not necessarily support the prediction of the Aspect Hypothesis. After discussing various possible factors at work (e.g. L1 transfer, input) he argues that researchers should talk about 'aspectual effect' which can vary in strength rather than of the Aspect Hypothesis that must be either supported or rejected. Especially problematic for the Aspect Hypothesis was the finding that state verbs had a very high past marking rate in obligatory past context as revealed by his analysis of the data from all four children who participated in his study (80–100%). Although the state verbs in his data included *be* copula/auxiliary, the same tendency is observed by Housen who excluded *be* but still arrived at a similar conclusion. Rohde and Housen therefore both provide important counterexamples to the Aspect Hypothesis.

The study by **Rocca** (Chapter 8) also focuses on data from children learning a second language, but, it incorporates a bidirectional analysis of Italian and English used as both native and target language. More specifically, her study was based on the analysis of data from three L1 Italian children learning L2 English and three L1

English children learning L2 Italian. Her analysis attempts to show that semantico-conceptual prototypes may be based on both language universals and language transfer. Rocca collected her data through a multifaceted methodology that comprises spontaneous production, retell task and cloze. The data analyzed were gathered from fifteen 30-minute sessions over a period of 6 months (at 1–2 week intervals). Her analysis shows that L2-English learners used tenseless progressives with activities and sometimes with states; the past tense was initially found with achievements and accomplishments, then it gradually spreads to activities and states. In contrast, among L2-Italian learners, the Present Perfect *(Passato Prossimo)* emerged without auxiliary and mainly encoded achievements and accomplishments, whereas the Imperfect (*Imperfetto)* tended to mark activities and states. In essence, her analysis gives credence to the Aspect Hypothesis, insofar her findings indicate that inherent lexical aspectual classes appear to constrain the acquisition of verb morphology. In Chapter 9 **Giacalone Ramat** expands the analysis of the acquisition of past tense verbal morphology in Italian with data from adult learners. For her study she considers two different groups of learners: L1 German speakers (although she concentrates primarily on the data from a single speaker: MT) and L1 English speakers. She gathered her data in the context of, mostly, informal interviews or movie narratives collected at different times in different parts of Italy. The analysis of the data from the German speaker MT shows a clear preference for using the Imperfect with statives (mostly) and some atelic events. The analysis of the data from the L1 English speakers confirms the tendency apparent in the data from MT. Additionally, the analysis of the L1 English data from the perspective of narrative grounding largely corroborates that learners tend to use the *Passato Prossimo* to mark foreground and the Imperfect to mark background. Additionally, Giacalone Ramat argues that among the L1 English speakers there are overextensions in the use of the Imperfect to perfective situations, but that the opposite tendency (i.e., overextension of *Passato Prossimo* to imperfective situations) is not as prevalent. Interestingly, the opposite results are obtained in the analysis of data from the German learners. Giacalone Ramat claims that these results may be due to the effect of the L1, given that there is some "formal similarity between the English simple past and the Italian Imperfect." She provides additional evidence to substantiate her claim with the analysis of the use of the progressive and proximative periphrases (*stare* + gerund and *stare per* + infinitive). In sum, her findings support the effect of lexical aspectual values on the selection of inflectional markers of tense-aspect.

In Chapter 10 **Wiberg** also analyzes data from L2 Italian but among adult Swedish speakers. Unlike the studies mentioned above, Wiberg's goal is to investigate the use of formal means to express future plans in spoken dialogues. To substantiate her argument, Wiberg incorporated a comparative analysis of the data

from the learners with data collected among native speakers of Italian under similar methodological conditions. She bases her analysis on the cognitive concept of "procedural knowledge" (knowledge stored in working memory and useful for "on-line" speech production). As a matter of fact, her findings reveal that her highly proficient Italian non-native speakers show shortcomings in procedural knowledge in the context of quick tense changes linked to future reference, compared with base-line data from native speakers. More importantly, she further claims that the more constrained the speaker's procedural skill, is, "the less prone he will be to use other verb types than the prototypical telic ones." In sum, Wiberg claims that her study serves to show the way in which speakers manage the syntactic skills of subordination, as well as skills in producing quick tense changes in utterances immediately linked to the given future reference. In Chapter 11, **Kihlstedt** also analyzes data from Swedish native speakers, but she focuses on the analysis of L2 French past tense narratives. Kihlstedt presents the results of a longitudinal study of temporal reference in dialogues of Swedish university students in interaction with native speakers of French. Kihlstedt attempts to identify the distinctive linguistic features of a 'less advanced' versus a 'more advanced' stage of development. As a result of her analysis, 18 features were singled out as indicative of different stages of development, overriding individual and conversational variation. All forms that carried past time reference (*Imparfait, Passé Composé,* Pluperfect and unmarked base forms) were classified according to various temporal/semantic factors at both verb phrase and discourse levels. More importantly, the way in which *Imparfait* was used turned out to be a particularly good indicator of acquisitional level. A developmental difference seemed to exist between learners who restricted their use of *Imparfait* to states and those who extended it to dynamic verbs. This factor correlated with other morphological features, such as overuse of *Passé Composé,* use of non-target like base forms, use of pluperfect and lexical variation of verbs. At the discourse level, the capacity to mark temporal moves between events was found to be a decisive variable, which helped to discriminate learners according to proficiency level, and also to distinguish native from non-native speakers. Furthermore, the less advanced learners relied more on the interlocutor's time anchoring and rarely supplied answers containing past forms to imperfective questions, whereas an opposite behavior was observed for the most advanced learners.

Turning our attention to the analysis of Spanish L2 data, **Slabakova and Montrul** (Chapter 12) offer an analysis from the perspective of the Minimalist Program. To accomplish their goal, they analyze the interpretations (linguistic intuitions) of L1 English speaking learners about sentences in Spanish in which verbal predicates validate the semantic entailments associated with either Preterite or Imperfect. Their study was based on data collected among 20 intermediate and

20 advanced English-speaking learners of Spanish, and there was a control group of 20 native speakers. All participants completed a fill-in-the-blanks morphology test and a sentence interpretation task which tested the Preterite/Imperfect contrast with states, accomplishments and achievement verbs. Their analysis of the results indicates that intermediate learners control the morphology but have difficulty discriminating the bounded versus unbounded readings of Preterite and Imperfect in Spanish, especially with states. Interestingly, Slabakova and Montrul's analysis does not clearly indicate that the semantic aspectual contrast for past tense is necessarily represented among telic events earlier than a similar contrast for stative predicates. The latter, as we have seen above, is one of the major tenets of the Aspect Hypothesis. They acknowledge, however, that their results may also be interpreted as "an artifact of the proficiency groups selected in (their) study." In Chapter 13 **Salaberry** expands the analysis of Spanish L2 data among university students from the perspective of general cognitive processes. His chapter provides an expansion of his 1999 study in which he claimed that the effect of lexical aspect may not be as prevalent during the beginning stages of development of Spanish Past tense inflectional morphology as it is during more advanced levels of L2 proficiency. The analysis is based on data from a written cloze test (four different passages) administered to 49 L1 English speakers enrolled in intermediate and advanced college courses of Spanish (a group of 32 monolingual native Spanish speakers acted as a control group). The analysis of the data shows that the lexical aspectual semantics of the verb phrase does not appear to have as strong an effect on the selection of verbal endings among intermediate learners as it does among more advanced learners. Salaberry claims that it is possible that an even stronger effect of a single marker of past tense (i.e., default tense marker) may be detected in earlier stages of development, especially with open-ended tasks in which speakers are given the option of selecting any tense (e.g., past versus present).

Finally, Chapters 14 and 15 analyze data from non-European languages. In Chapter 14 **Duff and Li** focus on the perfective aspect marker -*le* in Mandarin Chinese. Duff and Li administered three tasks (the pear story narrative, a personal narrative and a written editing task with an accompanying introspective think-aloud task) to nine English-speaking learners of Chinese and nine native speakers of Chinese. Their analysis of the data revealed that L2 learners tend to undersupply the perfective marker -*le* in oral narratives compared to similar data gathered among native speakers. In contrast, they both under and oversupply -*le* in the editing task in which they have to determine whether verbal contexts require -*le* or not. Duff and Li argue that the learning of -*le* by L2 learners is influenced by various factors, including inherent aspect, instructional variables, and L1 transfer. Finally, Chapter 15 by **Shirai** focuses on the effect of prototypes for the development of L2 tense-aspectual distinctions. As mentioned above, the aspect hypothesis is often

associated with four predictions concerning form-meaning association (Shirai 1991; Andersen and Shirai 1996). Shirai, however, argues that this is only one part of the larger picture: The learners' form-meaning association starts out from proto-types of which inherent aspect is just one. Hence, Shirai focuses on another one of the many prototypical features associated with past and progressive/durative forms: habituality. Shirai shows that habituality interacts with inherent aspect in terms of past tense marking *(-ta)* and durative aspect marking *(-te i-)*. In particular, his data reveal that L2 learners had more difficulty producing past durative form *-te i-ta* in the context of non-activity verbs, which suggests that learners are still restricted to the prototype of the durative form (i.e. activity verbs). To account for this and other findings, he proposed the application of the spreading activation model of speech production (e.g. Gasser 1988).

Expanding the framework of analysis

The comprehensive picture of the development of tense-aspect phenomena in L2 acquisition in various languages presented in this volume significantly advances our understanding of this phenomenon, and will, hopefully, serve as an important basis for future research. Nonetheless, we should note that some important per-spectives are not represented here. For example, the effect of second language instruction on the development of tense-aspect phenomena was not explicitly addressed in any of the chapters of this volume. Here, we attempt to discuss some possible future directions in this area in relation to the issue of explanations of the observed phenomena pointed out in this volume. Based on the research available to date, a preliminary generalization that we could, arguably, use as a point of depar-ture is a weaker version of the aspect hypothesis: learners follow the prediction of the hypothesis, but can deviate from the predicted pattern under certain condi-tions. Following this line of thought, we can further claim that this generalization as well as deviations from it can be accounted for as a result of various interacting factors, consisting of learner internal factors and learner external factors (Shirai 2000; Rohde, Chapter 7). Learner internal factors may include (1) universal (and possibly innate) predisposition by learners to mark some salient grammaticizable notions (Bickerton 1981; Slobin 1985; Slabakova 2001), (2) L1 influence, and (3) individual learner characteristics. Learner external factors include (1) input/ inter-action, and (2) instructional effects. Depending on the weight and interaction of these factors, learners may exhibit particular patterns of form-meaning mapping that may differ from the predicted patterns as some chapters in this volume show. Future research on L2 tense-aspect morphology needs to investigate how and in what way these various factors contribute to the acquisition patterns observed.

With reference to academic instruction in particular — an important component of learner external factors — how important can pedagogical intervention be in the development of tense-aspect morphology? Looking beyond the confines of this volume, we find two recent studies on Japanese L2 (though exploratory due to their small N-size) that suggest the possibility that learner external factors, including instructional factors, may have a robust effect on the pattern of tense-aspect acquisition. Previous research on Japanese imperfective marker *-te i-* has consistently showed that its progressive meaning is easier than its resultative meaning (Shirai & Kurono 1998; Li & Shirai 2000, Ch.6). These studies suggest a strong effect of learner internal factors, whether it is L1 transfer or universal predispositions. Two more recent studies, however, present contradictory findings. Sugaya (2001) showed that an untutored L1 Russian learner acquired both meanings simultaneously, which she attributed to the input-rich environment resulting in item-based rote learning of the resultative use of *-te i-*. Furthermore, Ishida (2001) showed that for six university intermediate learners of Japanese (L1=English), the resultative use of *-te i-* was more accurate than the progressive use, which may be attributed to the presentation order of the textbook (i.e. resultative meaning is introduced before progressive meaning). These two studies indicate that learner external factors may play a larger role in the acquisitional patterns observed than was previously thought (see Shirai, in press).

Apart from uncovering the effects of academic instruction on the development of tense-aspect phenomena, we may also want to understand how the process can be manipulated on purpose so that we can affect the route or speed of the developmental process. For instance, Bardovi-Harlig (1995) noticed that, in most academic instruction settings, L2 learners have difficulty in acquiring less prototypical meanings of tense-aspect markers (e.g., ESL learners tend to struggle to past mark atelic verbs). In her study she reported on the beneficial effect of an input-enhancement experiment where learners go through tasks in which they pay attention to atelic past tense forms. Shirai (1997) also discusses the possibility of teaching more marked items first (along the line of the projection model by Zobl 1985): If the learners are exposed to less prototypical meanings first (e.g. activity + past marking, or futurate meaning of the progressive marking) it might have a positive effect on the acquisition of prototypical meaning (i.e., past + achievement verb, or action-in-progress meaning of the progressive marking). Clearly, this is an area where much research is needed, including teaching experiments controlling for the order and ratio of the presentation of the marked vs. unmarked items within the same linguistics domain (cf. Mitchell 2001).

We should also note that there may be unwanted effects of instruction as well. For example, the study from Leeman, Arteagoitia, Fridman, and Doughty (1995) reveals the effect of pedagogical manipulations on the overgeneralization of the

Spanish Imperfect beyond prototypical marking. In their study, initially, the Imperfect is used with a limited number of verbs (e.g., to be, to have, to want), but the use of the Imperfect eventually — after focused instruction — is overgeneralized, appearing consistently in obligatory contexts, but also in contexts requiring the Preterite. The role of the discourse notion of grounding (Bardovi-Harlig 1998) is another important dimension that needs to be taken into account in considering the effect of instruction. Blyth (1997) argues that non-native speakers must learn to pay attention to foreground/background contrasts in narratives. Pedagogically speaking, he argues that first person narratives, more so than traditional cloze-type tests, give learners the opportunity to bypass the tendency to follow the Aspect Hypothesis. In other words, first person narratives may be more likely than fictional narratives to generate departures from a strictly linear presentation of the main events that form the backbone of the story and give rise to a more textured narrative. Finally, one cannot help but notice that one of the factors that appears to be highly relevant for any analysis of academic instruction is the type of discourse that learners have access to in a classroom environment. Unfortunately, given the complexity of this phenomenon, few studies have provided a thorough investigation of such a ponderous factor. For a summary of a limited number of studies that have included an analysis of teacher input and the sequence of textbook presentation of Spanish and French perfective and imperfective morphology see Chapter 4 in Salaberry (2000). The investigation of teacher input, and its comparison with naturalistic input, is an important area that needs further investigation given the constrasting findings by Andersen's (1991) natural learners and Salaberry's (1999) classroom learners.

Among previous large-scale studies of the development of temporality markers in second language acquisition, Dietrich, Klein and Noyau (1995) purposefully avoided the analysis of data from learners who had access to academic instruction. We believe, however, that the investigation of the effect of instruction is not beyond the scope of research on the development of tense-aspect phenomena. In this volume, while no study directly analyzed the type of data available to academic learners (as opposed to non-academic data), several chapters incorporated the analysis of data from instructed learners (e.g., Chapters 12 to 15). In sum, we believe that only by incorporating the analysis of all possible factors that may have an effect on tense-aspect phenomena, we should be able to understand the mechanism of second language acquisition of tense aspect morphology.

Conclusion

The analysis of the development of tense-aspect phenomena is a fertile area of research that will continue to evolve and grow in future years. The present volume while comprehensive enough by the standards of what is available at the present time will, hopefully, become outdated soon. We believe that even though we are still scratching the surface of an enormous database of information, the present volume will be the harbinger of future projects in which researchers from different fields, with diverging theoretical perspectives, with various language-specific interests and a multitude of methodological approaches, will be able to amass an even larger database in which all the different pieces will be increasingly compatible with each other. We also hope that, eventually, such large and compatible database will provide us with the tools to undertake the overall enterprise of understanding how second languages are learned in more detail that we have access to at the present time.

Notes

1. Some authors classify what is called *aktionsart* along with lexical aspect. This is controversial given that *aktionsart* may be defined by the use of morphosyntactic markers that confound the distinction between lexical aspect and grammatical aspect.

2. Mourelatos (1981: 195) mentions another good example which he obtained from a live TV broadcast: "I can't wait to see what he's been doing (activity) when he's done it (accomplishment)"

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The first language acquisition of tense and aspect: A review

Richard M. Weist

1.   The review domain and organization

This is a review of the recent research concerning the first language acquisition of tense and aspect. The early work on this topic was reviewed in the 1980s by Andersen (1989), Harner (1982), Weist (1986 & 1989), and others. There are also a number of in depth studies of tense and/or aspect pertaining to specific languages such as Aksu-Koç (1988) on Turkish, Behrens (1993) on German, Li (1990) on Mandarin, and Shirai (1991) on English. Many of the chapters within the series, *The Crosslinguistic Study of Language Acquisition*, contain a brief discussion of tense and aspect, e.g., Clancy (1985) on Japanese, and Smoczyńska (1985) on Polish. A few monographs have been published which are particularly relevant to the problem, e.g., Marcus, Pinker, Ullman, Hollander, Rosen, & Xu (1992) and Tomasello (1992). The most recent collection of papers on the topic can be found in a special issue of the journal, *First Language* (1998, Vol. 18, Part 3).

There are a number of reasons why the investigation of the first language acquisition of tense and aspect is interesting: (1) it shows how the early phase of temporal reference is acquired, (2) it is relevant to the question of how morphological information is processed, (3) it reveals elements of the emergence of verb-argument structure, (4) it provides insights into the child's tacit knowledge of syntactic structure, and (5) it has comparative value for research on second language acquisition and non-typical first language acquisition. In their effort to understand the acquisition process, scientists have approached the problem from very different theoretical perspectives. The study of the acquisition of tense-aspect morphology involves a study of syntax as well as morphology. Therefore, a review of the research on tense and aspect provides an opportunity to evaluate some of the most widely known theories of language acquisition.

There are a variety of potential approaches to a review of the research and theory on this topic. It is possible to partition the research by methodological

paradigms, e.g., naturalistic observation versus experimental data, or by theoretical framework, e.g., information processing theory versus the Principles and Parameters (P&P) model. In this review, I will use the nature of the evidence for the emergence of tense and aspect morphology as the fundamental organizing principle. I will start with the research that demonstrates the least that children might know about tense and aspect and progress toward the research that shows the greatest competence. Hence, the background structure of the review will tend to be chronological. However, it is not feasible to strictly maintain such an outline as some issues require a broad scope. I will occasionally feature a language and/or theory that has had a pivotal role in a particular argument. When I do so, I will provide a minimal sketch of the verb morphology and/or basic assumptions.

When the investigation of language acquisition was disproportionately influenced by research on English, a relatively analytic language, some thought that children began the acquisition process with bare stems. Tomasello (1992) has shown that this claim is not even true for English where some verbs enter the child's lexicon as frozen inflected form. In highly inflected languages such as Finnish or Polish, where bare stems are not part of their experience (except for some "baby-talk"), children begin with inflected forms (see Smoczyńska 1985). The major problem is to determine when these forms are productive. There is no definitive answer to this question. Brown and his colleagues (1973) evaluated the percent correct usage in obligatory context. Alternatively, productivity can be measured by scope and/or contrast, i.e., the number of different verbs (i.e., types) which occur with the same functional morpheme, and/or the number of different functional morphemes found with the same verb (e.g., Mueller-Gathercole, Sebastian, & Soto 1999). It has also been suggested that over-regularization indicates a child has acquired a morphological rule which is creatively applied (e.g., Marcus, et al. 1992). All of these are legitimate ways of measuring the acquisition process, and they have their strengths and weaknesses, e.g., over-regularization may be relevant in a study of English past tense, but it is not very useful when there is extreme regularity as in the case of Polish past tense. While decision rules have been established for practical reasons, e.g., to discuss the order of acquisition, we can only be more or less confident that a morphological concept has been acquired. Experimental research adds another dimension since, under controlled conditions, it is possible to present children with minimal morphological contrasts that have been selected by the experimenter rather than encountered by chance in the caregiver-child dialogue. When comparing children within a language, such measures as MLU are useful, and we are reminded of the potential for individual differences (see Brown 1973, Figure 1, p. 55, and Pizzuto & Caselli 1992, Figure 6, p. 543). In the future, cross-linguistic comparisons would be improved, if everyone measured productivity in a

similar way. Given the current state of the art, I will rely on age for the numerous cross-linguistic comparisons that are included in this review.

2.   The concepts of tense and aspect

In spite of the fact that tense and aspect are very basic linguistic concepts, there has been and continues to be significant variability in the way in which these notions are conceptualized. I will begin with a set of definitions that should help to clarify this review. Five concepts are quite salient: (1) deictic tense, (2) relative tense, (3) viewpoint aspect, (4) lexical aspect (i.e., Aktionsart), and (5) modality. Some of the controversy on this topic occurs because researchers fail to make a clear distinction between relative tense and viewpoint aspect and between viewpoint aspect and lexical aspect.

1.   Absolute tense specifies a relationship between speech time (ST) and event time (ET) where ET prior to ST defines past, ET simultaneous with ST indicates present, and ET subsequent to ST specifies future (see Comrie 1985: 122–123). In other words, for absolute tense, the deictic center is the time of the speech act. I will refer to this kind of tense as deictic tense as contrasted with relative tense.

2.   Relative tense specifies a relationship between ET and reference time (RT), and absolute — relative tenses contain an additional relationship to ST, e.g., past perfect (i.e., pluperfect) establishes the relationship ET prior to RT prior to ST (Comrie 1985: 124 -128). Present perfect also includes the ET prior to RT relation, and it is not equivalent to perfective aspect (cf. Radford 1990).

3.   According to Smith (1991: 3–8), grammatical aspect (or viewpoint aspect) refers to "the presentation of events through grammaticized viewpoints" where perfective viewpoints "focus on the situation as a whole, with initial and final points", imperfective viewpoints, "focus on part of a situation, including neither initial nor final point", and neutral viewpoints are, "flexible, including the initial point of a situation and at least one internal stage (where applicable)" (see Dahl 1985, for a related definition and/or Klein 1995: 688, for a somewhat different perspective).

4.   According to VanVallin and LaPolla (1997: 92 & 102), Aktionsart (or lexical aspect) refers to "the inherent temporal properties of verbs", and there is a particular set of properties which combine to shape the following Vendler-like categories: (1) States are static, (2) Activities are dynamic and atelic, (3) Accomplishments are dynamic, telic, and durative, and (4) Achievements are dynamic, telic, and punctual (see also Dowty 1979 and Smith 1991). I will return to a more complete explanation of lexical representations in Section 5.

5.   While this is not formally a review of the research on modality, it is not possible to omit the concept of modality from the discussion. According to Bybee (1985: 165) epistemic modality refers to, "… the degree of commitment the speaker has to the truth of the proposition, ranging from certainty to possibility", and deontic modality refers to, "conditions on the agent with regard to the main predication", e.g., permission and obligation. The first language acquisition literature relating to modality was reviewed by Stephany (1985). The concept of modality is particularly relevant to the issues discussed in Section 3.2 and Section 4.

3.   Grammatical morphology is absent

3.1   The Verb Island Hypothesis

Concerning the acquisition of tense-aspect morphology, what is the starting point for the child? How is the child's mind initially organized for language processing? Regarding verb morphology, what does the child's language look like, and what kind of inferences can be drawn regarding mental structures/operations? In her introduction to the development of language, Berko-Gleason (1997: 4) had this to say about the morpho-syntactic structure of the stage of two-word-combinations: "At this stage, children are expressing these basic meanings [actor, object, verb, etc.] but they cannot use the language forms that indicate number, gender, and tense" [RMW]. This claim is representative of the argument that in an early phase of acquisition, children don't appear to know anything about grammatical morphology including tense and aspect. I will begin with a consideration of two investigations that made this minimal claim about the child's knowledge.

Tomasello (1992: 238) analyzed the emergence of the initial verb system of his daughter (T) during the period from about 1;4 to 2;0. Tomasello proposed the Verb Island Hypothesis to explain the acquisition process during this early period. According to this hypothesis, "grammaticalization derives … from T's learning about the combinatorial possibilities, and the marking of these, for each verb individually". Tomasello's daughter used about 150 verb types. Two thirds of those verbs were uninflected. Twenty four of the verbs were in the simple past tense form (i.e., -*ed*), and 23 of the verbs were in the present participle form (i.e., -*ing*). Only 4 of the 150 verbs contained a contrast in the grammatical morphology. While Tomasello used categories such as "change of state" and "activity" in his presentation of the data, he argued that none of these categories had any grammatical reality for T. In short, in her language production, T did not demonstrate any tacit knowledge of tense, aspect, or even Aktionsart. In spite of this apparent absence of tense and aspect, T appears to be relatively communicatively competent. It is quite

clear that the verbs that she used were meaningful. T used the verb *make* in statements and requests to mean to bring something into existence, e.g., *make doll* and *M make a bubble*. She used the verb *give* in the exchange of possession, e.g., *give-it pencil* and *give it to me*. She used the verb form *walking* to describe an action, e.g., *walking here funny* and *Fred walking pillow*. Actors were often in the pre-verbal position but not always, e.g., *Wally crying* versus *Crying Mommy*, and objects were usually in the post verbal position, but not always, e.g., *got-it Weezer* versus *Ring got-it*. Actors were usually animate and objects inanimate. At this early stage of development, there had been significant development in the semantic component of the verb system. It is clear that the meaning of the individual verbs was relatively distinct, and in general, the verbs had a predicating function. As T approached 2;0, it appears that there are differences in the predicate-argument structure of her verb system, e.g., verbs seem to have different valences. *To sing* and *to swim* have a valence of one, e.g., *Grover singing* and *Hippo swimming*, and *to hold* and *to wash* have a valence of two, e.g., *I hold it* and *Wash the car*. While the actor or the object might be placed in the pre-verbal position, e.g., *Ladies clapping*, versus *Cherries fell down*, this was not consistent, and there was no grammatical control, e.g., agreement in number. Tomasello noted that the case grammar analysis proposed by Bowerman (1973) would adequately account for T's grammatical structure. In summary, Tomasello argued that language acquisition initially involves a word-by-word learning process with no evidence of productive inflections. Furthermore, "the mental operations involved in this process are the same as those used in other domains of creative cognitive activity…" (p. 226), e.g., combinatorial operations which, "Piaget (1952) describes as characteristic of the sixth stage of sensory-motor development…" (p. 227). Lieven, Pine, and Baldwin (1997: 187) presented a related argument that "a lexically-based position analysis can account for the structure of a considerable proportion of children's early multiword corpora".

3.2   The modal hypothesis

Like Tomasello, Ingram and Thompson (1996) argue that young children demonstrate very little knowledge of verb inflections in the early stage of acquisition. Ingram and Thompson analyzed the data from four children who were learning German. The children were in the age range of 2;0 plus or minus about 5 months (e.g., Andreas was 2;1). According to Ingram and Thompson, "verbs are being acquired one at a time" (p. 111), and "inflected verbs are initially single morphemes" (p. 101). Hence, the German data appear to support the Verb Island Hypothesis. Their motivation for the argument was based on the apparent absence of contrasting grammatical morphology (cf. Poeppel & Wexler 1993 and Section 4.2). When considering the data from all four children, they found that 85% of

the verbs occurred in either a finite or a non-finite form. Overall, only four verbs, *kommen*, *gehen*, *machen*, and *haben*, had more than one finite form, e.g., first versus third person. Ingram and Thompson argued that, "infinitives are semantically associated with modality as part of their lexical meaning" (p. 101). In other words, when the children used an infinitive form in a clause, it was very likely (i.e., 79% of the time) to be used in a modal context. Finite forms were seldom found in such a modal context (i.e., 13% of the time). As a potential reason for the difference, they offer the fact that children hear finite verb forms in the context of ongoing action, and they hear infinitive forms in modal contexts, e.g., adult: *Was will der? Mit (de)m Auto fahren*? 'What does he want? To drive the car?, Andreas: *Ja*. 'Yes', Adult: *Ich glaub(e) der will mit dem Auto fahren, wohl?* 'I think he wants to drive the car, right?, Andreas: *Auto fahren Nikolaus*. 'Nikolaus (wants) to drive the car'. Following Ingram and Thompson's argument, *fahren* is a single lexical entity which has a complex meaning something like, 'to go by vehicle' (the lexical component) plus 'desire to do so' (the modal component). Like Tomasello, they describe the initial stages of language acquisition as word-by-word learning process with no evidence for productive inflectional morphology.

4.   Finite versus non-finite verbs

4.1   Principles and parameters

The arguments that will be encountered in this section of the review require a basic understanding of the Principles and Parameters (P&P) framework. The reader who is familiar with this background information may wish to advance to Section 4.2. In this chapter, I will only present the concepts of a principle and a parameter with a focus on X-bar structure, and I refer the reader to a chapter by Meisel (1995) and a book by Radford (1997). According to Radford's (1997: 523) definition, "Principles describe potentially universal properties of grammatical operations or structures". Principles are the basic components of "Universal Grammar" (UG). They are viewed as genetically programmed, and therefore, they are universally applicable. As products of the genetic code, principles become operational with little or no linguistic experience. By definition a parameter is, "a dimension of grammatical variation between different languages…" (Radford 1997: 520). The set of variations that is defined by a parameter is limited. According to the argument, parameter values are specified by an experiential process referred to as triggering. Triggering involves a choice between genetically defined alternatives.

Within the P&P framework, one of the basic principles of UG is called X-bar (or X') theory. X-bar theory defines the hypothetical building blocks of phrase structure.

Within this framework, the basic unit of phrase structure contains a hierarchical configuration of elements. Phrasal categories, such as a verb phrase (VP) or a noun phrase (NP), have two components; a specifier and an intermediate level category generally referred to as X-bar. This intermediate level category introduces the head of a phrase and a potential complement. The head of the phrase such as a verb or a noun determines the properties of the phrase. A transitive sentence, for example, would be conceived of as having a verb (i.e., the head of the VP) and a noun phrase complement that are dominated by an X-bar category, and that X-bar category is dominated by the phrasal category VP. According to the theory, the syntactic structure for the entire sentence includes higher level X-bar configurations representing functional categories such as inflection phrase (or INFL or IP) and complementizer phrase (or COMP or CP). The inflection phrase may be further broken down (or "split") into a tense phrase and an agreement phrase.

One of the parameters that is associated closely with the X-bar structure is called the head direction parameter. Some languages, e.g., English, are "head-initial" languages having a canonical SVO word order, and other languages, e.g., Japanese, are "head-final" languages having a canonical SOV word order. According to the P&P argument, the choice is triggered during sentence processing. Meisel (1995) has reviewed a number of the issues that have arisen regarding the P&P model. These issues include the following: (1) Do parameters have a default value?, (2) What specific features of the language data serve as triggers?, (3) Why don't triggers operate immediately in the child's experience?, and (4) Can parameters be reset?

As far as this review is concerned, one needs to know that the P&P framework offers a well-defined theory of syntactic structure. The morphology of tense and aspect is acquired in a context that includes syntactic structure. In their search for evidence to support the P&P theory, investigators have looked at a relatively large body of child language data from a variety of languages. More specifically, their interest in the functional category INFL has garnished considerable data on tense morphology.

4.2 Finite/non-finite verb position in German

A verb form that is inflected for tense/agreement is said to be finite as contrasted to non-finite. The finite/non-finite distinction is found during the initial phase of the acquisition of tense/aspect morphology. The research pertaining to the emergence of this distinction has been extensive. Most of that work has involved German, Dutch, and French. The prototypical inquiry has assumed the P&P framework in a search for evidence that implicates functional categories such as INFLection and COMPlementizer (see Hoekstra & Hyams 1998 for a recent review). Whenever it is possible, I will endeavor to restrict my remarks to the

components of this research that pertains to an explanation of the acquisition of the temporal reference.

In my review, I will feature the research on German, and therefore, a few remarks about morpho-syntactic structure will be useful (see also Mills 1985). Regarding verb placement, only one constituent can precede the finite verb in the main clause (i.e., the finite verb has the V2 position), but in the subordinate clause, the finite verb is in the final position. Complex tenses include the finite form of an auxiliary verb in V2 position and a non-finite form of the main verb in the final position. Regarding the verb morphology, finite forms are inflected for person/number agreement and for tense. Perfekt (i.e., present perfect) is the most frequent past form for the main verb, and the meaning of Perfekt depends on Aktionsart as follows: (1) telic verbs, e.g., *to die*, have the meaning completed (i.e., a perfective aspectual value), (2) atelic plus durative verbs, e.g., *to play*, are simply located at a past RT, and (3) atelic plus punctual verbs, e.g., *to cough*, have an immediate past meaning (Behrens 1993, p. 16 & 17). Perfekt is formed with the present tense form of the auxiliaries *haben*, 'to have' or *sein*, 'to be', and the past participle. The formation of the past participle can include up to three of the following changes: (1) the prefix/infix *ge-*, (2) a stem vowel change, and (3) a suffix *-en/-t*. Present tense has a non-past meaning that varies with Aktionsart, and telic verbs are likely to have future meaning. Present forms are inflected for person and number as follows: (1) singular, (a) 1st-*e*, (b) 2nd-*st*, and (c) 3rd-*t*, and (2) plural, (a) 1st-*en*, (b) 2nd-*t*, and (c) 3rd-*en*. The suffix *-e(n)* is added to the stem to produce the infinitive. Modal constructions contain a finite modal verb, e.g., *wollen* 'to want', and an infinitive.

In her extensive analysis of seven children learning German, Behrens (1993) identified the following three phases of acquisition: (1) non-finite, (2) finite, and (3) complex tense. During the non-finite phase, infinitives (-e (n)) and stems (-Ø) were the most common forms, and according to Behrens, "there is no evidence for productive inflection as defined by morphological contrast" (p. 110). During the finite stage, present tense forms were found with agreement variations, modal verbs and copulas emerged immediately in their finite forms (i.e., present and preterite), and the initial Perfekt constructions were produced with the past participle and without the auxiliary. The auxiliary system was established in the complex tense phase with Perfekt tense preceding past perfect and the future tenses with *werden*. According to Behrens's estimation, the age of the emergence of the three phases for three of the children in her study were as follows: (1) Miller's Simone entered the finite phase at 1;10 and the complex tense phase at 2;1, and (2) Clahsen's Julia entered the finite phase at 2;4 and Clahsen's Daniel entered the complex tense phase at 2;11. The acquisition process was most accurately described as a "gradual application of new features rather than a global restructuring" (p. 110). During the acquisition of German, non-target non-finite forms co-exist with target-like finite forms, and the

form-function mapping overlaps, e.g., both infinitives and present tense forms were used to make comments as well as to express intentions. The overall acquisition pattern that Behrens found in the German data provides a useful context for the evaluation of the theoretical claims found in the remainder of Section 4.

Regarding the interaction of the finite/non-finite distinction and word order, German children tend to position finite verb forms in the verb-second position and non-finite verbs in the clause final position (e.g., Clahsen & Penke 1992; Meisel & Muller 1992; and Verrips & Weissenborn 1992). Behrens and others have pointed out that it is common for children such as Simone to use the infinitive in volitional utterances, e.g., Sentences 1 & 2. For these utterances, it can be argued that some form of *wollen* is absent (i.e., the modal hypothesis). According to Clahsen and Penke (1992: 193–197), second and third person agreement morphology was productive for Simone when she was about 2;4 as shown in Sentences 3 through 6. Simone demonstrates that she has learned something about word order as she put the finite verbs in the verb-second position. However, Simone (like other children learning German and Dutch) used infinitives (i.e., so called root infinitives (RI)) in utterances that would require a finite form in the target language, e.g., Sentences 7 & 8 would be 3rd singular. Furthermore, Simone put this non-finite verb form (or RI) at the end of the clause, i.e., in the correct position for a non-finite form.

According to Behrens, when Simone produced Sentence 7 at 1;11, she was in the finite stage, and when Simone produced Sentence 8, she was in the complex tense phase. These sentences are prototypical of Wexler's "optional infinitive stage" which is discussed in the next Section.

(1) Simone (1;10):
   Saft (ich will) habe.
   'Juice (I want to) have:INF.'

(2) Simone (2;1):
   Mone auch Puppa habe.
   'Simone also doll (wants to) have:INF.'

(3) Simone (2;1):
   Da haste auch noch welche.
   'There have:2SG too some more.'

(4) Simone (2;4):
   Du kriegst auch'n Ball.
   'You get:2SG   too a ball.'

(5) Simone (1;11):
   Fliegt Schmetterling.
   'Fly:3SG butterfly.'

(6)   Simone (2;1)
      Fisch kriegt was.
      'Fish get:3sG something.'

(7)   Simone (1;11):
      *Mone auch Lump ausziehn.
      'Simone too rag take off:INF.'

(8)   Simone (2;7):
      *Mon noch mehr Wasser holen.
      'Simone some more water fetch:INF.'

4.3   The optional infinitive stage

According to Wexler (1994: 318), finite verb forms emerge during a period that he referred to as the optional infinitive stage. During this early stage of language acquisition, children know that "head movement is forced in the finite case", and "infinitival verbs do not move". However, they do not know that, "non-finite verbs cannot appear as main verbs". Wexler argued that the child's linguistic system contains the full complement of functional categories including INFL and COMP, and they know the associated morpho-syntactic processes. According to Wexler (1994: 338 & 339), "the optional infinitive stage, is derived from the assumption that the child does not distinguish tense values, does not understand tense", and furthermore, "the optional infinitive stage will only go away once past tense has developed". To support this argument, Wexler presented data from a number of different languages including German. Poeppel and Wexler (1993) studied one transcript of Andreas (2;1), one of the children included in the Ingram and Thompson's (1996) study. Given a set of 251 sentences with 3 or more words, they found that 95 % of the utterances with finite verbs had the verb in the second (and non-final) position, e.g., *Ich hab ein dossen Ball*, 'I have a big ball', and 86 % of the utterances with infinitives had the verb in the final (and non-second) position, e.g., *Du das haben*, 'you that have'. They point out that Andreas produced 33 different finite verbs in second (and non- final) position and 26 different non-finite verbs in the final (and non-second) position. Since eight verbs occurred in both sets, there was a total of 51 types, and of these verbs, 28 occurred more than once creating the possibility of placement in second or final position. The eight verbs with contrasting inflectional morphology (i.e., almost one third of the set) were always in second position when they were finite and always in final position when non-finite. This distribution of finite and non-finite forms was presented in support of the optional infinitive stage. Poeppel and Wexler accept a very weak definition of finite. For them, children can be said to have the concept of finite if they have verbs with a

finite / non-finite contrast. According to Ingram and Thompson, Andreas had multiple finite forms for only one verb, i.e., *haben*. Hence, there was practically no evidence that Andreas included the concepts of agreement and/or tense in his grammar. A typical definition of finite involves agreement and/or tense (see Meisel 1994 and Section 4.4).

4.4   Some facts about root infinitives (RI)

Wexler's optional infinitive stage is derived from the principles of Universal Grammar, and as such, it should be applicable cross-linguistically. However, Sano and Hyams (1994) found that the frequency of root infinitives varies considerably cross-linguistically. Considering data from Hoekstra and Hyams (1998: Table 4), the average values range from about 7 % for nine Italian-learning children to 33 % for three Dutch-learning children to 78 % for three English-learning children. In Polish, it is difficult to find any evidence for an infinitive that qualifies as a root infinitive (Bar-Shalom & Snyder 1998). Secondly, in his study of four Dutch children (about 2;0 to 3;0), Wijnen (1998) found that 93 % of the non-finite verbs were "eventive" verbs (i.e., dynamic versus stative). He also observed that 83 % of the utterances containing potential RIs received a future/modal interpretation. More specifically, Hoekstra and Hyams point out that RIs express desiderative modality, e.g., *Thorstn Ball haben*, means 'Thorsten wants to have a ball'. Thirdly, Behrens (1993) demonstrated quite clearly that RIs continue to be found in the complex tense phase of the acquisition of German, e.g., from Simone (2;4) the following: (1) *nich kaputtmache mama*, 'don't break-ɪɴꜰ (it), mommy!', (2) *ich mach das*, 'I'll do-1:s it', and (3) *ich macht hab*, 'I made-ᴘᴘ have-1:s'. In summary, children learning some languages produce non-fluent utterances with a naked non-finite form, i.e., an infinitive or a participle. The constructions with a naked infinitive are often (but not always) modal, and appear to be part of a complex construction of the form, 'I want' + dynamic verb. The constructions with naked participles also appear to be part of a more complex form such as the German Perfekt or the English progressive. As children learn the target complex constructions, naked non-finite forms gradually disappear.

Polish children produce naked infinitives in desiderative constructions of the form, *chcę* '(I) want' plus infinitive (see Weist, et. al. 1984 and CHILDES). The meaning is often very clear from the context as the discourse Segments 9–11 from Bartosz (1;7–1;11) show.[1] In child Polish, it is difficult to find a naked infinitive construction that qualifies as a "root infinitive" because the children use the infinitive where the fluent speaker does. In Segment 9, it is clear from the linguistic and non-linguistic context that Bartosz means to say *chcę zejść*, but he omits *chcę*. The next two discourse segments demonstrate that Bartosz can produce the com-

plete verb structure. In Segment 10, the full form is prompted by his father's question, and in Segment 11, he uses the pronoun *ja* 'I' which is normally dropped in Polish. Bartosz uses the pronoun to make it clear that **he** will put on his pants, and not **we,** as his father has suggested.

(9) Mother: zejść chcesz?,
     'Do you want to get down?',
     Bartosz: zejś -ć, get+down:PFV:INF,
     '(I want) to get down.'
     Context: His mother takes him down from the horse.

(10) Mother: gorące to nie pij.
     'So don't drink (it) if (it's) hot.'
     Bartosz: pi -ć, drink:IPFV:INF,
     '(I want to) drink.'
     Father: pić chcesz?,
     'Do you want to drink?'
     Bartosz: chc -ę pi -ć, want:IPFV:NPAST-1SG drink:IPFV-INF,
     'I want to drink.'

(11) Father: chodź ubierzemy spodnie tak?,
     'Come we will put on your trousers right?'
     Bartosz: ja chc -ę ubra -ć spodni -e,
     I:NOM:SG want:IPFV:NPAST:1SG put+on:PFV:INF trousers:NVIR:ACC:PL,
     'I want to put on the trousers.'

Children learning Polish behave as if they do in fact know that non-finite verbs cannot appear as main verbs, and the optional infinitive stage is never initiated. This might be explained by the early emergence of tense morphology in Polish that implicates functional categories in the P&P framework. However, children learning German, who clearly demonstrate the symptoms of the optional infinitive stage, do not discontinue this behavior when tense is acquired, i.e., when the termination of the stage was predicted. For children learning many languages, e.g., Dutch, a semantic theory is needed to explain the use of non-finite verb forms in general. The required semantic concepts are not available within an autonomous syntax analysis.

4.5   Finiteness, agreement, and tense

In his study of three children learning German and French simultaneously, Meisel (1994) determined the relationship between the acquisition of agreement and tense morphology and the concept of finite. Prior to about 2;0, there was no evidence for

syntactic structure, and the children "oscillated" between the utterances which are characteristic of languages with head initial INFL (e.g., German) and head final INFL (e.g., French). The sequence in the acquisition of agreement and tense was the same for German and French. However, it was more difficult to determine the emergence of each milestone in French. The sequence was as follows for the children identified as C, Iv, and P (with ages reported for German): (1) 3rd singular {C 1;11, Iv 2;1, & P 2;9), (2) 1st/2nd singular {C 2;4, Iv 2;5, P 2;11}, (3) finiteness {C 2;2–2;4, Iv 2;4–2;5, & P 2;11–3;0}, and (4) tense, i.e., past versus non-past {C 2;8, Iv after 3;0, & P 3;3). Agreement was considered to be productive when there were two forms for the same verb, e.g., 3rd versus 2nd singular, and tense was viewed as productive when there was a past/non-past contrast, e.g., present versus Perfekt in German (cf. Behrens's complex phase). Two word order patterns were used to estimate the emergence of the finite feature, i.e., the V2 position in German and negative placement in both languages. The pattern above shows that the children demonstrated the verb second effect, and they placed *nicht* and/or *pas* after the verb when there is evidence for agreement. This means after 3rd singular was found and before tense contrasts are acquired. Thus, Meisel argues that the concept of finite is associated with agreement and not with tense. According to Meisel, early sentence structures are VP's, and functional categories emerge in a sequence. Agreement marking beyond 3rd singular indicates that IP is present in the child's grammar, but the child does "not yet possess a complementizer system" (p. 123). Meisel argues that, "The emergence of these categories and rules is an **autonomous** process, …thus does not rely crucially on the grammaticization of semantic-pragmatic principles" (p. 94).

4.6 Theoretical remarks/summary

The Full Complement Hypothesis (FCH) and the Verb Island Hypothesis (VIH) represent two radically different ideas about the status of linguistic knowledge that the child has as s/he begins to acquire tense/aspect morphology. Wexler (1994), Hyams (1996), and Verrips and Weissenborn (1992) propose that children begin the acquisition process with a full set of functional categories that includes INFL. These functional categories are organized within an X-bar configuration, and children know the principles of verb movement within this framework. The acquisition of tense/aspect morphology will be constrained by the assumed universal principles (see Section 6.1). Tomasello argued that "… children use a variety of verb island constructions correctly for an extended period of time prior to formulating any more general constructions", and "it is during the preschool years (ages 3 to 5) that children learning all types of languages clearly move beyond verb island constructions" (Tomasello & Brooks 1999: 180 & 172–173). However, Tomasello

admits that the VIH rapidly reaches an explanatory dead end as the following remarks demonstrate: "But at some point in the preschool years they begin to use adult-like constructions productively. … There is no precise model at this point for how they do this" (Tomasello & Brooks 1999). Wexler proposed a precise model, but it is not supported by the facts that: (1) there is no optional infinitive stage in some languages, e.g., Polish, (2) in languages where RI s are present, e.g., German, they do not disappear when tense is acquired, and (3) an autonomous syntactic theory has no explanation for the "eventiveness constraint". Meisel's argument falls between the extremes. First of all, Meisel recognizes a "post-syntactic" period of acquisition where verb island constraints might be observed. Unlike Tomasello, Meisel's ability to explain the acquisition process does not end in the post-syntactic period. Unlike Wexler, Meisel argues that the functional categories at the abstract level of X-bar structure emerge as the evidence for productive morphology emerges. Yet, Meisel imagines an autonomous syntax, and I will return to this idea in Section 10 after looking at some semantic evidence. There are explicit maturational arguments that have the potential to resolve the apparent conflict, which has been presented in the current section. I will present Radford's maturational proposal in Section 6.

5.   Lexical aspect

We have seen above in the German/Dutch research that the distribution of finite and non-finite clauses depends in part on lexical aspect (i.e., on the stative versus dynamic contrast). When we begin to consider the acquisition of viewpoint aspect and tense, we find that the acquisition pattern is also somehow influenced by the inherent semantic properties of verbs, i.e., Aktionsart. Thus, before considering the arguments concerning the emergence of viewpoint aspect, I will review two different theories concerning the nature of lexical aspect. Many of the investigators in this area, going back to Antinucci and Miller (1976), have noticed that the distinction between the notion of activity versus the notion of change-of-states is relevant in child language. While Tomasello (1992) claimed that children learn verbs as individual concepts without significant lexical categories, he also pointed out that 79 % of the change-of-states verbs had past tense forms versus 31 % of the activity verbs, and 69 % of the activity verbs had a progressive (i.e., present participle) form versus 21 % of the change-of-states verbs. I will consider two theories that try to capture this distinction and which are often cited in the literature.

5.1   Bloom et al.'s categories

Like Tomasello, Bloom, Lifter, and Hafitz (1980) argued that language acquisition is a "word-by-word" acquisition process, i.e., "children learn inflected forms as separate lexical items" (p. 408). Bloom and her colleagues proposed a semantic classification system that was designed to predict the combination of verbs and their "frozen" inflections. The guiding premise was that, "events themselves that are named by verbs have inherent aspectual meaning" (p. 405). The core of the classification was as follows: (1) "State verbs occur without movement" versus "Action verbs occur with movement" (p. 397), (2) Action verbs were either "durative/non-completive", "completive/non-durative", or "durative/completive", where completive means the presence of an "immediate and clear result" (p. 397 & 403), and (3) State verbs have the property "shared" or "non-shared" (i.e., private) (p. 404). This classification system lead, for example, to the following outcomes: (1) *to hide* and *to forget* are state verbs along with *to have* and *to want*, (2) *to find* and *to break* were either state or action verbs depending on "whether relevant movement accompanied the utterance", and (3) *to fall* and *to buy* were [completive and non-durative], and *to play* and *to ride* were [non-completive and durative]. Depending on the presence or absence of an immediate and clear result, the verbs, *to make*, *to take*, etc. were classified as either [completive and non-durative] or [non-completive and durative]. The following morphological combinations were the most frequent in their data: (1) *-ing* with durative/non-completive verbs, (2) *-ed* with non-durative/completive verbs, and (3) *-s* with durative/completive verbs. Bloom, et al. (1980) concluded that their results were, "consistent with the general principle of aspect before tense…" (p. 386). The fact that verbs like *do, make, go, come, eat, fix, jump, take,* etc. were found with both *-ing* and *-ed* was not seen as evidence for productive inflectional morphology. The summary of the data that was given did not reveal whether or not the individual children were producing inflectional contrasts, but a closer look at the data shows they were, e.g., at 2;1, Bloom's Peter said, "(I am) *making coffee Mama*" while pretending to do so, and in contrast, at 2;3, he said, "*I made this*" where a somewhat ambiguous result was available (see CHILDES, MacWhinney & Snow 1985). Some of the problems with this classification system were discussed elsewhere (Smith & Weist 1987). A recent application of the core elements of the Bloom classification system can be found in Behrend's research (e.g., Behrend 1995).

5.2   Vendler's categories

A number of investigators have utilized an alternative classification system in their investigation of child language (e.g., Rispoli 1995; Shirai & Andersen 1995; and

Weist, Wysocka, Witkowska-Stadnik, Buczowska, and Konieczna 1984). This way of thinking about lexical representations has its roots in the work of Vendler (1967), Dowty (1979), and Smith (1991). Four predicate structures are at the core of the representational system: (1) state, (2) activity, (3) accomplishment, and (4) achievement. State verbs are static in contrast to the other three types, which are dynamic. Within the dynamic set, activity verbs are atelic in contrast to accomplishments and achievements, which are telic. Verbs with the telic property have an inherent terminal point in their semantic representation. While precise definitions are sometimes absent in the child language literature, the default properties for activity verbs are dynamic and atelic, and for change-of-state verbs, these properties are dynamic and telic. Within a more refined analysis (e.g., Shirai 1991), the change-of-state verbs were further partitioned according to the presence or absence of the property *punctual* yielding the achievement/accomplishment distinction. There are at least three salient advantages to this type of classification in contrast to alternatives such as Bloom et al. (1980). First of all, the Vendler-like categories have broad cross-linguistic semantic and syntactic implications, and these implications can be utilized to formulate a set of classification tests (see Dowty 1979). State verbs are peculiar in clauses with the imperative mood, e.g., * *Want a cookie!/Forget what I said!.* Activity verbs take *for* as opposed to *in* temporal complements, e.g., * *She cried in an hour/She cried for an hour.* Tests such as these promote the classification of Aktionsart separately from viewpoint aspect and help to avoid a circular argument. Secondly, the telic/atelic contrast is particularly relevant to the acquisition of tense/aspect morphology, and it is not the same as the presence/absence of a clear result. Thirdly, it is possible to utilize Vendler's basic ideas to establish a theory of lexical representation (see Van Valin & La Polla 1997). When such a theory of lexical representation constitutes an integral part of a comprehensive theory of language, the theoretical framework provides some interesting insights into the acquisition process in general and not just the issue of tense and aspect in particular.

5.3   Lexical representation

VanValin and LaPolla ((V&P)1997: 109, Table 3.4) used lexical decomposition to create a set of lexical representations (see Table 1). The four Vendler-like categories are at the heart of the representational structure: (1) A simple predicate alone defines the logical structure of state verbs, i.e., **predicate'** (x) or (x,y), where bold face primed words are part of the metalanguage, e.g., **predicate'** (or **pred'**), (2) activity verbs are defined by the generalized activity predicate **do'**, i.e., **do'** (x, [**predicate'** (x) or (x,y)]), (3) accomplishments (acc.) contain the concept of change over time which is coded as BECOME, and (4) achievements (ach.) contain

Table 1. The basic lexical representations within role and reference grammar

1. state	**predicate**' (x) or (x,y)	*The toy is broken*	**broken**' (toy)
2. activity	**do**' (x, [**pred**' (x) or (x,y)])	*Eva is walking*	**do**' (Eva, [**walk**' (Eva)])
3. acc.	BECOME **pred**' (x) or (x.y)	*The toy broke*	BECOME **broken**' (toy)
4. ach.	INGR **pred**' (x) or (x,y)	*The balloon popped*	INGR **popped**' (balloon)
5. active acc.	do' (x,[pred' (x)]) & BECOME pred' (x)	*Adam drank a liter of vodka*	**do**' (Adam [**drink**' (Adam, vodka)])& [BECOME **consumed**' (vodka)]
6. causative	**do**' (x,Ø) & CAUSE & [logical structure of 1–4]	*Eva broke the toy*	[**do**' (Eva, Ø)] CAUSE [BECOME **broken**' (toy)]

the concept punctual change which is coded as INGR (from ingressive). A fifth category called "active accomplishment" is derived by combining the logical structure of the activity with the accomplishment. Active accomplishments are found with motion verbs, e.g., *Adam walked to work,* versus *Adam walked around,* and creation / consumption verbs, e.g., *She was drawing the flower,* versus *She was drawing flowers.* Causative verbs are derived with the combination of an unspecified activity representation, **do**' (x,Ø), the modifier CAUSE, and the logical structure of one of the four basic predicate types. Argument positions in logical structure define thematic relations. The single argument of an activity predicate might be EFFECTOR as in unspecified action '**do** (x, Ø)', e.g., *Eva* in the causative accomplishment *Eva broke the toy,* or MOVER for a motion verb, i.e., **do**' (x [**motion**' (x)]), e.g., *Adam* in *Adam is walking around.* When an AGENT interpretation is required, the logical structure contains the modifier DO as for example in the logical structure for murder, DO (x, [**do**' (x,Ø)] CAUSE [BECOME **dead**' (y)] The single argument of a state or change of states verb might be PATIENT for the condition in **predicate**' (x), e.g., *toy* in both *The toy is broken* and *The toy broke.* The second argument of the active accomplishment *drink* is CONSUMED. Thus, the most active and or the most passive role in the argument structure might have one of a variety of thematic relations (see Table 3.5, p.115 in V&P 1997). The value of an explicit set of lexical representations, which has a well-defined role in a general theory of language, will be discussed in Section 10.

5.4   Telic verbs versus resultative verbs in child Polish

As we will see in the next section, one of the most important semantic distinctions in the child's system of lexical representation is the telic versus atelic distinction. One major difference between Bloom's and Vendler's classification of lexical aspect

concerns the conceptualization of the general notion of a change-of-states. For Bloom (and more recently Behrend (1995)), one of the most critical contrasts is between the presence versus absence of a clear result, whereas, for Vendler (and more recently Rispoli (1995), the analogous contrast is between telic versus atelic. Comrie (1976: 45) defined the property telic as follows: "a process that leads up to a well-defined terminal point, beyond which the process cannot continue". Relating the lexical representations outlined in Section 5.3, predicates which have BE-COME or INGR in their logical structure have the property of telicity.[2] Our Polish data show the importance of telicity in the categorization of predicate-argument structure as contrasted with the presence versus absence of clear results. The following examples from Marta (1;10) reveal the difference between telic and result:

(12)   troszeczkę od-dar -ł-a -Ø
        little PFV-tear+off-PAST:F:3SG
        '(She) torn a bit off.'

(13)   za-bra -ł-a -Ø
        PFV-take+away-PAST:F:3SG
        '(She) has taken(it) away.'
        Mother: zabrała mamusia bo ty jesteś niegrzeczna.
        'Mommy has taken (it) away because you are naughty.'

(14)   nie do-jad-ł-a-ś drugi-ego
        not PFV-eat+up-PAST:F:2SG second-M:GEN:SG.
        'You haven't eaten up the second (one).'

(15)   gdzie uciek -ł -a -Ø?
        where run+away:PFV:PAST:F:3SG
        'Where did she run away?'

(16)   przewróc -i
        overturn:PFV:NPAST:3SG
        '(She) will overturn (it).'
        Mother: przewróci Martusia wózek?
        'Marta will overturn the pram?'

(17)   nie u-niesi -e
        not PFV-lift:NPAST:3SG
        '(She) will not lift (it) up.'

At 1;10, Marta produced Sentences 12–17. While the lexical representations for all of these verbs contain the feature telic, only some of them are associated with a clear result. Sentence 12 was uttered in a situation in which the result of tearing was present, and the verb is marked with the past tense -ł. Sentence 12 fits nicely into

Bloom's argument. In Sentence 13, it might be argued that the absence of candy fills the resultative condition. However, in Sentences 14 and 15, the verbs in the negation and the question are still telic and inflected for past tense, yet the result is clearly absent. Sentences 12–15 were chosen because the verbs were inflected for past tense, and past tense has been the focus of these arguments. Obviously, a theory of lexical representation must be equally applicable to the future tense. In Sentences 16, a clear result is anticipated, and in Sentence 17, such a result is not anticipated. Yet, the Vendler-type classification of the verbs does not change (see Table 1). Behrens (1993: 170) presented a parallel argument for German, e.g., in the absence of a visible stain, Julia (2;4) said, *Da (hat) nich (ge-) klecker-t*, 'there (has) not spilled'.

The concept of result has been linked to viewpoint aspect as well as lexical aspect. Not only do the verbs in Sentences 12 through 17 have the property telic in their lexical representation, they also are all marked by perfective aspect. In 1985, Slobin revised his theory of operating principles (see Slobin 1973). In 1985, Slobin's theory included the concept of the "manipulative activity scene". While Slobin (1997) has again revised his thinking moving away from the idea of privileged semantic notions, the concept of a Scene is still relevant. A Scene is a "complex of perception, action, and interaction that constitutes the meanings of linguistic forms" (Slobin 1985: 1175). Slobin argued that, "the ability to take perspectives on Scenes underlies the acquisition of such grammatical forms as …tense-aspect markers" (Slobin 1985: 1181). The two major temporal perspectives were called result and process, where result perspective is "punctual" and "completive" and the process perspective is "non-punctual", "non-completive", and "ongoing". These perspectives of the basic child grammar were viewed as "**superordinate**" to language-specific categories. Hence, the Polish child should discover perfective aspect by taking the *result* perspective, and the Spanish child would discover progressive aspect within the *process* perspective. The general idea, that perspective taking within Scenes is relevant to the acquisition of viewpoint aspect, represents a hypothesis that is worth pursuing. However, the functional link between *result* perspective and perfective aspect does not extend to questions, utterances in the future tense, or negations as Sentences 14–17 demonstrate. The concept of a result within a Scene can still be relevant to the acquisition process without having a "superordinate" role. Furthermore, we will see in the next section that the punctual versus durative distinction has only a minor role to play in the acquisition of lexical or viewpoint aspect.

6.   Viewpoint aspect

6.1   The economy principle

In this section, I will review two arguments concerning the view that children code viewpoint aspect prior to deictic tense. The first argument is focused on the presence or absence of functional categories, and the second argument is concerned with the potential function of grammatical morphemes. Working within the Principles and Parameters framework, Radford (1990) proposed that functional categories emerge under maturational control. According to his argument, the order of emergence of morpho-syntactic distinctions is specified in the genetic code for language. Children enter a "*lexical-thematic* stage" at around 1;10 and a "*functional-nonthematic* stage" at around 2;0. During the lexical-thematic stage, "… child grammars lack functional categories and their associated grammatical properties" (p. 143). As the functional category INFL (inflection) will be missing in the lexical-thematic stage, it is predicted that an entire set of eight morphemes will be absent. This set included the following: (1) tense, e.g., Claire (2;1) *Pig say oink*, (2) progressive *be*, e.g., Betham (1;9) *Birdie flying*, and (3) the so-called "perfective" *have*, e.g., Daniel (1;9), *Wayne taken bubble*. According to Radford, this entire critical set of morphemes will emerge together when INFL comes "on-line", but no systematic evidence was presented to support this claim (cf. Mueller-Gathercole, et al. 1999, and Section 8.2).

While Radford referred to aspect as a "lexical-thematic" concept, it appears that he was referring to viewpoint aspect and not lexical aspect. Specifically, he claimed that child English has progressive and "perfective" aspect (where present perfect tense was equated with perfective aspect). The sentences *Birdie flying* and *Tractor broken* were given as examples and were analyzed as follows: (1) [VP [NP birdie] [V′[V flying]] and (2) [VP [NP tractor] [V′[V broken]]. Radford proposed that the lexical categories verb phrase (VP) and noun phrase (NP) are present, but the functional category INFL is absent. Aspect precedes tense in maturation because tense derives from a functional category, and functional categories are "…genetically programmed to come into operation at different biologically determined stages of development" (p. 274). The principle guiding the maturational sequence is the "economy of derivation" which is part of Universal Grammar. In short, viewpoint aspect precedes tense in development because of the maturational component of genetic programming. In their review of alternative theories, Poeppel and Wexler (1993: 18) favored the FCH over models such as Radford's because, "theories that assume less than full competence must explain how missing or wrong properties are learned or, alternatively, develop through maturation".

Utilizing the same principle of the economy of derivation, Hyams argued that it is possible to assume the FCH and still predict that viewpoint aspect will precede

tense in the acquisition process. According to Hyams (1996), "…the early grammar contains the full set of functional categories, but [that] functional heads may be **underspecified**…" (p. 93). Sano and Hyams (1994) assume that aspect is located at a relatively low level in a hypothetical X-bar hierarchy with a position just above the verb phrase (i.e., Fig. 11, p. 551). Hence, it is possible for the verb to move to the head of the aspect phrase (ASP) to obtain a value of viewpoint aspect without moving to the higher level of the tense phrase (TP) to obtain a tense value. The argument continues that for children learning English, there are two potential values of aspect, i.e. *-ing* progressive and *-ed* "perfective", e.g., Adam (2;4), *Adam laughing*, and Nina (2;0), *Becca making a table*, versus Eve (2;2), *Goed on that way*, and Nina (2;3), *Slapped Becca and Rachel*. When Sano and Hyams refer to aspect, it is clear that they mean viewpoint aspect.

In order to explain why *-ed* codes aspect and not tense, Sano and Hyams invoke the "principle of economy of derivation". They (1994: 551) assume that, "children (and adults) prefer the shortest derivation, all else being equal, then a movement of V to ASP is more economical than a movement to a higher I [inflection] position". Hyams and her colleagues have demonstrated that other things are not equal across languages. In the organization of their hypothetical X-bar structure, agreement nodes are claimed to be at a higher level than tense (Hoekstra & Hyams 1995, Fig. 11 p. 132). In a language like Italian, where a person distinction is required, "…the verb is forced to raise to a position higher than T…" and furthermore, "… the presence of higher projections [e.g., agreement] entails the presence of TP and hence excludes RIs…" (Hoekstra & Hyams 1995: 132 [RMW]). As we have already seen in Behrens's research (see Section 4.3), this prediction does not hold up for tense in child German, and Meisel found the contrasts in agreement are acquired before contrasts in tense in child German. If Italian children are forced by their language to raise their verbs to a position higher than TP in order to establish agreement, then they are also forced to suspend the economy of derivation principle. Hence, within the P&P framework, there is no motivation for aspect to precede tense in acquisition. Yet, the idea that aspect precedes tense in acquisition originated in a study of Italian children (i.e., Antinucci & Miller 1976), and the aspect priority claim has recently been made for Turkish which also has agreement in person (see Aksu-Koç 1998). However, just because the language "has" agreement in person does not mean that children have processed agreement relationships. German has agreement in person as well as number, but RI s are found in child German. During an early phase of acquisition, children learning German do not have plural forms and the 2nd person singular *-st* is absent. According to Hoekstra and Hyams (1995: 129), "German children initially misanalyze their language as being Dutch-like, i.e., Personless but with a specification for number". In this context, it becomes difficult (maybe impossible) to discriminate between the

claim that children use the linguistic information regarding person, (1) to construct the agreement component of the grammar, versus (2) to trigger a functional category with non-target properties. I will return to this general theoretical issue in Section 10.

6.2 Functional morphology

In her study of the acquisition of Turkish, Aksu-Koç (1988) argued that viewpoint aspect is coded in the inflectional morphology prior to tense. The following Turkish morphology is particularly relevant to the acquisition of tense and aspect: (1) *-dI* is the past tense form specifying the direct experience of a past event, (2) *-mIş* is the past form for an indirect experience based on some evidence, i.e., "the inferential/ perfect", (3) *-Iyor* is associated with present reference for ongoing situations, (4) *-Ir* denotes habitual aspect, (5) *-(y)AcAk* specifies a strong degree of certainty for a future event, and (6) *-sIn* (optative) indicates desire and intention within the indicative mood. Some of these forms combine values of tense with modality and/or aspect, i.e., *-dI* combines certainty, perfectivity, and past, and *-Iyor* includes progressive and present . At 1;11, the child ES used *-dI*, *-Iyor*, and *-sIn* relatively frequently. Aksu-Koç proposed that this child was expressing the concepts of **completed**, **ongoing**, and **desire** respectively at this phase of acquisition. For the fluent speaker, *-Iyor* is aspectual and resembles progressive aspect, and *-sIn* is modal. The only place where there is a discrepancy between the adult and the child concerns the meaning of *-dI*, and the claim is that *-dI* lacks the temporal value of ET prior to ST. This claim is founded on three facts: (1) there was an absence of relatively pure tense contrasts, i.e., *-dI* perfective past versus *-AcAk* certain future prior to 2;2, (2) *-dI* was used more frequently with change-of-states verbs (i.e., 66 % telic), and *-Iyor* was more frequent with activity and state verbs (i.e., 57 % non-telic) at 1;11, and (3) there was an absence of non-immediate past references. This basic argument[3] can be found in previous reviews (e.g., Weist 1989), and it remains as part of the recent literature, e.g., regarding child Greek, Stephany (1992: 297) claimed that: "…such a system of verb forms could be described by considering only the categories of mood and aspect and dispensing with the category of tense."

6.3 Lexical aspect and viewpoint aspect

The second point of Aksu-Koç's argument was that there is an interaction of tense / aspect morphology with Aktionsart. There has been considerable solid research on this component of her argument in recent years. I will focus on three studies involving three different languages which used the same methodology to define values of Aktionsart, i.e., Shirai & Andersen (1995) for English, Shirai (1993 &

1998) for Japanese, and Aksu-Koç (1998) for Turkish. In all of these studies, the lexical categories of state, activity, accomplishment, and achievement were discriminated with a three step testing procedure with three alternative tests for the third step (one of the three is listed here):

Step 1:   State / Dynamic = Does the verb have a habitual interpretation in present tense? Dynamic verbs do, e.g., *He builds houses*, and states do not, e.g., *He wants a car*.

Step 2:   Activity / Telic = Does 'X is Ving' entail 'X has Ved'? For activity verbs, e.g., *She is crying*, does entail, *She cried*, but for telic verbs, e.g., *She is building it*, does not entail, *She built it*.

Step 3 b: Accomplishment / Achievement = Is there ambiguity with *almost*? There is no ambiguity with achievements, e.g., *I almost found the treasure*. In contrast, the sentence, *She almost built the house*, could mean that she never started or that she didn't finish.

In all of these studies, child-directed-speech was evaluated as well as the child's speech. In all three languages, the authors evaluated the least marked past form, i.e., English *-ed*, Japanese *-ta*, and Turkish *-dI*, and the progressive / durative form, i.e., English *-ing*, Japanese *-te i-*, and Turkish *-Iyor*. For the sake of comparison, I will include data from two children. Clark's (1996) Damon for English, and Weist et al.'s (1984) Marta for Polish. Closely related data for German can be found in Behrens (1993, Table 2 a–e, Pp. 166–167).

There are three patterns in this data which are consistent across languages. First of all, the morpheme which is associated with past tense and external viewpoint aspect in the fluent speaker's language is likely to be found with a telic verb in the child's language, and in contrast, the morpheme which is associated with present tense and internal viewpoint aspect in the fluent speaker's language is likely to be associated with a non-telic verb.[4] Secondly, the pattern in the child's language is similar to the pattern in the child-directed-speech. Finally, there are cross-linguistic variations on the basic pattern, and there are individual differences within languages. Regarding the cross-linguistic differences, in English and Japanese, state verbs are usually not inflected for internal aspectual perspective, and in child language, state verbs inflected with (*-ing* or *-te i-*) are rare. In Turkish and Polish, an internal aspectual perspective with state verbs is well formed, and this collocation is found with moderate frequency. Aksu-Koç (1998) pointed out that this finding is inconsistent with one of the predictions which Bickerton's (1981) makes from his theory of a bio-program. According to such a bio-program, children should demonstrate a state – process (i.e., stative – dynamic) distinction such as the one seen in child English. Since genetic programs are viewed as guiding the emergence of tense – aspect morphology, children should make this distinction in spite

Table 2. Tense/aspect morphology & Aktionsart value
The percentage of verbs in Vendler-like categories.

Child / Age	-ed / -ta / -dI				-ing / -te i- / -Iyor			
	sta	act	acc	ach	sta	act	acc	ach
English								
Naomi (1;6–1;11)								
mother	11	17	17	55	3	65	12	20
child	0	0	0	100	4	68	4	24
Japanese								
Aki (2;4)								
mother*	30	10	2	58	0	24	6	70
child	29	3	7	61	0	46	8	46
Turkish								
Deniz (1;5–1;10)								
mother	6	8	16	70	21	61	9	9
child	3	6	7	84	18	67	7	7
English								
Damon (1;7–2;0)								
child	10	30	60	0	5	90	5	0
Polish								
Marta (1;7–1;9)	past & perfective				present & imperfective			
child	0	12	62	26	26	68	5	1

* Aki was 2;0 when these observations were made for his mother.

of the fact that their parents do not. From Aksu-Koç's point of view, the Turkish data run contrary to Bickerton's claim (see also Shirai 1997).

Just as cross-linguistic differences create problems for bio-program theory, individual differences create problems for prototype theory. According to Shirai and Andersen's prototype theory (1995: 759), "the prototypical features for progressive are [– telic] and [+ durative] in contrast to prototypical past, which is [+ telic] and [– durative] (i.e., [+ punctual])". In English, Sachs's Naomi followed this prediction to perfection. Like Naomi, Clark's Damon produced a much higher percentage telic than atelic predicates in the past tense. However, for Damon, there were many more accomplishments than achievements in the past. This might be viewed as an anomaly for Shirai and Andersen's proposal, but Clark (1996: 67) used contextual information rather than Vendler-type tests to classify Damon's verbs, i.e., "accomplishments" were associated with a change of states and "achievements" with the achievement of some goal. Given these differences, the punctual / durative distinction is difficult to evaluate. Like Shirai (1998), Weist et al. (1984) used a set of Vendler-type tests that were designed for a Slavic language. Marta's data in Table 2 follow Damon's pattern. While the tests used for Polish parallel those outlined above, they were not identical. These differences as well could be attributed to a methodological artifact. However, other Polish children, like Wawrzon,

produced a higher frequency of achievement verbs in the past, and Bartosz exhibited a balance. These individual differences were the product of the same classification procedure. The association between past tense and telic Aktionsart holds across different languages and different methods of classification, but the punctual/durative distinction does not. Dynamic and atelic are the defining feature for activity verbs. Whether an activity verb is durative, e.g., *to cry*, or punctual, e.g., *to jump*, does not influence the acquisition pattern as Shirai and Andersen are aware. In English, punctual activity verbs are likely to occur with progressive aspect (see also Shirai 1991). In short, the features telic and atelic make a contribution to an interaction of the acquisition of lexical representations and the acquisition of tense-aspect morphology that the punctual/durative distinction does not make.

In Japanese, the durative *-te i-* has a progressive meaning with activity and accomplishment verbs, but it has a resultative state meaning with achievement verbs, and Japanese child-directed-speech contains both of these possibilities (see Table 2). Shirai (1998) has analyzed the data from three children learning Japanese. According to a prototype account one might expect to find that Japanese children will initially use *-te i-* in the progressive meaning and associate *-te i-* with activity verbs. Shirai observed that with the possible exception of the early observations of Aki, the three children used *-te i-* with both meanings. While the features telic and atelic are likely to make a contribution to the acquisition pattern, the precise contribution depends on the specific properties of the language. In Japanese, *-te i-* can specify ongoing action or the continuation of a result-state. Children acquire the possibilities that the language offers, just as Turkish children learn that imperfective viewpoint is possible with state verbs.

7.   Minimal pairs in experimental designs

7.1   Comprehension

The most compelling argument for productivity is found when an individual child comprehends and/or produces a contrast with a single verb. The greater the number of verbs, which enter into such, contrasts the stronger the argument. The concept of a morphological contrast is at the heart of a large number of experiments. Many of these experiments explored the child's capacity to comprehend tense and/or viewpoint aspect utilizing some variation on a sentence — picture matching task, e.g., Weist (1983) and Stoll (1998). The model for this methodology can be found in the early research of Brown and his colleagues (Fraser, Bellugi, & Brown 1963). For a number of years, I have collaborated with a team of child language researchers from Poland and Finland, i.e., Weist, Wysocka, and Lyytinen

(1991), Weist, Lyytinen, Wysocka, & Atanassova (1997), and Weist, Atanassova, Wysocka, & Pawlak (1999). While these studies involved a wider domain of inquiry which included spatial reference as well as temporal reference and conceptual as well as linguistic development, they all made a contribution to our understanding of the acquisition of tense and aspect. All of these studies had a cross-sectional design with American, Polish, and Finnish children ranging in age from 2;6 to 6;6. In the Weist et al.'s (1991) study, the experimental design included problems which were created to evaluate three phases in the emergence of temporal systems, i.e., the event time, restricted reference time, and free reference time system (see Weist 1986). In the deictic tense problems, the children were presented with one picture which illustrated an event that was completed alongside of a second picture where an event was anticipated (see the top two pairs of illustrations in Figure 1). After elaborating on some of the salient features of the pictures, the experimenter read two sentences. The sentences contained a minimal past versus non-past tense contrast, i.e., simple past/simple future for English, past perfective/non-past perfective for Polish, and past/non-past with the direct object in the accusative case for Finnish. These all yield the semantic distinction between past and future. In the practice component of the experiment, the children were taught the sentence to picture matching principle, i.e., one sentence was supposed to go with one picture and the other sentence with the other picture. After reading the contrasting sentences, the experimenter re-read one of the sentences, and asked the child to point to the matching picture. Because of the distributional properties of the data, it is possible to determine when the children deviate from random performance, i.e., "pass" the test. The American and Polish children in the 2½ year old group mastered the deictic tense problems. In order to evaluate viewpoint aspect, one of the pictures portrayed an event in progress that was not yet completed and the other picture presented the completed event (see the bottom two pairs of illustrations in Figure 1). The two sentence alternatives contrasted internal versus external aspectual perspective, i.e., past progressive versus simple past in English, past imperfective versus past perfective in Polish, and simple past with a partitive versus accusative case distinction in Finnish. Again, the American and the Polish children in the youngest group passed the test. In a companion experiment, we were able to improve the performance of the Finnish children using non-minimal contrasts which involved differences in the verb morphology, e.g., for the aspect contrast, we used the present perfect versus the 3rd infinitive plus inessive case. We have obtained similar results with video picture presentations as with still pictures (see Weist et al. 1997 & 1999).

One of the experiments within the Weist et al. (1999) study was focused exclusively on the acquisition of tense and aspect morphology, and it was re-

TENSE

Future   Past

ASPECT

Internal   External
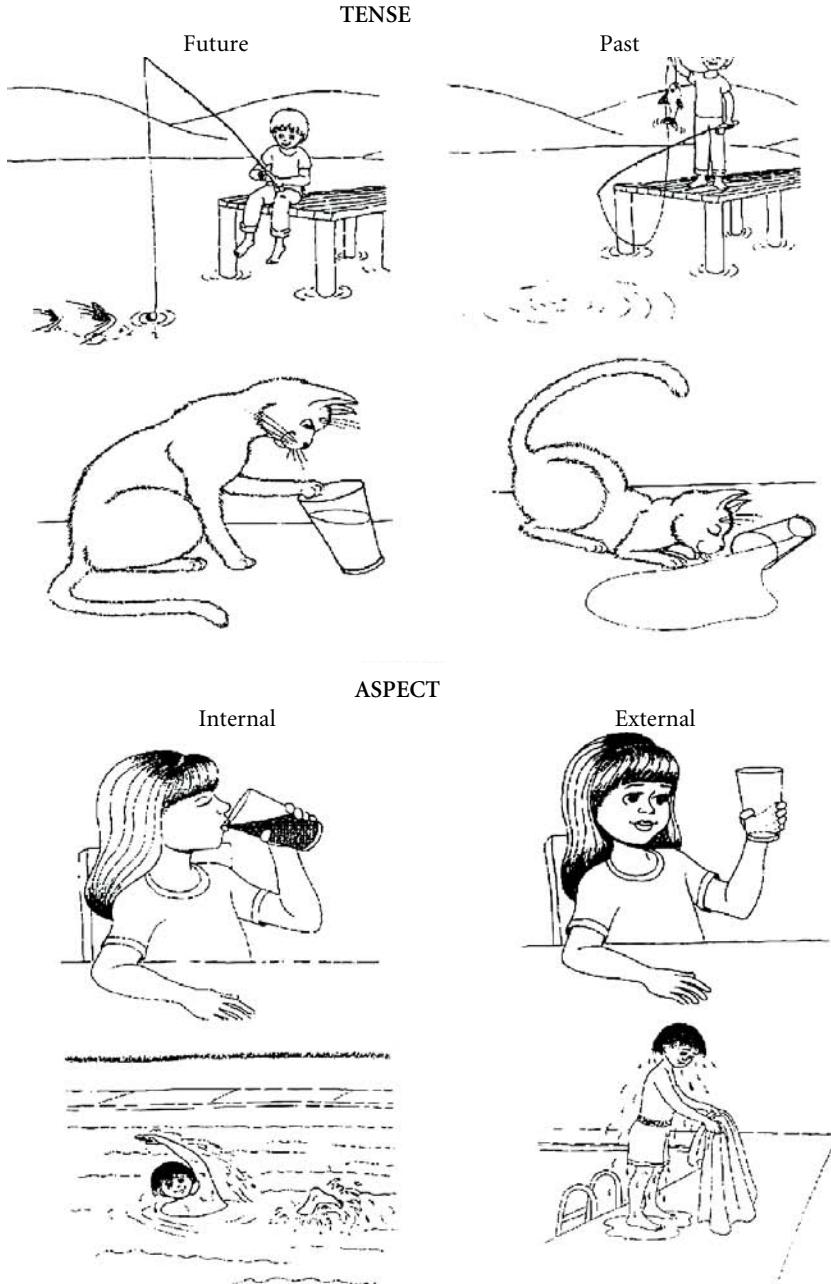
Figure 1. Illustrations that demonstrate the stimulus materials used in the sentence-picture matching task (see Weist, et al. 1999 for details).
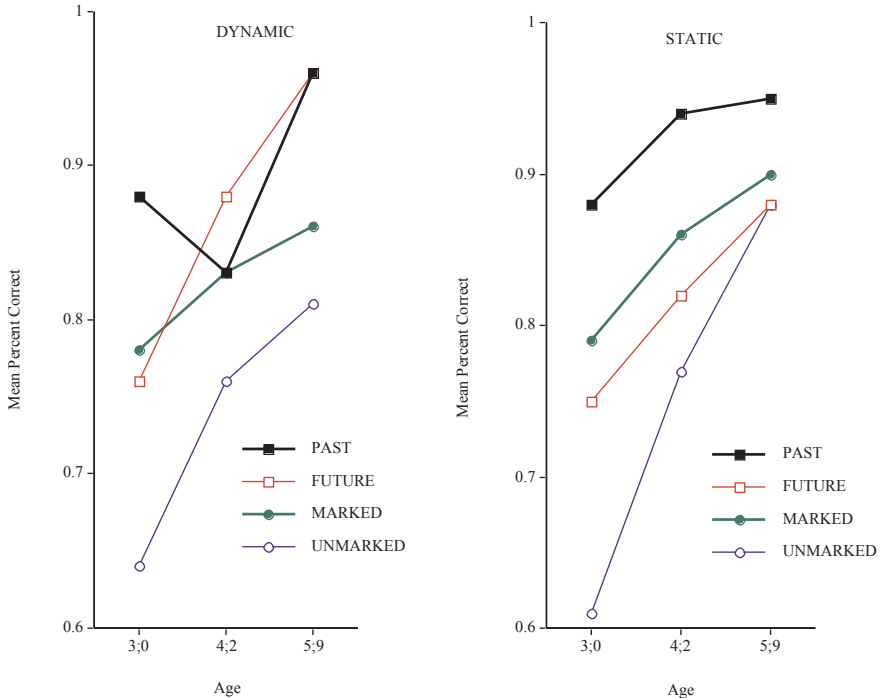
Figure 2. The mean percent correct as a function of age for tense and aspect problems presented in the context of video versus still-life versions of the sentence-picture matching task (see Weist, et al. 1999 for details).

stricted to English and Polish. Figure 1 contains 4 test items from the still-picture (or Static) component of that experiment. The top two pairs of pictures show the illustrations for two of the tense problems, i.e., (1) *The boy (will catch/caught) the fish,* '*Chłopiec złapie/złapał) rybkę*', and (2*) The cat (will spill/spilled) the milk,* '*Kotek (rozleje/ rozlał) mleczko'*. The bottom two pairs of illustrations were used in two of the aspect problems. The sentence alternatives associated with these pictures were as follows: (1) *The girl (was drinking/drank) the juice,* '*Dziewczynka (piła/wypiła) soczek'*, and (2) *The boy (was swimming/swam) in the pool,* '*Chłopiec (pływał/popływał) w basenie'*.

    Regarding viewpoint aspect, this procedure contains the potential for ambiguity, and therefore, the possibility of underestimating what children know. In some languages, such as English and Polish but not Finnish or Mandarin, the aspectual contrast involves a marked versus unmarked form where the least marked form can have a variety of aspectual meanings. In English, the simple past is the least marked form and past progressive is the marked form, and in Polish, the perfective is the

marked form and imperfective is the least marked. Given the pictorial comparison described above, the least marked sentence is ambiguous as it can refer to either picture. For the problems shown in Figure 1, the English simple past sentences were, *The girl drank the juice*, and *The boy swam*, versus the Polish imperfective past sentences were, *Dziewczynka piła soczek*, and *Chłopiec pływał w basenie*. Our main objective in this experiment was to evaluate the potential ambiguity of the aspect problems in the sentence-picture matching task. For the purpose of this review, the experiment demonstrates the potential and limits of this methodology. The experiment included tense problems as well as aspect problems for the sake of comparison, and it included a video (or Dynamic) as well as a still-picture (or Static) presentations to yield a more robust measure. The experimental design was counterbalanced[5] for the marked / unmarked distinction and for past / future tense. We tested 3-, 4-, and 5-year-old Polish and American children (see Weist et al. 1999 for details).

Figure 2 shows the results of the experiment for the Dynamic and Static presentations summed over language. There was no overall difference between the two kinds of presentations testifying to the reliability the picture-matching procedure. Considering both the Dynamic and the Static presentations, there were 16 tense and 16 aspect problems on the test. At every age and in both languages, the children "passed" (i.e., exceeded chance expectations) the tense and the aspect tests. However, the children did better on the marked than the unmarked problems. This means that the Polish children did better with sentences having external aspectual perspective and American children excelled with internal perspective (see Section 2, Item 3 on perspective contrast). In addition, the past tense problems were easier than the future tense problems.

In this experiment, most of the aspect problems contained a telic verb, e.g., *to drink the juice* or *pić soczek / wypić soczek*. However, we also explored a few problems having atelic verbs, *to swim* or *pływać / popływać*. The items with atelic verbs created additional difficulties. The ambiguity created by the least marked alternative was magnified. Children learning English were more likely to match the simple past with the ongoing action instead of the completed action. Furthermore, in Polish, a special problem arose regarding delimitive verbs. In Polish, the perfective form of the verb *to swim* (i.e., *popływać*) means 'to swim for a limited period', and therefore, the illustration portraying the completed action does not provide a decisive alternative for the perfective verb. Before leaving this experiment, it is worth repeating that in spite of the fact that this methodology involves a measure of ambiguity, the youngest children "pass" the tests, i.e., their behavior can't be reduced to a coin flipping experiment.

In the typical experiment of our research team, our tests for viewpoint aspect were based on sentences with telic verbs, e.g., *to drink* or *to build*. More specifically, these verbs were active accomplishments, and as such, they have two components,

do' ([**pred'** (x)]) and BECOME **pred'** (x). Two recent studies of the acquisition of viewpoint aspect used a version of the sentence – picture-matching task to explore a broader range of Aktionsart in a systematic manner. Li and Bowerman (1998) investigated aspect in Mandarin Chinese, and Stoll (1998) studied child Russian. Li and Bowerman used a Vendler-based system of classification to define the following categories of verbs: (1) stative, (2) atelic, i.e., both durative and punctual activities, (3) telic, i.e., resultative and locative accomplishments, and (4) mixed telic-stative. The test sentences contrasted the perfective *-le* with the imperfective *zai* or *-zhe*. In Mandarin, both members of the aspectual opposition are marked. In a cross-sectional design, children were tested at 4, 5, and 6 years of age. The major result was an interaction of lexical and viewpoint aspect. The problems, which were the easiest to comprehend were those which combined atelic Aktionsart and imperfective viewpoint and telic Aktionsart with perfective viewpoint. This is the same interaction, which has consistently been found in the mother – child interaction data (see Table 2). In the second of three experiments, Li and Bowerman acted out situations which involved either pure action, e.g., a doll canoeing, or a process that reached its terminal point, e.g., a car knocking down a bridge, and they asked the children to tell about the event. The elicitation question was neutral and not marked for aspect. Again there was an interaction of telicity and viewpoint aspect. For the youngest group, imperfective aspect was used to describe a pure action about two thirds of the time, and perfective aspect was almost always used to describe a completed process.

The second of the recent investigations of viewpoint aspect was done by Stoll (1998) with preschool Russian children. In contrast to a Vendler-type classification, Stoll used a classification system, which is particularly relevant to Slavic languages. Verbs were classified as follows: (1) telic, (2) delimitatives, (3) ingressives, (4) duratives, and (5) semelfactives.[6] The following three tests were used to classify the verbs: (1) time adverbial test, (2) temporal presupposition test, and (3) unlimited interpretation test. Only telic verbs can be modified by *za čas*, 'in an hour', e.g., *napisat' pis'mo*, 'to write a letter'. For telic and delimitative verbs, the perfective past implies the imperfective past, e.g., *počitat'*, to read for a certain time'. For ingressives and duratives, "a past perfective form can be asserted at the moment of the utterance" (p. 360), e.g., *zaplakat'*, 'to start crying', and *čitat'*, 'to read'. Semelfactives, e.g., *prygnut';* 'to jump once', do not pass these three tests. Stoll developed a video version of the sentence-picture matching test (cf. Golinkoff, Hirsh-Pasek, Cauley, & Gordon 1987), and she only used the perfective verb form in the test question which rules out the ambiguity described above. While there were differences in the number of problems used to evaluate each category of Aktionsart, the pattern in the results was clear. Problems involving telic verbs were the easiest followed by delimitatives, then semelfactives, and finally ingressives. In

the typical experiment conducted by Weist and his colleagues, only telic verbs were evaluated. Regarding telic verbs, the Russian data are similar to the Polish data in that relatively young children begin to demonstrate the capacity to comprehend contrasts in viewpoint aspect, and there is a developmental trend with 5 and 6-year-olds reaching asymptotic levels of performance. However, Stoll's research includes a diverse set of aspectual distinctions, and it is quite clear that the acquisition patterns differ as a function of Aktionsart. The acquisition of viewpoint aspect is influenced by the interaction of viewpoint with lexical aspect.

Stoll investigated differences in the morphology of aspect as well as the relevance of Aktionsart. Her research provides information concerning the nature of information processing. Stoll evaluated the following three types of morphological marking: (1) verbs with prefixes and secondary imperfectivization, e.g., *na-li-t'* (PFV)/*na-l-**iv**-at'* (IPFV) 'to pour', (2) empty prefixes, e.g., **na**-*pis-at'* (PFV)/*pis-at'* (IPFV), 'to write', and (3) suppletion, e.g., *vzj-at'* (PFV)/*br-at'* (IPFV) 'to take'. Within this set, it is possible to determine if an aspectual contrast made by infixation (i.e., stem initial suffix) is easier or more difficult to process than one made by prefixation. The data confirm the Polish data (Weist 1983) showing a balanced capacity to process affixes (see also Peters 1985). Stoll's work on the processing of the morphology of aspect represents one of the few studies on this component of the acquisition processes.

In another recent study, van Hout (in press) investigated some of the morpho-syntactic properties of the acquisition of active-accomplishment verbs in children learning Dutch and English. Using three illustrations together with a narrative, van Hout introduced preschool children to a completed and an incomplete consumption episode involving eating or drinking. For example, in one of the complete episodes, a red mouse finds a piece of cheese and eats it all, versus the incomplete alternative where a white mouse begins to eat the cheese but can't finish it all. The narratives included the present tense and imperfective form of the consumption verb in an intransitive clause, i.e., progressive for English and *aan-het* plus infinitive for Dutch. Having experienced a pair of episodes, the children were asked about the two protagonists. There were four different types of questions as follows (for the eating cheese story): (1) intransitive: *Did the red/white mouse eat?*, (2) bare transitive: *Did the red/white mouse eat cheese?*, (3) full transitive: *Did the red/white mouse eat his cheese?*, and (4) full transitive plus particle: *Did the red/white mouse eat up his cheese?*. The tense form of the questions was simple past for English and present perfect for Dutch. Questions 1 and 2 contain the following activity predicate: **do'** (mouse, [**eat'** (mouse, (cheese))]). The concept of unspecified action (i.e., **do'** (x, Ø)) is represented in the logical structure. Question 4 involves the following active-accomplishment predicate: **do'** (mouse, [**eat-up'** (mouse, cheese)]) & BECOME **consumed'** (cheese). In this lexical representation, the BECOME operator codes

change over time. The sentence, *The mouse ate his cheese*, is ambiguous, and there is the potential for either interpretation. Van Hout defined simple past in English as "perfective past". As I have pointed out above, the external perspective may be the default meaning for the simple past in English, but neutral of even internal perspective is possible. For English the simple past in the question represents the minimal bias for viewpoint aspect in the child's answer. In contrast, it would be possible to use viewpoint aspect to direct the child's attention to the ongoing activity by using the progressive aspect in English or to the completed event by using perfective aspect in Polish.

Van Hout called the *yes/yes* response pattern "atelic" and the *no/yes* response pattern "telic". Adults were very likely to give the "atelic" response to the intransitive and bare object questions, and the "telic" response pattern to particle questions. Full object questions were more likely to receive the "telic" pattern from Dutch speakers and the "atelic" pattern for English speakers. In general, children learning Dutch and English treat all of the questions in a similarly ambiguous fashion except the full transitive clauses, which included the verb with a particle, i.e., the fourth question above. The children didn't make full use of the information in the direct object noun phrase. In our cross-linguistic studies (Weist et al. 1991 & 1997), the Finnish children had difficulties associating the construction verb + partitive case versus verb + accusative case with an incomplete versus a completed event, e.g., *Tyttö piirs-i-Ø (kukka-a/kuka-n)*, Girl draw-PAST-3SG (flower-PART/ flower-ACC). When children are required to process the full clause structure (in particular the unbounded/bounded nature of the direct object) to obtain information that is relevant to the temporal contour of the situation, they find it difficult.

7.2   Elicited production

In the investigation of the acquisition of tense-aspect morphology, the elicited production procedure was used initially by Bronckart and Sinclair (1973), and they were among the first to observe an association between atelic Aktionsart and present tense and telic Aktionsart and past tense. Many of the experiments conducted by our Polish–Finnish–American research team included elicitation procedures as well as comprehension procedures, and tense/aspect morphology was always evaluated. In our study of Polish (Weist et al. 1984, cross-sectional component), we acted out a sequence of two events with toys. While acting out the events, the experimenter described the situation as it was unfolding with present tense morphology. For the past tense problems, the first event in the sequence was either an action situation (described with an atelic verb), or it was a process having a terminal point (described with a telic verb). Since it is claimed that children can't use past imperfective verb forms, we used a past imperfective elicitation question,

i.e., *Co X robił/robiła najpierw*?, 'What was X doing first?'. In other words, we purposely biased the question in the direction of internal perspective. For the future tense problems, the sequence of events lead up to an anticipated event, and we used a non-past perfective verb form in the elicitation question, *Co się stanie*?, 'What will happen?'. The form of this question is biased for external perspective. We tested Polish children in two age groups, 2½ and 3½ years old. In the past tense problems, the children sometimes made reference to the second event in the sequence in spite of the fact that we asked them for the first event. Hence, we did not obtain full control over the atelic/telic distinction. The mean percent of past versus future verb forms elicited by the children were as follows: (1) at 2½, past equals 92 % and future equals 66 %, and (2) at 3½, past equals 99 % and future equals 83%. Keeping in mind that the elicitation questions were purposely biased to obtain imperfective past and perfective future, the results were as follows: (1) past imperfective, at 2½, 84 % and at 3½, 91%, and (2) future perfective, at 2½, 87 % and at 3½, 91 %. When Polish children are 2½ years of age, they can use past and future tense morphology, and they can take the aspectual perspective that is encouraged in the conversational context. If the situation involves an activity, and the elicitation question promotes and internal perspective, the children produce activity verbs in the past tense and imperfective aspect. We also recorded these children in caregiver-child interactions, and we analyzed the interaction of tense, aspect, and Aktionsart. The distributional bias which has consistently been found in younger children and in the child-directed-speech of adults was found, i.e., present, imperfective, & non-telic and past/future, perfective, & telic are the most likely forms. While the distributional bias was clearly operative, the 2½ -year-old children were able to produce low frequency forms, e.g., past imperfective activity verbs as the discourse context required.

In Weist et al. (1991), we used a structured conversation and a three picture narrative task to elicit past tense morphology from Polish, Finnish, and American children. The children ranged in age from 2;6 to 6;6 in a cross-sectional design. For all three languages, two thirds of the youngest group of children produced past and future tense verb forms, and almost all of the youngest children learning Polish and English used internal and external aspectual perspective (see also Weist et al. 1999). In general, the research shows that children who are between about 2;6 and 3;0 use past tense to refer to the temporal relationship ET prior to ST, and they use future tense (or a non-past construction with future meaning) for the relation ET subsequent to ST. They do so before they can integrate reference time into temporal contrasts such as [ET prior to RT prior to ST] versus [ET subsequent to RT prior to ST]. When the concept of a minimal morphological contrast is used to measure acquisition, the experimental methodology can be as sensitive as naturalistic observations as we will see in Section 8.

8. Tracking individual verbs

In Aksu-Koç's argument for the priority of aspect, which was outlined in Section 5, one of the reasons for thinking that tense morphology doesn't have a deictic function in the early phase of acquisition was the absence of tense contrasts which are relatively independent of aspectual contrasts. When do tense contrasts emerge? Regarding Turkish, at 2;2, YK produced 52 -*dI* past forms and 24 -*AcAk* future forms, and at 2;3, SÖ produced 65 -*dI* past forms and 24 -*AcAk* future forms (Tables 5.3 & 5.4, Aksu-Koç 1988). This only tells us that there was a potential for contrast. We still need to go further to determine when the individual child uses the same verb in contrasting tense forms (e.g., Fantuzzi 1995). Furthermore, how does the emergence of tense contrasts relate to viewpoint aspect?

8.1 Predicate tracking in Polish and English

Aleksandra Pawlak and I have been looking at the way in which verbs within a child's lexicon acquire tense-aspect morphology. We started with the CHILDES data on three American and three Polish children. The children who were learning English were Naomi (Nao) (Sachs 1983), Eve (Brown 1973), and Abe (Kuczaj 1976), and the children learning Polish were Kubuś (Kub) and Wawrzon (Waw) (Weist et al. 1984) and Inka (Ink) (Smoczyńska 1985). We began by looking at verbs that were relatively likely to appear in the lexicons of all the children. The results for the verbs *to eat* and *to make* and a summary over 12 verbs can be found in Table 3. The age at which the specific tense-aspect morphemes appeared in the child's data is entered next to the child's short name. Considering the data for the verb *to eat*, Naomi's first contrast was between present progressive at 1;10 and simple past at 1;11. Her next verb form was simple future at 2;2 creating a past/future tense contrast. For the verb *to eat*, Naomi never produced a contrast in viewpoint aspect that was independent of a shift in tense.[7] In contrast, at 2;4, Kubuś produced a present imperfective form, a past perfective form, and a past imperfective form. Kubuś produced minimal contrasts in tense (i.e., past versus present imperfective) and in aspect (i.e., past perfective versus past imperfective) at the same age.

The average age at which contrasts involving both tense and aspect (T/A), tense alone, and aspect alone occurred, can be found at the bottom of Table 3. The average age of emergence was summed over the 12 verbs listed in Table 3. For Naomi and Abe, on the average the earliest contrast involved both tense and aspect, and for Eve, minimal tense contrasts were the earliest. The next contrast to emerge varied across the three children, e.g., the tense contrast was second for Naomi. The pattern is mixed for the Polish children as follows: (1) Wawrzon, aspect first, (2)

Table 3. The age of the emergence of contrasts in tense and aspect morphology for three children learning English and three children learning Polish

| *jeść/zjeść = to eat* | | | *robić/zrobić = to do/make* | | |
| Example 1 | | | Example 2 | | |
T/A	External	Internal	T/A	External	Internal
Past	Nao 1;11		Past	Nao 2;2	Nao 3;5
	Abe 2;8	Abe 3;1		Abe 2;5	Abe 3;3
	Waw 2;2	Waw 2;2		Eve 2;1	Waw 2;7
	Kub 2;4	Kub 2;4		Waw 2;6	Kub 2;1
	Inka 2;8	Ink 2;11		Kub 2;1	Ink 1;10
Present		Nao 1;10		Ink 1;10	
		Eve 1;10	Present		Nao 1;10
		Abe 2;5			Abe 2;7
		Waw 2;2			Eve 2;2
		Kub 2;4			Waw 2;4
		Ink 1;11			Kub 2;3
Future	Nao 2;2				Ink 1;8
	Eve 2;2		Future	Nao 2;9	
	Abe 2;8			Abe 2;5	
	Waw 2;2			Eve 1;9	
	Kub 2;6			Waw 2;2	Waw 2;4
	Ink 2;5	Ink 1;10		Kub 2;4	
				Ink 1;8	Ink 1;10

Average age of the first contrast in tense (T), aspect (A), or both (T/A):
For 12 verbs = *break, draw, drink, eat, fall, hide, laugh, make, play, sit, talk, & write.*

American children				Polish children			
Child	T/A	T	A	Child	T/A	T	A
Nao	2;5	2;8	3;9	Waw	2;5	2;6	2;4
Abe	2;10	3;1	3;0	Kub	2;4	2;4	2;3
Eve	2;2	2;0	2;2	Ink	2;8	2;4	2;5

The likelihood a contrast was observed for children learning English/Polish.

	T/A	T	A		T/A	T	A
English	78%	64%	33%	Polish	56%	72%	44%

Kubuś, aspect first, and (2) Inka, tense first. In order to evaluate the age data, one must also consider the likelihood that a contrast will be found for these verbs and these children. For children learning English, tense-aspect contrasts were the most likely, and minimal tense contrasts were twice as likely as aspect contrasts. Minimal

tense contrasts were the most likely for the children learning Polish, and aspect contrasts were more likely in Polish than in English.

Regarding Polish, the data in Table 3 support our original argument that tense and aspect emerge simultaneously (Weist et al. 1984). Hence, the Polish data represent an anomaly for any theory of acquisition that requires the sequential emergence of aspect before tense in every language, e.g., a sequence that is genetically driven by an X-bar configuration with aspect in the more "economical" location. The data on English is open to interpretation, but I think the most straightforward interpretation turns the aspect priority hypothesis on its head. Children use tense morphology to code deictic relations. When they are talking about situations that coincide with speech time, they use the present progressive as the fluent speaker does. Assuming that the most basic point of temporal reference is the time of the speech act, references to the past have an external perspective by default. In short, viewpoint aspect is redundant. The acquisition of viewpoint aspect will depend on a number of factors such as the relationship between the meaning of the marked form and the function of aspect in discourse, e.g., perfective aspect in Polish moves the narrative forward and progressive aspect in English has the opposite effect.

We continued our analysis with the three Polish children and 12 more verbs, and the data can be found in Table 4. In this data set, the three children are more consistent, and on the average, the tense/aspect contrast was the earliest followed closely by tense and then aspect. The contrasts in tense alone were somewhat more likely than the contrasts in aspect alone. Again the data are consistent with the idea that the morphology of tense and aspect is acquired at the same time in Polish. Where does this leave the aspect priority hypothesis? The common thread which runs cross-linguistically is that some of the properties of Aktionsart are functional within the child's system of lexical representation as the child constructs a theory of tense/aspect morphology. This hypothesis is revealed in a vivid manner in the data set found in Table 5. On the left side, Table 5 shows the likelihood that a tense/aspect form was found for 12 atelic and 12 telic verbs produced by Inka, and on the right side, an example of the onset pattern for the atelic verb *to cry* and the telic verb *to find* is given. The difference between the atelic and the telic patterns is striking. For these atelic verbs, the imperfective verb forms are almost the only forms found, and for telic verbs there is a mixture with the perfective forms being the most probable. The examples demonstrate the extreme case where the verbs are found exclusively in one aspectual form. For these examples, it must be true that tense precedes viewpoint aspect because the only contrasts are tense contrasts. It is equally obvious that properties of Aktionsart are guiding the acquisition process (Weist & Pawlak 2001). The acquisition pattern for the verbs *płakać/ popłakać* *'to cry'* and *znajdować/ znaleźć 'to find'* may not be so surprising when we consider

the meaning of the perfective and imperfective verbs. *Płakać* means '*to cry*', but *popłakać* is a delimitative verb with the meaning 'to cry for a certain time'. For this verb, the perfective form has additional meaning (see also the discussion of *popływać* in Section 7.1). *Znaleźć* is an achievement verb, and as such, the beginning and end point are coterminous. It is not possible to take an internal perspective on such an ingressive verb. Yet, there is an imperfective verb form. The imperfective verb form has an additional iterative meaning, i.e., a sequence of discovery events are required. The children start with the least complex meaning that happens to be the imperfective verb for one verb and the perfective verb for the other. I will relate the data in Table 5 to the "Aspect Hypothesis" in Section 8.3.

Table 4. Tense/Aspect Contrasts (3 Polish children with 12 verbs)

Average age of first contrast				Percentage of contrasts observed			
Child	T/A	Tense	Aspect	Child	T/A	Tense	Aspect
Wawrzon	2;6	2;7	2;9	Wawrzon	83	83	50
Kubuś	2;3	2;4	2;4	Kubuś	83	67	67
Inka	2;3	2;2	2;10	Inka	92	92	92

Verbs = czytać/poczytać, prze-czytać (to read), dawać/dać, (to give), iść/pójść, (to go/walk), jechać/ pojechać, (to go by vehicle), otwierać/otworzyć, (to open), rzucać/rzucić, po-rzucać (to throw), strzelać/strzelić, za-strzelić (to shoot), widzieć/zobaczyć, (to see), wkładać/włożyć, (to put in/on), wiercić/po-/wy-wiercić, (to drill), uciekać/uciec, (to run away), śpiewać /po-/za-śpiewać, (to sing)

Table 5. Tense/Aspect morphology for Inka
Left = Mean % of forms observed & Right = Age of emergence

	Atelic Pattern {12 verbs}			to cry płakać/popłakać		
Tense			Aspect			
	PFV	IPFV		PFV	IPFV	
PAST	8	92[a]			1;10	
PRES		100			1;4	
FUT	0	92			1;11	
	Telic Pattern {12 verbs}			to find znajdować/znaleźć		
Tense			Aspect			
	PFV	IPFV		PFV	IPFV	
PAST	92[b]	58		2;2		
PRES		67				
FUT	92	17		2;9		

a. The average age of emergence for the past-IPFV forms of 12 atelic verbs was 2;2.
b. The average age of emergence for the past-PFV of 12 telic verbs was 2;8.

8.2   Across-the-board or piecemeal

The only other "verb-by-verb" analysis that we know of was recently conducted by Mueller-Gathercole, Sebastian, and Soto (1999). They studied two children acquiring Spanish in Madrid, i.e., Juan and Maria, where Maria's data was by far the most robust. They used two criteria of productivity: (1) the same verb stem with two different inflections, and/or (2) the same inflection used in two different verbs. The following sequence of events summarizes the evolution of verb morphology for Maria: (1) no productive contrasts before 2;1, (2) at 2;1, (a) within present tense, 3rd person singular and (b) present versus present perfect tense/aspect, (3) at 2;2, (a) within present tense, 1st versus 3rd person singular and (b) present versus preterit, (4) at 2;3, contrasts with imperfect and periphrastic future are added. There was no consistent sequence, e.g., agreement then tense or vice-versa. There was no evidence for the emergence of contrasts across the board, e.g., agreement contrasts in one tense does not imply agreement contrasts in other tenses. They concluded that, "Spanish-speaking children learn verb morphology in a piece-meal fashion" (p. 133). For about 20% of Maria's verbs, tense/aspect and/or tense contrasts emerged between 2;1 and 2;6. The acquisition patterns for 7 relatively productive verbs are shown in Table 6. The initial and most productive contrast was between present tense (which can refer to ongoing action) and present perfect (which includes the idea of completion in its meaning). Thus, the initial contrast was a tense/aspect contrast as we have seen for some other languages, e.g., German and Turkish. Minimal tense contrasts such as present versus imperfect or present perfect versus periphrastic future were found somewhat later (see Table 6). Minimal contrasts in viewpoint aspect were rare, e.g., preterit versus imperfect. Very little can be said about contrasting telic versus atelic patterns since the atelic verbs were likely to be found in a single form, e.g., *a* + infinitive. Since about 7 sessions (i.e., from 0;9 to about 1;5) were not included in this study, we can't judge Tomasello's claim that a protracted period with verb-island constraints should precede productive inflectional morphology. However, we do not see tense/aspect distinctions across a large percentage of verbs as one might expect if INFL had come "on-line" at 2;1 as Radford predicted. The theoretical implications of a "piece-meal" acquisition pattern may be limited, because not everyone agrees that the across-the-board versus piece-meal distinction discriminates the principles and parameter from the information processing explanations of the acquisition process. As part of the theoretical debate between Pizzuto and Caselli (1992, 1993) and Hyams (1992: 697), Hyams outlined the expectations of the P&P theory as follows: "the learning of an inflectional paradigm, like learning within other grammatical categories, e.g., prepositions, articles, pronouns, etc., is likely to be gradual in the sense that each form within the category will be acquired individually". This

Table 6. The age of the emergence of tense/aspect morphology for a set of Maria's verbs*

Tense Aspect	Present Internal	Past External	Past External	Past Internal	Future External
Spanish Verbs	present	present perfect	preterit	imperfect	future ir+a+INF
hacer-do/make	2;2	2;2			2;6
abrir-open	2;3	2;4			
poner-put	2;3	2;4			2;4
caer(se)-fall	1;7	2;1	1;10	2;3	
romper-break		2;4	2;3		
tener-have	2;2			2;6	
querer-want	2;4			2;6	

* Atelic verbs such as cantar 'sing', dormir 'sleep', jugar 'play', and reir(se) 'laugh' did not have contrasting tense/aspect forms.

argument of Hyams indicates how difficult it will be to find evidence for the triggering of functional categories when each form within the category is gradually learned.

8.3 Empirical remarks / summary

In the last few sections, I have reviewed a relatively large body of research. What kind of generalizations can we draw from these data? An existing generalization that has evolved in this area of research is called the "Aspect Hypothesis". A recent statement of this generalization can be found in Andersen and Shirai (1996: 533) and Shirai (1998: 282). Does the data support the Aspect Hypothesis? This is an important question in the context of a review of first language acquisition research found within a book primarily concerned with second language acquisition research, since the generalization has been applied to the latter as well as the former. Retreating to the very beginning of this review and the beginning of the acquisition process, Tomasello (1992) documented a phase in his daughter's acquisition of English during which there was no evidence for productive tense-aspect morphology. Working within the P&P framework Meisel (1994: 94) detected a similar phase in the acquisition process that he called the "pre-syntactic" phase. More specifically, Meisel described the pre-syntactic phase as follows: "they [early multiple word utterances] are not organized according to morpho-syntactic principles; in fact, at this stage, no structure at all can be detected beyond what is evidenced by linear sequences" [RMW]. The Aspect Hypothesis applies (or should apply) to a subsequent phase of the acquisition process, i.e., a period during which there is

evidence for the productive utilization of tense and aspect morphology. For example, Shirai (1998) defined productivity as the appearance of some functional morpheme with five different verbs (i.e., 5 types). The operative word here is "productive" because Bloom et al. (1980), Tomasello (1992), and Ingram and Thompson (1996) have all observed frozen forms which contain a stem plus a functional morpheme, e.g., English -*ing* or German -*en*, without any evidence for productivity.

The Aspect Hypothesis may be viewed as having three components: (1) the use of the past tense, (2) the distinction between perfective and imperfective aspect, and (3) the use of the progressive aspect. I will review these components one at a time. Regarding past tense, the generalization is that: "Children first use past marking predominantly on achievement and accomplishment verbs, eventually extending its use to activity and stative verbs" (Shirai 1998: 282). The findings that I have reviewed in this chapter (e.g., Table 2, Section 6.3) and an earlier chapter (Weist 1986) are consistent with this generalization. Weist et al. (1984, for Polish), Behrens (1993, for German), and others have found a small set of activity verbs inflected for past tense during this early phase of acquisition, and Shirai (1998, for Japanese) has found stative verbs inflected for past tense. However, because these non-telic verbs are few in number, they may not be viewed as productive counter examples. Furthermore, since accomplishment verbs are included along with achievement verbs, individual differences, such as Marta's versus Wawrzon's data, are included within the scope of the generalization.

The second part of the Aspect Hypothesis concerns grammatical (or viewpoint) aspect. The generalization is that: "In languages that encode the perfective/imperfective distinction, imperfective past develops later than perfective past, and imperfective past marking initially is used predominantly with stative and activity verbs" (Shirai 1998: 282). Let us consider the data from two Romance languages starting with Spanish (Mueller-Gathercole et al. 1999). Maria's data is clearly consistent with the second generalization. As can be seen in Section 8.2 and Table 6, Maria used present perfect as well as preterit forms productively prior to imperfect forms. Secondly, in their classic investigation, Antinucci and Miller (1976) studied the monthly (or bi-monthly) recordings of seven Italian children (including Claudia) during the period from 1;6 to 2;5. While Italian has a potentially large set of past tenses, the children used the participle component of *passato prossimo* with the auxiliary verb omitted, and the *imperfetto* form. Furthermore, the children created a past participle–object agreement rule for transitive verbs. In Italian, the aspectual meaning of these past forms is contingent on Aktionsart. *Passato prossimo* is the basic past form for dynamic verbs, and it has an inceptive/terminative meaning with stative verbs. *Imperfetto* is the basic past form for stative verbs, and it has either a progressive or an iterative meaning with dynamic verbs. The *passato prossimo* form

specifies an external aspectual perspective and possibly a resultative meaning, and the *imperfetto* form is linked to an internal perspective with the potential for a progressive meaning. These forms have been associated with perfective and imperfective aspect in Slavic languages. The past participle form emerged before the *imperfetto* form confirming the second generalization,[8] and past participle form was likely to mark telic verbs confirming the first generalization.

While there is some relevant contemporary research on Russian (Kiebzak-Mandera, Protassova, & Smoczyńska 1995), most of the Slavic language research on this topic has been conducted on Polish (see Smoczyńska 1985). Slavic languages have a perfective/imperfective contrast in the future as well as the past in contrast to Romance languages, and furthermore, the Slavic imperfective can have neutral as well as internal perspective. The Polish data do not conform to the pattern of acquisition that is imagined by the second "generalization". The data found in Weist et al. (1984: 354–355) show that imperfective past forms are among the earliest verb forms, but simple token frequencies provide minimal information about productivity. A more persuasive analysis can be seen in Table 5 and Section 8.1. Table 5 contains an analysis of 12 atelic and 12 telic predicates taken from Inka's data. Table 5 shows that the imperfective past form is just as likely for the 12 atelic verbs as the perfective past form is for the 12 telic verbs. Furthermore, the average age for the emergence of imperfective past for atelic verbs was earlier than the perfective past for the telic verbs. One major difference between the Slavic imperfective and the Romance counterpart is that the Slavic imperfective can be used with a neutral perspective. The Slavic imperfective can be used to establish that a situation occurred without specifying a value of temporal contour. This could contribute to the relatively early acquisition of the Polish imperfective past. However, there are numerous differences between the tense-aspect systems of Polish and Italian that predict the relatively early acquisition of past tense morphology in Polish without speculation about neutral perspective. In Polish, there are only two past tense forms, and they are both simple forms (i.e., no auxiliary is required). The past tense is formed in one way by adding the relatively invariant suffix, -*ł* (see also the maturational argument of Borer & Wexler 1992: 177–181).

The third generalization concerns the progressive aspect, and it contains two parts: (1) "progressive inflections are rarely overextended to stative verbs", and (2) "progressive marking is first used mostly on activity verbs, then extends to accomplishment and achievement verbs" (Shirai 1998: 283). The data from English support both components of this generalization (see Table 2 in Section 6.3). The contrast between the English data and the Turkish and Polish data is very revealing. Internal aspectual perspective is perfectly compatible with a stative predicate and Turkish and Polish children take such a perspective. However, the concept of ongoing action/process is not compatible with a predicate that lacks the dynamic

property. When children learning English avoid the use of progressive aspect with stative verbs, they are demonstrating some knowledge of the interaction of lexical representations and grammatical aspect. More data is needed on languages like Spanish where there is a present versus present progressive option, e.g., Maria (see Table 6 and Section 8.2) did not use progressive aspect productively. Furthermore, for children learning English, the aspectual contrast of past progressive versus simple past was relatively unlikely, and it emerged relatively late (see Table 3 and Section 8.1). The varied acquisition patterns that are found here demonstrate the danger of ignoring cross-linguistic differences in tense-aspect systems, e.g., while Polish imperfective and Spanish progressive are both associated with internal perspective, the former emerges relatively early and the latter relatively late.

One explanation for these facts is based on prototype theory. Andersen and Shirai (1996: 557–558) have proposed a prototype concept for past tense and progressive aspect. They propose a set of properties that are close to/far from the prototype. The concept for past tense is as follows: "Deictic past (achievement → accomplishment → activity → state → habitual or iterative past) → counterfactual softener", and the concept for progressive aspect is as follows: "Process (activity → accomplishment) → iterative → habitual or futurate → stative progressive". According to Shirai (1997: 29) children, "actively reorganize their linguistic representations based on the distributional information in the input, and create the initial prototype". Furthermore, "learners (both L1 and L2 learners) initially discover the least marked member of each category (one unitary achievement or accomplishment for past or perfective) and only later and gradually add more marked members to their pool of "past" and "perfective" marked verbs" (Andersen & Shirai 1996: 560).

In their analysis of prototype theory, Andersen & Shirai (1996: 556) point out the similarity between Taylor's (1989: 243) prototype concept of past tense and Dahl's (1985) description of the prototypical perfective aspect. Both notions have the following core properties: (1) completed, (2) punctual, and (3) having a well defined/perceptually salient result. If a child learning a Slavic language like Polish were to have two such similar concepts during the initial phase of acquisition, the child would have difficulty with non-prototypical uses of the concepts of past tense and perfective aspect, i.e., past imperfective and future perfective. In my opinion, the data does not support the implications of the prototype account. This review contains considerable data for the reader to shape his/her own opinion. While Andersen & Shirai did not explicitly advocate a connectionist model of acquisition, the idea, that distributional information processing produces a pool of marked verb forms, is consistent with such a model. In the next section, I will consider one component of the tense-aspect literature that has brought the connectionist model into focus.

9.   Over-regularization and tense

In addition to contrasts in grammatical morphology, it has been proposed that over-regularization provides evidence for a productive grammatical morpheme. In general, the overgeneralization phenomenon has serious limitations as a test of productivity because often it doesn't occur, e.g., past tense is regular in Polish and progressive aspect is similarly regular in English. However, when the phenomena does occur, as it does with the English past tense or the participle affix in German, the data is quite relevant to the acquisition process. In this review, I will focus on the research of Marcus, Pinker, Ullman, Hollander, Rosen, and Xu (1992). While most of their monograph concerns extensive data on four children, the initial analysis involved 25 children. Marcus, et al. defined the, "over-regularization rate" as "the proportion of tokens of irregular past tense forms that are over-regularized" (p. 29). For 25 children, the median rate was 2.5 % and the average rate was 4.2 % with only two children over 10 %. Higher rates have been found in elicited production experiments, e.g., Kuczaj (1978) found the following: (1) 3 to 4-yr.-old = 29 %, (2) 5 to 6-yr.-old = 42 %, and (3) 7 to 8-yr.-old = 1 %. However, similarly low rates were found in the naturalistic observations of German children, i.e., Clahsen (1992) reported 3 to 10 % rates. Thus, in the context of caregiver-child interactions, the over-regularization rate is relatively low. As it pertains to this review, the most interesting data that Marcus, et al. reported was the proportion of verb tokens that were marked for past tense in obligatory contexts before the first month which contained an over-regularization and in the subsequent period which began with that first month. This analysis was carried out with Brown's (1973) children, Adam, Eve, and Sarah. Table 7 contains proportions taken from Marcus, et al. (1992, Table 7, p.104). Realizing the partly arbitrary nature of the 50 % figure, Marcus and his colleagues reasoned that 50 % reflects "a systematic preference that tense be marked", and values greater than 50 % indicate that the acquisition process is moving toward the fluent state. During the period prior to over-regularization, all three children are more likely to mark past tense on irregular (irreg.) verbs as compared to regular (reg.) verbs. All of the children mark past tense on regular verbs at a level which is below 50 % (significantly below for Adam and Eve). Over-regularization begins during a phase in development when the percentage of past tense marking on regular verbs moves above the 50% level. In other words, "development of the ability to mark regular verbs reliably for tense appears to be the immediate harbinger of over-regularization, and reliable marking of irregular verbs for tense accompanies it" (p. 129). Therefore, when it is possible, it makes good sense to use the over-regularization phenomenon as a way of discovering when some morpheme has been acquired.

Table 7. The percentage of verb tokens marked for past tense in obligatory context

Over-regularization period			Child			
	Adam		Eve		Sarah	
	Irreg.	Reg.	Irreg.	Reg.	Irreg.	Reg.
before	74	8	18	11	65	44*
during	91	73	62	66	90	85

* Not significantly greater or less than .50.

There are three prominent explanations for the acquisition of the past tense morpheme and the over-regularization process in English: (1) dual mechanism models (i.e., rule-rote), (2) associative network models (i.e., rote-rote), and (3) level-ordering models (i.e., rule-rule). According to the rule-rote model, regular past tense involves an on-line concatenation in which the past tense suffix is attached to a stem, and the irregular past tense requires the rote memorization of an irregular past form. The application of the rule will be blocked by the retrieval of the irregular past tense form. As the frequency of the irregular verb decreases, the likelihood of blocking the operation of the rule decreases, and the result is over-regularization. In the rote-rote model, children memorize stem-past pairs, and the process of associating a past form with a stem is the same whether the verb is regular or irregular. According to Rumelhart and McClelland (1987: 222), "we assume that he or she is only able to learn past tenses for verbs already mastered fairly well in the present tense." According to this model, over-regularization follows a vocabulary spurt that contains a relatively large proportion of regular verbs. Marcus, et al. found that this hypothetical lexical spurt did not occur. For Adam, Eve and Sarah there was a small negative correlation between the monthly proportion of regular verbs and the overgeneralization rate.

In the rule-rule model (Clahsen 1992), morphological rules apply successively at one of three levels as follows: (1) Level 1 includes irregulars, (2) derivational morphemes such as -er and compounding occur at Level 2, and (3) Level 3 contains regular inflectional morphology. Within the rule-rule model, the regular past tense is a default rule at the third level. A critical analysis of these three alternatives is beyond the scope of this paper. All three theories require that the child somehow recover the stem in order to either associate with its inflected form or to apply a rule. In a language like English, where bare stems actually occur in the utterance, this might appear to be a relatively uncomplicated process. In a language like Polish, there is a past stem and a non-past stem, and while some forms come close to the stem (i.e., 3rd singular), there are no bare stems in the utterance. According to Rumelhart and McClelland, the non-past stem should be acquired first, but it also appears that present tense is somehow privileged. Since the non-past stem only enters into a present tense form with the imperfective aspect, imperfective non-past

forms would have a definitive status in the acquisition process. The pattern in the acquisition of the verb '*to find*' represents a counter example (see Table 5).

10. Lexical representations and constructing of a grammar

If the child begins by constructing isolated verb-argument structures, they must eventually discover the grammatical morphology and relate their discoveries to syntactic structure. Alternatively, if the child is endowed with a full complement of functional categories, he/she must process the information needed to set parameters. In either case, the capacity to process linguistic information needs to be explained. Current ideas on the nature of such an information processing theory can be found in Jusczyk (1994), Peters (1985), and Slobin (1985). To the extent to which there is an interaction of language and thought, conceptual development comes into play, e.g., Antinucci & Miller (1976) and Weist (1989). Mandler (1988 and 1992) and Karmiloff-Smith (1992) have presented two important contemporary positions, which provide relevant insights for language acquisition. Mandler shows how the infant's information processing capacity progresses from the analysis of perceptual primitives to the emergence of conceptual constructs called "image schema". This research shows that the infant can construct representations well before entering the early phase of language acquisition. The important point for this review is that children are conceptually ready to construct lexical representations such as those proposed in Table 1 above. Research by Patricia Bauer and her colleagues (e.g., Bauer & Wewerka 1997) demonstrates that 2-year-old children are capable of constructing and remembering episodic representations having chronological structure. Hence, the contemporary research reveals that there is no conceptual obstacle to the expression of deictic relations. Children's thinking is not limited to the here-and-now, and in fact, neither is child language (e.g., Behrens 1993, Bowerman 1981, or Sachs 1983). Karmiloff-Smith made a strong argument for an innately guided learning process (see also Jusczyk 1994), and she attempted to show how cognitive development continues beyond its modular beginning. It is clear from the research, which these authors cite that cognitive development is much more involved, more precocious, and indeed **different** from the development that Piaget had imagined. In relationship to this review, it is worth pointing out that, in the contemporary environment, an argument for Piaget's theory (e.g., Tomasello) or against it (e.g., Poeppel & Wexler) does very little to improve our understanding of the language acquisition process.

While an understanding of linguistic information processing and conceptual development is important, the acquisition of tense and aspect will not be explained without a linguistic theory, and Role and Reference Grammar (RRG) provides such

a theory (see Van Valin & LaPolla 1997). VanValin (1991) and VanValin and LaPolla (1997 Epilog) argue for an innately guided learning process. Van Valin proposes that clause structure is based on two universal distinctions: (1) predicating versus non-predicating elements, and (2) arguments and non-arguments. Utilizing a minimal set of assumptions regarding innate guidance, VanValin shows how the child might construct basic clause structure. Basic clause structure is viewed as a layered structure that includes a nucleus core and clause. The clause is made up of the core and the periphery. The core includes the predicate and the arguments of the predicate, and the periphery incorporates non-arguments. The nucleus is the syntactic unit that is defined by the predicate. The sentence, *Adam built a house in the country*, has *built* as the nucleus, *built* plus *Adam* and *house* in the core, and *in the country* in the periphery. Lexical decomposition, briefly summarized in Table 1, provides the basis for the representation of lexical aspect and verb-argument structure. Within RRG theory, there are two generalizations across specific thematic relations, such as EFFECTOR and MOVER or THEME and LOCATION, which are called "semantic macroroles". Semantic macroroles have a critical function in the link between the lexical representation and the layered clause structure. Actor is the "generalized agent-type role", and undergoer is the "generalized patient-type role". There is a universal linking principle called the "actor-undergoer hierarchy" which states that, "'argument of DO' (AGENT) is the unmarked choice for actor and 'argument of **pred'** (x)' (PATIENT) is the unmarked choice for undergoer" (VanValin & LaPolla 1997: 146). There is a "privileged syntactic argument selection hierarchy" as follows: arg. of DO > 1st arg. of **do'** > 1st arg. of **pred'** (x,y) > 2nd arg. of **pred'** (x,y) > arg. of **pred'** (x). For intransitive verbs, the selection hierarchy provides that the argument of an activity predicate, e.g., *Eva* in *Eva is walking* will be specified as actor, and, conversely, the argument of an accomplishment predicate, e.g., *toy* in *The toy broke*, will be specified as undergoer. Depending on the nature of the language, i.e., nominative-accusative versus ergative-absolutive, and the language's propensity for restricted neutralization, the privileged syntactic argument will become a syntactic pivot which can be related to the syntactic concept of subject in generative theory.

Let me return to the beginning of this paper and the quotation from Berko-Gleason. According to Berko-Gleason, children can express semantic functions such as "actor" and "object" before they can "use" grammatical morphology. Bowerman (1973) formalized the concept of a case grammar for child language. The basic claim was that children know some basic thematic relations such as "agentive" and "objective", and they have a rule system to organize these semantic concepts in sentence structures. Where do we go from here? Obviously, children eventually begin to "use" grammatical morphology, and depending on the language, they appear to know relations that can no longer be reduced to semantic relations. The problem with case grammar is that it doesn't explain how a child

might start with a system of semantic relations, and then acquire a system of syntactic relations. The link between semantics and syntax has been formalized within the framework of RRG, and Rispoli (1995) has shown how children can use their knowledge of lexical representations in the acquisition of syntactic structure.

In Weist (1990), I presented evidence that Polish children have a concept of subject (i.e., a syntactic pivot) which is partially independent of thematic relations. In child Polish, there is overt evidence for the distinction between an intransitive verb with an activity predicate and one with an accomplishment predicate. In Polish, there is restricted neutralization of thematic relations for syntactic purposes. The actor in the activity verb clause and the undergoer in the accomplishment verb clause agree with the verb in person, number, and gender. When children demonstrate an understanding of the agreement relationship, there is evidence for a syntactic pivot. Polish children demonstrate an understanding of neutralization in the intransitive context but not in the transitive context. Thus, the children have constructed a concept of subject which cannot be explained by Bowerman's case grammar and which is different from the concept of subject which is attributed to children by the full complement hypothesis. The concept of subject that the child has constructed depends on a distinction within the child's lexical representational system, i.e., it is not syntactically autonomous. In order to understand the acquisition of tense and aspect, one needs to understand the nature of Aktionsart. If one's theory of Aktionsart is an integral part of a comprehensive framework, then it becomes possible to explain how the child constructs a theory of syntax.

Within the RRG framework, tense, viewpoint aspect, and modality are integrated into the syntactic structure through a set of "operators". Operators modify the clause at different levels depending on the scope of the operator. The scope of the operators which are critical to this review is as follows: (1) the nucleus for aspect, (2) the core for modality, and (3) the clause for tense. From this point of view, clause structure is acquired as a whole, not sequentially from one layer of structure to the next. According to VanValin (1991: 14), "as children learn the LSC [layered structure of the clause] and the meanings of these operator categories, they deduce their relative scopes". The pattern of acquisition will depend in part on the way in which the operators are coded in the morphology of the specific language and in part on the conceptual complexity of the meaning of the operator. When considering the differences in the pattern of the acquisition between Polish and Turkish, Aksu-Koç (1988: 101) concluded, "… in languages where both tense and aspect are distinctly grammaticalized, the differentiation of closely related semantic functions is realized earlier in the child's speech [in reference to Polish], while in languages like Turkish where tense, aspectual, and even modal functions are fused in a single form, it may be a more gradual process" [RMW]. The fact that operators apply to different layers within clause structure requires that children acquire scope

distinctions, and it does not require a sequence in acquisition, e.g., viewpoint aspect before tense or deontic modality before epistemic modality. This review has shown that viewpoint aspect need not precede tense, and Choi (1991) has shown that deontic modality does not precede epistemic modality in Korean.

11.   Conclusions

11.1   Theories

This chapter follows the first language acquisition process through an early phase that I have described as the transition from a speech time system to an event time system in a previous review (Weist 1986). Two-year-old children, who can comprehend and produce contrasts in tense and aspect, are unlikely to be able to construct simultaneous versus sequential temporal configurations. The capacity to do so requires that they can integrate reference time into their temporal system. Furthermore, the capacity to integrate reference time does not insure that they will be able to background and foreground information in a narrative. In fact, the research shows that the capacity to utilize complex temporal constructions emerges about two years later when children are between about 4 to 5 years old (e.g., Aksu-Koç & Von Stutterheim 1994 and Weist et al. 1999). This review was focused on the early phase of the acquisition of a temporal system and, more specifically, the acquisition of tense-aspect morphology.

How do children begin to acquire tense and aspect? The data show that the acquisition process is mediated by the semantic properties of the lexical representations of verbs. An interaction of Aktionsart with the emerging tense-aspect morphology can be found in most of the research that was reviewed (e.g., Section 6 and Table 2). The distinction between telic and atelic is responsible for the different acquisition patterns which are observed. Tense and aspect are acquired in a conversational context that requires the child to shift deictic and viewpoint perspective. In most of the languages that have been investigated, tense is coded in the morphology, and it is obligatory. In order for the child to maintain temporal reference, he/she must process the deictic relations, just as she/he must process person and spatial deixis in order to discriminate references to the speaker from the hearer and locations such as *here* from *there*. The only perspective on events that occur simultaneous with speech time is the internal perspective, and the default perspective on events that occur prior to/subsequent to speech time is external. It is not surprising that forms reflecting [ET = ST] plus internal perspective and [ET prior to ST] plus external perspective are acquired early. However, sooner or later, the demands of the conversation require internal perspective taking on events which

are remote in time and space, e.g., "What were you doing with your friends?" At two years of age, children can remember and think about events that are remote in time and space, and they only need to determine how their language codes different temporal relations and contours regarding these events. The rate of acquisition will depend in part on the way in which the linguistic code relates to their information processing capacity, e.g., one to one morpheme to concept mapping will facilitate the process.

Obviously, the acquisition of tense-aspect morphology evolves in a conversational context that requires the child to resolve deictic relations. But, more specifically, tense-aspect distinctions are made within the domain of the verb morphology within the structure of a clause. In my opinion, any theory that tries to explain the acquisition of tense-aspect morphology without also providing an understanding of the acquisition of clause structure will prove to be inadequate. Again from my point of view, the reason that the study of tense and aspect is so interesting is that it reveals the child's knowledge of morpho-syntactic structure. At the risk of over simplification, researchers working within the Principles and Parameters framework try to apply Chomsky's theory of syntax to the problem of language acquisition. Within this framework, the relationship between the acquisition of tense-aspect morphology and clause structure is immediately obvious. According to this way of thinking, the principles of clause structure, e.g., the X-bar principle, are innate, and the choice of the specific parameter values that are required by the target language are triggered, e.g., head direction (see Section 4.1). While maturational hypotheses represent variations on this theme, the basic idea is that the acquisition of verb morphology occurs within a genetically programmed structure containing some or all of the required functional components, e.g., INFL. While it is possible to bring a semantic component into the acquisition picture, semantic principles are secondary in that syntactic principles are not derived from them.

Semantic properties constitute a basic component of prototype theory. Prototype theory places an emphasis on information processing as contrasted with bio-programming. The concept of Aktionsart plays a central role in the prototype account of the acquisition process. However, the prototype concepts that are hypothesized for the child include not only the properties of Aktionsart, e.g., *punctual* or *telic*, but also the properties of grammatical aspect, e.g., *completed* or *ongoing* and the relational properties of tense. The prototypes are Aktionsart-aspect-tense composites. These composites represent concepts that the child will move away from during acquisition rather than representing the corner stones for future development. Furthermore, prototype concepts relating to the acquisition of tense and aspect do not motivate an explanation for the acquisition of clause structure.

In this review, I have proposed an alternative explanation of the acquisition process that utilizes Role and Reference Grammar as a theoretical framework (see

Section 10). Concepts of within the domain of Aktionsart have an independent status, and they are integrated into clause structure differently than the concepts of tense or grammatical aspect. It is proposed that the predicate structures outlined in Table 1 are at the core of lexical representations, and these representations have a central role in the establishment of clause structure. Hence, the analysis of the child's knowledge of the structure of lexical representations has direct implications for our understanding of the child's capacity to construct clause structures. Within this framework, tense and grammatical aspect are viewed as concepts that operate on clause structure. The child may be viewed as acquiring an understanding of tense and aspect within the context of the acquisition of clause structure.

11.2   Issues

In Section 1, I listed the following five reasons why the investigation of tense and aspect is interesting: (1) it shows how the early phase of temporal reference is acquired, (2) it is relevant to the question of how morphological information is processed, (3) it reveals elements of the emergence of verb-argument structure, (4) it provides insights into the child's tacit knowledge of syntactic structure, and (5) it has comparative value for research on second language acquisition and non-typical first language acquisition. I would like to make some concluding remarks about the first and the last of these points.

When my colleagues and I started our initial research project in Poland over 20 years ago, the developmental research on memory processes during the preschool period was almost nonexistent. Given what was known at the time, it was not surprising that child language researchers argued that tense morphology must code aspect because children are not conceptually capable of retrieving an event representation from memory unless explicit speech time information provided the child with access to the representation. Evidence that tense codes temporal location is consistent with a more precocious view of conceptual development that we have today (e.g., Fivush & Hudson 1990 and van den Broek, Bauer, & Bourg 1997). If tense accurately reflects temporal location, then it can be inferred that children have the capacity to construct event representations and to remember those representations. They must also have the additional linguistic capacity to code the temporal relation. Thus, research concerning the acquisition of temporal systems is relevant to our understanding of the development of memory processes.

The research on tense and aspect is part of a larger body of research on the acquisition of temporal systems. Comparisons and contrasts between first and second language acquisition have the potential to reveal similarities and differences in the emergence of linguistic and conceptual systems. Considering temporal systems from a global perspective, the L1 versus L2 acquisition patterns are almost

reversed. Children utilize the inflectional morphology of their verb system in an early phase. During this early phase, they exploit the potential of tense-aspect morphology, and this period has been the focus of this review. At a later phase, children integrate reference time into their system with adverbial constructions involving *when/and then* and *before/after* contrasts. While some conventional time concepts such as *tomorrow* and *yesterday* appear early within the reference time system, other concepts involving days of the week and clock time are quite late. According to Meisel (1987) and Dietrich, Klein, & Noyan (1995), untutored second language acquisition is extremely different. In an early phase of second language acquisition (i.e., the "basic variety" phase), temporal reference is established with conventional time expressions, e.g., *nine o'clock* or *Sunday*, and adverbials to express the relations *after* and *before.* During this early phase, the second language learners do not use tense or aspect morphology productively. For untutored L2 learners, the inflectional morphology is the last thing to be acquired in stark contrast to first language learning children. Hence, from this global perspective, L1 and L2 acquisition patterns are about as different as they can get (Weist, in press). However, what if we narrow down our scope of analysis, and just consider the acquisition of tense and aspect. According to Meisel (1987: 220) and Dietrich, et al. (1995: 270) untutored second language learners acquire **tense before aspect**. However, the acquisition pattern found in Table 2 for first language learners is also reflected in second language acquisition (e.g., Andersen 1991 and Bardovi-Harlig & Bergstrom 1996). At least some of the data from Table 2 has been used to make the argument that the sequence in first language acquisition is **aspect before tense.** This chapter contains a review of the first language acquisition research that can be used to resolve this issue, and the remainder of this book is relevant to this and related issues in second language acquisition.[9]

Notes

1. The abbreviations for the sentence examples are as follows: ACC accusative, F feminine, FUT future, GEN genitive, INF infinitive, IPFV imperfective, M masculine NOM nominative, NPAST non-past, NVIR non-virile, PART partitive, PAST past, PFV perfective, PL plural, PP past participle, S singular, VIR virile, and 3 third person.

2. Dahl (1981: 82) carried the analysis of telicity one step further. He pointed out the difference between the property telic (or property T) and a terminal property called property P. A telic process has the property P if the, "terminal point in question is or is claimed to be actually reached". In Russian, the presence of property P is associated with perfective aspect, and in English, the absence of property P is associated with progressive aspect. While perfective forms can have resultative meaning, e.g., *zachorować,* to fall ill' (in Polish), perfectivity and resultativity are not the same thing, e.g., *kaszlnąć,* 'to cough once'

(Comrie 1976: 20 & 56, and Majewicz 1985: 84, 133, & 219). The presence of a clear result in the communicative situation is yet another idea.

3. While investigating the early research on this topic 20 years ago, we noticed that the "aspect precedes tense" argument was more concerned with the absence of deictic tense than the presence of viewpoint aspect. We called our summary of those claims the **defective tense hypothesis**. The three components of the hypothesis were as follows: "(1) **only** telic verbs will receive past-tense inflections, (2) tense distinctions will be redundant and **only** accompany aspectual distinctions, and (3) **only** references to immediate past situations will be made" [emphasis mine] (Weist et al. 1984). The hypothesis was presented in this discrete manner because that was the essence of the claims that were made at the time. Andersen (1989) referred to this hypothesis as the absolute (versus relative) defective tense hypothesis (cf. Shirai & Andersen 1995, "the aspect hypothesis" and Section 8.3).

4. In Weist et al. (1984: 356), we made the following observation: "… the most frequent categories were: (a) past perfective achievement and accomplishment verb phrases, … (b) future perfective achievement and accomplishment verb phrases, … and (c) present imperfective activity and state verb phrases". Bloom and Harner (1989) re-analyzed a subset of our data. Here is what they found, "past tense inflection was significantly more likely to occur with verbs marked for perfective than with unmarked imperfective verbs and more likely to occur with achievement and accomplishment verbs than with activity and state verbs"(p. 213) where "unmarked" meant the fewest morphemes. It is very odd that their paper is sometimes cited as having found something different as their reanalysis confirmed the original observations. It is worth pointing out that the imperfective form does not necessarily have fewer morphemes, e.g., suppletive forms of imperfective verbs have the same number of morphemes and secondary imperfective verbs have one more morpheme.

5. In point of fact, the experiment was counter balanced in two ways. First, for an individual problem, half of the children received one of the sentence alternatives as the test sentence, and the remainder received the other alternative, e.g., past versus future tense. For aspect problems, the marked alternative matches the completed scene for the Polish children, and it matches the scene portraying an ongoing action/process for the American children.

6. The term semelfactive means a single occurrence. In Slavic languages, such as Polish, verbs with the suffix *-ną-* typically refer to a single event, e.g., *gwizdnąć*, 'to whistle once'. Smith (1991: 55) used the term to mean, "atelic instantaneous events".

7. Naomi did produce a minimal aspectual contrast between simple past and past progressive with verbs such as, *to play, to sit,* and *to make*.

8. The data that is viewed as evidence for this or any other sequence of acquisition will depend in part on the definition of productivity. With a more stringent criterion for productivity, Pizzuto and Caselli (1992: 545) drew the following conclusion from the longitudinal study of three Italian children (including Claudia): "all the verb inflections that reached criterion were simple present tense forms".

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The dimensions of "Pastness"

Roger Andersen

The Aspect Hypothesis: Past tense, perfective grammatical aspect, and inherent lexical aspect

The Aspect Hypothesis in its simplest form makes a clear prediction for first and subsequent uses of past forms. (1) presents the wording in Andersen and Shirai (1996: 533), with minor editing (for earlier formulations, see Andersen 1989, 1991, 1993, 1994). (…) represents omitted content. Reference to 'past imperfective' is with regard to languages like the Romance languages in which perfective/imperfective is only marked in Past. Slavic languages have separate past and perfective markers and the situation is somewhat different (Weist 1986; Andersen 1989):

1. [Learners] first use past marking (e.g., English) or perfective marking (Chinese, Spanish, etc.) on achievement and accomplishment verbs, eventually extending its use to activity and [then to] stative verbs. (…)
2. In languages that encode the perfective-imperfective distinction, [a morphologically encoded] imperfective past [as in the Romance languages] appears later than perfective past, and imperfective past marking begins with stative and activity verbs, then extends to accomplishment or achievement verbs.
3. In languages that have progressive aspect, progressive marking begins with activity verbs, then extends to accomplishment or achievement verbs. (Andersen & Shirai 1996: 533)

This chapter deals with the multidimensionality of the Aspect Hypothesis, especially with regard to second language acquisition (SLA). I follow Comrie (1976) in capitalizing the first letter of the name of a tense or aspect marker for a particular language (Past, Preterit) and use lower case for the semantics of a form or construction (perfective, present).

A major issue in the literature on first and second language acquisition of tense-aspect morphology is whether the empirical findings on the earliest emergence of tense-aspect morphology in language acquisition constitute evidence that learners have early access to absolute tense, as some argue (e.g., Weist et al. 1984 for first language acquisition), or whether the pathway to full-blown absolute tense

marking begins with marking based on semantic aspect (e.g., for first language acquisition, Bronckart & Sinclair 1973; Antinucci & Miller 1976; Bloom, Lifter, & Hafitz 1980; for summaries of this research see Andersen 1989; Andersen and Shirai 1996; Bardovi-Harlig 2000; and Li and Shirai 2000). As is discussed in a number of publications, Comrie 1976; Smith 1983, 1997; Andersen 1989, 1991, 1994, Bardovi-Harlig 2000; and Li and Shirai 2000, the word 'aspect' in English is used for both the more familiar *grammatical aspect* as in the English, Spanish or Portuguese progressive aspect or Spanish, Chinese or Polish perfective aspect, as well as for verb semantics (also called inherent lexical aspect), which is a property of *all* languages, as in the English verb *know* being a 'state' semantically and the verb *break* being an 'achievement' (or punctual event). Some of the confusion in the literature stems from certain scholars interpreting the word 'aspect' automatically to mean grammatical aspect, as well as the use of different terminology for the same notion.

Table 1 presents the basic categories of inherent semantic aspect (also known as verb semantics, inherent lexical aspect), which is assumed to be the semantic properties of the individual lexical item in most cases (e.g. *know*, *talk*) or the verb plus an object or goal (e.g. *build a house*, *run a mile*). The top line in Table 1 indicates the simplest three-part distinction that can be made. States have no natural beginning or end points and exist without any input of energy until something changes the state. Processes (also called 'activities') have arbitrary beginning and end points and require constant input of energy to occur. Events have a natural end point. Some events are momentary in that the beginning and end point are one and the same (e.g. *break*) and are called punctual events or achievements. Other events consist of a period of an activity-like duration leading up to a natural endpoint (e.g. *write a letter*) and are called telic events or accomplishments. Punctual and telic events have an end-point in common, which justifies them being referred to as one category — an event. Finer distinctions can be made, such as semelfactives (Smith 1983, 1997) like *jump*, *bounce*); a person can jump once or bounce a ball once off a wall, and then each of these is a punctual event, but continued jumping (such as jumping rope) or bouncing of a ball (while playing basketball) constitutes a durative situation which can be called a *derived* activity. ('Derived' in that a unitary punctual event, *jump* or *bounce*, is combined with additional content or context to convey a notion of repeated jumping or bouncing.)

Table 1. Terminology for inherent semantic aspect

1. STATE	PROCESS	EVENT	
2. (state)	(activity)	(accomplishment	achievement)
3. (state)	(activity)	(telic event	punctual event)
want	walk	write a poem	break
know	run	build a house	recognize (someone)

The earlier literature on first language acquisition of tense and aspect appears to argue that initially very young children cannot conceive of the notion 'past' (prior to the time of speaking) (e.g., Bronckart and Sinclair 1973; Antinucci and Miller 1976), and thus their first uses of past forms are determined by aspectual properties of the verbs. In reaction to these strong claims, Weist et al. (1984) showed that Polish speaking children, whose language includes both past tense and perfective aspect, indeed can use the appropriate past morphology to refer to periods prior to the time of speaking. Having successfully rejected that strong claim, they then dismissed the notion that the children are influenced by inherent semantic aspect in their acquisition of tense and grammatical aspect. However, Andersen (1989) and Bloom and Harner (1989) independently reanalyzed Weist et al.' s quantitative data and showed that indeed the Polish children's acquisition of both past tense and perfective aspect conform to earlier findings that first language learners are guided by inherent semantic aspect in their acquisition of these forms.

Rather than debate whether children (and second language learners) are making tense or aspect distinctions in their early use of these morphological forms, I argue here that a more fruitful way to approach this issue is to ask, "How does the learner discover the form-to-meaning relation encoded by the past or the perfective marker (or any other tense or aspect marker) when the learner first perceives it and then begins to productively use it in natural communication?" The answer provided by *my* interpretation of the Aspect Hypothesis, which is discussed below in greater detail, is that learners are cognitively predisposed to find *real realized unitary bounded events* encoded in language and thus recognize that meaning of the 'past' or 'perfective' form and not the broader ranges of meaning the form has in adult native speaker use. Narrowly defined, 'event' means minimally an action with an end point, as discussed in connection with Table 1.

Huang (2000: 427), a study of temporal reference in Chinese mother-child interaction, includes an example of the Mandarin perfective form *le*, which can serve to illustrate this preference for marking with past or perfective form a real realized unitary bounded event:

(2) (MOT: mother; WEI : Weiwei, 3 year 3 month old son)
    1 MOT: ni kan dou shi koushui.
              you see all be saliva
              'You see, it's all saliva.'
    2 WEI: ca-diao [%said while wiping the toy lion]
              wipe-off
              '(I am) wiping (it) off.'
    3 WEI: ca-diao le [%said after finishing the wiping]
              wipe-off PFV
              '(I) wiped (it) off.'

In line 3 Weiwei tells his mother that he wiped the saliva off. This is a real realized unitary bounded event as the equivalent English version would be. *Ca-diao* 'wipe-off' is an achievement verb (punctual event) and the perfective *le* is semantically congruent with punctuality. This example is especially interesting because the same verb is used in the preceding utterance with no morphological marking, interpreted in the English translation as "I am wiping it off." Thus the Aspect Hypothesis does not predict that just any token of an achievement verb like *ca-diao* 'wipe-off' will automatically 'attract' a perfective *le* marker, but rather that when the *le* marker is used, it will be used more often with achievements (or perhaps with telic events in general) than with verbs of other semantic properties (activities and states). But this example also shows that it is the child's apparent *intention* to express a 'unitary bounded event' *notion* that causes him to use *le* in 3, but not in 2.

In this chapter we are dealing primarily with second language acquisition of English Simple Past tense and Spanish Preterit (past perfective) and Past Imperfective. Unlike English and Spanish, some languages do not mark either past or perfective in any straightforward morphological way comparable to past and perfective in these two languages (or in Chinese, which has only perfective). For example, most creole languages, such as Guyanese Creole English (Bickerton 1975), have several tense-aspect markers, including anterior and progressive or imperfect markers, but no markers for past or perfective. For languages like English, which encodes absolute past tense, this early form–meaning association in language acquisition, in which only real realized unitary bounded *events* receive past marking, also constitutes the beginning of a past system, because a bounded event is over as soon as it happens (or as soon as the end boundary is reached in cases like *build a house*) and thus 'past' in the sense of occurring prior to the moment of speaking. Even if ultimately some other interpretation of the empirical research on this issue proves better, I argue that the question must focus on (1) how the learners discover the meaning encoded in whatever morphology they begin to use productively and what that meaning is, and (2) within a framework that provides a logical explanation for how that initial form-meaning relationship develops over time, perhaps through a number of stages, until the person attains the full meaning, function, and distribution of the past or perfective form.

My thinking on this and related issues has evolved over the past twenty years as I have worked my way through my data on Spanish acquired naturally as a second language by English speaking children living in Puerto Rico (collected in 1978 and 1980 and reported on to some extent in Andersen (1983, 1984, 1986, 1991, 1994), but also in my research on tense-aspect in native discourse (e.g., Andersen 1990a, 1990b, 2000). I have also benefitted immensely from working closely with many graduate students at UCLA in my seminars and on their data, papers, theses and dissertations, from the early 80s to the present, on first and second language acquisition of tense

and aspect as well as studies on temporal notions in natural spoken discourse, in a number of languages.

Spanish has obligatory past tense as English does. However Spanish traditionally is described as having two past forms — the Preterit (past perfective) and the Imperfect (past imperfective). Dahl (1985) provides a better characterization: the major distinction is perfective (Preterit) vs imperfective, and 'imperfective' has two contrasts — 'past imperfective' (*Imperfect*) and 'nonpast imperfective' (Present). Indeed, as Comrie (1976) makes clear, 'present' in language is by nature an imperfective.

As I have argued in Andersen 1991, in second language acquisition of Spanish by English speakers in natural settings, Preterit (perfective) and Past Imperfect marking begin in opposite corners, so to speak, of the verb semantic continuum.

VERB SEMANTICS:	achievements	accomplishments	activities	states
PERFECTIVE:	1 ===>	2 ===>	3 ===>	4
IMPERFECTIVE:	4 <——	3 <——	2 <——	1

Figure 1. SPREAD OF SPANISH PERFECTIVE AND IMPERFECTIVE (adapted from Andersen 1991:314)

Figure 1 is to be interpreted as follows (see Andersen 1991 for a more complete description): The Preterit (perfective) inflection (*-ó* in *cayó* 'fell'; compare Present *cae* 'falls') appears initially on achievement verbs (i.e. punctual events), then somewhat later also on accomplishment verbs (telic events), and then spreads to activity verbs and finally to states (*estuvo* 'was', *supo* 'came to know, realized'). Learners do not use Past Imperfect at all for a long time, even while they are progressing in their use of Preterit on more and more verbs. First uses of Imperfect (*sabía* 'knew', *estaba* 'was'; Present *sabe* 'know', *está* 'is') are on states and then appear with activity verbs (*jugaba* 'played', *pintaba* 'painted'), spreading later to accomplishments and achievements (*caía* 'was in the process of falling; would fall'). Thus Preterit use begins in the achievement 'corner' of the developmental continuum in Figure 1 and Past Imperfect begins to appear later, and then in the opposite state corner of the continuum.

The Aspect Hypothesis predicts that the Past Imperfective of Romance languages will be delayed in its appearance in comparison with the Perfective marker because it prototypically encodes states and activities, which are marked for tense and aspect late in the continuum in Figure 1. Initially the function of the Past Imperfective to refer to states and/or activities in a past time frame, as well as habitual or iterative events, is taken over, partially, by the bare form of the verb (essentially the 3rd person singular Present), as well as, for activities in some cases,

the progressive, both of which contrast with the perfective form. In native usage the Past Imperfective can also present achievements and accomplishments from an internal perspective, as if they had duration. The equivalent in English is the use of the progressive to refer to something like 'breaking' or 'leaving'. The Aspect Hypothesis predicts that such uses will be very late in second language acquisition. I will illustrate this view of second language acquisition of something called 'past tense' with two short examples from my Spanish L2 data, taken from Andersen (1994: 11–16). In these examples *dijo* 'said,' *cayó* 'fell,' *preguntó* 'asked', *fui* 'went' are Preterit (perfective), *dolía* 'hurt' is Past Imperfect, and *duele* 'hurts' is Present (that is, nonpast imperfective in Dahl's characterization of Spanish). AM refers to the speaker, Annette, the 10 year old daughter of an American couple living in Puerto Rico. The examples come from the second data collection period, four years after Annette had first moved to Puerto Rico (see Andersen 1991, 1994 for details).

Annette has a relatively good command of the perfective/imperfective distinction by this point. As predicted by the Aspect Hypothesis her use of Preterit in obligatory contexts is more accurate than her use of Imperfect: the verbs in contexts requiring Preterit are correct 83% of the time (with 53 different verb types), whereas in Imperfect contexts she is only 52% correct (50 different verb types). And the main forms she uses in place of Imperfect are Preterit (12 verb types) and Present (17 verb types).

(3) Two Spanish L2 Examples (Andersen 1994: 11–16)
     (PRT=Preterit form, IMP=Imperfective form, PRES=Present form, 3SG=Third person singular, REFL=Reflexive, IO=Indirect Object; * = nonnative)

     (Example 6) (AM80:1211)
     1   y   yo *dijo*
         and   I   say+PRT
      [= *y yo dije*]
         'and I said'
     2   que me   que me   *cayó*   del   trompolín,
      [= que me- que me   caí   del   trampolín,]
         that I-REFL that I-REFL fall+PRT from-the diving-board
         'that I — that I fell from the diving board,'
     (Example 18) (AM80:1184–7)
     1   cuando yo *fui*   al   doctor el .. lunes,
         when I   went to the doctor Monday,
     2   ella él, él me *preguntó*
         she- he, he asked me
         Ask+PRT

3   que si *duele*   mi dedo,
     that if hurt+PR+3SG my finger
     that if hurts my finger
     [= si me *dolía* el dedo] [= if my finger hurt]
     [if me+IO hurt+IMP+3SG the finger]

Both verbs in Example 6 'and I *said* that I — that I *fell* from the diving board,' are Preterit (perfective) and appropriately so by native Spanish standards (except for person-number agreement: *dijo* and *cayó* (3rd singular) should be *dije* and *caí* (1st singular)). Indeed all the Preterit forms in Examples 6 and 18 in (2) follow the Aspect Hypothesis in that they are all telic events (i.e., either achievements or accomplishments). But *duele* 'hurts' in line 3 of example 18 is stative and thus should be easy for Annette to use in Past Imperfect according to the Aspect Hypothesis. The Aspect Hypothesis predicts that telic events will receive past marking in learner discourse earlier than and more often than states will, which could account for the Preterit forms being past marked since they are all events. But Annette already uses Past Imperfect a lot, and since *duele* is a state, this shouldn't pose a problem if this is simply a matter of verb semantics.

There are at least two other factors that might be at work here: *foregrounding vs backgrounding,* and *direct narration* vs *indirect reported speech.* The two clauses in Example 6 refer to two different discrete unitary events, each occurring at a different time, and both are in the foreground (i.e., are narrative clauses in terms of Labov and Waletsky 1997 [1967]). In Example 18 *duele* 'hurt(s)' (for *dolía* 'hurt Past-IMP') refers to a state existing in the same time frame as *fui* 'went' and *preguntó* 'asked' (that of the visit to the doctor's office; see Andersen 2000). The clause *que si duele mi dedo* 'if my finger hurts' is backgrounded with respect to the main story line and is also a case of indirect reported speech. Many languages mark only the verb of saying for tense and aspect and leave the verb in the following clause containing indirect reported speech in a neutral present or imperfective form (essentially unmarked). The time of the saying is assumed to be the same time as the verb in the reported speech, unless marked otherwise. Papiamentu, a Spanish-, Portuguese-, and Dutch-based creole language spoken in the Netherlands Antilles is such a language. The example in (4) presents the first two clauses from Example 15 in Andersen (2000: 362), from a narrative in Papiamentu by a woman in her mid- seventies talking about her childhood. The second clause is the indirect reported speech clause and, as in the nonnative Spanish example, the verb *tin* 'have' is not marked with a past or perfective form, marked by [0] in the normal preverbal tense-aspect position.

(4)   (Example 15) Mrs. T. (B11b:1979–83)

> Mrs. T: en todo kaso an-uhm- e   kabes di skol .. [a] bisa mi
> anyway   th- uhm - the   head of school .. PFV tell 1SG
> "Anyway th- uhm — the head of the school .. told me"
> ku   mi [0] tin ku bai sinta den klas ei,
> that 1SG   have to go   sit   in   class there
> 'that I have to go sit in that classroom,'
> [="that I had to go sit in that classroom,"]
> [Andersen 2000: 362]

Returning to the Spanish SLA example, my interpretation of Annette's use of non-past marked *duele* 'hurts' in place of *dolía* 'hurt' is that Annette indeed has a relatively good command of imperfective, but like all learners, is taking a long time to sort out the appropriate use of past imperfective marked forms like *dolía*, and until she does sort it out, she will resort to the default nonpast imperfective ('Present') as well as, for some event verbs, the Preterit. While the two Spanish L2 examples and the larger study they come from support the verb semantics interpretation of the Aspect Hypothesis, there is clearly more to the Aspect Hypothesis than verb semantics.

Some assumptions

This chapter focuses on second language acquisition under so-called 'naturalistic' circumstances. That is, the data that I draw on comes from individuals who learned whatever command of the second language they have by living among people who speak the language as their native language. In addition, the samples of these individuals' discourse should be, I believe, a sample of their normal daily use of language. Above all, this interpretation of the Aspect Hypothesis assumes that learners in any study must be able to converse freely on topics of their choice, with the freedom to organize their discourse as they talk, just as they would in natural conversation in their second language under circumstances where they were not being recorded. Thus, also appropriate for research of this type are individuals who have learned and are learning the secondary language in a so-called 'foreign language' situation, provided they are capable of conversing freely on topics of their choosing. That is, they are students in a 'foreign language' class but live in their own country and do not necessarily have easy access to native speakers outside of class.

It is also known from considerable experience that the data collection process can and does have some effect on their talk during data collection, so that it is important to do everything possible to minimize this effect. In addition, experi-

mental and elicited data collection procedures are necessary for many issues, but such elicitation procedures can also easily influence the nature of the data obtained. It is also quite probable that other variables such as formal instruction in the language, individual learning and speaking style (need to be 'correct' vs focus on communication), the effect of the speaker's first language, and articulatory and perceptual difficulties (as in the past 'ed' in English) can lead learners to produce specific verb tokens for reasons other than those captured by the Aspect Hypothesis. In addition, verb tokens occur in a wide variety of different syntactic environments and are used with different illocutionary force from one case to another. It is thus unreasonable to expect perfect adherence to the Aspect Hypothesis. It is indeed remarkable that a large body of studies using quite different research methodologies and following different assumptions continue to support the Aspect Hypothesis.

Individual researchers also work within some framework of theoretical assumptions about the nature of language, discourse, and 'acquisition,' although these are not made explicit in most studies. I assume *a cognitive-interactionist theory* for both native and nonnative discourse in that speakers and participants in discourse produce and perceive 'speech' in terms of their own cognitive processing of form, meaning, intentionality and perceived intentionality of other speakers and that their talk unfolds from moment to moment interactionally (see, for example, Ochs, Schegloff, and Thompson 1996 for some aspects of the interactionist side and Chafe's (1998) notion of 'focus of consciousness' for the 'cognitive' side of such a theory). I also assume that second language learners acquire language in ways consistent with a cognitive-interactionist theory, but with specific features for how the learner notices a form, initially assigns some meaning to it, stores it in memory, and later activates the form-meaning relation in discourse production, gradually modifying the form-meaning relationship over time (on this see Andersen 1988).

"Past" and "Perfective" in the Aspect Hypothesis

Description and explanation

As I understand it, the Aspect Hypothesis has two quite different components. One is purely descriptive and the other is theoretical and explanatory. In this chapter I focus on second language acquisition of what is descriptively called 'past verb morphology' in languages like English in which there is essentially one past form, and in languages like Spanish in which there appear to be two past forms, one perfective (the Preterit) and the other imperfective (the Imperfect). Although for reasons of time and simplicity I leave out the progressive, which is present in both

English and Spanish, I realize that attention must be given to the role the progressive plays in dividing up the conceptual territory marked by past and nonpast forms in adult native language.

In (5) I repeat the descriptive wording of the section of the Aspect Hypothesis relevant to past and perfective in Andersen and Shirai (1996: 533) presented at the beginning of this chapter:

> (5) [Learners] first use past marking (e.g., English) or perfective marking (Chinese, Spanish, etc.) on achievement and accomplishment verbs, eventually extending its use to activity and [then to] stative verbs.
> (Andersen and Shirai 1996: 533)

This is essentially a descriptive account. I have attempted an explanatory account in several articles, one of which I will focus on here. In the abstract for Andersen & Shirai (1994: 133) we state:

> (6) This paper offers an alternative interpretation for what has been called the defective tense hypothesis, the primacy of aspect hypothesis, or simply the aspect hypothesis in the literature on first and second language acquisition of tense and aspect. The aspect hypothesis states that first and second language learners will initially be influenced by the inherent semantic aspect of verbs or predicates in the acquisition of tense and aspect markers associated with or affixed to these verbs. Our account focuses on the observation that adult native speakers also appear to adhere to this primacy of inherent aspect in the relative quantitative distribution of tense-aspect markers in their speech. We argue that a small set of cognitive operating principles and the notion of prototypicality account for this behavior in learners. Moreover, we argue that these principles are a consequence of how learners and native speakers alike organize *information and their perspectives on it in ongoing discourse.*
> (emphasis added)

It is the last sentence that constitutes the starting point for this chapter: the pairings of specific tense or aspect forms with specific inherent verb semantic features that have been the focus of so many studies are interpreted as *serving speakers' purposes as they encode 'information and their perspectives on it in ongoing discourse.'* Thus the semantic dimension most commonly formulated in different versions of the Primacy of Aspect Hypothesis and the Aspect Hypothesis cannot be treated separately from a discourse-functional explanation for these phenomena, according to this account. The claimed early association between grammatical past tense or perfective aspect and a restricted class of verbs based on their inherent semantic features is thus seen as a **consequence** of humans' need to express their intended meanings in on-going discourse, whether in the monologues typical of elicited and spontaneous narratives that typically constitute data in many studies on this topic or more complex interactive discourse.

The past acquisition hierarchy for English

In Andersen & Shirai (1996: 557) we hypothesized the sequence in (7) as a possible internal structure of the category past tense in English, from prototype to marginal members (the arrow means 'precedes'):

(7) Deictic past (achievement → accomplishment → activity → state → habitual or iterative past) → counterfactual or pragmatic softener

This reads as follows: Deictic past precedes counterfactual and pragmatic softener uses and within deictic past the first uses are with achievement verbs, that is verbs with an inherent instantaneous semantic aspect. This early appearance with achievements then spreads over time to accomplishments, which, like achievements have an inherent end point, but also have inherent durativity, and from there to activities, which share inherent durativity with accomplishments. Activities, however, have an arbitrary end point and are durative, features shared with states, to which past marking spreads once activities appear with past marking. The early uses are for unitary past events and it takes time for learners to use past marking with habitual or iterative pasts.

In our discussion of the hierarchy in (7) we then went on to state:

(8) It is unlikely that this sequence is strictly linear. It is more likely hierarchical. For example, once accomplishments are included, the door is opened for various sorts of durative situations. Habitual and iterative pasts are types of extensions of durativity. It is logical that they begin to develop gradually even while accomplishments are still being added to potential past-marked verbs (Andersen and Shirai 1996: 557).

In that same publication we quoted Dahl's (1985: 78) characterization of the prototype for perfective, finding that "it appears that his description also fits the description of the prototype past,' and we also cited Bybee & Dahl 1989, "who show how, historically, perfectives often develop into past forms." (9) is Dahl's characterization of the prototype for perfective:

(9) [It] will typically denote a single event, seen as an unanalyzed whole, with a well-defined result or end-state, located in the past. More often than not, the event will be punctual, or at least, it will be seen as a single transition from one state to its oppositive, the duration of which can be disregarded.
   (Dahl 1985: 78)

Thus, although Past is a tense category and Perfective is an Aspect category, the two appear to have almost the same prototype. If Bybee, Perkins, and Pagliuca (1994) are correct in their study of universals paths of development of tense, mood, and aspect markers in languages of the world, the partially-shared prototype for Past

'be'/'have' →   RESULTATIVE

'finish'   →   COMPLETIVE

ANTERIOR → PERFECTIVE/SIMPLE PAST

Figure 2. The Perf Pathway (adapted from Bybee et al.'s (1994: 105) Figure 3.1)

and Perfective comes from being at the same point or close to the same point on what they call the Perf Pathway (105), as represented in Figure 2.

As Bybee et al. (1994) explain, the Mandarin perfective *le* developed from a verb meaning 'finish,' developing first into a completive and then into an anterior (somewhat similar to English perfect as in 'she has left') and from there into a perfective (while retaining the anterior meaning in certain contexts). In other languages, including many European languages, the past or perfective evolved from a verb form conveying a resultative sense, including the use of a 'be' or 'have' verb as an auxiliary (e.g., French, northern Italian, and many Germanic languages).

A cognitive processing account of the past and perfective developmental hierarchies

Here I summarize very briefly the cognitive-processing account for past and perfective developmental hierarchies from Andersen (1993) and Andersen and Shirai (1994) (see also Andersen 1988). By this account there are at least five factors that appear to govern the hierarchy reproduced in (6). These factors, some stated as principles, were developed independently of this body of research on acquisition of tense-aspect. They are meant to capture important generalizations about how learners appear to notice and then learn and use grammatical inflections, auxiliaries and constructions and the verbs they attach them to or associate them with. I follow Bybee and Dahl (1989) in using the term *gram* to mean a grammatical formative such as an inflection, auxiliary or a periphrastic construction, in this chapter specifically with regard to marking tense and aspect.

1. *The One to One Principle of Interlanguage Construction.* Learners initially assume that any new form (word or gram) they perceive and then use has one and only one meaning. It takes time to discover other meanings for words and grams.
2. *Prototypes.* Learners (and perhaps also native speakers) more naturally and more easily access the prototypical meaning of a verb and whatever tense-aspect *gram* they independently choose to associate with it. Non-prototypical meanings are less accessible, in a gradient fashion according to how far the token is from the core prototype.

3. *The Relevance Principle.* In choosing to mark a verb with a gram, learners choose a gram with the greatest relevance to the meaning of the verb. Thus they will initially choose to mark an event verb like *cae* 'fall' with an aspectual gram (Preterit *-ó*), rather than a person-number agreement marker. In native Spanish, tense and aspect grams are also inflected for person-number. It is noteworthy that the learner typically chooses the third person singular form (*-ó* for Preterit) as the default Preterit form for all persons and is thus not marking agreement.

4. *The Congruence Principle.* Of the various aspectual grams available in the input, for Spanish perfective, imperfective, progressive, among others, the learner will choose the one most congruent in meaning with the meaning of the verb to which it is attached. Thus a Preterit gram is used with an event verb, Present and Past Imperfect grams with states, and Progressive grams with processes. For English this means that a Past gram will first be used with event verbs with a perfective sense, consistent with the semantics of events.

5. *The Distributional Bias Principle.* Adult native speakers also tend to associate certain verb classes with particular relevant and congruent grams in their discourse in partial conformance with the Aspect Hypothesis. One possible consequence of this is that this provides learners with potential models that confirm and reinforce their independently arrived at verb-gram combinations and the meanings they assign to them. It is also possible that both native speakers and learners are choosing more prototypical verb-gram combinations for the same cognitive and discursive reasons.

Discourse motivations for the five factors

Andersen 1993, 1994, and Andersen and Shirai 1994 (see also Andersen 1990b) attempt to build an account of how learners and native speaker use tense-aspect forms and constructions to serve their purposes in unfolding discourse. This account assumes that as people speak, they choose forms to convey their intentions at that point in the discourse. The five principles discussed above are meant to account for some of the factors that govern how they do this, as their current *focus of consciousness* (Chafe 1998) moves to the next unit of meaning (a clause or intonation unit) they intend to place into the discourse. As they encode a new clause, learners choose a verb and simultaneously a gram to associate with it to convey the temporal perspective they are formulating as they put "thoughts into words," following the five principles, at least in early stages of second language acquisition. Within this account it is logical that they choose a verb and a gram that are *congruen*t in meaning, and that the meaning of the gram is *relevant* to the meaning of the verb. Thus in Spanish the learner will choose an event verb and with

it a Preterit gram, since they both convey the notion the speaker intends to place into the discourse. In English, it is suggested that when the learner chooses an event verb and a Past gram simultaneously, the Past gram does not carry the full range of past time it does in native discourse but instead the meaning similar to that of an event verb and a Preterit gram in Spanish. It is precisely in this area of the semantic prototype of both English Past and Spanish Preterit that there is overlap.

But where did the novice learner get this meaning association for the use of this particular verb and gram? There are at least three possible explanations, not necessarily mutually exclusive. All come partially from the Distributional Bias Principle.

1.   *A biased distribution in the input to learners "falsely" guides learners in the direction predicted by the Aspect Hypothesis.* Following one interpretation of the Distributional Bias Hypothesis, the prototype of the gram and its typical association with a particular semantic subclass of verbs is explicitly *modeled*, quantitatively, in the input. (Slobin's (1985) notion of how learners increase the strength of association of a particular meaning and distribution of a gram each time another token is encountered is relevant here. See also Andersen 1988.) The Distributional Bias Hypothesis states that the same verb-gram associations predicted by the Aspect Hypothesis are found in native speaker discourse. Thus the input the learner is exposed to causes the learner to infer the almost absolute verb-gram associations described in the Aspect Hypothesis. Taken to its logical conclusion, this alone might account for such distributions in learner speech.

2.   *Both native speakers and nonnative speakers have the same cognitive predisposition to arrive at similar verb-gram preferences.* One possible interpretation of the empirical findings behind the Distributional Bias Hypothesis is that humans will arrive at a prototypical meaning of a gram because humans' perceptive and conceptual mechanisms, which operate quite separately from language, operate according to prototype theory. Thus fully mature native speakers and novice learners alike, whether first or second language learners, will show the same preferences for prototypical form-meaning associations, following also the relevance and congruence principles. For the novice learner, the one to one principle and the inability to learn *all* verbs and *all* grams instantaneously, cause the novice learners' use of prototypical verb-gram associations to appear in a more absolute fashion, whereas fully mature native speakers show a quantitative probabilistic adherence to the Aspect Hypothesis. Indeed, it may be that all learners, whether of first or second languages, must begin with prototypical associations and then gradually expand their repertoires as the demands of more complex discourse require, including less prototypical constructions. Thus the biased distribution in native speaker speech may well be the logical outcome of early prototype associations as very young first language learners.

3.   *Forming and using prototypes is natural for humans, and thus nonnative speakers* **infer** *the prototypes partially from input and partially from a natural disposition to find prototypes.* Humans naturally form prototypes of meaning and in learning new form-meaning relations will first assign the core prototypical meaning to a form (a verb, a verb construction, or a gram), the meaning of which is inferred from the input based on context, through repeated noticings of the form. It then takes time for the novice learner to perceive other tokens of the verb or gram in the input that have less-prototypical interpretations. With time the novice learners gradually expand their mental representation of the meaning and the distribution of the gram with different verbs. This is a combination of both (1) and (2)

Dimensions of pastness

It appears that what researchers typically treat as a hypothesized linear sequence to be accounted for, is in reality much more complex and consists of the interaction of various factors, five of which contribute to the hypothesized developmental sequence for English Past in (7). Table 2 lists these five dimensions and suggested points of development of English Past marking and a sixth dimension that is independent of but interacts with the other five.

These six dimensions are meant to account for acquisition of languages like English, with absolute past, and languages like the Romance languages, which encode past perfective as well as past imperfective. (I would also expect this discussion to apply to languages with no obligatory past marker, but which have some sort of perfective marker, such as Thai, Malay, and Mandarin, as well as languages like the Slavic languages, which encode both perfective and past separately from each other. However, I will not elaborate on this here.)

Dahl's (1985) analysis of Romance grammatical aspect treats the system as a primarily aspectual distinction (perfective vs imperfective) in which imperfective is subcategorized into past and nonpast forms. It is only in the area of imperfective that the learner must distinguish past and nonpast and this helps account for the difficulties learners encounter with the past imperfective. Nonpast imperfective is

Table 2. Six dimensions of the past developmental hierarchy

1. *VERB SEMANTICS:*	achievements → accomplishments → activities → states		
2. *EVENT TYPE:*	unitary events	→	habitual or iterative events
3. *REALIS-IRREALIS:*	real factual realized events or situations,		→ hypothetical or counterfactual events or situations
4. *PRAGMATIC ROLE:*	direct assertion		→ indirect pragmatic softener
5. *GROUNDING*	foreground	→ background	
6. *DISCOURSE STRUCTURE:*	(position and function within discourse segment)		

traditionally labeled 'Present.' The situation is much more complex than this simple characterization, but this will have to suffice. (But see Weist 1989.) In the following sections I elaborate on how I think learners enter the system, beginning with the most prototypical case for each dimension in Table 2.

(4.1)   *VERB SEMANTICS:* achievements → accomplishments → activities → states

It is hypothesized that English past and Spanish perfective markers are first used with achievements (or possibly simply telic events, which encompass both achievements and accomplishments). This indeed is the dimension the Aspect Hypothesis studies (including those that have not treated their studies as 'aspect hypothesis studies') have concentrated on. One discourse-functional motivation for this is the need to explicitly highlight the bounded nature of the event being asserted; that is, a noticeable end point. Part of my motivation for presenting this multidimensional account is to show that, while inherent semantic aspect is at the center of the development of categories like 'past' and 'perfective,' verb semantics alone is not enough to account for empirical findings, as will become clear in the discussion of the other dimensions.

(4.2)   *EVENT TYPE:* unitary events → repeated (habitual or iterative) events

Unitary events are referred to prototypically only after the event has occurred. But such events can also be referred to as habitually occurring or iteratively taking place. The discourse-functional account predicts that unitary events will receive explicit past morphological marking before habitual or iterative events. Until marking of habitual/iterative events is available, the bare verb (or possibly progressive, which we are not taking into account here) will be used, as well as the Spanish Preterit for certain events. The typical unitary event will be encoded lexically with an achievement or an accomplishment verb. By the time learners use activity verbs with past marking, they should also be capable of encoding past habituals and iteratives with past marking. This is, as intended, open to empirical verification. (See Shirai 1999, this volume for a recent treatment of this issue.) This account thus predicts that past and perfective grams will be used initially primarily for (1) event verbs and (2) unitary actions. However, after the learner begins marking activity and telic event (accomplishment) verbs with Past and Perfective grams, it is thus predicted that habitual and iterative marking with Past (English) and Past Imperfective (Spanish) will be accessible.

There is thus a potential competition between *verb semantics* and *event type* at this point, especially for Spanish, because the Past Imperfect form is used for habitual/repeated events: the learners may use (nonnative) Perfective forms on telic and punctual events even for habitual and iterative situations, thus following verb

semantics, or they may choose the native Spanish norm — Past Imperfective — for these verb tokens. It is thus predicted that this stage in learners' expansion of their marking of verb forms will be a variable one and it will take time for the learners to sort out the competing forces involved. The same learner could mark the intended iterative or habitual meaning of 'fell' (habitual: would fall; iterative: fell again and again) (1) some times in a nonnative fashion by focusing on the internal semantics and use Preterit *cayó*, more appropriate for a unitary event, (2) other times by using the native Past Imperfect *caía*, (3) and other times using the nonnative Present *cae* (the default unmarked 'imperfective').

This is illustrated in (10) below, another excerpt from the time-2 data from Annette, who learned Spanish while living in Puerto Rico. In this excerpt, all but one of the seven verb tokens follow the first dimension in that the tense-aspect marking is congruent with the inherent semantics of the verb. The exception, *toca* 'ring,' in line 7, is a punctual event and would be Preterit if this were a unitary event, as is *se cayó* 'fell' in 3. But *se cayó* should be an Imperfect *se caía* to indicate that this is within a habitual narrative, as should all the other verb tokens.

(10)   AM80:480–89: *Habitual/customary Narrative*
       (* marks nonative tense-aspect marking)
       1   ella   *tenía* una(s) estos libros,
                 have+IMP
            'She had some- these books,
       2   que si tú .. *pintaba*
                        paint..IMP
            'that if you .. were drawing/coloring (lit:painting)
       3   y después .. tu crayola se   *cayó* en el piso
                                         fall..PRT*
            'and then (lit. after) .. your crayon fell to the floor
       4   .. then no no *puedes* .. coj recojerlo
                         can..PRES*
            '.. then- (you) can't .. pi- pick it up (=couldn't)
       5   *tienes* que ir afuera
            have..PRES*
            '(you) have to go out (=had)
       6   y .. (mala) .. sentarle afuera
            'and .. (bad) .. sit outside
       7   .. y depués cuando después que el timbre .. *toca*
                                                        ring..PRES*
            '.. and after when after the bell .. rings (=rang)

8   para ir a casa,
     'to go home,'
9   *tenía(s)* que pi- venir allí pin-
     have..IMP
     '(you) had to p- come there p-
10   .. y .. recojer las .. las crayolas.
     '.. and .. pick up the .. the crayons.'

The two verbs marked 'correctly' for Imperfect, two cases of *tenía* 'had', a state (lines 1 and 9), *pintaba* 'painted,' an activity (apparently meant for 'drawing') could have this marking solely because of lexical semantics (dimension one). However, I argue that it is noteworthy that the two tokens of 'correct' Imperfect *tenía* 'had' are at the *beginning* and *end* of the habitual narrative and that Annette is initiating and concluding the narrative with appropriate habitual marking and then suspending continued Imperfect habitual marking for the rest of the narrative. I take *pintaba* 'painted/was drawing' as being due to the semantic dimension of the Aspect Hypothesis alone, just as the Preterit *se cayó* 'fell' is due to the semantic dimension. *Pintaba* accidently looks correct and *se cayó* looks incorrect, but both reveal that Annette probably marks habitual narratives only partially and leaves it to pragmatics for the listener to reconstruct her intentions. (She most certainly is not aware of doing this, of course.)

I also argue that once Annette is mentally *within* the story she is telling, she takes that vantage point from within the story as the ground and thus the Present forms *puedes* 'can' (line 4), *tienes que* 'have to' (line 5), and *toca* 'rings' (line 7) are indeed appropriate from her perspective. It just so happens that native Spanish requires full Past Imperfect marking of all verb tokens. Annette's interim system is interestingly almost identical to the native Papiamentu system (see Andersen 1990a, 2000). I thus argue that cognitively Annette is doing 'what comes natural for humans.' The Semantic and Event Dimensions are core aspects of understanding the full complexity of pastness in native and nonnative discourse, but we need to go beyond this, as I have suggested in the preceding discussion.

(4.3)   *REALIS/IRREALIS:* real factual realized events or situations →
         hypothetical or counterfactual events or situations

Compare "if you knew that" in these two invented utterances: (1) "If you *knew* the answer, why didn't you say anything?" and (2) "If you *knew* the answer, you could help me." In the second utterance, English Past marking is used, as it is in many but certainly not all languages, for hypothetical and counterfactual events or situations. The discourse-functional account discussed here predicts that such uses will be very late. This is because the past and perfective forms prototypically encode

reference to real factual realized events. This is why perfective events are interpreted as being 'already over' by reference time, or 'past' in the sense of 'passed' (that is, the verb 'pass' plus -ed) or Spanish *pasado* 'passed', the past participle of *pasar*, and the equivalent name of the Simple Past. If the speaker refers to an event that is real, factual, and thus realizable, by the time it is referred to it is assumed to be over. Thus there is further overlap at the beginning of marking of verbs: first occurrences of past or perfective marking will be with (1) achievements (and perhaps accomplishments), (2) unitary events, which are also (3) real factual realized events. Hypothetical or counterfactual events or situations will be encoded with the bare verb at these early stages.

This dimension is more complicated in Spanish than in English. Spanish uses a Past Subjunctive for the type of irrealis (hypothetical, counterfactual) situation discussed in the previous paragraph. Thus sentence (1), which depicts a situation presented as real and realized ("If you *knew* the answer, …" and I am asserting that you indeed did know the answer) would be realis Past Imperfect in native Spanish: "Si *sabías* …", while sentence (2) "If you *knew* the answer, …" (and I am asserting that you did not know the answer) would be irrealis Past Subjunctive in Spanish: "Si *supieras* …" It is well known among experienced teachers of Spanish as a second or foreign language that the subjunctive mood is very difficult for second language learners. However space does not permit a more extensive discussion of this interesting complication for the 'dimensions of pastness' issue.

(4.4)   *PRAGMATIC ROLE:* direct assertion → indirect pragmatic softener

Consider this invented utterance: "I wanted to ask you if you wanted to have dinner together tomorrow." This could be real referential past or a pragmatic softener. English Past can function as an indirect pragmatic softener, a function which this account predicts will be very late, except in memorized frozen routines. Thus this fourth dimension needed to account for empirical evidence predicts that the first instances of past or perfective marking will be for direct assertion only. Once more the Spanish equivalent is too complex to discuss here. Under different circumstances indirect pragmatic softeners with the area of 'past marking' draw from Past Imperfect, subjunctive, and conditional.

(4.5)   *GROUNDING:* foreground → background

The notion of *grounding* was discussed briefly at the beginning of this paper with respect to one possible explanation for a Present *duele* in place of the expected *dolía* in the excerpt in Example (3). There I suggested that this could be a case of a backgrounded event appearing in a Present form instead of the expected Past Imperfect. If we take Labov and Waletsky's (1997 [1967]) account of narrative structure as an example, what they refer to as 'narrative clauses' — the main story

line of a narrative — constitute *foreground* and all else *background.* If it is correct that real realized unitary bounded events are the preferred first cases of Past and Perfective marking, then it is also the case that foregrounded clauses are more likely to receive Past/Perfective marking than backgrounded clauses. Space does not permit a more detailed treatment here. For an in-depth review of this issue, however, see Bardovi-Harlig (1998, 2000: Chapter 5), who concludes that studies of the Aspect Hypothesis must take narrative structure (and, in my judgement, by extension, grounding) into account. Interesting test cases would be event verbs in the background and state and activity verbs in the foreground. Most examples in natural discourse will produce far more cases of events verbs in foreground and state and activity verbs in background. What is needed to research this further is a sophisticated research design that will create more opportunities for the test case examples to appear.

Discourse structure

A sixth dimension needs to be taken into account in future research. It does not belong strictly among the other five dimensions just discussed, because it is not part of the hypothesized developmental sequence in (7). Nevertheless it belongs here because it potentially interacts with each of the other five dimensions in complex ways. Failure to pursue the complexities of discourse structure in research on temporality will simply leave as unexplained and unexplainable (or even as potential counter-evidence) phenomena that do have an explanation. Just as grounding (dimension 5) is a reflection of the way speakers place content into the on-going discourse, the *position* of a temporal verb and/or gram in discourse affects the nonnative speaker's ease or difficulty in following native speaker norms in tense-aspect marking. This was illustrated briefly in the second excerpt in example 3, in which Annette used Present *duele* 'hurt' in place of Past Imperfect *dolía*. I argued there that this Present token could be a reflection of both backgrounding and indirect reported speech. Another case was presented in example 10: Annette *began* her habitual/customary narrative with appropriately marked Past Imperfect *tenía* 'had' and *pintaba* 'were painting/coloring' (as well as inappropriate *Preterite cayó* 'fell/would fall', which should be *caía*) in the first three clauses and then Past Imperfect *tenía* 'had' appropriately again at the very end. Thus the *temporal frame* was established in the first three clauses, which allowed Annette to resort to neutral unmarked Present in the next three finite clauses before *closing* the narrative and time frame with appropriately Past Imperfect marked *tenía*. A discourse structure dimension is essential in future research on this and related issues. I illustrate some ways of approaching this dimension in native discourse in Andersen (1990a, 1990b, 2000, ms.)

The expanded aspect hypothesis and beyond

So far I have attempted to outline and illustrate what an expanded version of the original aspect hypothesis might look like. Most of the discussion so far has been within the scope of the body of work that led to the aspect hypothesis and the many studies done on it. In this section I touch briefly on two other areas which I believe must be dealt with adequately if we are to go beyond a strictly verb semantic and grammatical tense-aspect approach to the aspect hypotehsis.

The compositional nature of interpreted aspect

We have followed the logic of Smith's (1983) two part model of aspect in this paper in which she distinguishes *situation aspect* (inherent verb semantics *plus* other elements such as temporal and aspectual adverbials) from *viewpoint aspect* (essentially grammatical aspect). However this inherent verb semantic aspect vs grammatical aspect division is more complicated than this. Smith places within her *situation aspect* a number of contributing factors to what I prefer to call *interpreted aspect*, that is the interpretation a conversational participant or hearer gets or takes from the overall content of a speaker's discourse. I believe it is time to move beyond the Aspect Hypothesis focus which has reaped so many valuable theoretical and empirical insights, and pursue a better understanding of how native speakers and nonnative speakers are both similar and different in encoding and decoding intended meanings and perspectives on these meanings.

One part of *interpreted aspect* (or more generally *interpreted meaning*) involves the compositional nature of how tense and aspect notions are conveyed in discourse. Besides the familiar inherent verb semantics and grammatical tense/aspect grams, at least the following need to be distinguished. (1) Aspectual meaning that can be inferred from tense and modality markers. Modal auxiliaries, for example, typically have stative aspect. Past markers in languages like English also imply completive or perfective in many contexts. (2) Adverbials of time, duration, iteration, etc. Adverbs like *always* and *suddenly* add aspectual meaning to the clause they are used in. Other adverbial expressions such as *all the time, all summer long, last Sunday* have a wider scope beyond the clause and sentence. (3) Attributes of the arguments of the verb, especially subjects and object. As discussed in Hopper and Thompson (1980), a singular subject or object is more transitive in their framework than a plural subject/object. Compare *he killed the man* where both subject and object are singular, individualized, and specific with *he killed the men* and *he killed men*. Plural *the men* is specific, but more diffuse (and aspectually comparable to imperfective) than singular *the man* and nonspecific plural *men* is even more diffuse, contributing to a more imperfective interpretation. If we also make the

subject plural, as in *they killed the man/the men/men*, or even generic as in *in those days men killed men*, then we get an even more imperfective or even static interpretation. (4) Pragmatics of the situation and discourse. We are able, with work, to interpret very limited nonnative discourse in which the speaker hardly marks any tense or aspect notion. A lot of this interpretation comes from pragmatics. Thus something like '*police. kill.*' can be interpreted as meaning 'the police killed/kill/were killing him/her/they/me/us' or even 'he/she/they/I/we kill/killed/were killing/want to kill… the police/policemen' etc. This interpretation comes from the prior discourse, knowledge of the speaker and the situation, perceived goals of the speaker, and experience with the notion of killing, police, and someone who might get killed or kill.

A major difference between relatively fluent but otherwise noticeably nonnative speakers of a language and comparable native speakers is how native speakers and very advanced nonnative speakers make otherwise ordinary use of these four (and other) means for communicating their intended meanings and perspectives and for listeners/recipients of the talk to interpret their intended meanings. New research needs to explore further how these more subtle but certainly very important means are used for total encoding and decoding of temporal and aspectual notions. In the enxt section we turn to one specific case in which a non-prototypical use of a Spanish Imperfect marker, together with pragmatic inferencing, allows a nonnative speaker to communicate subtle nuances that are commonplace in ordinary native Spanish discourse, a competence that is long in developing.

Learning to impose a non-prototypical perspective

Past Imperfect *caía* is also used in native Spanish to take an internal focus as in English 'was falling' in an almost slow motion view within the event. This is a case of the Past Imperfect form *imposing* a non-expected *internal* perspective on what is prototypically viewed as instantaneous (a punctual event). (11) presents a similar use of *venía* — Past Imperfect of *venir* 'come' (pronounced *vinía* by Annette) to convey something like 'slow motion in suspension,' in line 1099. Thus Past Imperfect *venía* can represent a habitual situation (e.g. each time that the ball came towards me) or one unitary event represented from an internal perspective, as it is here. It is predicted that this usage will be as difficult and as late as the habitual use because it is far from the prototypical use of this verb. I take Preterit *vino* 'came' — e.g., 'he came home at five' to be prototypical. However *venir* 'come,' along with 'go' and other verbs that can depict the starting or end point of a trajectory, may constitute a preferred entry point for this 'internal perspective.' An 'in progress' view of 'going' and 'coming' would place the middle part of the trajectory in focus. English would use a progressive for this, whereas Spanish uses Past Imperfect.

(11)   (Example 21 from Andersen 1994: 19) (AM80:1094–1104)
       (all forms 'correct' for tense-aspect)

       1094–5   pues, como   me rompió el dedo, era
               [= pues   de la f orma que me rompí   el dedo, era
                  well, of the way that REFL break+PRT the finger was
                  'Well, how I broke my finger, was'

       1096   .. yo estaba   jugando   kickball,
               .. I   {be+IMP   play+PROG} kickball,
               '.. I was playing kickball,'

       1097   y   cuando tú   tienes que coger el-la   bola
               and when   you have to   catch the-the ball
               'and when you have to catch th- the ball'

       1098   para .. coger una out,
               to ..   catch a   out,
               'to get (?) an out,

       1099   que yo-e-el-aquí *vinía*   la bola,
               [=   *venía*]
                  that I- th- the- here come+IMP   the ball,
                  'that I- th- the- the ball came/was coming (towards me).'

       1100   y   yo lo cogí,
               [= y   yo la cogí,]
                  and I   it catch+PRT
                  'and I caught it,'

In Andersen (1989, 1994) I discuss in greater detail this notion of how native speakers can use grammatical aspect and tense to *impose* a non-prototypical and non expected interpretation on an event or situation. The situation is more complex than I have presented here. For example, a verb like *partir* 'split, break' is more easily encoded by a nonnative speaker in its prototypical notion of *partió* 'broke, split' than its *imposed* imperfective aspect of *partía* 'was breaking/splitting,' in the sense of slow motion suspension of breaking similar to the case of *venía* discussed in Example 11. Similarly while native speakers can and do easily use stative verbs with Preterite marking, such uses are extremely late for English speakers. Thus *supo*, Preterite of *sabe* 'know,' which depicts, among other things, the entry into the state of knowing, is harder to conceptualize than the state of knowing, encoded with Past Imperfect *sabía* 'knew'. This is complicated, of course, by the fact that languages divide up the semantic space of something like entry into a state of knowing vs being in that state differently. Thus English lexicalizes different aspects of this trajectory as know, find out, discover, realize, etc. The real virtuosity in native and nonnative use of language is in being able to impose one's intended meaning and

perfective on what otherwise would be assumed to be different from what the speaker intends. This aspect of the study of acquisition and use of temporal and aspectual notions needs to be pursued in greater depth in future research.

Conclusion

If I am right in that there exist at least these six separate dimensions, but also a number of additional factors, as discussed briefly here, then in any empirical study there will probably be tokens of verbs that appear to not fit the predictions, especially those based on just the first dimension. What we need is a more rigorous research methodology that allows us to tease apart these six dimensions in our predictions, as well as other factors such as input and L1 transfer variables. If I am wrong in part of all of this, then I hope that the point I am trying to make is still valid: when researching the acquisition of grammatical morphemes of any sort, and certainly the tense-aspect markers discussed here, the question we need to ask is "How does the learner discover the form to meaning relation encoded by the marker when the learner first begins to productively use it in natural communication?" A second and equally important question is, "How does this mechanism account for the initial use of the morpheme as well as its development over time as it expands in function and breadth?" A discourse-functional account with the notion of prototype and a set of cognitive processing strategies such as the one to one principle and the congruence principle attempts to do some of this. I suggest that what is needed to go beyond our current state of knowledge is to explore the six (and more) 'hidden dimensions' of tense and aspect that have been discussed in this paper. We thus need to retain the core semantic dimension of the original Aspect Hypothesis, and move on to the event type and realis/irrealis dimensions. But in future research I believe we should focus especially on the last three dimensions of pragmatics, grounding, and discourse structure. I also believe that this is best done within a cognitive-interactionist model of the type I discussed briefly in this paper.

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Temporal relations in learner varieties

Grammaticalization and discourse construction

Colette Noyau

Introduction

Works on temporality in the field of language acquisition have progressed considerably over the past few years, moving on from descriptions of the linguistic structure of learner varieties towards a more general concern for their dynamic nature, i.e. their developmental structure and factors relating to their restructuring. As far as the study of temporality is concerned, it has not only been a matter of looking in more detail at the different contextual factors in the morphologization of aspectual and/or temporal notions, but also tackling the development of learner varieties within a textual perspective, looking at the construction of temporal structures in discourse. The reason for this is that morphologization is best accounted for within the context of discursive activities and their communicative constraints on referenciation. This is what I aim to demonstrate here, rather than concentrating on the actual detail of the different processes in the development of inflectional morphology.

Temporal relations in the early stages of language acquisition

Numerous works carried out in this area (e.g. Klein 1983, 1984/1986; Noyau & Vasseur 1986; von Stutterheim 1986) have shown how, in pre-basic learner varieties (i.e. before the use of morphological means), temporal relations are based on discourse organization (which is possible in structured texts) and, above all, certain lexical items:

a. in relating situations,[1] and supplying information concerning their inherent temporal structure;

b. in adverbs and other temporal expressions, fulfilling certain essential functions, i.e.:

1. the localizing of situations in time by the use of adverbial expressions to indicate position, deictic or anaphoric reference, chronological time intervals (the use of calendar dates and other recognized times scales) or by the ordering of series of occurrences: *before*; *Tuesday*; *third day*

2. the specification of other temporal features which affect situations: quantitative or qualitative specification of duration or reiteration: *always always*; *three months*; *lots of times*

3. temporal contrasting: the early or late nature of an event or event boundary vis-à-vis expectations; types of transition from one state to another: *already*; *(not) yet*; *abruptly*, *suddenly*

The different means of expressing these notions appear regularly in a certain order in the productions of adult learners, regardless of the particular target language (TL):

1. Important temporal adverbs of position (TAPs) and adverbial expressions of duration/quantification of events come into place early on, whereas temporal adverbs of contrast (TACs, cf. Klein 1994) (*already*, *(not) yet*), which are conceptually more complex, appear later on.

2. Topological relations are present, then made explicit, before the expression of relations of order. Thus, for expressions involving chronological event order, the relation is, by default, one of concomitance: *Ø Christmas* precedes by far *after Christmas* or *before midday* e.g. *my husband the holidays, Morocco the accident*

This can be linked to a cognitive factor: the complexity of construction of implied temporal notions accounts for the emergence order, even in the case of adult speakers. The diversification of referential anchoring (deictic *vs.* anaphoric) appears later on. The adverbial series which predominates, in accord with the type of exposure to the language, tends to be overgeneralized, finding itself applied to values which normally require the other type of anchoring:

–   for learners in a social environment: deictic anchoring adverbials are extended to anaphoric functions (Dietrich, Klein & Noyau 1995; Noyau 1991); *tomorrow* (= the following day), *(the) next N* (= the following N)

–   for tutored learners: we see the reverse trend, i.e. overgeneralization of anaphoric anchoring (e.g. Garat 1996): *after two days* (= the day after tomorrow)

This can be interpreted as the influence of the particular input on the structure of the linguistic development, and can be accounted for in two ways:

- as being due to the high frequency of use of such markers in the input and resulting increased access to these forms;
- as being due to the lack of opportunities in which to make use of these functions in discourse.

Thus Garat (1996), in her longitudinal study of the development of temporality in personal and fictional narratives by young adult learners in a classroom context, concludes that the acquisition and use of forms in a manner that conforms to the TL depends greatly on the capacity to structure texts, and that the structuring of texts depends on the conditions of interaction of the exolingual communicative situation. The richer productions observed for fictional narratives without deictic marking by comparison to the personal narratives serve to illustrate that the grasping of these means by the learner is influenced by the type of exposure to the language, with the classroom environment favoring the acquisition of means for producing a discourse cut off from the moment of utterance. Moreover, several of these lexical temporal expressions are used by the learners as substitutes for grammaticalized temporal or aspectual notions. Thus in the case of the Arabic-speaking learners of French and German, utterances such as [*saje*] *cassé, fini* ('[**that's-it**] broken, finished') (French) and *fertig arbeite* ('**finished** work') (German), etc., allow, when the need arises, the expression of a morphology-free perfective aspect.

The prevalence of temporal adverbials in the acquisition of temporality by adult learners has given rise to different possible explanations. Hendriks (1999) observes that form-function mapping is facilitated by the use of adverbs: they have an invariable form (more easily accessed in memory), and map forms to functions in a way far more similar to that of the L1 than is the case for morphological means. However, more globally, she points out that adult learners have a real advantage over child learners in the recourse to this strategy in so far as they know what adverbs are, how they are to be inserted into utterances and what their role is in the construction of discourse, thus making them a central part of an efficient communication strategy. Child learners, on the other hand, have an advantage as far as morphological means are concerned: by the age of four they have mastered the grammatical system (inflection and the use of particles) of their L1, but lack adverbs (cf. Schlyter 1990). Their disadvantage is a discursive one, i.e. they are yet to discover the ways in which discourse is constructed and the role adverbs play in the construction. Contrary to those works which demonstrate the efficiency of adverbs for adult learners in the expression of temporal notions in the L2, B. Ahrenholz (1998) considers that temporal adverbials (in the type of learner texts he studies, i.e. instructions) have what is essentially a discourse-structuring function (macro-discursive function) rather than a temporal function: temporal relations between

successive actions are either inferred or an adverb is used to indicate the beginning of a sequence of grouped actions.

We could say, then, that those learner varieties with a basic lexical inventory of adverbs and expressions for dealing with different types of temporal notions (position, duration, frequency, marking of time intervals) operate efficiently as far as communication is concerned, thereby making up for the absence of grammatical markers of temporality. It has been argued that the handling of this lexical repertoire can slow down the grammaticalization of temporality (Starren & Van Hout 1996). The argument is, then, that the inventory of notions that can be realised by temporal expressions, and the skilled use thereof in discourse, allow the speaker to fulfil the communicative task of referring to groups of events situated in relation to time or in relation to one another (which languages without grammatically expressed temporality do anyway using these same types of means). If communication needs alone are at stake then the move towards restructuring is not particularly strong.

With regard to the actual realization of these expressions in pre-basic and basic learner varieties, Starren 1996, Starren & Van Hout (1996) analyse the use of adverbs in the informational structure of the utterances. Adverbials are used in two positions:

– in the topic component (TC), to signal the topic time (TT) — at the beginning of the utterance;
– in the focus component (FC) to state the time of situation (TSit).

Thus an utterance can contain an adverbial in both the topic and the focus components thereby expressing, by lexical means, the relation TT-TSit, which is the very definition of aspect (cf. Klein 1994):

e.g.   TC [gisteren jaar ik] — FC [altijd   ongeluk gedaan]
              last   year I   always accident did (=had)
              'last year I kept on having accidents'
        TC [altijd   hollandse mensen] — FC [avond   friet   eet]
              always Dutch   people   evening chips eat
              'Dutch people always eat chips in the evening'

What is it, then, that pushes learners to acquire morphological means of marking temporality and aspect? I will come back to this question, along with the answers which can be provided, in Section 2, below.

Finally, concerning the stages in the pre-grammatical linguistic development, we must not forget that learners rely entirely on those contextualizing capacities that they themselves have developed in their L1, along with those used by their native interlocutors, to reconstruct a part of the message using inferences based on

either encyclopaedic knowledge, the preceding co-text, or shared knowledge (although perhaps not a blind trust, however, whence the redundant use of certain semantic features which has been remarked by numerous linguists).

Recent works concerning the pragmatic inferences of temporal relations have looked in detail at the semantic configurations leading to 'forward' (AFTER relations), 'backward' (BEFORE relations) or 'concomitant' (SAME TIME relations) inferences between contiguous utterances (cf. Moeschler 1998; De Saussure 1998). These works allow us to look more precisely at what happens when information concerning the temporal relations is given over to pragmatic inferences. Moeschler shows how, according to different languages, a given morphologically-marked tense leads potentially to inferences of consecutiveness whereas other tenses do not do this. Thus we see in French, in the case of the Passé Simple (strict perfective past value), the following:

a. Pierre poussa Max. Max tomba. (= chronological order and inferred cause-consequence)
   'Pierre pushed Max. Max fell over'
b. Max tomba. Pierre poussa Max (du pied sur le sol). (= a different chronological order)
   'Max fell over. Pierre pushed Max on the floor (prodded Max with his foot)'

The Passé Simple necessarily implies consecutiveness. Therefore in (b), an inference of the reversal of the chronological order is ruled out despite our personal experience telling us that the most likely scenario would be more along the lines of "pushing leads to falling." In (b) the morphological cue is of prime importance, whereas the same passages in the Passé Composé, or in the Présent give the encyclopaedic knowledge of the likely scenarios the upper hand. However, the addition of an adverbial marker (e.g. 'previously') would dominate over the scenario, and even over the morphology, allowing an interpretation in terms of anteriority with the Passé Simple. These cues which trigger a particular temporal interpretation form a hierarchy. Thus, in the case of fully grammaticalized varieties, we find that morphological means of expressing temporality are used for temporal inferences. However, in early learner varieties, the remaining semantic cues alone are available, with, first and foremost, temporal adverbials, which are more important than the morphology even in stabilised varieties. This is why the strategy which makes use of adverbials is so robust.

De Saussure (1998), for his part, outlines in detail the manner in which utterances can either encourage or restrict the interpretation of "temporal encapsulation" (parts to whole relations) for a sequence of propositions expressing dynamic situations:

> Pierre escalada le Mont Blanc. Il passa la nuit au camp de base. Il monta à travers une bourrasque de neige. Il planta le drapeau sous un ciel bleu éclatant.
> 'Pierre climbed up Mont Blanc. He spent the night at base camp. He went up through a flurry of snow. He put up the flag under a bright blue sky'

Thus in this example the situation indicated by the first proposition temporally includes the others subsequently referred to (despite the use of the Passé Simple). In such cases, even if all the verbs are in a narrative tense, we interpret what is said in terms of encapsulation, based essentially on encyclopaedic knowledge. The 'capsules' may or may not be temporally ordered, depending on each particular case. Let us move on, though, to look at the implications surrounding the construction of temporal information in learner discourse.

An adult learner has available to him/her discursive knowledge concerning interpretation principles and the relative weight of the different types of cues in the construction of the temporal interpretation. He/she can rely, then, on the use of lexical means to express time intervals, on the one hand, and on his/her inter-locutors' knowledge of the world on the other hand. Problems arise, though, when the lexical repertoire is found to be deficient (i.e. blanks or indecision, chiefly due to idiosyncrasies affecting grammatical words (prepositions) in adverbial expressions, confusion between deictic and anaphoric location, etc.), and/or when the experience content of the utterance is the opposite of that which is expected (cf. *Max tombe. Pierre le pousse* ('Max falls over. Pierre pushes him')). And thus we can see contexts which encourage the grammaticalization of temporality.

Emergence and gradual development of temporo-aspectual morphology

In the acquisition of a foreign language, morphologization, a complex process linking together different sub-procceses, can be seen as being the following: (a) a process involving the restructuring of the linguistic apparatus, which brings about the gradual reanalysis of the numerous allomorphs made up of a lexical stem + affixes, and, as a result, the reorganization of forms; (b) a process involving the organization of the morphological system, which produces a progression from lists of allomorphs to a pattern of regularly ordered rules comprising different degrees of generality (i.e. more or less local vs. global), and constituting increasingly more complex and more interrelated micro-systems; (c) a process of semantic differentiation, which aims at mapping functions and meanings onto individual affixes. Learners are faced with two problems involving the following:

a.   the identification of forms (i.e. problems to do with segmentation or with amalgamated forms, allomorphs of grammatical elements and discontinuous morphemes);
b.   the forming of forms-functions linkage hypotheses:

Which grammatical markers for which functions? The learner may form lexical hypotheses (a given affix is associated with verbal lexemes of a given semantic group), semantic hypotheses (a given affix expresses temporal relations) or discourse hypotheses (a given form is an indicator a given discursive structure, e.g. propositions belonging to the narrative foreground).

Given that the acquisition process is largely determined by available knowledge, notably in connection with L1 experience, we can expect that, once the morphological variation of verbs in the L2 has been identified, the temporo-aspectual morphologization of the L2 will take more or less time to come to the learner according to the typological distance between the L1 and the L2, with the learner seeking hypotheses in his/her linguistic experience via his/her L1. This, then, is how learners of aspect-dominant languages are slowed down as they try in vain to work out how, in a non aspect-dominant L2, aspectual notions can be expressed using verb morphology variation. And this is indeed what appears to hold back the coming into place of functional morphology in Arabic-speaking learners of French and Dutch (Dietrich, Klein & Noyau 1995). Thus the functional development of the verbal morphology in the productions of Abdelmalek (an Arabic-speaking learner of French) over three years can be shown as a series of steps (Noyau 1991, 1998): $H_0 \rightarrow H_I \rightarrow H_a / H_t$ which can be interpreted thus: first a null hypothesis (non-functional internal variation), then a hypothesis on the inherent temporality in events (i.e. lexical), next an aspectual hypothesis (perfective/imperfective) and/or a temporal hypothesis (past/non-past), very similar to the previous hypothesis on the grounds of the available contexts, where, generally speaking, a past event can be seen as being perfective. Carol (1995, 1998) also found this searching for means of expressing aspect in the L2 with French-speaking children learning German with a group of beginners. We should expect to see the opposite tendency with those learners whose L1 is a tense-dominant language, such as German, who are acquiring an aspect-dominant language like, say, Arabic (certain typologically interesting combinations of source languages (SLs) and TLs are yet to be studied).

Starren (2001), more recently, prolonged her study of the organization of temporal information by ESF learners to the point where there appears to be a creative (idiosyncratic) grammaticalization, of an aspectual nature, in Arabic-speaking learners of Dutch. The fact that the skilled handling of adverbials in the topic or focus allows them to show aspect by lexical means could be favorable to the emergence of analytic aspect markers, i.e. proto-auxiliaries indicating an aspectual

notion of perfect (TSit before TT), which would appear to be the proof of the emergence of aspectual grammar before tense grammar for these learners. This is what appears to surface in the retelling of films by these learners, who, at first, produced utterances of the following type:

> TC [dan   politie] FC [komen]
>   then police   come

then, at a later stage, to show aspectual value (perfect):

> TC [ik **heb**] FC [brood weg gehaald]
>   I   have   bread   stolen

or the following, to show temporal value (past):

> TE [en   dan toen **was**] FE [die meisje ook thuis   **ge**wonnen]
>   and then   was   the girl   also at home found

These findings give rise to certain interesting points:

1. The emergence environments of the construction *heb … ge*-V appear systematically to be in direct reported speech. Direct speech appears to constitute a context favoring the emergence of new functional TAM categories: as Hickmann (1993) in particular has shown, direct speech is an area in which we can find innovations in a learner variety before they become more widespread.
2. Do these precursors to TAM categories really allow a distinction to be made between tense and aspect, given that situations in the past (TSit concomitant with TT and before TU) can most frequently be envisaged as showing perfective aspect (TSit before TT and TT concomitant with TU) and either the aspect (i.e. perfect) or the tense (i.e. past) can be left to inference. The great difficulty in distinguishing, for example, between the H_a and H_t hypotheses in the productions of Abdelmalek is related to this problem (Noyau 1991, 1997).

In fictional accounts, the deictic past is not found (except in digressions or commentaries), the use of the past is a conventional solution, and the generalization of the type 'grammaticalized aspect before tense' could be considered applied to the data. This can be contrasted with the results (grammaticalized tense expression before aspect) of studies based on personal accounts which display deictic temporal marking in Dietrich, Klein & Noyau (1995). The distribution of morphological marking in the narrative foreground in Swedish for the Finnish learner Mari (Noyau 1991, 1997) shows a clear distinction between, on the one hand, conversational accounts displaying real-world temporality and, on the other hand, accounts of films: the adoption of the Preterite as a narrative tense proves to be effective for

conversational accounts in cycle II, whereas in the film accounts we find the Supine (Perfect without its auxiliary), with the Preterite only being used as a narrative tense in film accounts in cycle III. Equally, for Brum de Paula (study of tutored university level Brazilian learners of French, cf. below), "there is, then, a sort of time delay concerning the use of certain markers in between personal and fictional narrative accounts: V+[e] appears only in the third cycle of the FNs (fictional narratives) whereas, in the case of the PNs (personal narratives), it is used in the first cycle" (Brum de Paula 1997). It could be asked, then, whether such results do not in fact depend on the type of text (personal account *vs.* fictional accounts *vs.* conversation) in question.

Furthermore, if only a single marker is available to make the distinction between past and non-past, we can say that aspect is not yet grammaticalized. This is in fact what can be seen in the case of learners of French, whether they be native Arabic or Spanish speakers, who, right to the end of the three cycles of data collection, did not succeed in making the formal V-[e] structure a functional category, and for learners of Swedish, who do not succeed in making a distinction between the contexts in which the Preterite (general marker of the past) and the Perfect (less frequent in the productions) are used in the L2 to mark perfective aspect. Finally, there are a few more elements which can be added to the tense-aspect debate (cf. Andersen 1991; Andersen & Shirai 1994). To what extent do the results depend on the SLs, i.e. the fact that they can be more or less aspectual and more or less morphologised? The influence of the L1 is striking in the study carried out by Dankova (1998), which presents two types of accounts (i.e. picture retelling based on images and accounts of personal experiences) produced by groups of speakers of three different languages (French, Italian and Russian) in Esperanto, and other groups of speakers of L1 French, Italian and Russian. She tests a hypothesis on the influence of L1s by taking Esperanto, an artificial language, which, despite not being anyone's L1, is nonetheless diffused. It is shown that the different L1s have a significant impact on productions in this exolingual communication language, proving to be sources of variation. It is interesting to note that only the Russian speakers make use of prefixes to give a perfective sense to stative or durative verbs, whereas Italian speakers are the ones who rely most on inflectional morphology to convey aspect. Moreover, could it not be said that certain TLs are, in fact, more likely than others to favour the early emergence of the process of morphologization? This is indeed what seems to stand out in the works of Pavia (Giacalone Ramat 1990): with Italian as the TL, the learners (even non-tutored) are capable of identifying more rapidly (in comparison with French, for example) morphological forms since Italian verb morphology is so transparent. Moreover, Italian allows us to observe more clearly certain stages such as the choosing of a base form for verbs before morphologization (i.e. in French L2: V-[e]; whereas in Italian it is based on

the pattern of the infinitive: V-re; cf. Berretta 1990), and to see more clearly the coming into place of the first oppositions V-re/V- (v)/V-to (cf. Infinitivo/Presente/Participio passato). Italian also offers the advantage of being a language which is both temporal and aspectual, thus adding to the debate on the pre-eminence of tense or aspect in the early stages of morphological development by presenting a host of different options.

The Imparfait in particular has been the focus of many detailed studies which help us to grasp what exactly the 'progressive and gradual' acquisition of morphological devices entails and also to understand that this slow process cannot be explained in terms of performance phenomena. The relatively late arrival of the Imperfetto in comparison to the Passato Prossimo is found in the acquisition of Italian (cf. Bernini 1990). In the case of French, for example, we can offer a formal explanation for this delay, i.e. the ambiguous nature of the spoken form V-[e], which may be applied to half a dozen different TAM categories (problems to do with identification of the form). In Italian, however, given that the equivalent marker is clearly identifiable, Bernini suggests a different explanation related to function: it is, then, the diverse nature of the functions (i.e. aspectual, temporal and modal) of the Imperfetto which creates difficulties for the learner of Italian. For the learner of French, though, both the identification of the morphological paradigm and the linkage between form and functions offer resistance, and the delayed acquisition of the Imparfait in French can be explained by the combination of these two difficulties.

And, finally, in which contexts and for what purposes are morphological markers used? To study morphologization without taking into account the discursive level — i.e. to stick to sentence analysis (whether 'necessary' contexts are marked or not) — would be to miss the point. Indeed the acquisition of morphology does not simply amount to acquiring sets of rules, but rather involves a slow development comprising a gradual building up from certain privileged contexts (as has been seen in the cases of learners of different L1-L2 pairs) and initially limited inventories of lexemes. Hence the methodological choice to work on structured textual productions such as accounts of real or fictional events based on different supports (cf. Noyau forthcoming for the method, exemplified by the longitudinal studies of Brum de Paula, Garat, Paprocka, and Villecco).

It is thus that Brum (1998) notes those contexts which favour the emergence of new TAM categories in French in the narrative productions of Brazilian learners over a period of three years. The emergence of the Imparfait (which is very late in comparison with the Passé Composé) can be seen as a progression from restricted use in auxiliary verbs ([ave], [ete]) to the inclusion of modal verbs ([puve], [vule]), use in background clauses and, a lot later on, a gradual spread to include all other French verbs. And this despite the fact that Brazilian L1, a Romance language, has the possibility of expressing the imperfect/perfective past opposition, and also

despite the fact that the learners are educated entirely in French at university. These results can be compared to studies on the influence of different event types (from the point of view of their inherent temporality) on the use of morphological markers — i.e. that which has been called (rather misleadingly) the "aspectual bias on morphologization" (cf. Andersen 1991). Andersen & Shirai (1994) put forward more balanced explanations of this apparent domination of aspect over tense as far as morphologization is concerned, a phenomenon which has kept linguists occupied for a number of years given the parallels drawn between L1 and L2 acquisition. First of all, if morphemes indicating perfective and imperfective aspect emerge respectively with verbal lexemes relating to opposing semantic classes, thereby not entering into opposition with each other at the start (the imperfective expressed with those verbs which indicate stative-durative situations ('1 state' verbs, cf. Klein 1994), and the perfective expressed with those verbs which indicate transitional, or even telic events (2 states, *ibid.*)), it is rather a case of the effect of the distributional bias in the input. However, this is also linked to the 'discursive motivation' which means that events involving two states constitute typically the narrative foreground and single-state events background situations (figure-ground relations). This explains why in learners' accounts in different L2s, the narrative foreground events are presented in the perfective past whereas the background events stay in a base form with no temporal marking.

The new light shed on the matter by longitudinal studies based on targeted discursive activities of learners in a school-type environment or even in an isolated environment is, then, important. The structure of the development of temporo-aspectual morphology is very similar in tutored and non-tutored acquisition situations, despite the concentration on the handling of verbal forms in the school-type setting. This latter activity facilitates the recognition of forms by the learner — and also, therefore, his/her cross-relating with the corresponding TAM category in the L1, for which the semantic functions are similar in the studies between Romance languages by Garat, Brum de Paula and Villecco. The construction of the system follows its own course, independent of the teaching programme, is tested in the various communication opportunities available to the learner, and can be observed in complex speech activities. The tempo of development and the 'visible' results of this development diverge since tutored learners all advance beyond the stage of using one basic temporal opposition (i.e. past/non-past) which, nonetheless, constitutes a barrier for the majority of non-tutored learners. The same pattern of development for the Imparfait in French is found in narrative accounts by adolescent Spanish-speaking (Villecco 1997) and Polish-speaking (Paprocka 2000) learners of French in an institutional context.

Finally, the slow-moving nature of the acquisition of temporal morphology can be explained by an interpretation of the problem in terms of a competition

model (cf. Bates & MacWhinney 1989). The competition is between hypotheses bearing on different levels of language functioning, as developed in Noyau (1998). This model proposes a unified theory on the strategies of pragmatic, semantic and grammatical processing of utterance comprehension and production. Information stemming from different linguistic levels (morphology, lexical relations, word order, preceding co-text) is processed simultaneously. Links between form and function are unclear, probabilistic or unequally weighted. For these authors (i.e. Bates & MacWhinney), a person's individual grammar is said to be made up, then, of clusters of surface categories containing coalitions of meanings and intentions (cf. Kail 1991 for a comprehensive presentation of this model). The notion of redundancy is inherent to grammar according to this view. This helps to assure the smooth functioning of language, given the limited number of cognitive resources which can be allocated to the linguistic processing (acoustic, articulatory, perceptual, memory based). Different languages can display the same form-function configurations but give them different weighting.

Let us take two examples of the acquisition of temporality which can be explained using this model: (1) morphological markers of past tense (in French: Aux -V-e; in Swedish v-te/de); (2) the anaphoric marking of the 'AFTER relation' between successive utterances in a single account. The difficulty in arguing in terms of competition with regard to temporality is that there is an interaction between *diversified optional* means (lexical indications of temporal relations, for example) and *structural* means, and not just between different structural means. This approach, however, helps us to explain certain aspects of the developmental path.

A. *Morphological past tense markers* in narrative accounts (by the use of **Aux-V-e** in French, **V-de/te** in Swedish, etc.)
We may consider these forms as permitting a coalition of functions:

- semantic function: anterior to TU
- lexical function: transitional event
- discursive function: foreground clause markers,

This can explain the successive or competing hypotheses of learners.

If we take the contexts of use of the narrative Present, we can say that only the second and third functions are realised. Generally speaking, it should not be found where there is conflict between functions, i.e. neither if the event is stative and non-transformational, nor in the background. This is normally the case in the L1[2]

There are cases in which these three funcions enter into conflict:

1. when a past event figures in the background (semantic function > < discursive function).

2.   When a stative-durative situation is made of a foreground event (lexical +
     semantic functions > < discursive function).

How, then, are these conflicts resolved so as to limit ambiguities? With regard to the
first case of conflict, whenever the past remains unmarked in the background
clauses in a given learner variety (cf. findings in Brum de Paula, Villecco and Carol),
this is due to the fact that for this type of discourse (i.e. narrative) the discursive
structuring is considered to be the most important factor. The form-function
linkage which involves mapping the form Aux-V-e onto the function of temporal
location is at this stage limited to the discursive context: the relating of an event.
The development consists, then, in associating this configuration with new discur-
sive contexts (progressive generalization).

  If, however, the past is marked in the background (as is the case in the accounts
by native French speakers), it is because this marking is considered necessary
whatever the discourse structure: semantic marking gains the upper hand.[3] With
regard to the second case of conflict (i.e. when a stative situation is made a
foreground event), native speakers avoid the narrative Present. For learners this
constitutes a critical context in which they are likely to attempt to use a temporally
marked form. A productive way of examining the acquisition data is to find which
contexts prove to be critical (and how), and which contexts trigger restructuring.
Conflicts in the configuration *coalition of forms < >coalition of functions* show the
relative weight of various simple form-function mappings in a learner variety at a
given point of acquisition.

B. *The relation of anaphoric consecutiveness* between two clauses in a narrative
A coalition of forms is linked to this function:

–   marking with a connector like *après* ('after'): a lexical device;
–   the 'natural order' principle, which is a constraint on referential movement in
    the foreground: a tactical or topological device, in the sense of Kail (1990).
    Here, however, the lexical marking is optional, and not subject to an obligatory
    rule. Therefore the functions can be differentiated and the law of least effort
    applied (i.e. using the tactical device only), in cases where coalitions of func-
    tions come into play. This is the case, for example, when there is contiguity
    between clauses which correspond to the referential constraint on the fore-
    ground.

Elements of this configuration come into conflict in the following instances:

–   when there is a backward move for a clause which, from the point of view of
    other referential elements, would be part of the foreground (answering the

Quaestio: "what *happened* (event) for *P* (person, actor) at *Tn* (definite temporal interval)?" (cf. von Stutterheim & Klein, 1989);

– when there are referential breaks, notably in jumps in time from one group of linked events (forming an episode) to another, or when the event concerns actors who are different from the participants in previous events (in this case the relation could also be one of simultaneity, since several characters can either act independently at the same time).

In a sequence $Evt_1 < Evt_2 < Evt_3 < Evt_n$ (events linked by an 'AFTER relation' of consecutiveness), we do effectively often find the following distribution in early narrative production:

– the 'AFTER relation' is not explicitly marked: between events expressed in a juxtaposed sequence, the relation Evt_i AFTER Evt_i+1 follows from the discourse principle of natural order;
– the 'AFTER relation' is marked by a 'consecutiveness connector' in contexts such as the following:
   a.   where the inherent temporal characteristics of the events do not allow an automatic interpretation in terms of succession;
   b.   in the transition from one episode to the next, when there are leaps in time or, more generally, referential breaks.

Furthermore, the conception of grammar in terms of coalitions of forms mapped onto coalitions of functions, in the light of cognitive constraints on processing (cf. Slobin 1985), permits a better explanation of why a given linguistic regularity is progressively acquired:

– The learner first grasps one of the many possible simple form-function mappings contained in the coalition and internalises it: he/she applies it in specific areas which are not of course delimited in the same way as for the L1 given that this relation does not, in his/her variety, occur in the same formal and functional coalitions.
– Depending on the L1, one or other of the functions (or one of the forms) in a coalition may be a better candidate for selection by the learner than others.
– The conflict that arises in discourse within a specific coalition invalidates a given elementary form-function mapping, and forces the learner to reconsider the validity of that simple relation and to look for other forms for the given function (or other functions for the given form) building thus a coalition which is closer to the configurations of the L2.

The final stages of temporo-aspectual grammaticalization

We have moved on, then, from looking at studies of the acquisition of TAM categories by adult learners to works concerned with the values attributed to TAM categories by advanced learners (cf. Bartning 1997). Kihlstedt (1998), for example, is concerned with the continuation of the process of grammaticalization even though, from an initial glance, the learners in question (Swedish-speaking learners of French in a university context) appear to have acquired the temporo-aspectual categories of French. Morphological forms expressing the past are acquired and are present in their utterances. But how do they function? And is their functioning the same as that of native speakers? In other words, what is there left for them to learn? And if indeed it is a case of 'not having anything left to learn', is it still possible to identify stages in the development of these 'advanced' learners? Kihlstedt looks for 'weak areas' in the temporal system, in which slight instabilities or deficiencies can be spotted, and examines the extent to which these sensitive areas reveal a progression in the handling of the L2 between different stages in the recordings of the same speaker or between different more or less advanced speakers. The Imparfait proves to be an area of resistance as far as the acquisition of the temporal system in French is concerned (i.e. a delay in comparison with the Passé Composé, as has already been demonstrated). However, what is interesting to consider, in the case of advanced learners, is whether or not the handling of the correct *form* of the Imparfait is accompanied by that of the correct *functions*.

A quantitative approach to the verbal forms used to express past values shows that the overall split between present and past forms is linked to the level of acquisition: in general, native speakers use more past forms than do learners. Similarly, we see that the distribution of morphological forms between different semantic classes of verbs enables distinctions to be made between different levels of acquisition: learners do not freely combine TAM categories and predicates from different semantic classes and the Imparfait is at first restricted to *avoir* (= verb 'to have') *être* (= verb 'to be'), then opened out to include stative verbs in the case of very advanced learners, whereas the Passé Composé is far more widely used across lexical classes of verbs. In comparison with Andersen's hypothesis on the primacy of the *Aktionsart* in the appropriation of temporo-aspectual verbal forms, Kihlstedt's (1998) results show the following:

– The Passé composé is not constrained to telic situations, but rather combines itself with all dynamic situations. It is only rarely used with stative situations. This distribution is only to be found in the productions of native speakers and the most advanced learner. For all speakers, the Imparfait is used above all with stative situations. However, it is also found in connection with dynamic situations for certain familiar verbs which have already been attested in the Passé Composé, and,

in the case of the most advanced learner as well as native speakers, with all dynamic situations, including telic ones, allowing them to be placed in the background as secondary concomitant events. These final stages in the acquisition of the temporal system are what Kihlstedt (1998) calls 'the upper limits' of the system,[3] i.e. associations which appear to run counter to the 'normal' link-up between morphological category and semantic cues, in which we see the Passé Composé with stative situations and the Imparfait with telic situations.

In order to understand better the functions of these TAM categories, and in particular the Imparfait, the contextual values of the Imparfait are defined by the different cases of linking TSit to TRef (TT above): overlapping, partial inclusion (or reiterated at different intervals (habitual or irregular) or total inclusion. Following the close examination of the contexts of use and the values of the Imparfait, Kihlstedt observes, in decreasing order of frequency, the following in the production of the learners:

a.   Imparfait TT past = TSit (with stative situations). The most frequent construction used by learners:
e.g. *avant je voulais travailler avec le français maintenant je trouve que ça marche pas très bien*
'Before, I wanted to work with French. Now I find it doesn't work very well'

b.   'Characterising' Imparfait: TT = TSit, with TSit as a long period in the past characterized by a dynamic situation (although not taking up all of the time interval):
e.g. *mes parents ils sont commerçants et auparavant ils travaillaient dans la métallurgie*
'my parents are shopkeepers and before (that) they worked in the metallurgical industry'

c.   Imparfait where TSit constitutes discontinuous fragments of a broad TT: Imparfait is used to express repeated or habitual actions in the past ('used to'). This is more difficult for learners, and is found less frequently and only among the more advanced:
e.g. *quand j'étais à Rouen, je me promenais, on allait faire des tours en voiture sur la côte*
'when I was in Rouen I used to go for walks, we used to go for drives along the coast'

d.   Imparfait with a very short TT within TSit = "Imparfait progressif": cf. durative situation placed in the TT of a punctual event:
e.g. *on s'est fait remettre en place parce qu'on ne marchait pas du bon côté*
'we were told off because we weren't walking on the right side'
The last two cases (c & d) are considered to be 'difficult' since the speaker has to

link together several different time intervals.

e.   'Upper limits' Imparfait (with momentary situations or events which are hard to imagine in terms of the 'duration' and without bounding): we see a paradoxical value of the event which is close to realization but held in suspension. This latter case is not found in the productions of learners:

e.g. *quelques jours après il était élu à l'Académie Française*
      'a few days later he was elected to the French Academy'

An explanation for this is that Swedish L1 does not mark the final boundary of the situation (neither in the Preterite nor in the Perfect). This value of the Imparfait has not yet been discovered by the learners who are not accustomed to handling this feature.

This gives an implicational scale of the acquisition of the values of the Imparfait, which allows us to assess the state of completion of the acquisition of temporo-aspectual morphology. The variety of values which can be attributed to the Imparfait at advanced levels can be studied according to the different TT-TSit relations; we find the presence of rare and infrequent combinations of tense and *Aktionsart* in the 'upper limits' of the system only in the productions of native speakers and very advanced learners.

Final remarks

As the learner varieties encountered in the early stages of language acquisition have shown, linguistic systems can function effectively without grammaticalized temporo-aspectuality. To broaden our reflections on the communicative limits of those learner varieties which do not express temporo-aspectuality grammatically, it would be interesting to look in more detail at the discourse cohesion and specification of temporal relations in those languages which do not possess grammatically marked temporo-aspectuality. Globally speaking, linguistic development in the domain of temporal reference can be characterized, as is the case in other areas studied in parallel (cf. Klein & Perdue 1992 for utterance information organization), by modifications of the relative weight of different principles of structuring time in discourse: pragmatic, semantic, phrasal or grammatical structuring (cf. Noyau 1998). It is in the most advanced stages of the acquisition of a linguistic system that slight but persistent differences surface, which allow us to detect a slight air of strangeness in what otherwise amounts to the accomplished handling of the foreign language.

Notes

1. In the sense of Klein, i.e. states, events, processes or actions.

2. This reasoning is valid for deictically anchored personal accounts since in fictional accounts (stories, picture retelling …) the semantic function of temporal location is annulled. In the case of the latter type of text, we can find examples in which the temporal morphology is completely neutralized by the continual use of the Présent, a tense which is both temporally and aspectually neutral.

3. In French, 'les confins du système' (Kihlstedt 1998).

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Analyzing aspect[*]

Kathleen Bardovi-Harlig

Introduction

This chapter presents a technical discussion of the quantified analyses currently being used by researchers in studies that test the aspect hypothesis (Andersen 1986, 1991). This chapter is intended for researchers who are currently conducting or have conducted research in the area as well as readers who would like to be better able to assess the claims and comparisons made by the researchers whose work addresses the aspect hypothesis. Meisel (1987) admonished researchers in the area of second-language tense-aspect acquisition research that in order to test the aspect hypothesis, they must use larger corpora and quantify the data. Both larger corpora and quantification would better establish evidence for claims for the influence of lexical aspect on the distribution of emergent verbal morphology. In the few years since Meisel's article, the field has come far enough in satisfying both requirements that there are now multiple nonequivalent analyses. In order to fully evaluate the claims that are based on the analyses, the differences between them must be carefully examined. Aspect studies have typically not recognized the differences in their quantified analyses; however, explicit articulation is necessary for comparison of studies and assessment of the aspect hypothesis. In fact, as this chapter will show, the differences in these analyses could lead us to support or reject the aspect hypothesis on the basis of the very same data.

This chapter briefly outlines the aspect hypothesis, and then examines the use and interpretation of three analyses in turn: raw scores, within-category analysis, and across-category analysis. It then revisits the within- and across-category analyses by reanalyzing selected published data in the opposite analytic framework. The advantages and disadvantages of each analysis is discussed. The chapter concludes with a discussion of implicational scaling in aspect studies.

The aspect hypothesis

Because other chapters in this volume discuss the aspect hypothesis, I will only present a brief introduction here. The aspect hypothesis attempts to account for the observation that past-tense verbal morphology does not appear with all types of verbal predicates at the same time. The aspect hypothesis states that the emergence of past-tense verbal morphology is guided by the lexical (or inherent) aspect of verb predicates. Andersen and Shirai (1994) stated the aspect hypothesis as follows:

> First and second language learners will initially be influenced by the inherent semantic aspect of verbs or predicates in the acquisition of tense and aspect markers associated with/or affixed to these verbs. (p. 133)

The aspect hypothesis can be broken down into four separate hypotheses (Shirai 1991: 9–10; see also Andersen & Shirai 1996). These hypotheses are stated in terms of grammatical aspect and its relation to lexical aspect using the Vendler categories (Vendler 1967). (The reader is referred to Chapter 1 for a discussion of the Vendler categories.)

1. Learners first use (perfective) past marking on achievements and accomplishments, eventually extending use to activities and statives.
2. In languages that encode the perfective/imperfective distinction, imperfective past appears later than perfective past, and imperfective past marking begins with statives, extending next to activities, then to accomplishments, and finally to achievements.
3. In languages that have progressive aspect, progressive marking begins with activities, then extends to accomplishments and achievements.
4. Progressive markings are not incorrectly overextended to statives.

The analyses discussed in this chapter address one or more of these individual hypotheses that make up the aspect hypothesis. To test these hypotheses a production study must address at least two points: (a) differential distribution of verbal morphology among lexical aspectual categories and (b) developmental effects. The latter is addressed by means of a cross-sectional or longitudinal design.

Every aspect study that has been done to address these issues aims to determine if verbal morphology shows differential distribution across the aspectual categories. Some studies address the question "Where do various morphemes occur?" and other studies ask "How are each of the lexical aspectual categories marked?" It turns out that the quantitative answers to these questions can be quite different and are not comparable across studies. We begin our discussion of aspect analyses with the use of raw scores.

Analyses using raw scores

Once a researcher makes the decision to quantify the results of an aspect study, there are still a number of decisions to make. First, take the use of raw scores. The presentation of raw scores is, in fact, the simplest and most straightforward of all of the quantified analyses. However, even raw scores require interpretation. This survey begins with the study of a single learner and one language sample. Shibata (1998) interviewed a learner of Japanese whose native language was Brazilian Portuguese.[1] The semi-structured interview yielded 147 verb tokens and 25 verb types (or unique combinations of predicates and verbal morphology). Using raw scores and verb types, Shibata reported that 4 achievements and 5 activities were inflected with the past marker *-ta*. (The use of the past marker addresses Hypothesis 1 of the aspect hypothesis.) Shibata concluded that activities were as likely to be inflected for past as achievements were because the raw number of achievements and activities with *-ta* is so similar. But that is not the entire story. When Shibata's data are understood in terms of number of types of verbs that were inflected for *-ta* relative to the number of types produced, we see a different pattern. The learner produced 5 types of achievements, 3 accomplishments, 11 activities, and 6 statives. If we compare the number of verbs that carry *-ta* to the number of verbs produced in each category, we find that no lexical class shows a higher use of *-ta* than achievements. The distribution of *-ta* within lexical categories is as follows: ACH 80% (4/5), ACC 67% (2/3), ACT 46% (5/11), and STA 33% (2/6). (As the reader can see, the number of verb types is quite small, and one should be very cautious in interpreting samples of this size.) This view of Shibata's data is an interpretation. And interpretations require a within- or across-category analysis. I will return to that in a moment.

Other studies that present their results in raw scores include Robison's (1995) study of the acquisition of English and Salaberry's (1999) study of the acquisition of Spanish. The study by Salaberry (1999) compares learners at different levels represented by their enrollment in university Spanish courses (SPA113 and so on). The data were collected by means of a narrative retell task, which means that the learners were in control of their production. The data are developmental because the study included learners at four different levels. Complete information is provided in Table 1. For each level, and each aspectual category, the number of tokens of each form (preterite, imperfect, present, infinitive, and progressive) is listed in raw scores.

Table 1. Raw-score presentation of distribution of tense-aspect morphology by learners of Spanish at four-levels (Salaberry 1999)

Group	Form	Telic	Activities	Stative	TOTAL
SPA 112	Preterite	28	12	7	47
(*n*=4)	Imperfect	0	0	1	1
	Present	55	9	27	91
	Infinitive	10	1	0	11
	Progressive	0	0	0	0
	TOTAL	93	22	35	150
SPA 123	Preterite	150	24	29	203
(*n*=4)	Imperfect	14	8	20	42
	Present	23	5	40	68
	Infinitive	2	1	0	3
	Progressive	1	13	2	16
	TOTAL	190	51	91	332
SPA 203	Preterite	87	7	8	102
(*n*=4)	Imperfect	4	5	38	47
	Present	9	2	26	37
	Infinitive	1	1	0	2
	Progressive	0	5	1	6
	TOTAL	101	20	73	194
SPA 311	Preterite	164	8	3	175
(*n*=3)	Imperfect	6	6	73	85
	Present	59	14	39	112
	Infinitive	0	0	0	0
	Progressive	7	13	0	20
	TOTAL	236	41	115	392

Note. From "The development of past tense verbal morphology in classroom L2 Spanish," by R. Salaberry (1999), *Applied Linguistics, Vol. 20*, p. 156. Copyright 1999 by Oxford University Press. Adapted with permission.

Salaberry's presentation of the data in raw scores can be used to answer either of the questions posed by aspect studies: "Where do various morphemes occur?" and "How are each of the lexical aspectual categories marked?" Follow the arrow across the categories to answer the first question, "Where do various morphemes occur?" For example, if we ask "where does the imperfect appear in the narratives of second language learners enrolled in Spanish 123 (SPA123)?" we find that 14 predicates with imperfect morphology are telics, 8 are activities, and 20 are statives, out of a total of 42 predicates with imperfect morphology. Follow the arrow downward to answer the question "How are each of the lexical aspectual categories marked?" If we ask, "How are telic predicates marked?" we find that 150 of the telic predicates

occur in the preterite, 14 in the imperfect, 23 in the present, 2 as infinitives, and 1 as a progressive, out of a total of 190 telics.

As soon as we begin to compare the use of tense-aspect morphology by learners in different proficiency or course levels, or in different aspectual categories, raw scores are important, but not sufficient. We begin to work with percentages and this imposes a perspective on the data. Likewise, graphing the data also imposes a perspective on the data. Each perspective corresponds to a specific analysis. The differences in analyses are only relevant to — and in fact only show up — in those cases in which production data in the form of learner-constructed text is used as the corpus. Communicative texts, whether oral or written, characteristically have an unequal number of tokens in each lexical aspectual category. As an example, Table 2 gives the distribution of predicates across aspectual categories in learner and native-speaker narratives collected by means of film retell tasks from four studies of three target languages. All of the studies used a 5–8 minute excerpt from Charlie Chaplin's *Modern Times*; Salaberry (1999) also used a second film. As Table 2 shows, more achievements are produced than any other aspectual category, whereas the remaining predicates are almost evenly divided among the categories of statives, activities, and accomplishments. The imbalance among the tokens produced in each category is reflected in some calculations, but not others, as I will show in the following sections.

Table 2. Distribution of predicates in lexical-aspectual categories in film retell narratives by learners and native speakers

Study	Target	STA	Lexical aspect ACT	ACC	ACH	Total
Bardovi-Harlig (1998) (Learners, written)	English	226	223	206	663	1,318
Bardovi-Harlig (1998) (Learners, oral)	English	246	235	314	666	1,461
Bergström (1995) (Learners, written)	French	426	366	330	1068	2,190
Bergström (1995) (Native speakers, written)	French	57	46	30	129	262
Hasbún (1995) (Learners, written)	Spanish	602	501	507	842	2,452
Hasbún (1995) (Native speakers, written)	Spanish	223	190	207	534	1,154
Salaberry (1999) (Learners, oral)	Spanish	314	134		[620]	1,068

Note. STA=states, ACT= activities, ACC=accomplishments, ACH=achievements.
[ ] = ACC and ACH combined into a single category.

Across-category analysis

I will begin this comparison by examining the studies which ask the question "Where do various morphemes occur?" These studies take the perspective of the particular morpheme under investigation. Studies of this type include Giacalone Ramat (1997, Italian), Housen (1994, Dutch), Rohde (1996, 1997, English), Salaberry (1999, Spanish), Shibata (1998, Japanese), Shirai and Kurono (1998, Japanese, see also Shirai 1995), and Wiberg (1996, Italian). Two means of presentation are employed in this approach: raw scores and percentages. Raw scores were used by Rohde (1996, 1997) in describing a natural corpus of two child learners over the course of 5 months. Percentages and raw scores were used by Housen (1994), Salaberry (1999), and Shirai & Kurono (1998). I will use the percentage approach to represent the analysis. This approach takes the sum of all the predicates that occur with a given morpheme across aspectual categories. For example, it will calculate the percentage of all progressives that are activities. Because this approach calculates distribution across the various aspectual categories, I will refer to this approach as the *across-category analysis*. (See the horizontal arrow in Table 1.)

Table 3 illustrates the across-category analysis (Shirai & Kurono 1998, p. 259) for three learners at a single time. To display what percent of all uses of the resultative morpheme *-ta* occur with achievements in L2 Japanese, the across-category presentation is used. For the group, 78% of all occurrences of *-ta* occur with achievements. 55% of all progressive morphology *-te i-* occurs with activities. Note that reading across the columns, the totals add up to 100% (except for rounding).

Table 3. Across-category analysis of the distribution of tense-aspect morphology in conversational interviews by three learners of Japanese (Shirai & Kurono 1998)

Learner	Form	STA		ACT		ACC		ACH		Total	
		%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
C	-ta	2	(1)	6	(3)	0	(0)	92	(47)	100	(51)
	-te i-	0	(0)	62	(13)	10	(2)	29	(6)	101	(21)
T	-ta	3	(1)	19	(6)	6	(2)	72	(23)	100	(32)
	-te i-	0	(0)	46	(13)	7	(2)	46	(13)	99	(28)
K	-ta	24	(10)	7	(3)	0	(0)	69	(29)	99	(42)
	-te i-	7	(4)	58	(35)	0	(0)	35	(21)	100	(60)
Group	-ta	10	(12)	10	(12)	2	(2)	78	(99)	100	(125)
	-te i-	2	(4)	55	(61)	6	(4)	37	(40)	100	(109)

Note. From "The acquisition of tense-aspect marking in Japanese as a second language," by Y. Shirai & A. Kurono (1998), *Language Learning, Vol. 48*, Tables 1 and 2. Copyright 1998 by The Language Learning Research Club. Adapted with permission.

Table 4. Across-category analysis of the distribution of tense-aspect morphology by learners of Spanish at four levels (Salaberry 1999)

Group	Form	Telic %	Activities %	Stative %	Total %
SPA 112	Preterite	60	26	15	100
(*n*=4)	Imperfect	0	0	100	100
	Present	60	10	30	100
	Infinitive	91	9	0	100
	Progressive	0	0	0	0
SPA 123	Preterite	74	12	14	100
(*n*=4)	Imperfect	33	19	48	100
	Present	34	7	59	100
	Infinitive	67	33	0	100
	Progressive	6	81	13	100
SPA 203	Preterite	85	7	8	100
(*n*=4)	Imperfect	9	11	81	100
	Present	24	5	70	100
	Infinitive	50	50	0	100
	Progressive	0	83	17	100
SPA 311	Preterite	94	5	2	100
(*n*=3)	Imperfect	7	7	86	100
	Present	53	13	35	100
	Infinitive	0	0	0	100
	Progressive	35	65	0	100

Note. From "The development of past tense verbal morphology in classroom L2 Spanish," by R. Salaberry (1999), *Applied Linguistics, Vol. 20*, p. 164. Copyright 1999 by Oxford University Press. Adapted with permission.

A second example of an across-category analysis is found in Table 4 which converts the raw scores in Table 1 (Salaberry 1999). As Table 1 shows, for the learners in SPA123, 20 out of 42 imperfects appear with statives and 14 out of 42 appear with telics. When these are converted into percentages across categories, the analysis shows that 48% of all imperfects occur with statives, and 33% occur with telics, as Table 4 shows. Rohde (1996) argues that the across-category analysis highlights the verbal inflections used by the learners:

> The perspective chosen for the analysis was the verbal inflectional categories and their occurrence with different verb categories. This format had not previously been used in tense and aspect studies. The standard presentation [i.e., the within-category analysis] gives the aspectual categories and shows which inflection occurs on the verbs in that category, thus paying perhaps too much attention to the

> aspectual categories. The perspective chosen here, however, highlights the fact that a given inflection is used across semantic verb classes and is possibly not as strongly influenced by verbal aspect as is sometimes suggested. (p. 1121)

As Tables 3 and 4 show, the across-category analysis highlights the frequency of occurrence of a morpheme, taking into account all aspectual categories at the same time.

Within-category analysis

The second approach to the aspect hypothesis asks the question, "How are each of the lexical aspectual categories marked by learners?" This approach analyzes the use of verbal morphology in one category at a time. For this reason, I call this analysis the within-category analysis. Within-category analyses are found in studies by Bardovi-Harlig and Bergström (1993, 1996), Robison (1995), Bergström (1995), Hasbún (1995), and Bardovi-Harlig (1998). The presentation of the results from two studies, Bardovi-Harlig (1998) and Robison (1995), will be discussed here. Bardovi-Harlig (1998) compared the narratives of 37 instructed adult learners of English as a second language. Oral and written narratives were elicited by means of a film retell task using *Modern Times*. The learners were compared on the basis of their appropriate use of past morphology and grouped according to the percentage of appropriate use of past by divisions of 10% (10–19%, 20–29%, 30–39%, and so on) separately for written and oral texts. In Tables 5 and 6, the learners are identified as Groups 40 and 50, and so on.[2]

Robison (1995) studied 26 learners of English at four levels of proficiency attending a Puerto Rican university. Robison analyzed learners' oral interviews and found that event predicates (achievements and accomplishments) showed the highest use of simple past of all the aspectual categories. In addition, the rates of use of simple past tense increased for all lexical aspectual classes with increased proficiency. Robison grouped the learners according to their use of past morphology in obligatory contexts in their writing samples. The subjects were divided into four groups, each of which had a minimum of five members and at least 2 hours of oral interview data. Data from two of the four groups are examined in Table 7. The data from these studies, presented in the within-category analysis, support the first hypothesis (that past is found first in achievements and accomplishments and spreads to activities, then states) and the third hypothesis (the progressive begins with activities), from both the distribution and developmental perspectives.

Tables 5–7 illustrate within-category analyses of written and oral language samples produced by learners of English. The general question answered by within-category analysis, "How are each of the lexical aspectual categories marked by

Table 5. Distribution of tense-aspect morphology within aspectual categories in written narratives by learners of English in seven groups (Bardovi-Harlig 1998)

Group	Form	STA %	(n)	ACT %	(n)	ACC %	(n)	ACH %	(n)
Group	Past	11	(3)	9	(2)	31	(10)	32	(24)
10 to 30	Prog	0	(0)	30	(7)	6	(2)	3	(2)
N=5	Pres	67	(18)	4	(1)	3	(1)	1	(1)
	Base	15	(4)	52	(12)	56	(18)	47	(35)
	Other	7	(2)	4	(1)	3	(1)	16	(12)
	Total	100%	(27)	100%	(23)	100%	(32)	100%	(74)
Group 40	Past	20	(4)	30	(7)	55	(12)	48	(25)
N=3	Prog	0	(0)	9	(2)	0	(0)	0	(0)
	Pres	50	(10)	4	(1)	0	(0)	0	(0)
	Base	20	(4)	52	(12)	41	(9)	46	(24)
	Other	10	(2)	4	(1)	5	(1)	6	(3)
	Total	100%	(20)	100%	(23)	100%	(22)	100%	(52)
Group 50	Past	52	(11)	13	(3)	58	(15)	71	(43)
N=3	Prog	0	(0)	33	(8)	4	(1)	2	(1)
	Pres	19	(4)	4	(1)	4	(1)	0	(0)
	Base	24	(5)	46	(11)	31	(8)	26	(16)
	Other	5	(1)	4	(1)	4	(1)	2	(1)
	Total	100%	(21)	100%	(24)	100%	(26)	100%	(61)
Group 60	Past	79	(22)	21	(3)	63	(12)	61	(44)
N=4	Prog	0	(0)	43	(6)	5	(1)	0	(0)
	Pres	14	(4)	0	(0)	0	(0)	0	(0)
	Base	7	(2)	36	(5)	26	(5)	31	(22)
	Other	0	(0)	0	(0)	5	(1)	8	(6)
	Total	100%	(28)	100%	(14)	100%	(19)	100%	(72)
Group 70	Past	63	(30)	37	(25)	74	(29)	85	(160)
N=9	Prog	2	(1)	37	(25)	0	(0)	0	(0)
	Pres	25	(12)	0	(0)	0	(0)	0	(0)
	Base	10	(5)	21	(14)	26	(10)	11	(21)
	Other	0	(0)	6	(4)	0	(0)	4	(8)
	Total	100%	(48)	100%	(68)	100%	(39)	100%	(189)
Group 80	Past	71	(36)	51	(18)	83	(34)	88	(104)
N=7	Prog	2	(1)	34	(12)	5	(2)	3	(3)
	Pres	22	(11)	0	(0)	10	(4)	0	(0)
	Base	6	(3)	11	(4)	2	(1)	8	(9)
	Other	0	(0)	3	(1)	0	(0)	2	(2)
	Total	100%	(51)	100%	(35)	100%	(41)	100%	(118)
Group 90	Past	90	(28)	75	(27)	82	(22)	90	(87)
N=6	Prog	0	(0)	25	(9)	4	(1)	2	(2)
	Pres	10	(3)	0	(0)	11	(3)	0	(0)
	Base	0	(0)	0	(0)	4	(1)	1	(1)
	Other	0	(0)	0	(0)	0	(0)	7	(7)
	Total	100%	(31)	100%	(36)	100%	(27)	100%	(97)

Note. "Prog" includes bare-progessive, present progressive, and past progressive.
From "Narrative structure and lexical aspect: Conspiring factors in second language acquisition of tense-aspect morphology," by K. Bardovi-Harlig (1998), *Studies in Second Language Acquisition, Vol. 20,* p. 485. Copyright 1998 by Cambridge University Press. Reprinted with permission.

Table 6. Distribution of tense-aspect morphology within aspectual categories in oral narratives by learners of English in seven groups (Bardovi-Harlig 1998)

Group	Form	STA %	(n)	ACT %	(n)	ACC %	(n)	ACH %	(n)
Group 10	Past	0	(0)	0	(0)	6	(0.5)	6	(1)
N=3	Prog	0	(0)	40	(4)	25	(2)	6	(1)
	Pres	0	(0)	20	(2)	0	(0)	3	(.5)
	Base	0	(0)	30	(3)	44	(3.5)	66	(10.5)
	Other	0	(0)	10	(1)	25	(2)	19	(3)
	Total	100%	(0)	100%	(10)	100%	(8)	100%	(16)
Group 20	Past	11	(1)	4	(2)	16	(7)	43	(38.6)
N=6	Prog	0	(0)	19	(10)	4	(2)	3	(3)
	Pres	11	(1)	12	(6)	0	(0)	3	(3)
	Base	78	(7)	62	(32)	76	(34)	46	(41.5)
	Other	0	(0)	4	(2)	4	(2)	4	(4)
	Total	100%	(9)	100%	(52)	100%	(45)	100%	(90)
Group 30	Past	0	(0)	19	(5.5)	45	(19)	56	(60)
N=6	Prog	0	(0)	22	(6.5)	0	(0)	0	(0)
	Pres	0	(0)	3	(1)	0	(0)	0	(0)
	Base	100	(9)	52	(15)	50	(21)	41	(44)
	Other	0	(0)	3	(1)	5	(2)	3	(3)
	Total	100%	(9)	100%	(29)	100%	(42)	100%	(107)
Group 40	Past	15	(2)	16	(9)	34	(27.5)	62	(88)
N=6	Prog	0	(0)	27	(15)	16	(13)	0	(0)
	Pres	8	(1)	4	(2)	4	(3)	1	(2)
	Base	77	(10)	47	(26)	42	(34.5)	32	(44.5)
	Other	0	(0)	6	(3)	5	(4)	5	(6.5)
	Total	100%	(13)	100%	(55)	100%	(82)	100%	(141)
Group 50	Past	9	(1.5)	22	(4)	37	(16)	67	(73.5)
N=5	Prog	0	(0)	39	(7)	8	(2)	0	(0)
	Pres	0	(0)	0	(0)	0	(0)	0	(.5)
	Base	91	(14.5)	39	(7)	54	(23)	31	(34)
	Other	0	(0)	0	(0)	5	(2)	2	(2)
	Total	100%	(16)	100%	(18)	100%	(43)	100%	(110)
Group 60	Past	42	(5.5)	32	(13)	66	(39)	79	(99)
N=6	Prog	0	(0)	34	(14)	3	(1.5)	0	(0)
	Pres	4	(.5)	2	(1)	6	(3.5)	3	(4)
	Base	54	(7)	32	(13)	24	(14)	18	(22.5)
	Other	0	(0)	0	(0)	2	(1)	0	(.5)
	Total	100%	(13)	100%	(41)	100%	(59)	100%	(126)
Group 70	Past	0	(0)	21	(6)	68	(23)	86	(55)
N=4	Prog	0	(0)	46	(13)	6	(2)	4	(2.5)
	Pres	67	(4)	7	(2)	0	(0)	0	(0)
	Base	33	(2)	25	(7)	24	(8)	10	(6.5)
	Other	0	(0)	0	(0)	3	(1)	0	(0)
	Total	100%	(6)	100%	(28)	100%	(34)	100%	(64)

Note. "Prog" includes bare-progressive, present progressive, and past progressive.
From "Narrative structure and lexical aspect: Conspiring factors in second language acquisition of tense-aspect morphology," by K. Bardovi-Harlig (1998), *Studies in Second Language Acquisition, Vol. 20*, pp. 487-488. Copyright 1998 by Cambridge University Press. Reprinted with permission.

learners?" can be substituted by any number of specific ones, for example, "How are activities marked?" In order to answer that question, a within-category analysis calculates the percentage of all activities that are progressive. Table 5, for example, shows that in the written narratives collected by Bardovi-Harlig (1998), the percentage of activities that carry progressive in Group 40, 8%, increases to 33% in Group 50, and to 43% in Group 60. Note that adding down the columns, the uses of different verbal morphology add up to 100%, that is, 100% of the activity predicates are accounted for. Table 6, from the oral narratives produced by the same learners whose results are presented in Table 5, shows a higher rate of use of progressive with activities, with a gradual increase from Group 20 with 19% use, to 22% in Group 30, to 27% in Group 40%, and 39% by Group 50.

Table 7 illustrates the presentation of raw scores and within-category analysis for two of the four groups of learners of English studied by Robison (1995). The raw

Table 7. Raw scores and within-category analysis of conversational data by learners of English (Robison 1995)

Group	Form	Raw scores				
		STA	ACT	ACC	ACH	Total
I	base	138	179	79	61	457
	-ing	1	32	4	18	55
	PAST	2	6	4	8	20
	-s	7	4	2	0	13
	Total	148	221	89	87	545
II	base	367	210	81	105	763
	-ing	12	69	10	5	96
	PAST	15	13	12	53	93
	-s	13	8	7	2	30
	Total	407	30	110	165	982
		Within-category analysis (in percent)				
I	base	93	81	89	70	NA
	-ing	1	15	5	21	
	PAST	1	3	5	9	
	-s	5	2	2	0	
	Total	100	101	101	100	
II	base	90	70	74	64	NA
	-ing	3	23	9	3	
	PAST	4	4	11	32	
	-s	3	3	6	1	
	Total	100	100	100	100	

Note. NA=Across-category totals not applicable to within-catgeory analysis.
From "The aspect hypothesis revisited: A cross-sectional study of tense and aspect marking in interlanguage," by R. Robison (1995), *Applied Linguistics, Vol. 16.* Copyright 1995 by Oxford University Press. Adapted with permission.

scores for Group II in Table 7 show that 13 activities and 12 accomplishments carry past morphology. When the raw scores are converted to percentages of the total number of predicates produced within each category, the distribution appears to be quite different: Only 4% of the activities occur in the past, whereas 11% of the accomplishments do, as the lower half of Table 7 shows. As Robison correctly notes, the within-category analysis is not sensitive to the imbalance between tokens in the aspectual categories.

Robison (1995) provided the following view of the within-category analysis and an analysis of the data presented in Table 7. Note that what Robison refers to as durative events are what many other authors call accomplishments.[3]

> This [the within-category analysis] differs from the mode of presentation in earlier studies [the across-category analysis] in which percentages are displayed for each inflection, such as the percentage of all progressive tokens that are states. The presentation here [within-category] permits a more accurate comparison [of] categories. For example, past-marked activities outnumber past-marked durative events [accomplishments] in Groups I and II only because activities outnumber durative events as a whole; the percentage figures rightly indicate that past-marking is skewed in favor of durative events. (pp. 354–355)

In other words, although 13 activities and 12 accomplishments appear to be similar, in proportion to the number of all activities and accomplishments produced, they are not. It is also interesting to note that Robison's interpretation of the across-category analysis as the earlier means of presentation directly conflicts with Rohde's (1996) interpretation cited earlier in this chapter that describes the within-category analysis as the earlier presentation.

Comparison and reanalysis

An additional difference between the within- and across-category analyses is the inclusion of information concerning the use of base forms by learners. Within-category analysis always includes the use of base forms, whereas across-category analysis often does not (e.g., Rohde 1996; and Shirai & Kurono 1998; for an exception, see Table 4 from Salaberry 1999).[4] One reason why across-category analyses do not include base forms (and other non-focal or nontargetlike like forms) is that across-category analyses have focused on the acquisition of specific morphology, and zero is not the focus of acquisition studies. However, as longitudinal studies show, base forms characterize interlanguage temporal expression for quite some time (Bardovi-Harlig 1992; Dietrich et al. 1995). In addition, cross-sectional studies by Robison (1995) and Bardovi-Harlig (1995, 1998) show that a significant number of verbs appear in the base form. Including the number of base

forms used by learners leads to a more complete characterization of interlanguage and facilitates the comparison of learners in different studies.

As a result of this difference in reporting base forms, not all across-category analyses convert well to within-category analyses. Where no base forms are reported, for example, conversion to a within-category analysis would lead to very inflated scores for the use of morphology. Therefore, I will use studies that include base forms for the reanalysis presented in the following sections. To illustrate the differences between the within- and across-category analyses, I present reanalyses of the data from two studies, examining two within-category analyses converted to across-category analyses (oral and written data, Bardovi-Harlig 1998) and one across-category analysis converted to a within-category analysis (oral data, Salaberry 1999). Both studies used a *Modern Times* film-retell task.

Within-category analysis to across-category analysis
Beginning with Table 5 from Bardovi-Harlig (1998), the within-category analysis of the written narratives shows that 32% of all achievements carry simple past in the language sample of the lowest-level learners (Groups 10–30) in the study. 31% of all accomplishments carry simple past in the same level. Look down the columns and notice that 47% and 56% of all achievements and accomplishments occur in base forms. Concentrating only on the distribution of simple past, notice first that the frequency of simple past on accomplishments and achievements is very close; notice, too, that there is a clear difference between the frequency with which activities occur in the simple past (9%), and accomplishments (31%) and achievements (32%). Finally, the within-category analysis reveals a developmental effect, as shown in Figure 1a. (In Figure 1 and the following figures only the dynamic verbs are included for simplicity.) Notice that all lexical aspectual categories show higher use of simple past as learners use more verbal morphology. At the highest level (Group 90), 82% of accomplishments, 90% of achievements, and fully 75% of activities carry the simple past.

Now consider the across-category analysis in Table 8. The across-category analysis answers the question "What percent of past tense marking occurs on achievements?" Looking again at the first group, note that 62% of all simple past morphology occurs on achievements, and 26% appears on accomplishments. Looking at Figure 1b, compare the same three points. Achievements and accomplishments show very different distributions. This is due to the fact that achievements outnumber accomplishments three to one. Notice that accomplishments are much closer to activities than to achievements. (Remember that the raw number of accomplishments and activities are nearly identical.) The information that accomplishments and achievements pattern similarly is lost, a finding that is expected given their status as telic verbs (or "events," Mourelatos 1981; see also Bardovi-Harlig &
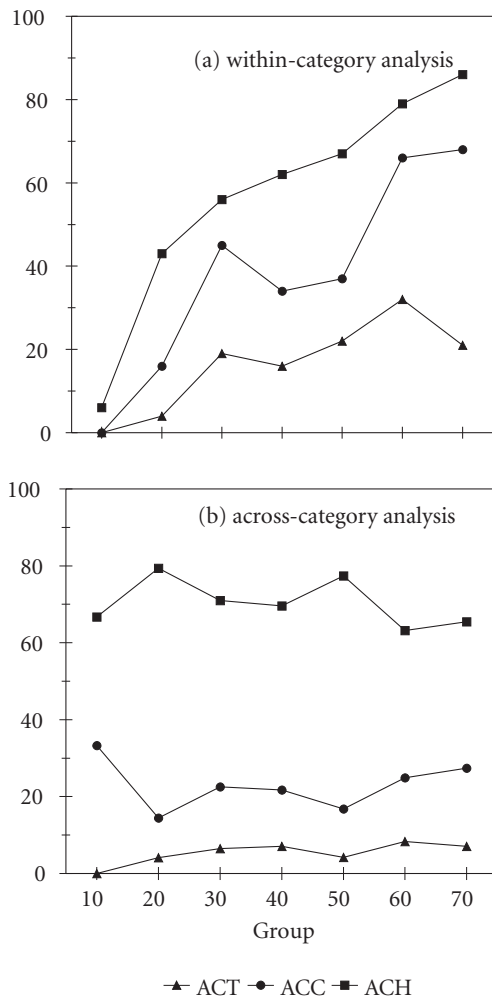
Table 8. Across-category analysis of the distribution of tense-aspect morphology in written narratives by learners of English

| Group	Form	STA %	ACT %	ACC %	ACH %	Total %	Total (n)
Group10-30	Past	8	5	26	62	100	39
N=5	Prog	0	64	18	18	100	11
	Pres	86	5	5	5	100	21
	Base	6	17	26	51	100	69
	Other	13	6	6	75	100	16
Group 40	Past	8	15	25	52	100	48
N=3	Prog	0	100	0	0	100	2
	Pres	91	9	0	0	100	11
	Base	8	24	18	49	100	49
	Other	29	14	14	43	100	7
Group 50	Past	15	4	21	60	100	72
N=3	Prog	0	80	10	10	100	10
	Pres	67	17	17	0	100	6
	Base	13	28	20	40	100	40
	Other	25	25	25	25	100	4
Group 60	Past	27	4	15	54	100	81
N=4	Prog	0	86	14	0	100	7
	Pres	100	0	0	0	100	4
	Base	6	15	15	65	100	34
	Other	0	0	14	86	100	7
Group 70	Past	12	10	12	66	100	244
N=9	Prog	4	96	0	0	100	26
	Pres	100	0	0	0	100	12
	Base	10	28	20	42	100	50
	Other	0	0	14	86	100	12
Group 80	Past	19	9	18	54	100	192
N=7	Prog	6	67	11	17	100	18
	Pres	73	0	27	0	100	15
	Base	18	24	6	53	100	17
	Other	0	33	0	67	100	3
Group 90	Past	17	16	13	53	100	164
N=6	Prog	0	75	8	17	100	12
	Pres	50	0	50	0	100	6
	Base	0	0	50	50	100	2
	Other	0	0	0	100	100	7

Reynolds 1995; Salaberry 1999). Finally, and most importantly, the across-category analysis shows no increase across groups. Achievements garner between 54% and 65% of the uses of simple past at all stages. Thus, whereas the within-category analysis shows evidence for the spread of past from achievements and accomplishments to activities, the across-category analysis does not.
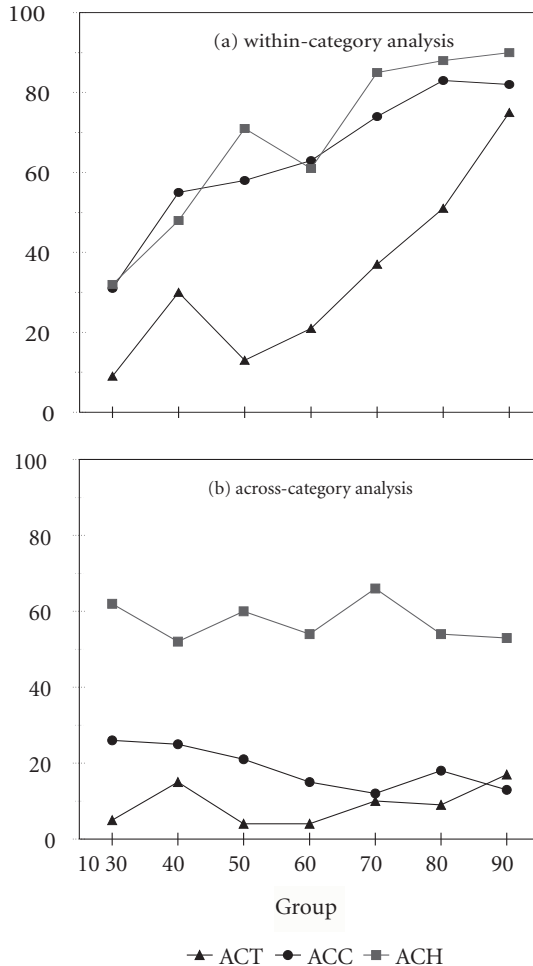
Figure 1. Comparison of within- and across-category analyses of the distribution of simple past in written narratives by learners of English. Top panel from "Narrative structure and lexical aspect: Conspiring factors in second language acquisition of tense-aspect morphology," by K. Bardovi-Harlig, 1998, *Studies in Second Language Acquisition, 20,* p. 468. Copyright 1998 by Cambridge University Press. Reprinted with permission.

Figure 2. Comparison of within- and across-category analyses of the distribution of simple past in oral narratives by learners of English. Top panel from "Narrative structure and lexical aspect: Conspiring factors in second language acquisition of tense-aspect morphology," by K. Bardovi-Harlig, 1998, *Studies in Second Language Acquisition, 20,* p. 486. Copyright 1998 by Cambridge University Press. Reprinted with permission. Bottom panel from *Tense and aspect in second language acquisition: Form, meaning and use,* by K. Bardovi-Harlig (2000), p. 259. Copyright 2000 by the Language Learning Research Club. Reprinted with permission.
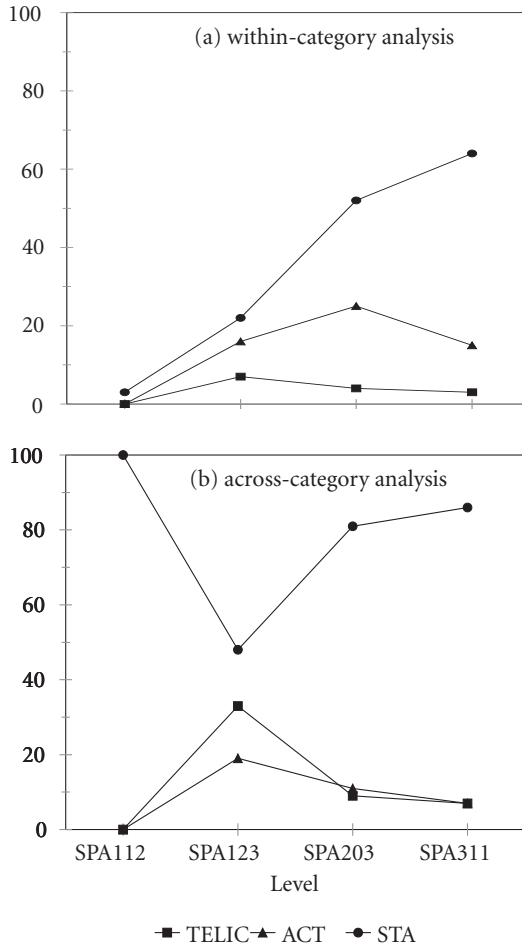
Figure 3. Comparison of within- and across-category analyses of the distribution of imperfect in oral narratives by learners of Spanish. From *Tense and aspect in second language acquisition: Form, meaning and use*, by K. Bardovi-Harlig (2000), p. 264. Copyright 2000 by the Language Learning Research Club. Reprinted with permission.

Table 9. Across-category analysis of the distribution of tense-aspect morphology in oral narratives by learners of English

Group	Form	STA %	STA (n)	ACT %	ACT (n)	ACC %	ACC (n)	ACH %	ACH (n)	Total %	Total (n)
Group 10	Past	0	(0)	0	(0)	33	(.5)	67	(1)	100%	(1.5)
N=3	Prog	0	(0)	57	(4)	29	(2)	14	(1)	100%	(7)
	Pres	0	(0)	80	(2)	0	(0)	20	(.5)	100%	(2.5)
	Base	0	(0)	18	(3)	21	(3.5)	62	(10.5)	100%	(17)
	Other	0	(0)	17	(1)	33	(2)	50	(3)	100%	(6)
Group 20	Past	2	(1)	4	(2)	14	(7)	79	(38.6)	100%	(48.6)
N=6	Prog	0	(0)	67	(10)	13	(2)	20	(3)	100%	(15)
	Pres	10	(1)	60	(6)	0	(0)	30	(3)	100%	(10)
	Base	6	(7)	28	(32)	30	(34)	36	(41.5)	100%	(114.5)
	Other	0	(0)	25	(2)	25	(2)	50	(4)	100%	(8)
Group 30	Past	0	(0)	7	(5.5)	23	(19)	71	(60)	100%	(84.5)
N=6	Prog	0	(0)	100	(6.5)	0	(0)	0	(0)	100%	(6.5)
	Pres	0	(0)	100	(1)	0	(0)	0	(0)	100%	(1)
	Base	10	(9)	17	(15)	24	(21)	49	(44)	100%	(89)
	Other	0	(0)	38	(3)	25	(2)	38	(3)	100%	(8)
Group 40	Past	2	(2)	7	(0)	22	(27.5)	70	(88)	100%	(126.5)
N=6	Prog	0	(0)	54	(15)	46	(13)	0	(0)	100%	(28)
	Pres	13	(1)	25	(2)	38	(3)	25	(2)	100%	(8)
	Base	9	(10)	23	(26)	30	(34.5)	39	(44.5)	100%	(115)
	Other	0	(0)	22	(3)	30	(4)	48	(6.5)	99%	(13.5)
Group 50	Past	2	(2)	4	(4)	17	(16)	77	(73.5)	100%	(95)
N=5	Prog	0	(0)	78	(7)	22	(2)	0	(0)	100%	(9)
	Pres	0	(0)	0	(0)	0	(0)	100	(.5)	100%	(.5)
	Base	19	(14.5)	9	(7)	29	(23)	43	(34)	100%	(78.5)
	Other	0	(0)	0	(0)	50	(2)	50	(2)	100%	(4)
Group 60	Past	4	(5.5)	8	(13)	25	(39)	63	(99)	100%	(156.5)
N=6	Prog	0	(0)	90	(14)	10	(1.5)	0	(0)	100%	(15.5)
	Pres	6	(.5)	11	(1)	39	(3.5)	44	(4)	100%	(9)
	Base	12	(7)	23	(13)	25	(14)	40	(22.5)	100%	(56.5)
	Other	0	(0)	0	(0)	67	(1)	33	(.5)	100%	(15)
Group 70	Past	0	(0)	7	(6)	27	(23)	66	(55)	100%	(84)
N=4	Prog	0	(0)	74	(13)	11	(2)	14	(2.5)	100%	(17.5)
	Pres	67	(4)	33	(2)	0	(0)	0	(0)	100%	(6)
	Base	9	(2)	30	(7)	34	(8)	28	(6.5)	100%	(23.5)
	Other	0	(0)	0	(0)	100	(1)	0	(0)	100%	(1)

Note. From *Tense and aspect in second language acquisition: Form, meaning and use*, by K. Bardovi-Harlig (2000), pp. 260-261. Copyright 2000 by Language Learning Research Club. Reprinted with permission.

The second reanalysis analyzes the oral narratives from the same study. The within-category analysis is presented in Table 6. The across-category analysis is presented in Table 9. The across-category and within-category analyses are compared in Figure 2. Notice that achievements and accomplishments are more clearly distinguished in the oral data than in the written. The within-category analysis illustrated in Figure 2a shows developmental effects. (Remember that Group 10 shows less than 10% use of past with achievements and accomplishments, and Group 90 shows 90% use of past.) In contrast, there is almost no developmental effect seen in the across-category analysis, as shown in Figure 2b. Without developmental changes, there is no evidence of spreading of verbal morphology across aspectual categories. Moreover, the most striking contrast comes in the differences between Groups 10 and 40. Where only 6% of achievements and accomplishments are marked by past by Group 10 (see Figure 2a), 67% of all past occurs on achievements (see Figure 2b).

Across-category analysis to within-category analysis

Now consider the reanalysis of an across-category analysis to a within-category analysis, working with the data from Salaberry (1999). Note that this conversion is possible because information for all of the predicates in the sample is provided. Table 10 presents a within-category analysis for the data in Tables 1 and 4. Focusing on the same rates of usage for level SPA 123 examined previously, the within-category analysis shows that only 7% of achievements occur with the imperfect, whereas 22% of the statives occur with the imperfect.

Whereas the across-category analysis does not show a developmental effect, as illustrated by Figure 3b, the within-category analysis does, as shown by Figure 3a. The within-category analysis shows that there is very little use of imperfect by learners in the first level (SPA112). The use of imperfect increases in the second level (SPA123) with statives in the lead, activities second, and telics lagging behind, as expected following the aspect hypothesis. Note that in the within-category analysis at no time does the use of imperfect with telics exceed use with either activities or states in contrast to the across-category analysis. This is because the analysis is insulated against imbalances in production of tokens in the lexical categories, and most notably, it is insensitive to the fact that there are more telics than any other category. The use of imperfect continues to increase robustly in states in levels SPA203 and SPA311. The spread of imperfect is more modest in activities, and almost nonexistent in telics, which is not surprising for a group that still makes prototypical associations. So, although Salaberry (1999) concludes on the basis of an across-category analysis that "the effect of lexical aspectual class with level of experience in the target language is substantiated with the analysis of both morphological markers of Past tense [the preterite and the imperfect] in parallel (concur-

Table 10. Within-category analysis of the distribution of tense-aspect morphology by learners of Spanish at four levels

Group	Form	Telic		Activities		Stative	
		%	(n)	%	(n)	%	(n)
SPA 112	Preterite	30	(28)	55	(12)	20	(7)
(n=4)	Imperfect	0	(0)	0	(0)	3	(1)
	Present	59	(55)	41	(9)	77	(27)
	Infinitive	11	(10)	5	(1)	0	(0)
	Progressive	0	(0)	0	(0)	0	(0)
	TOTAL	100	(93)	101	(22)	100	(35)
SPA 123	Preterite	79	(150)	47	(24)	32	(29)
(n=4)	Imperfect	7	(14)	16	(8)	22	(20)
	Present	12	(123)	10	(5)	44	(40)
	Infinitive	1	(2)	2	(1)	0	(0)
	Progressive	1	(1)	25	(13)	2	(2)
	TOTAL	100	(190)	100	(51)	100	(91)
SPA 203	Preterite	86	(87)	35	(7)	11	(8)
(n=4)	Imperfect	4	(4)	25	(5)	52	(38)
	Present	9	(9)	10	(2)	36	(26)
	Infinitive	1	(1)	5	(1)	0	(0)
	Progressive	0	(0)	25	(5)	1	(1)
	TOTAL	100	101	100	(20)	100	(73)
SPA 311	Preterite	70	(164)	20	(8)	3	(3)
(n=3)	Imperfect	3	(6)	15	(6)	64	(73)
	Present	25	(59)	34	(14)	34	(39)
	Infinitive	0	(0)	0	(0)	0	(0)
	Progressive	3	(7)	1	(1)	0	(0)
	TOTAL	101	(236)	101	(41)	101	(115)

Note. From *Tense and aspect in second language acquisition: Form, meaning and use,* by K. Bardovi-Harlig (2000). Copyright 2000 by the Language Learning Research Club. Reprinted with permission.

rent effects)" (p. 165), the effect of level is even clearer with the within-category analysis, as Figure 3a shows. In the across-category analysis, developmental effects are clear for the imperfect only in three of the four groups (SPA 123-SPA311). Developmental effects are not clear for activities and states where usage increases between the first level (SPA 112) and the second (SPA 123), but decreases after that. In contrast, the within-category analysis shows both a difference in distribution among the lexical aspectual categories and developmental effects.

The comparisons show that the analyses differ in how they report the rates of use of morphology in different aspectual categories, in their sensitivity to the number of tokens produced, and in their portrayal of developmental effects.

Comparing analyses

Because the within- and across-category analyses are not equivalent, they also show some advantages in specific cases. The across-category analysis was originally used by Shirai (1991) to trace the distribution of verbal morphology relative to lexical aspectual category in the speech of native speakers addressed to learners. Because the across-category analysis is sensitive to the sheer numbers of tokens produced in a single category, across-category analysis captures the number of tokens of each type that a learner might encounter in the input. If one's interest concerns the development of competence rather than input, an analyst might want to know whether learners are capable of inflecting activities with the simple past and the rate at which they do so. This question does not address the actual number of forms in production. Learners may be able to inflect accomplishments with the same regularity as they inflect achievements, but the across-category analysis will never reveal this unless the numbers of achievements and accomplishments are held constant. The within-category analysis also better captures developmental changes as Figures 1–3 illustrate. Because of the differences in the analyses, they cannot be used interchangeably. When evaluating studies that claim to support or not support the aspect hypothesis, it is important to take the analysis into account, even if the author does not explicitly discuss it.

Implicational scaling

Implicational scaling offers a different approach to mapping the data which may be an informative supplement to quantified presentations already discussed in this chapter. Bayley (1999) has demonstrated that the aspect hypothesis predicts the patterns of acquisition which characterize language loss by Spanish speakers of Mexican communities in Texas and California. Bayley used Andersen's (1991) model of morphological spreading as a template for analysis. In Bayley's analysis, the presence (or absence) of the preterite and the imperfect is recorded for each lexical aspectual category and is assigned either a plus "+" or a minus "−". Because of the brevity of some of the narratives, a single occurrence of the preterite or imperfect in a lexical aspectual class (e.g., a preterite form of an activity), was sufficient to earn a plus (+) for the category. In this way, the use of a morpheme by each learner is described in a single line as shown in Table 11.

The advantage of the scalar presentation is that the use of verbal morphology by each learner is easily viewed and at the same time, the spread of the morphology across categories is easily observed. The frequent use of a morpheme by one learner does not obscure non-use by another learner because there are no group scores. Bayley's presentation by individual also has the advantage of not having to group learners (by proficiency level, class enrollment, percent of appropriate use or other means), since each student is represented alone. Implicational scaling is

Table 11. Distribution of preterite by aspectual class in Mexican-Origin children's Spanish narratives using implication scaling (Bayley 1999)

Subject	Narrative	Punctual	Telic	Activity	State
SF03	Friend	+	+	+	+
SF05	Friend	+	+	+	+
SF12	Frog	+	+	+	+
SF13	Friend	+	+	+	+
SF15	Friend	+	+	+	+
SA15.2	Friend	+	+	+	+
SAN2	Friend	+	+	+	+
SAN11	Frog	+	+	+	+
PK08	Frog	+	+	+	+
PK11	Friend	+	+	(−)	+
SF07	Friend	+	+	(−)	+
SF08	Frog	+	+	(−)	+
SF09	Frog	+	+	(−)	+
SAN1	Friend	+	+	(−)	+
SA03	Friend	+	+	(−)	+
PK13	Frog	+	(−)	+	+
SF02	Frog	+	+	+	−
SF17	Friend	+	+	+	−
SF06	Frog	+	+	+	−
PK07	Frog	+	+	+	−
SAN3	Friend	+	+	+	−
SAN8	Friend	+	+	+	−
SAN9	Frog	+	+	+	−
SAN12	Friend	+	+	+	−
SF10	Frog	+	+	+	−
SF01	Friend	+	+	−	−
SF16	Frog	+	+	−	−
SF18	Frog	+	+	−	−
SA01	Frog	+	+	−	−
SA04	Friend	+	+	−	−
SA09	Friend	+	+	−	−
SA15.1	Frog	+	+	−	−
SA21	Friend	+	+	−	−
PK02	Frog	+	+	−	−
PK09	Friend	+	+	−	−
SAN5	Friend	+	+	−	−
SAN7	Friend	+	+	−	−
SAN10	Friend	+	+	−	−
SF11	Friend	+	−	−	−
SF19	Friend	+	−	−	−
SF20	Frog	+	−	−	−
SAN4	Friend	+	−	−	−
SA16	Friend	+	−	−	−
PK01	Friend	+	−	−	−
PK05	Friend	+	−	−	−
PK06	Friend	+	−	−	−
PK10	Friend	+	−	−	−
PK12	Frog	+	−	−	−
SA02	Frog	−	−	−	−

Notes: IR=.964; cells that do not scale are in parentheses; SA - San Antonio, SF - San Francisco. From "The primacy of aspect hypothesis revisited: Evidence from language shift," by R. Bayley (1999), *Southwest Journal of Linguistics, Vol. 18:2,* p. 14. Copyright 1999 by the Linguistic Association of the Southwest. Reprinted with permission.

also amenable to statistical analysis: Bayley calculated the indices of reproducibility showing .959 for the preterite and .939 for the imperfect (statistically significant at $p < .05$).

Many of the issues that occur between group and individual reporting surface here as well. One of the problems with this type of analysis is getting enough samples of every category and instances of morpheme use within a category. This brings our attention to the question of how many instances of a specific type are enough to demonstrate that something is reasonably established in the grammar, and thereby may earn a "+". Brown (1973) required that 5 instances occur in a child's language sample for a morpheme to be considered acquired, but in a single narrative, that is more than can be expected. (For example, five distinct non-be statives would be very hard to come by in most narrative tasks from a single learner.) Moreover, because the aspect hypothesis concerns emergence and the patterns of distribution as verbal morphology is acquired, not the endpoint of acquisition itself, it is important not to set the criterion level too high or to require too many tokens. On the other hand, it is also important not to require too few tokens to indicate emergence. For interlanguage analysis, a single occurrence perhaps provides too little evidence to claim that a learner has begun to productively use a form. (Cf. Bayley's discussion of setting the criterion levels, 1999, footnote 3.) The advantage of pooling group data is that learners in a group provide a greater number of tokens than any learner alone. (However, this introduces other disadvantages as previously discussed.)

Conclusion

Although studies of the aspect hypothesis in second language acquisition research have become increasingly quantified, the analyses have not been uniform. Both across-category and within-category analysis have a place in second language acquisition research, but as this chapter has shown, the analyses are not equivalent, and thus, must be applied selectively. The across-category analysis is particularly revealing for studies of frequency, such as studies that seek to characterize the input. The within-category analysis is particularly well-suited for use with language samples where an unequal number of tokens are produced. The within-category analysis compensates for unequal production across lexical categories, thus allowing developmental patterns to be seen more clearly. Whatever analysis is used in a study, supplying the raw scores and all the forms used by learners (including base forms as well as all morphological forms) will allow readers access to necessary information to fully evaluate interpretations made by researchers. Only then can we claim to have replicable studies, a necessary step in the maturation of interlanguage aspect studies.

Notes

* This chapter is an expanded version of a section of the same name in Bardovi-Harlig (2000).

1. Note that Shibata's study only addresses the first issue of the aspect hypothesis — the distributional issue. Because it is a single moment study, it does not address the developmental issue.

2. In Table 5, Group 10–30 groups together a small number of learners whose appropriate use of past ranged from 10%–39%.

3. Robison employs six aspectual categories in his analysis: states, activities, punctual activities, durative events (accomplishments), punctual events (achievements), and punctual states. For ease of comparison with other studies, I have presented only the four main categories. This simplification does not affect the within-category analysis.

4. Rohde (1999) provides the base forms not reported in Rohde (1996, 1997), but they are not integrated into the analysis reported previously.

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The development of Tense–Aspect in English as a second language and the variable influence of inherent aspect

Alex Housen

Introduction

This chapter discusses the development of English verb morphology as it emerges from a study of 46 Dutch and French-speaking learners of English as a second language, particular attention being paid to the predictions deriving from the *Aspect Model* for the functional development of tense–aspect morphology (Andersen 1991; Andersen & Shirai 1994, 1996). The chapter consists of four major parts, each consisting of two sections. The present first part presents the the general research questions (Section 1) and the overall design of the larger study on which this chapter is based (Section 2). The second part outlines stages in respectively the formal development (Section 3) and the functional development (Section 4) of verb morphology as they emerged from a descriptive analysis of the data from the 46 learners of L2 English. The third part is concerned with the Aspect Model. Section 5 discusses the descriptive and explanatory claims of the Aspect Model for the acquisition of English. Section 5 also reviews previous research on the Aspect Model to motivate the methodological choices made in the present study. In Section 6, the descriptive claims of the Aspect Model are checked against the longitudinal data from one L2 learner of English. The fourth and final part proposes theoretical interpretations and explanations for the findings reported in parts two and three (Section 7) as well as some concluding remarks (Section 8).

For descriptive purposes, the language learner's task of mastering the tense-aspect (TA) system of his target language (TL) can be broken down into two sub-tasks which, although linked, need not proceed in tandem (MacWhinney 1978):

1. a form-to-form mapping task, i.e. learning the various verb form categories and morphological paradigms of the TL. For instance, learners of English have

to learn that the past and present tense forms of the English verbal lexeme *have* are *had* and *has* rather than *haved and *haves;

2.   a form-to-function mapping task, i.e. learning the relevant temporo-grammatical meanings and discourse-pragmatic functions that are obligatorily or optionally expressed in the TL, and mapping these onto their appropriate morphological forms. For instance, learners have to learn that the *-ing* form of an English verb can express, amongst others, progressivity, habituality, futurity, continuity and backgrounding in narrative discourse.

Both tasks are complex in their own right due to the lack of structural congruity (for task 1) and the lack of isomorphy of form and meaning/function (for task 2) in this domain of language. These are the assumptions that define the following general research questions guiding the research reported in this paper:

1a.   How do L2-learners acquire the basic morphological categories of the English verb system, i.e. the base form (*Vø*), the 3rd person singular Simple Present form (*Vs)*, the Present Participle form (*Ving)*, the regular Past/Past Participle form (*Ved)* and the irregular Past/Past Participle forms (*Virreg*)?

1b.   What stages of development can be discerned in the acquisition of these forms?

2a.   How do L2-learners map these forms onto their appropriate *temporal, aspectual* and *grammatical meanings*, such as present, past or anterior time, imperfective, progressive, or habitual aspect, and person and number agreement?

2b.   What stages are evident in the development of these form-meaning relations and what are the causal factors that steer this development?

The larger study

The analyses reported in this paper are part of a larger study of the L2 development of the English verb system based on oral interview data from 23 Dutch-speaking and 23 French-speaking pupils (n=46) from the English-L2 section of the European Schools in Brussels and Mol (Belgium).[1] Six of the 46 pupils were followed longitudinally over a period of nearly three years (grades 3–5 of primary school) and were interviewed on five occasions at five-month intervals. The remaining 40 pupils were sampled from grades 3, 5, 7, 9 and 11 (i.e. ages 9, 11, 13, 15, 17) and were interviewed on one occasion. Data from eight native speakers (four from grades 5 and 7 each) from the English section of the European School in Brussels served as baseline data. Each interview lasted for about 30 to 120 minutes (depending on the individual learner) and consisted of both informal free conversation and semi-guided speech tasks designed to elicit a variety of discourse types (narrative, descriptive, expository) that could be expected to contain differences in time and

aspect, with a variety of verb forms. The data were transcribed and coded in CHAT format (MacWhinney 1995). The coding captures both formal aspects and semantic-functional aspects (tense, aspect, inherent aspect, grounding in narrative discourse) of the verbal predicate. The findings reported in this paper are based on the analysis of 29,000 verb phrases (some 9500 of which produced by the six longitudinal informants). A detailed account of the methodological procedures is given in Housen (1995, 1997, forthcoming). To allow for cross-sectional comparison, the data of the individual learners from the different grade levels were pooled and regrouped in terms of independent measures of linguistic proficiency tapping the learners' morphological accuracy, lexical richness, and syntactic diversity. This enabled us to distinguish four proficiency groups — Low, Low Intermediate, High Intermediate, High — which are interpreted as representing four broad stages of L2 development (see Bardovi-Harlig and Reynolds 1995; Bardovi-Harlig 1992, 1998 for a similar procedure).

In the present contribution we will be mainly concerned with the answers to research questions 2a and 2b above, which relate to the functional development of the verb system, and specific methodological issues in the functional analyses used will be presented in Section 6 below. First, we will discuss general trends in the formal development of the verb system (i.e. research questions 1a and 1b) derived from the data of all 46 learners. These findings have been reported in detail elsewhere (Housen 1995, 1998, 2000, for the longitudinal data, Housen forthcoming for the cross-sectional data) and are summarized in Sections 3 and 4 to provide a background for the discussion of the functional development of TA morphology in Sections 5 to 7. This discussion will be illustrated, in Section 6, with a detailed analysis of the data from one of our Dutch-speaking longitudinal learners, *Ema*. Ema is the learner whose English interlanguage progressed the most in the course of the longitudinal observation period. Her data thus offer the best possible view of processes at work in the development of tense-aspect.

General stages in the formal development of Tense–Aspect morphology

The development of the verb system in the unplanned speech from 46 young instructed L2 learners of English can be summarized in three broad stages which, in outline at least, correspond to the developmental stages observed in other studies involving naturalistic adult L2-learners from a variety of first language backgrounds (e.g. Dietrich et al. 1995; Giacalone-Ramat 1995). In a first stage, verbs are either missing from learners' utterances or they appear as unanalysed components in rote-learned formulaic expressions (e.g. *I don't know*). In a second stage, productive verbs show up as morphologically invariant forms. For the most part, they are

unmarked stem forms (*Vø*) (e.g. *want*, *eat*) but in some cases also inflected forms are observed, particularly highly frequent irregular Past forms (e.g. *got*) and *Ving* forms (e.g. *dancing*). These invariants verbs function as *default forms* in all grammatical, semantic and discourse contexts, irrespective of the temporal, aspectual or agreement values of the target language. All they express is the verb's inherent lexico-semantic content. Up to this stage then, development is driven by lexical learning. Grammatical learning does not set in until a third stage. This third stage is characterized by *formal diversification* as morphological variants of the previously invariant verbs appear (e.g. *eating* alongside *eat, said* alongside *say*). This process of formal diversification proceeds selectively in two respects. First, some verbs show morphological differentiation before others (esp. *be, have, do* and *go*). Secondly, some morphological categories show up before others. Table 1 shows the overall order in which the various morphological categories emerge in our data.

The first formal categories to emerge are *Ving* (initially without an auxiliary or with an unanalysed auxiliary) and irregular Past forms (esp. *was* and *had*). Regular Past (*Ved*) appears later, followed by *Vs*, analytic Perfect-like forms (*Have/Be+V*) and *Be+going+V* constructions (including variants like *go/gonna+V*). Other analytic and periphrastic forms like *Will+Vø* are also delayed.

Although this 'order of emergence' corresponds to the developmental sequences reported in previous studies (e.g. Dulay et al. 1982; Pica 1984; VanPatten 1984), it should be interpreted with some caution as it glosses over individual

Table 1. Order of emergence of morphological categories

Stage	Category *	Comment	Example
0	Invariant *V*	esp. base form *Vø*	*see, play*
1	Present Participle *Ving*	initially without Aux. *Be*	*seeing, playing*
	Irregular Past of *Be*		*was*
2	Irregular Past (other verbs)		*had, got*
3	Regular Past *Ved*		*played, worked*
	Future *Be Going + Vinf*	allomorphs: without Aux. *Be, to, -ing; gonna*	*is going married ; are go dancing; am going to take; is gonna happen*
4	Perfect *Aux + V*	allomorphs: Aux. *Be* and *Have;* initially *V =Vø*	*have see, is fall, is fallen, has fall, have fallen*
	Present *Vs*		*goes, comes, does*
	Future *Will + V*		*will make, will see*

* Traditional terminology is used for the interlanguage verb forms. This does not imply that the forms
  in question are fully targetlike or that they are used with their standard meanings and functions (cf. below).

variation. Some of the individual differences are such that postulation of one developmental sequence for all learners seems dubious. For instance, some learners show an early preference for analytic Perfect-like forms (*have see, have play*) rather than for synthetic Past-like forms (*saw, played*). Also the *-s* marker emerged earlier than, and was used more frequently than, Past forms in the data of certain learners. More research is needed to determine whether these deviant sequences are merely idiosyncracies or represent significant trends in (instructed) SLA.

General stages in the functional development of Tense-Aspect morphology

Probably more important than the order in which the various verb forms appear, is the observation that new forms are initially not functional for encoding the tense-aspect distinctions of the target language. This is illustrated by the following utterances, taken from the last interview with one of the French-speaking longitudinal learners (nicknamed *mar*):

(1)   (the learner is describing the differences between two near-identical pictures)
      *mar: this one here *had* black hair and that white hair and there you *had* a xxx and there the sun is happy.

(2)   (the learner explains why her English has improved so much since the last interview)
      *mar: last year I *have* uhm a pen+friend .

(3)   (the learner is describing a series of pictures about a scientist who builds a robot to help him do the dishes)
      *mar: he *makes* a …uh +//.
      he wash the cups and the +…
      *int: uhuh to do the dishes .
      *mar: yeah and he *make* a robot.

(4)   (the learner is asked whether her best friend speaks French)
      *mar: no uh .. she *speaking* uh Nederlands .

(5)   (the learner is asked whether she ever speaks any English at school)
      *mar: uh yes .. in class we *speak* English uh by mister Neil.

The formal contrast between *speaking* and *speak* in examples (4) and (5) does not contrast progressive versus non-progressive meaning in any consistent way, nor does the contrast between *had* and *have* in (1) and (2) signal past *vs* non-past tense. Similarly, the contrast between *makes* and *make* in (3) does not mark present *vs* non-

present tense. At this early stage, the different forms of the verb behave like allomorphs, appearing in either free or complementary distribution. From a target language perspective, their use is either underextended or overextended. Investigation of the patterns of use of the various verb forms across targetlike and non-targetlike contexts indicated that the various morphological categories show distinct distributional profiles as they develop towards targetlike usage. This is illustrated in Figures 1a to 1e which visualize the rates of *overgeneralization*, *undergeneralization* and *target-like usage* of the five English inflectional categories (*Vø, Ving, Vs, Ved, Virreg*) over time in the data of Ema, the Dutch-speaking learner whose longitudinal data will be further analysed in Section 6.[2]

Figure 1a shows that the stem form *Vø* is initially mainly overgeneralized. That is, *Vø* is often used in contexts where the standard language requires an inflected verb form. This reflects not only the status of *Vø* as the preferred default verb form in the early stages of verb development but also its role as the base form for the formation of grammatical paradigms in English. Learners begin the acquisition of an inflectional paradigm by using one form of the paradigm, typically the semantically and structurally least marked form, and substituting it for all the other forms of the paradigm (see Bybee 1985; Giacalone-Ramat 1995). Figure 1b shows that the -*s* marker is both massively over- and undergeneralized in the incipient stages of development, suggesting great random variation in its use. (Note that according to these figures target-like usage of *Vs* develops at roughly the same pace as that of the other inflectional categories. This is not representative for the majority of the learners, though; the functional development of -*s* typically lags behind that of the other verb markers). Of particular interest for the discussion in Sections 6 and 7 are the different profiles of the aspect marker -*ing* (Figure 1c) and of the regular and irregular Past/Perfect markers (Figures 1d and 1e). Use of -*ing* in the initial and intermediate stages of development is characterized by both undergeneralisation and, particularly, overgeneralization.[3] This contrasts with the Past/Perfect markers, which are initially massively undergeneralised but rarely overgeneralized.[4] The few overgeneralisations that do occur all involve irregular forms (as in example (1)) but not regular *Ved* forms (see Robison 1995 for a similar observation). This means that whenever a Past/Perfect form occurs, it is nearly always used in a semantically appropriate way, i.e. in a past or perfect time context but not in a present or future tense context. This concurs with the situation in L1 acquisitition: children initially typically underextend but rarely overextend past tense morphology in semantically inappropriate contexts (Brown 1973; Kuczaj 1976). We will return to this issue in the discussion session.

The non-functional distribution which characterizes the early use of TA morphemes is modified over time as initial form-meaning mappings are re-analysed and verb morphemes assume functional values and, ultimately, targetlike values (or
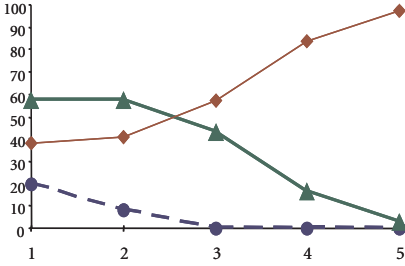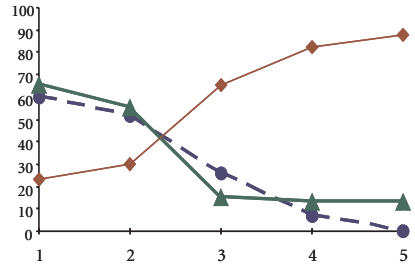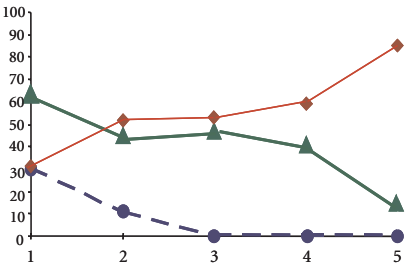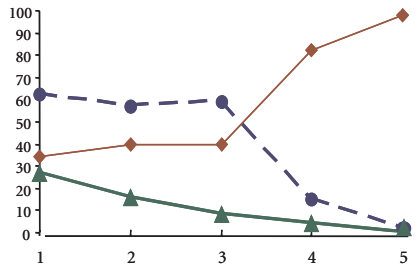
Fig. 1a.   *V-ø*

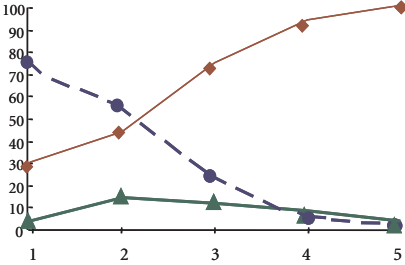Fig. 1b.   *V-s*

Fig. 1c.   *V-ing*

Fig. 1d.   *V-irreg*

Fig. 1e.   *V-ed*

- - -●- - -   Under-generalization   ▲ Over-generalization   ◆ Target- like Usage

Figure 1. Developmental patterns of over- and undergeneralization and accurate usage

not, in the case of fossilisation). Table 2 shows the order in which TA meanings become grammatically marked in our data and by which form of the verb. (The numbers before verb forms indicate the order in which they become functional for encoding a given TA meaning).

Table 2 shows that the first TA meanings to be more or less consistently marked are the general tense notion of *anteriority* (which includes both 'deictic past' time and 'anaphoric perfect' time). At around the same time or perhaps a little later, grammatical encoding of the aspectual notions of imperfectivity and progressivity appears. This sequence contrasts with what has often been assumed (and contested) for creole development (Bickerton 1982), L1 acquisition (Bloom et al. 1980; Weist 1986) as well as L2 acquisition, namely that "aspect is universally

Table 2. Order of functional marking of tense-aspect meanings and their respective markers

Stage	Meaning	Form
0	Pre-functional stage	random and complementary distribution
1	anteriority (past and perfect)	1. Past of *Be* (*was*) 2. Irreg. Past (other verbs) 3. Perfect *Have/Be + V* 4. Reg. Past *Ved*
	imperfectivity/progressivity	1. *Aux. Be + Ving*
2	futurity	1. *Aux. Be+Going+Vinf* 2. *Aux . Be + Ving* 3. *Aux. Will+V* 4. Present *Vø/Vs*
	habituality	1. *Aux. Be + Ving*
	present	1. Present *Vø/Vs*
3	simple past	1. Past of *Be* (*was, were*) 2. Irreg. Past 3. Reg. Past *Ved*
	present perfect	1. *Have/Has + Ved/Virreg*
	past perfect	1. *Had + Ved/Virreg*

primary over tense" (Kumpf 1984: 142; see also Flashner 1989 for L2 English; von Stutterheim 1986 for L2 German; Giacalone-Ramat 1995 for L2 Italian).[5] Our learners, however, did not show any particular urge to grammatically encode *viewpoint aspect* (Smith 1991) before tense. Our observations are more in keeping with those of Dietrich et al. (1995) whose crosslinguistic findings also "clearly contradict the 'grammatical aspect before tense' hypothesis … tense marking precedes aspect marking" (Dietrich et al. 1995: 270). It is not clear how these conflicting findings can be resolved.[6] Whatever the case may be, findings such as Dietrich et al.'s (1995) and ours suggest that the grammatical aspect-before-tense order cannot be unequivocally upheld as a universal principle of L2 acquisition.

Table 2 further shows that consistent grammatical marking of meanings like presentness, futurity, and habituality, develops later, in a second stage (represented by data from the Higher Intermediate learners in the cross-sectional sample). Only a few of the most advanced learners moved to a third stage and consistently marked the distinction between deictic past *vs* anaphoric anterior tense, expressed in standard English by the contrast between the Simple Past and the Present and Past Perfect forms. The problematic nature of this particular tense distinction is illustrated by examples (6) to (9) below, showing how the Simple Past and Present Perfect forms are used indiscriminately as functional variants for both deictic past-time (6,7) and anaphoric (present-)anterior time (8,9):

(6) *ema: We *did* that last year with misses Sancha.
(7) *ema: I *have done* that one time when I was with my father and mother in Ireland.
(8) *ema: now I already *made* four stories.
(9) *ema: and my irish friends here *have* also *teached* me a few words.

This finding reflects a general trend in the L2 acquisition of English: contrastive use of the Simple Past and Perfect is typically delayed (Dietrich et al 1995; Bardovi-Harlig 1997), even by learners who received focused instruction on this contrast (Buczowska & Weist 1991; Pienemann 1987). This also concurs with the trend observed in L1 acquisition (Gathercole 1986). Buczowska & Weist (1991) argued on the basis of comprehension data that L2 learners, in contrast to cognitively immature L1 learners, have available from the start a conceptually complex "Reference Time System" (Weist 1986) which enables them to process intricate tense relations, including the distinction between deictic past and anaphoric anterior time. However, studies such as the present one, which are based on production data, indicate that there is no isomorphy between conceptual complexity and productive grammatical capacity. Although obviously cognitively mature, the learners in our study suggest a developmental pattern in their productive grammatical performance which, at least at the descriptive level, parallels the pattern described by Weist

(1986) for L1 acquisition. Several of the L2 learners in our study start out with a temporal system which is dysfunctional for signalling tense relations independently of contextual information, thus resembling the Speech Time System which child L1 learners have been argued to have in the initial stages of acquisition. The majority of the L2 learners in our study develop temporal systems with only a restricted set of functional tense contrasts, resembling Weist's "Event Time System" and "Restricted Reference Time System". In terms of Reichenbach's (1947) model of tense, these restricted tense systems allow the learners to locate the time of the event (E) relative to the time of speech (S): first learners develop the means to locate E anterior to S (stage 1 in Table 2), then to locate E posterior to S, and finally to locate E simultaneously with S (stage 2 in Table 2). The location of the reference time (R), however, remains unspecified.[7] The ability to grammatically represent R independently from E and S develops later (stage 3 in Table 2) and coincides with what Weist (1986) called the "Free Reference Time System". This ability is a prerequisite for distinguishing between deictic past-simultaneous (or simple past) tense (E,R<S) and anaphoric present-anterior tense (E<R,S) and, more generally, for expressing all sorts of anaphoric tense relations, including anteriority in the past domain (past-anterior/pluperfect tense: E<R<S) as well as various types of anaphoric posteriority (R<E<S; S,R<E; S<R<E).

The fact that anaphoric tense meanings are deferred in L2 acquisition as well as in L1 acquisition calls into question the attribution of their late development in L1 acquisition to cognitive development only (see also Fletcher 1981, Weist 1986 and Gathercole 1986 for other arguments against a cognitive developmental factor in L1 acquisition). Having said that, we do not want to entirely exclude the impact of conceptual complexity or some form of markedness on the development of grammatical tense systems in L2 and L1 acquisition. Suggestive in this respect is the finding from language typology that grammatical marking of deictic tense meanings is much more common in the languages of the world than is the grammatical marking of anaphoric tense meanings (Bybee 1985: 160).[8] Further research will have to identify which forms of markedness or complexity — formal, semantic or pragmatic — carry the most weight in L2 acquisition and how they interact with the typological trends of the L2 learner's L1.

To sum up what we have seen so far in Sections 3 and 4, most of the learners in our sample create interlanguage TA systems which are structurally and functionally more restricted than the respective target and first language systems. Although individual variation can be observed, these interlanguage systems gradually approach the target system along what may turn out to be a predictable developmental path. The descriptive findings in Sections 3 and 4 also raise many explanatory questions. For instance, why does the acquisition of TA proceed as a stage-like process? How rigid are the developmental sequences observed here and

what are the principles that determine them? Why do learners over- and under-generalize the various TA categories — why can't they get them right from the beginning — and what factors determine the patterns of over- and undergeneralization? The most influential attempt to address these questions is the Aspect Model, to which we turn next.

The Aspect Model

The term Aspect *Model* is used in this paper to emphasize that what is commonly referred to as the *Aspect Hypothesis* (e.g. Andersen & Shirai 1994, 1996; Bardovi-Harlig 1999; Robison 1995; Shirai & Kurono 1998) subsumes several different hypotheses: on the one hand a set of descriptive-observational claims, which we will collectively refer to as the *Inherent Aspect Hypothesis,* and, on the other hand, a number of explanatory-theoretical claims, including a *Distributional Bias Hypothesis,* a *Prototype Hypothesis* and a *Bioprogram Hypothesis.* These different hypotheses must be distinguished. Acceptance or refutation of one does not automatically imply acceptance or refutation of the other.

The Inherent Aspect Hypothesis (IAH)

In its most general reading, the *Inherent Aspect Hypothesis* states that the emergence, early use and development of TA morphology in language acquisition is influenced by the *inherent semantic properties of the verb predicate* which the learner uses to refer to a particular situation (Andersen 1991; Andersen & Shirai 1996; Bardovi-Harlig 1999). These semantic properties are aspectual in nature and are most commonly defined in the terms of Vendler's (1967) model of inherent verb semantics. The version of Vendler's model with widest currency in L2 research distinguishes four semantic predicate types, depending on whether the predicate is stative or dynamic, punctual or durative, and telic or atelic. Thus, states (STA) are +stative, +durative, -telic (e.g. *be, want, know*); activities (ACT) are –stative, +durative, –telic (e.g. *play, work, laugh*); accomplishments (ACC) are –stative, +durative, +telic (e.g. *explain, prepare, grow up*); achievements (ACH) are –stative, –durative, +telic (e.g. *kill, drop, catch*).

The Inherent Aspect Hypothesis can be broken down into more specific claims about the distribution of TA morphology in interlanguage development. For English, the target language under investigation here, three separate claims have been proposed, involving three TA categories: progressive aspect, (perfective) past and perfect tense, and present tense (see Bardovi-Harlig 1999: 359; Andersen & Shirai 1996: 533). Our formulation of the relevant claims is as follows:

1.   a. During at least some early stage of morphological development, learners associate and use past and perfect tense morphology (hereafter *PAST)* predominantly with prototypical punctual-telic predicates, or *achievements* (e.g. *fell*, *dropped)*; atelic and durative verbs tend to remain uninflected (e.g. *want, play, grow up*). At this stage, learners' use (or non-use) of PAST morphology is largely independent of the grammatical and discourse-pragmatic values of the TL (e.g. past and perfect time reference, grounding status in narrative discourse).

b. At later stages of development, the initial strong bias of PAST is progressively extended, first to less prototypical achievements and then to other predicate types, following a systematic pattern of lexical diffusion shown in Figure 2. The final stage of development is when all verbs in past- and perfect-time contexts are properly marked for tense, irrespective of their inherent aspectual values.

2.   a. In the incipient stages of development, learners predominantly use the Progressive aspect marker *-ing* (hereafter *PROG*) with prototypical dynamic-atelic predicates or *activities* (e.g. *playing, laughing*), regardless of the grammatical aspect meanings or discourse-pragmatic meanings required in the TL; stative and telic predicates tend to remain uninflected (e.g. *stay, want, drop, stop*).

b. In the following stages, use of PROG is progressively extended, first to more marginal activities and then to accomplishment and achievement verbs until all verbs in imperfective contexts are properly marked (see Figure 3).

c. PROG spreads to 'marginal states' (e.g. *staying, wondering, hanging from*) but is not incorrectly overextended to prototypical states like *know, seem, want.*

3.   a. Learners first use the 3rd person singular Present tense marker *-s* (hereafter *PRES*) predominantly with prototypical stative predicates or *states* (e.g. *knows*, *wants*), again largely independently of its grammatical values (tense, aspect, agreement) and discourse-pragmatic values in the TL; dynamic verbs tend to remain uninflected (e.g. *he play, he prepare, he fall*).

b. In subsequent stages, use of PRES first spreads to less prototypical states and then to activities, accomplishments and achievement, in that order (see Figure 4), until all verbs in 3rd person singular present time contexts are properly marked.[9]

As a corollary of these claims, only in the final stage of development, when they are no longer tied to the inherent semantics of the predicate, are the various verb morphemes put to their functional use as markers of grammatical aspect (progressivity, imperfectivity, habituality) and tense (past, perfect, present). Before this final stage, they merely express the verb's inherent aspect. As a result, grammatical tense and aspect are, so to speak, 'defective'.

A few remarks are in order here. First, Figures 2 to 4 obviously present an idealized picture of the development of TA morphology in English. As Andersen & Shirai (1994) pointed out, in reality one should not expect to observe such homog-
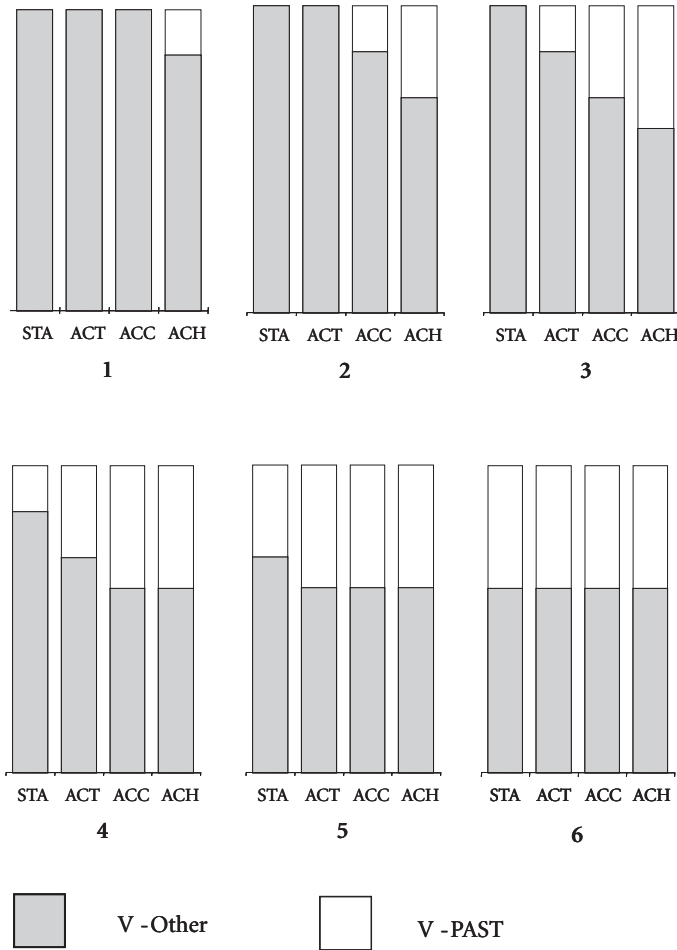
Figure 2. Predicted development of (perfective) PAST tense morphology (*-ed, -en*) across inherent aspect classes

enous stages and absolute trends but, rather, statistically significant tendencies along the general lines sketched here.[10] Second, claims (1) to (3) represent a *strong* version of the Inherent Aspect Hypothesis which is not held by all its proponents. Weaker versions hold that there is a strong correlation between TA morphology and inherent aspect at some stage of development without, however, explicitly setting inherent aspectual influence in opposition to encoding tense, viewpoint aspect, syntactic agreement or discourse-pragmatic functions (Andersen & Shirai 1994, 1996; Robison 1995; Bardovi-Harlig 1999). We feel, however, that the stron-
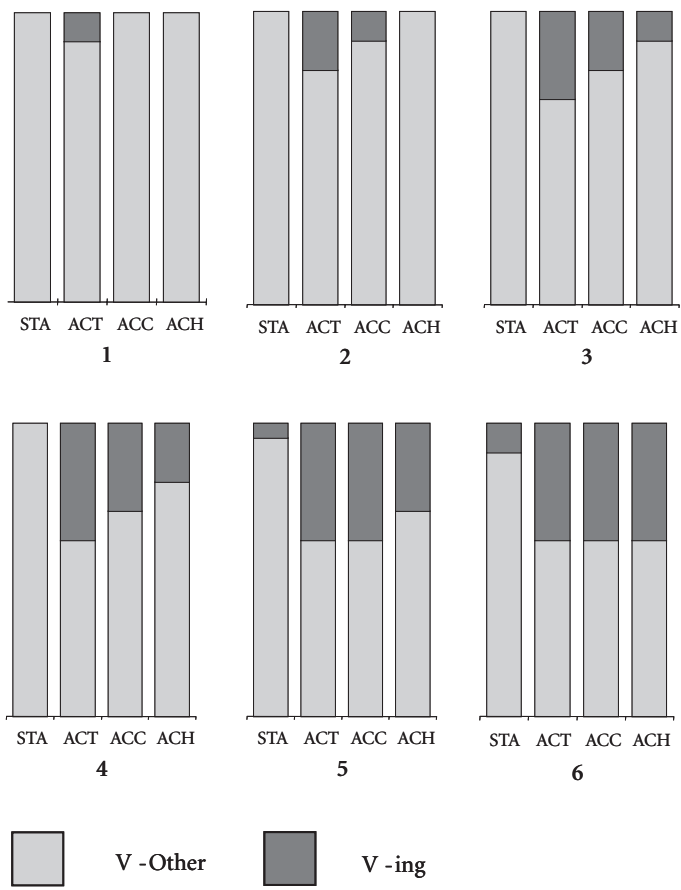
Figure 3. Predicted development of Progressive aspect morphology (*-ing*) across inherent aspect classes

ger version may have been given up to soon. What has been shown so far is that the strong version of the IAH does not hold for *many stages of L2 development.* However, this does not exclude that there may still be one stage where the strong version does hold. And this, we feel, is the possibility that needs to be investigated: "Can at least one stage in the development of tense-aspect be identified where the use of TA morphology is exclusively governed by inherent aspect, regardless of all other factors (e.g. temporal frame, aspectual perspective taken, grounding perspective taken)?" Only by investigating this possibility — which requires a detailed longitudinal study — can we accept or refute the explanatory claim that inherent semantics acts as a prime mover in the acquisition of tense-aspect.
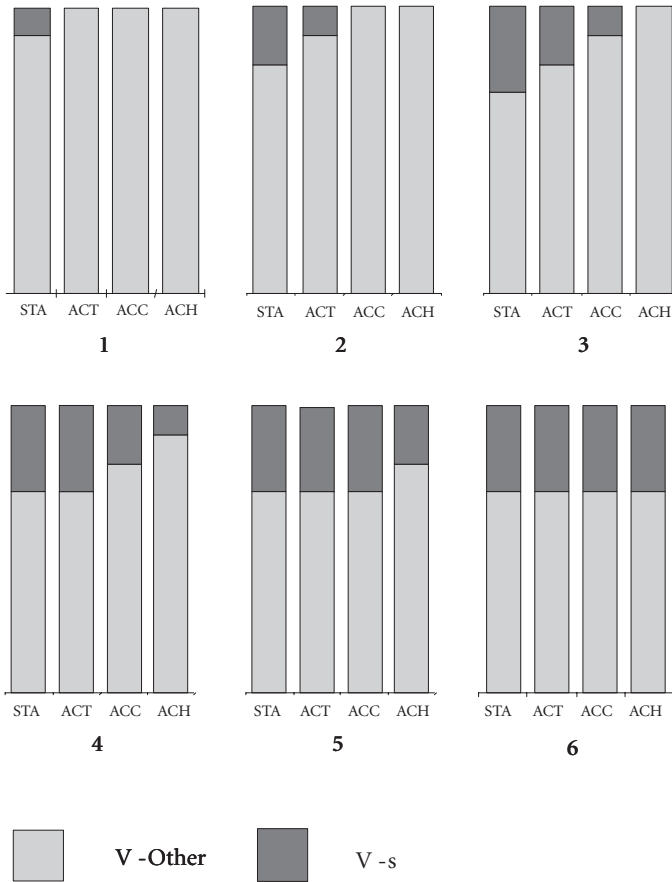
Figure 4. Predicted development of Present tense morphology (*-s*) across inherent aspect classes

A final remark concerns the exact onset of the inherent aspectual effect in language acquisition. This is still unclear. Some researchers (e.g. Andersen 1991) have looked for the influence of inherent aspect from the emergence and very first (possibly non-productive) uses of morphological markers onwards (i.e. developmental stage 2 in Section 3). Others (e.g. Robison 1995) believe that the influence of inherent aspect will only manifest itself from the moment that the learner demonstrates productive control of verb morphology, which would correspond to the last stage in the three-stage developmental sequence presented in Section 3. We will return to this issue in the discussion section (see also note 21).

Explanatory claims

The Aspect Model consists of both descriptive and explanatory claims. Having considered the former in some detail, we now turn our attention briefly to the latter. Several explanations have been proposed for the inherent aspect effect in language acquisition. These are discussed in detail by Andersen & Shirai (1994, 1996) and Bardovi-Harlig (1999). Firstly, it can suggest the operation of "strong cognitive or linguistic universals or both […] in acquisition and use of verbal morphology" (Andersen & Shirai 1996: 548). Language learners may be cognitively predisposed to give initial mapping of verbal morphology to primitive conceptual distinctions pertaining to ontological properties of situations that find their linguistic expression at the level of verb semantics. This proposal is congruous with the claims proposed in Bickerton (1981), based on creole studies, and Slobin (1985), based on L1 studies, that there is a universally specifiable and possibly innate conceptual-semantic substratum for language, called the 'Language Bioprogram' (Bickerton) or 'Basic Child Grammar' (Slobin), that drives the acquisition of grammar.

As an alternative, complementary account, the Distributional Bias Hypothesis (Andersen 1993; Andersen & Shirai 1994, 1996) explains the strong distributional bias of verb morphemes in early learner language as a reflection of a similar but less absolute distributional bias of TA morphology in the input which language learners receive from competent speakers (e.g. native speakers, teachers). Also in native English, stative situations would typically (though not exclusively) be referred to by state verbs with Simple Present tense morphology (*Vø, Vs*), dynamic-durative situations by activity verbs with *-ing*, while telic and particularly punctual situation would be most typically referred to by achievement verbs with (perfective) Past tense morphology. These are the standard, unmarked "morphological form-grammatical meaning-lexical semantics" associations as they appear most naturally and frequently in native English discourse (Andersen & Shirai 1994; Shirai & Kurono 1998). L2 learners would be sensitive to these standard associations and be directed by the co-occurrence patterns in the input to create initial prototypical values for each TA marker (Andersen & Shirai 1996). At the same time, cognitive operating principles for language learning, such as the *Relevance Principle*, the *Congruence Principle*, the *One-to-One Principle* (Andersen & Shirai 1994, 1996) or the *Principle of Selective Association* (Giacalone Ramat 1995), would lead learners to notice relevant morphemes on only those verbs in the input whose lexical meaning most closely corresponds to the meaning of the grammatical morpheme. Consequently, learners first interpret the distributional characteristics of tense-aspect morphemes conservatively, i.e. as categorical characteristics of the verb forms themselves. In later stages they will gradually modify their initial non-targetlike distribution towards that of the input language through a process of metaphorical extension (Andersen & Shirai 1994).

The question of causal explanation — *why* learners modify their initial, non-targetlike usage — is not addressed by the Aspect Model. One may speculate, however, that the processes of metaphorical extension and distributional redressing are triggered and sustained by positive evidence in the input for a less restrictive usage and distribution.

Evidence and counterevidence for the IAH in English

Ten published studies on the L2 acquisition of English within the framework of the IAH were available at the time of writing, making English the best documented target language in this respect (i.e. Robison 1990, 1995; Bayley 1994; Bardovi-Harlig 1992, 1998; Bardovi-Harlig & Reynolds 1995; Bardovi-Harlig & Bergström 1996; Rohde 1996, 1997; Tickoo 1996).[11] These studies all involve adult learners who had at least some English instruction. The only exception is Rohde's (1996, 1997) study of four German-speaking children who attended an English-speaking elementary school but received no special ESL instruction. Most of these studies have been extensively reviewed elsewhere (esp. Andersen & Shirai 1996; Bardovi-Harlig 1999), the general conclusion being that, notwithstanding "some variations" and "differences in emphasis" between studies and "a few disconfirmatory findings", the IAH is "strongly confirmed" (Andersen & Shirai 1996: 559). The following paragraphs takes a closer look at the disconfirmatory findings and at the variations between studies.

A first observation must be that with ten studies, the empirical basis of the IAH for L2- English is still narrow, the more so since these studies use different types of data and different analytic frameworks, which limits comparability and generalizability of results (Andersen & Shirai 1996). Furthermore, these ten studies also differ in analytic scope so that not all of the three claims of the IAH formulated in the previous section are equally well documented. Studies that investigate the distribution of TA morphology at one single point in time (e.g. Robison 1990) can only inform on the (a)-claims. As Robison (1995: 366) pointed out, support for the claims under (b) and (c) must eventually come from longitudinal studies. However, with the exception of Rohde's study, the available research is mainly cross-sectional in design. Moreover, most studies focus on the development of either Past tense and/ or Progressive aspect marking and thus inform on claims (1) and (2) only. Only Robison (1995) and Rohde (1996, 1997) explicitly examine the link between inherent aspect and the development of the Present tense marker *-s* (i.e. claims 3a and 3b). In fact, the putative affinity of *-s* for inherent stative aspect is often omitted from surveys of the IAH (e.g. Andersen & Shirai 1996; Bardovi-Harlig 1999).[12]

Given the paucity of available research, the reported disconfirmatory findings for the IAH require careful consideration. Three instances of potential counter-

evidence are considered here. The first and most problematic disconfirmatory finding, according to Andersen & Shirai (1996), concerns claim 2c: two studies (Rohde 1996, 1997; Robison 1990) have reported non-targetlike overextensions of the progressive inflection -*ing* to prototypical state verbs, such as *liking, *loving, *smelling and *seeing. Andersen & Shirai (1996: 545) suggest that these 'progressive states' (Robison's (1995) terminology) could be the result of transfer from the learner's L1 of a more general imperfective notion to the progressive marker. While this explanation may hold for the Spanish-speaking learner in Robison (1990), it cannot account for the overextensions by the German-speaking learners in Rohde's studies since German has no grammatical aspect. Another explanation which has been suggested is 'task effect' (Bardovi-Harlig 1999: 362): the production of progressive states could be the result of the use of non-authentic data elicitation techniques, forcing the learners to "perform beyond their limitations" and to produce 'unnatural' data (Andersen & Shirai 1996: 541).[13] This explanation is problematic, too. For one, it cannot account for the overextensions in Rohde's study, which involves spontaneously produced oral data. Age, and all the developmental factors associated with it, does not seem to be a decisive factor either — Robison's and Rhode's studies involve respectively adult and child L2 learners. A final possible explanation is "effect of instruction" (Bardovi-Harlig 1999: 362). All the learners who produced ungrammatical progressive states had little (Robison) or no (Rohde) English instruction. In contrast, incorrect progressive states are not reported in studies of tutored L2 learners of English (Bardovi-Harlig & Bergström 1996; Bardovi-Harlig & Reynolds 1995; Robison 1995). If there really is a pattern here, it raises some important questions: Why would only naturalistic learners produce overextended progressive states? Which element(s) in a tutored context could prevent L2 learners from making this type of overextensions? Do tutored learners perhaps receive a different type of input from naturalistic learners (e.g. more negative evidence, or a more 'prototypical' and distributionally biased type of input)? These questions merit further empirical investigation.

A second and related disconfirmatory finding is the precocious correlation of the progressive marker -*ing* with achievements rather than with activities reported by Rohde (1996, 1997) (e.g. *I'm killing you; I was caughting two on one day*; Rohde 1996: 1121–2). These 'progressive achievements' (our term) occur particularly in future contexts in Rohde's data. Similar cases are also reported by Robison (1995) who further observed that, contrary to the predictions of the IAH, the affiliation between achievements and -*ing* decreased with proficiency level while the association between activities and -*ing* increased (Robison 1995: 356).[14] Rohde from his part attributed the earlier than predicted use of -*ing* with achievements to his learners' tendency to interpret -*ing* as a marker of future tense rather than as a redundant marker of inherent aspect or as a grammatical marker of viewpoint

aspect. Rohde considered this as support for Buczowska & Weist's (1991) claim that neither inherent lexical aspect nor grammatical aspect are universally primary in L2 acquisition; rather, depending on the TA system of their source language, L2 learners may regard tense distinctions as more important than aspectual distinctions and use TA morphology accordingly from the start. Shirai & Kurono (1998) from their part suggested that the precocious use of *-ing* with achievements by Rohde's learners reflected in part the more general trendency for untutored L2 learners of English to overuse the progressive marker *-ing* (due to its frequency, phonotactic saliency and morphophonemic stability in the input). A final plausible explanation is that Rohde's learners used the English present participle form as an alternative base form, inspired by its phonological resemblance to the German infinitive, which ends in *-en.* Whatever the case may be, more research is needed, preferably from other untutored Germanic-speaking learners of English, to decide whether Rohde's findings represent a significant trend in SLA or merely an idiosyncrasy.

The last potentially disconfirmatory finding to be mentioned here is also reported by Rohde (1996, 1997) and concerns the distribution of inflected *versus* uninflected verb forms in past-time contexts. Although the majority of PAST forms in Rohde's data occur, as predicted, with achievement verbs, achievements still remain uninflected far more often than any of the other verb classes. In the data of one of Rohde's learners (Lars) there were 8 uninflected achievements as opposed to only 2 accomplishments, 6 activities and 0 states. For the second learner (Heiko), there were 8 uninflected achievements opposed to 3 uninflected accomplishments, 2 uninflected activities and again no uninflected states. Rohde interpreted this as further evidence that the use of PAST in his data is not determined by the verb's inherent aspect.[15]

Exactly how incriminating are these observations for the IAH? "Not very", according to most surveys in the literature. According to Bardovi-Harlig (1999), "[t]he clearest counterexample to any formulation of the [IAH] would be an interlanguage system that exhibits equal distribution of verbal morphology in all categories — that is, states, activities, accomplishments, and achievements. […] There is no study of which I am aware that presents that type of counterevidence" (p. 362–3). We feel, however, that the reported counterexamples cannot so easily be discarded. They render the conclusion that the IAH is "widely supported" (Bardovi-Harlig 1999: 362) overly strong.

Summarizing, while the bulk of the evidence appears to favour the distributional patterns and developmental sequences predicted by the IAH, there are still several gaps and inconsistencies in the findings to warrant caution in accepting claims based on the Aspect Model. These considerations call for more solid empirical evidence. The analysis presented in the next sections is an attempt to furnish such evidence.

The present study

Methodological procedures

Despite the detailed nature of its predictions, empirical testing of the IAH poses major methodological challenges for SLA research, the most problematic ones undoubtedly being the definition and operationalization of inherent aspect and its empirical determination in genuine speech data independently from the morphological marking used and from the researcher's own intuitions. Different studies have tried to solve these problems in different ways. For the sake of comparability of findings, therefore, it is important that the methodological choices be clearly articulated.

The present study has tested the predictions of the IAH by analysing the distribution of each of the five basic English inflectional verb forms (*Vø*, *Ving*, *Vs*, *Ved*, *Virreg*) across the four traditional Vendlerian inherent aspect classes (states, activities, accomplishments, achievements) in oral English interlanguage data. As mentioned in Section 2, the corpus contains conversational data, personal narrative data and elicited data (picture descriptions, story retellings). Only lexical main verbs in declarative clauses were coded. Instances of *be* were excluded (e.g. *He was big*), as were imperatives (e.g. *Sit down!*) and a number of highly frequent formulaic expressions (*I don't know, X have/has got Y*). Compound verb complexes were coded for the form of the main verb. Thus, *I have see* and *the girl is say* were both coded as instances of *Vø*, not as instances of PAST and PROG. Verb tokens in phonologically ambiguous contexts were disregarded (e.g. *talked to*; *she says she*). Each predicate was assigned to one of the four inherent aspect classes, independently of any grammatical or lexical marker of temporal-aspectual reference that occurred in the clause. The latter is an important qualification because the IAH predicts that TA morphology will initially be distributed in terms of inherent aspect, not in terms of temporal or aspectual reference.

The inherent aspect of each predicate was determined with the help of the set of operational tests compiled by Shirai (Shirai 1991; Shirai & Andersen 1995; Shirai & Kurono 1998) from work on temporal semantics (esp. Dowty 1979). This means that verb predicates — the unmarked lexical verb with its major arguments — were coded for inherent *lexical* aspect rather than for *real-world situation* aspect (see Smith 1983; Shirai 1991; Shirai & Andersen 1995; Housen 1997b). More specifically, what was tapped by these tests is the intensional component of the verb predicate ('sense'), rather than the extensional component ('reference'). Still, contextual information, both linguistic and extralinguistic, had to be taken into consideration in the coding process as well. The same lexical verb tokens can have different intensions/inherent lexical aspects in different contexts. For instance, the

inherent lexical aspect of *Peter closed the gate* can be either a durative accomplishment or a punctual achievement depending on the physical properties (size, weight) of the referents of both *the gate* and *Peter*. In such cases then, extralinguistic information (i.e. properties of the real-world situation denoted) is necessary for the classification of inherent aspect. This is also acknowledged by Shirai and Andersen (1995: 750). Recourse to the actual situation referred to was also necessary in the case of deviant, non-standard verb semantics, as in the following examples:

(10)   ema1:   yesterday I see a bit television.
(11)   len4:   the car is stop.

Contextual knowledge made it clear that the situation being referred to in these two utterances was one of actively watching television (10) and of gradually reducing speed without actually coming to a stand-still (11). To refer to these atelic-durative real-world situations the learners used lexical verb forms which in the standard language are typically stative (*see*) and telic-punctual (*stop*). We decided, however, to classify these both examples as activities rather than as a state (10) or an achievement (11).

To establish reliability of the coding, a randomly selected part of the data base (± 10%) was coded by two independent coders. Interrater reliability turned out to be 86%. Cases for which no agreement could be reached were identified and excluded. Some 12,600 verb predicates were thus retained for further analysis, 5100 of which came from the six longitudinal learners. An additional 2700 predicates were retained from the eight native speakers. These predicates cover different discourse genres: unplanned conversation, description, personal narratives, elicited narratives. Given the semi-naturalistic character of the data, the equal distribution of the four inherent aspect classes could not be controlled for. Therefore a *within-category analysis* (Bardovi-Harlig, this volume) was deemed most appropriate. A within-category analysis calculates the proportion of each TA marker within each single inherent aspect class and is not (or less) sensitive to the differential distribution of the various inherent aspect classes in a corpus than is an *across-category analysis*. The distributional analyses were done twice (with the help of the CLAN software; MacWhinney 1995), once for verb *token* counts, once for verb *type* counts.[16]

The general trends that emerged from the analysis of the cross-sectional data have been presented elsewhere (Housen, forthcoming). As mentioned in Section 2, this paper will illustrate these general trends with a case study of one of the Dutch-speaking longitudinal learners, Ema. A case study not only illustrates the general trends from the larger data base but may also bring to light other relevant features and instances of individual variation that often remain concealed from cross-sectional analyses. Ema's data were collected during five interview sessions, spread over a period of two-and-a-half years, starting when she was in Grade 3 (age 9) of the

European School in Brussels. At that time, she had had some 6 months of communicative ESL instruction (one 50-minute session a day or ± 80 hours) as well as some English-medium instruction (± 40 hours). In addition, she had an unspecifiable amount of extra-curricular contact with English through interactions with other English speakers (both native and non-native) at the European School. Ema's progress in English is remarkable compared to that of the other longitudinal learners in our sample. In the course of the observation period, Ema showed a clear move towards grammaticalisation. By the end of observation, she had developed a functional though still restricted tense-aspect system, corresponding to stage 2 in Table 2. She had acquired the major morphological verb categories which she could put to functional use to mark anterior vs. non-anterior tense and imperfective/progressive viewpoint aspect.

The results of the analyses of Ema's data are presented in Figures 5 to 7, using the same format as in Figures 2 to 4. Thus, the first five bar charts in Figures 5 to 7 show the distribution of respectively *-ing, -ed, irregular Past* and *-s* across the four inherent aspect classes in each of the five oral interviews with Ema. The sixth and last graph shows the distribution of these forms in the data from the eight native speakers (ages 11 and 13). The native speaker data are used here as a benchmark for want of more reliable information on the distributional patterns in native English. The charts in Figures 5a, 6a and 7a show the distribution of verb *tokens*, those in Figures 4b, 5b and 6b show the distribution of verb *types*. At present it is not clear which of the two, a type analysis or a token analysis, is best for testing the IAH (see also Bardovi-Harlig, this volume). The advantage of a type analysis is that frequency rates are not distorted by the disproportionate occurrences of a few common verb forms such as *going, had* or *got*. The disadvantage of a type analysis is that "it does not respect the integrity of the [text sample]" (Bardovi-Harlig 1998: 483), nor does it allow to infer growth rates across subsequent longitudinal data samples (Rohde 1996: 1135).[17] The number in parentheses underneath each bar in Figures 5 to 7 represents the total number of verb counts (token and type) for each inherent aspect category. The numbers above or in each bar are the percentages which the marked forms represent of the total number of counts in that category. For instance, the second bar in the first graph in Figure 5a tells us that 37% (or 19 tokens) of a total of 52 activity tokens in Ema-1 were in the *-ing* form. Obviously, in the case of low raw counts, the percentages must be interpreted with caution. For instance, the 2% *Ved* and 2% *Virreg* accomplishment forms in the third bar in the first graph of Figure 7a correspond to 1 *Ved* token and 1 *Virreg* token only.

Analyses and results

PROG

Comparison of Figures 5a and 5b with Figure 3 shows that the distribution of *-ing* in five stages in Ema's IL development corresponds fairly well to the pattern of development predicted by claims 2a and 2b of the IAH (see supra). The first two graphs of Figures 5a and 5b show the early preference of *-ing* for inherent dynamic-
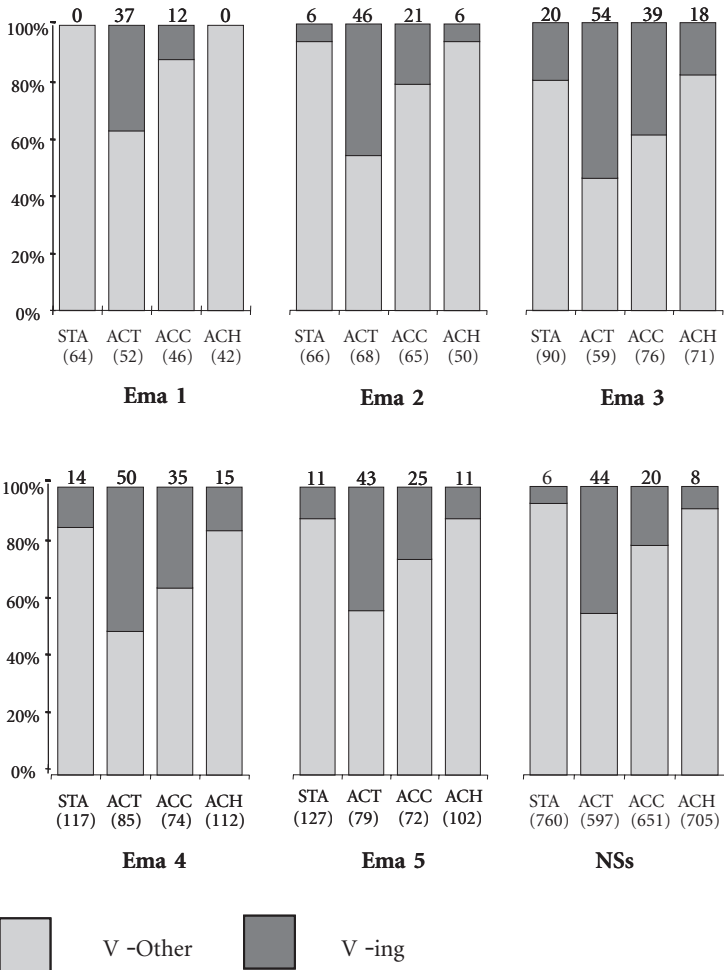

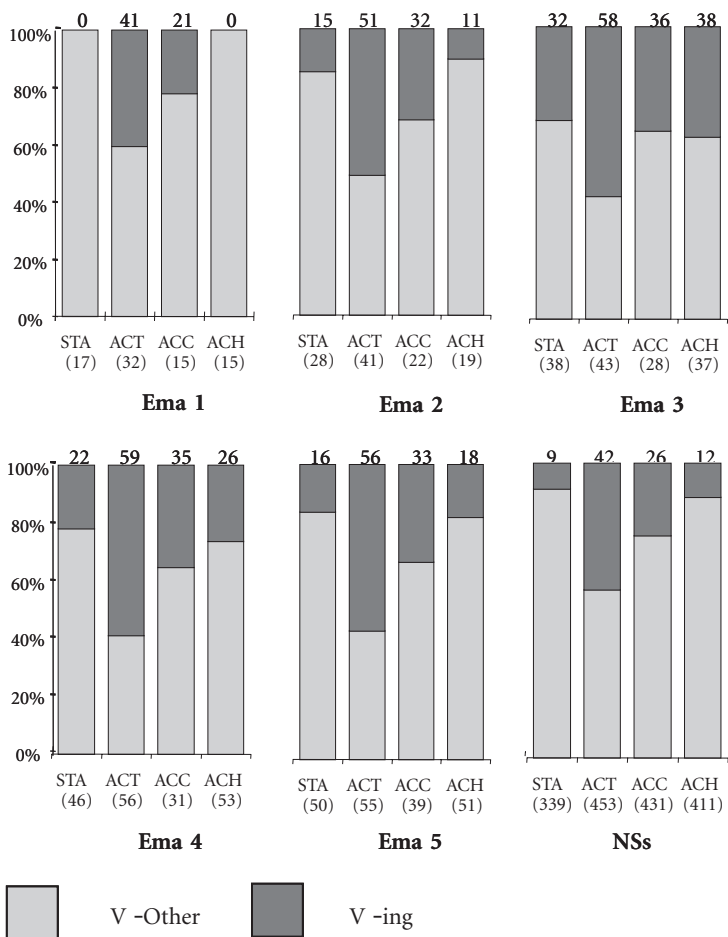**Figure 5a.** Percentage distribution of V-ing tokens across inherent aspect classes

Figure 5b. Percentage distribution of V-ing types across inherent aspect classes

durative aspect, most clearly represented by Vendler's activities and, to a lesser extent, accomplishments. The following examples illustrate this:

(12) *ema1:   she's *dancing*.   [ACT]
(13) *ema1:   the people is *laughing*.   [ACT]
(14) *ema1:   he's *going* to the car.   [ACC]

Also as predicted, *-ing* is not used with achievement and state predicates in the early stages (i.e. the first two interview sessions), not even when these predicates occur in contexts that favour an imperfective or progressive reading:

(15) *ema1:   I *want* a red uh sweet.   [STA]
(16) *ema1:   she *see* the boy.   [STA]
(17) *ema1:   he *fall* uh for [:= over] the dog.   [ACH]
(18) *ema1:   the father *stop* the car.   [ACH]

Graphs 2 to 4 in Figures 5a and 5b show the subsequent spread of *-ing* to predicate classes that are further removed from the dynamic-durative prototype. From the second interview onwards, the near-absolute bias of *-ing* towards dynamic-durative predicates starts to relax as it spreads to punctual predicates (achievements) and stative predicates (states):

(19) *ema3:   the eggs ['s?] *falling*.   [ACH]
(20) *ema4:   she is *throwing* a flower pot down nearly on the
                head of that lady.   [ACH]
(21) *ema3:   the man is *standing* uh here?   [STA]
(22) *ema4:   she's *feeling* happy.   [STA]

The IAH predicts that *-ing* will first spread to accomplishments, then to achievements, and finally to what we have called 'marginal states'. According to Figure 5, in Ema's data *-ing* spreads simultaneously to achievements and states. It is not clear whether this is a significant trend or an artefact of the timing of the data collection. In any case, the spread of *-ing* to the peripheries of the Vendlerian matrix is accompanied by the overuse of *-ing* discussed in Section 4. Comparison with other learners suggests that the actual overuse rate depends on the individual learner. In Ema's case, it is quite extensive: one third of all verbs produced during the third interview is a V-*ing* form. Even more significantly, during interviews 3 and 4 Ema also overextends *-ing* to highly stative predicates, thus contradicting claim 2c of the IAH. This is illustrated in examples (23) to (26).

(23) *ema3:   and then the king and queen were *wering* angry.   [STA]
(24) *ema3:   I wasn't *knowing* that.   [STA]
(25) *ema3:   and then the bull was *wanting* to run after him.   [STA]
(26) *ema4:   because it was just *seeming* fantastic and things like that. [STA]

As a result of this overextension, *-ing* develops into a marker of the more general aspectual notion of imperfectivity rather than progressivity, which is a subclass of imperfectivity (Comrie 1976). As mentioned earlier, such overextended progressive states are rare in L2 acquisition (Bardovi-Harlig 1999: 362; Andersen & Shirai 1996: 544). Indeed, also in our data they are a statistically minor phenomenon. The majority of our learners do not produce such non-targetlike overextensions. But some, like Ema, do. These overextensions cannot be attributed to a 'transfer effect' since Dutch has no grammatical imperfective aspect which Dutch-speaking

learners like Ema can transfer to their English interlanguage. The occurrence of progressive states in the data of these European School pupils also detracts from the possibility that only untutored learners commit such overextensions. Could it be then, that this type of overextension is an integral feature of L2 acquisition, or, at least, of the L2 acquisition of English? Under some readings of the Aspect Model, this type of overextension is exactly what can be expected: given access to prototypicality, to operating principles such as the *One-to-One Principle* and to positive evidence in the input for a wider and seemingly unrestricted distribution of *-ing*, there is no logical reason why the extension of *-ing* from its prototypical durative-dynamic-telic base should halt at what is in many respects a fairly idio-syncratic subset of stative predicates.[18] Still, this is exactly what happens in L1 acquisition and in most of L2 acquisition. Language learners are apparently very conservative in this respect and rarely overextend *-ing*. Moreover, the learners in the present study who did overextend *-ing* to states at some point later abandoned this coding option. In Ema's data, for instance, ungrammatical progressive states have largely disappeared by the time of the fifth interview and her overall use of *-ing* has become more economical than at the preceding stages. In fact, the distribution of *-ing* in Ema's fifth interview almost matches that of the native speaker data. (Interestingly, the bias of *-ing* towards dynamic-durative verbs does not completely disappear in her data, and is also observed in the NS data. This speaks in favour of the *Distributional Bias Hypothesis*). Somewhat perversely, one could argue that it is not so much the occurrence but, rather, the *non*-occurrence or elimination of progressive states from the learner's grammar that is problematic for the Aspect Model. Learners must somehow infer the specific restrictions on the English imperfective marker from the input because they are not universally given. The question is how? What prevents language learners in the first place from making the kind of overgeneralizations that a strict adherence to the IAH would eventually cause them to make? And how do learners who do overextend *-ing* eventually manage to retract from an overly general grammar to a more restricted and more target-like grammar? Can Ema have come to her stage-5 distribution on the basis of positive evidence only, through *preemption* (Pinker 1987)? Or has she received negative evidence? We cannot answer these questions here. All we can say is that Ema's English teacher stated that she rarely corrected grammar errors, particularly not the kind of overextensions at issue here (of which she claimed not even to have been aware). Recall that the two other studies reporting progressive states (Rohde 1996, 1997; Robison 1990) involved untutored learners for whom the availability of negative evidence can be excluded with even greater certainty. Whatever the case may be, this issue of overextension demonstrates that the Aspect Model, as indeed most models of semantic development, has insufficiently explored the role of learnability constraints.

PRES

The IAH predicts that learners will first associate Present -s with states and are least likely to use it with achievements. This prediction is not confirmed by our analysis, as shown by Figure 6. If -s correlates with lexical aspect at all in the early stages of acquisition, the connection is with telics (achievements and especially accomplishments). Many of these telic -s forms involve tokens of *goes* and *comes.* The type analysis corrects this distortion somewhat (see graph 1 in Figure 6b) though the preference of -s for telic predicates is maintained.[19]
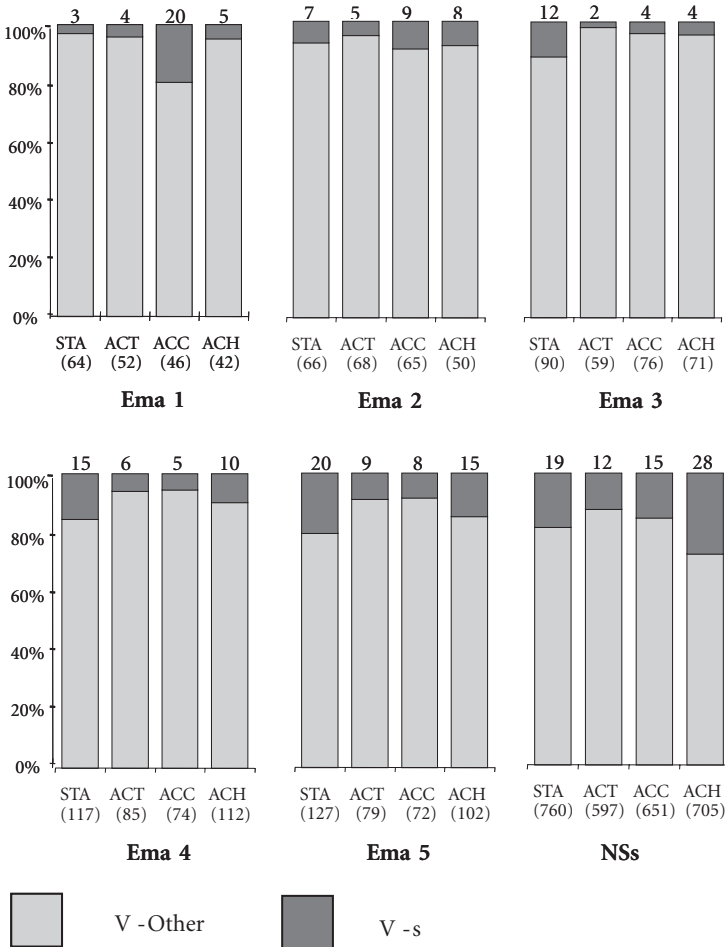
Figure 6a. Percentage distribution of V-s tokens across inherent aspect classes
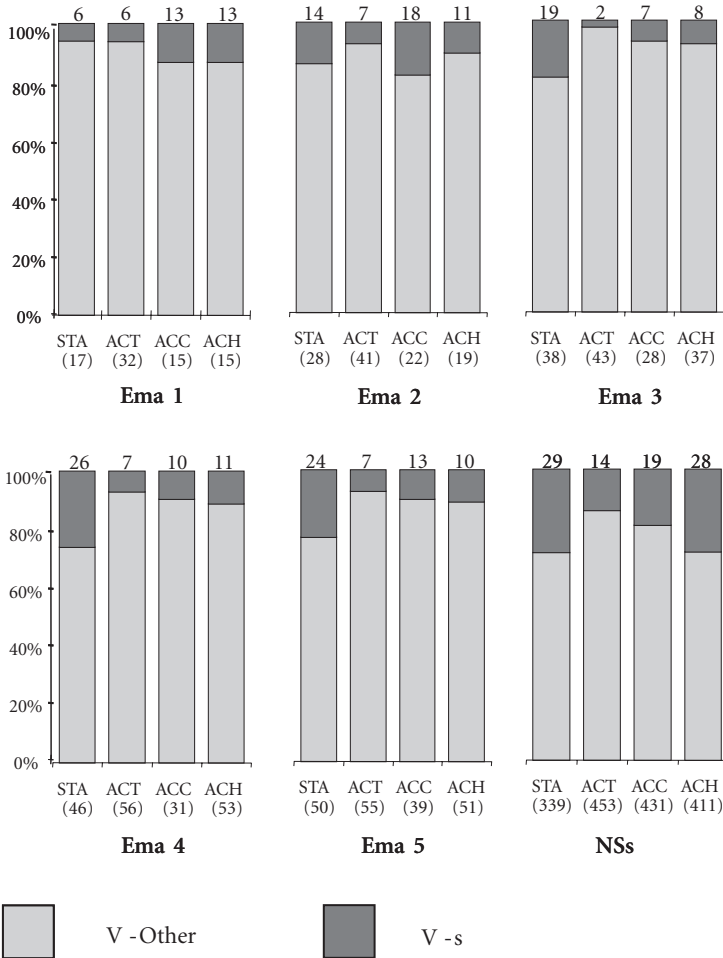
Figure 6b. Percentage distribution of V-s types across inherent aspect classes

(27) *ema1:   I *goes* to house and +…   [ACC]
(28) *ema1:   and then my mother *comes.*   [ACC]
(29) *ema1:   <he he> [//] she *goes* outside uhm after +…   [ACH]

The predicted affinity with states does not emerge until the third cycle and manifests itself most clearly in the type analysis though it never becomes a prominent feature in Ema's data. The initial link between -*s* and telic predicates, on the other hand, weakens but never completely disappears. Notice also that the native speaker data do not reveal any particular skewing of -*s* towards states either (see the last graph in Figures 6a and 6b).

(30) *ema3:   no but she *likes* that.   [STA]
(31) *ema3:   and it [/] it *stands* there.   [STA]
(32) *ema3:   it *begins* here +…   [ACH]
(33) *ema3:   it *ends* there.   [ACH]

In sum, use and development of -*s* do not show any significant interdependence with inherent aspect in these data.

PAST

The picture that emerges from the analysis of Past tense morphology is ambivalent. A cursory glance at Figure 7a seems to confirm the IAH. The first two graphs show that achievements exhibit an amplified use (65%) of Past tense marking in the early stages of Ema's development:

(34) *ema1:   yeah a long time ago a rabbit *said* to the uhm turtle +"/. [ACH]
(35) *ema1:   yeah but … as I just *got* it +…   [ACH]

Notice also that in contrast to what Rohde (1996, 1997) found, achievements in these data are not *un*inflected for PAST any more often than other categories (see section "*Evidence and counterevidence for the IAH in English*"). Closer examination of Figure 7, however, reveals a few other disturbing trends. The first is the elevated proportion (31%) of states marked for PAST. The second is that the bias of PAST towards achievements evaporates in the type analysis (see Figure 7b). The elevated use of PAST achievements is due to only two verb types, namely *got* and *said* (the latter being used as *verbum dicendi* to introduce direct speech). The type analysis further reveals that in the early stages states are as likely to attract PAST as are achievements, contrary to what the IAH predicts.

(36) *ema1:   this one *had* black hair.   [STA]
(37) *ema1:   there you *had* two childs.   [STA]

This last observation is confirmed by the analyses of other longitudinal learners in our sample whose first data sets represent even earlier stages of acquisition than Ema's first data set. The first PAST forms to appear in the IL of these learners are invariably the stative verbs *was* (which is not included in the analysis) and *had*.

The next set of PAST forms to emerge are indeed predominantly telic verbs (*said, got, forgot, came, went, fell)* but at the same time also other, non-telic forms appear (e.g. *did, heard, saw, thought*). Notice that these all involve *irregular* Past forms. This may be a key point. The distributional pattern of *regular* PAST (-*ed*) may well show a different picture, and one that is more in line with the predictions of the IAH than that of irregular PAST. The data from Ema (and other learners)

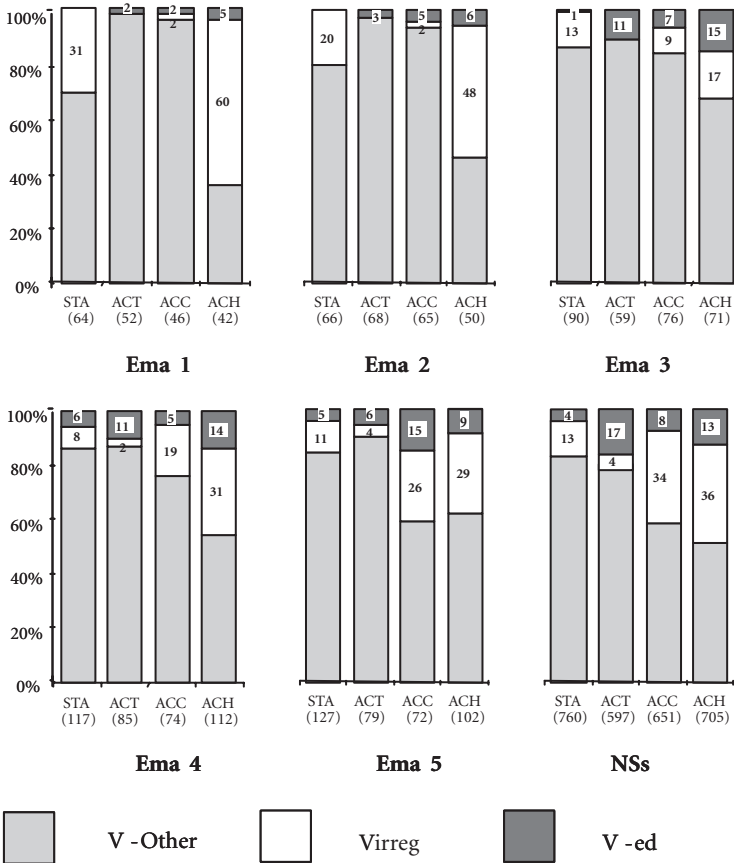**Figure 7a.** Percentage distribution of PAST tokens (V-ed, Virreg) across inherent aspect classes

suggest that *-ed* occurs first and foremost with achievements, followed by accomplishments, then activities, and finally states (see Figures 7a and 7b: state verbs with *-ed* do not occur until the third cycle in Ema's data). We want to emphasize that this trend is suggestive rather than statistically significant and that it emerges more clearly from the type analysis (Figure 7b) than from the token analysis (Figure 7a). From the fourth cycle onwards, the distribution of PAST in Ema's data more or less coincides with that of the native speakers, revealing a relative bias towards telic predicates.[20]
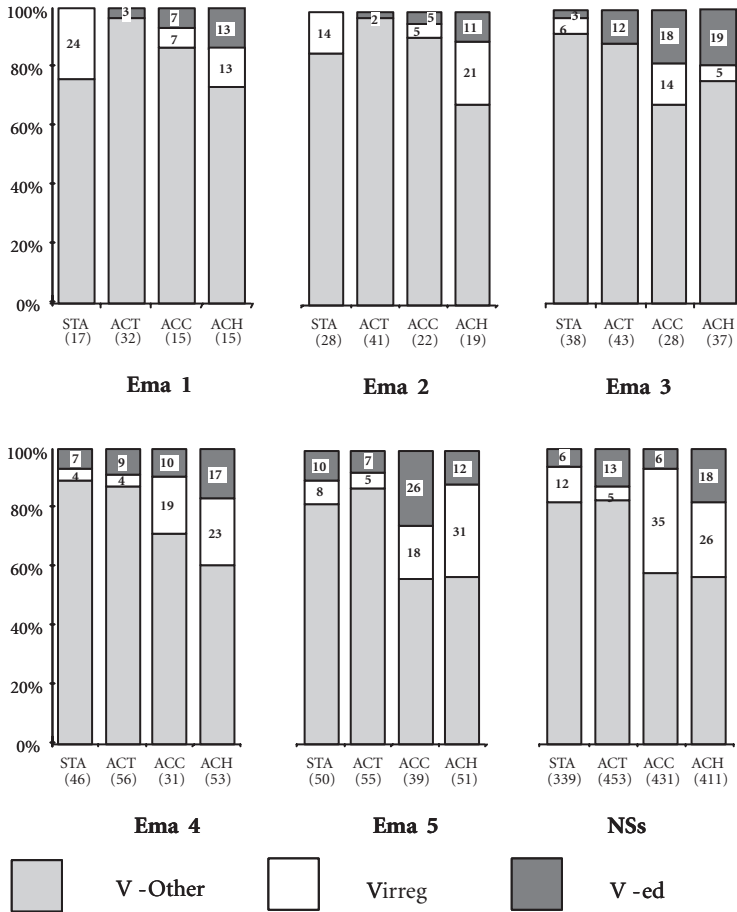
Figure 7b. Percentage distribution of PAST types (V-ed, Virreg) across inherent aspect classes

Summary

The most important findings of the distributional analyses can be summarized as follows:

1. The development of irregular PAST (*Virreg*) does not follow the route predicted by claims 1a and 1b of the IAH. Irregular PAST is equally likely to occur with stative as with telic predicates. Evidence for the IAH in the development of regular PAST (*Ved*) must remain inconclusive due to the small number of *Ved* forms in the data from the earliest stages of morphological development.

2. The distribution and spread of PROG largely confirms predictions 2a and 2b of the IAH, showing an initial predilection for activities before spreading to accomplishments and then to states and achievements. Claim 2c, that -*ing* will not be incorrectly overextended to prototypical states, is not confirmed, at least not by the data of some learners (among whom Ema).

3. The analysis of the 3rd person singular present tense marker -*s* does not confirm predictions 3a and 3c of the IAH: the distribution of -*s* does not show the predicted link with inherent stativity and seems largely unaffected by the inherent aspect of the predicate.

A final methodological observation is that the results from the type and token analyses more or less coincide for all but the early stages of development of PAST forms, where a type analysis may provide a more reliable picture of distributional patterns.

Discussion

The findings presented in Sections 4 and 6 suggest that different TA categories behave differently in the use and acquisition of L2 English:

1. Different TA categories show different patterns of distribution both synchronically and diachronically: PRES and PROG are initially both underused and overused whereas PAST is mainly underused but not overused. It follows that from the start, use of PAST is semantically much more appropriate than is use of PRES and PROG.

2. Use and spread of -*ing* and possibly also -*ed* exhibit a stronger connection with inherent aspect than do *Virreg* and -*s*. This suggests that the IAH operates selectively or, put another way, that the various TA markers differ in their susceptibility to the steering influence of inherent lexico-semantic factors.

If these seemingly unrelated and contradictory findings are correct and generalisable, then they must be explained. In previous work (e.g. Housen 1995, 1998, 2000) we have proposed a number of scenarios for the development of TA morphology which may go some way towards providing such explanation. Three of these proposals will be recapitulated here.

Conceptual congruence

A possible explanation for the independence of -*s* from inherent lexical aspect may be offered by the Aspect Model itself. According to the *Congruence Principle*

(Andersen 1993) learners will associate a morphological marker with a predicate according to the degree of congruence between the meaning of the marker and that of the predicate. This would explain why PAST morphology attaches to punctual predicates first, since both pasthood and punctuality imply the notion of completion. PROG would match to activities first because progressivity and activity both involve duration and dynamicity. In the same vein, present -*s* would attach to states first because both presenthood and stateness imply timelessness, unboundedness, incompletion and continuation (see Andersen & Shirai 1996: 555). However, in the case of -*s*, several factors may conspire to cloud the purported link between -*s* and presenthood - timelessness - unboundedness - incompletion - continuation for the learner. First there is the special paradigmatic status of -*s* in contemporary English: -*s* is now only a vestige of what was once a full morphological paradigm; the other slots in the 'present tense' paradigm are now all filled with the unmarked *Vø* form. Secondly, and as a result of the former, -*s* has become semantically and communicatively redundant as a present tense marker. The third factor of relevance here is the polyfunctional and syncretic status of -*s*. Apart from marking present time, -*s* can also express other non-past temporal relations, such as futurity (e.g. *John teaches from six till eight tomorrow*). Its most important function, however, is as a marker of grammatical person and number. This may well be the most salient function for learners of English. Some evidence for this is found in the data of our longitudinal learners: use of -*s* becomes consistent for person and number agreement earlier than for present (or non-past) tense (Housen 1995). This can be illustrated with the following examples from Ema's data, which involve overextensions of -*s* to incorrect temporal and formal contexts but which are correct in terms of person and number:

(43) *ema2:   yes when she was young [c] she *hads* also many co [/]
                comic+strips.
(44) *ema2:   she don't *likes* him.
(45) *ema3:   +, nobody *saids* uh bad things of the king and the queen.
(46) *ema3:   but she *doesn't* really *speaks* it [=Irish] very well.
(47) *ema4:   +, what *does* this *means*?

Space does not allow to elaborate this issue further but the data indicate that our learners latch onto the agreement marking function of -*s* sooner than onto its tense marking function. This could be attributed to the higher co-occurrence probability in the input of -*s* with 3rd person and singular number than with present time reference, leading learners to process -*s* first and foremost as an agreement marker rather than as a tense marker. This in turn would explain why no empirical support was found for the predicted link between the 'Present tense' marker -*s* and stative inherent aspect (or any other inherent aspectual value): inherent aspect may per-

haps serve as a guiding principle in the acquisition of temporal-aspectual form-meaning relations but not in the acquisition of grammatical functions like person and number agreement because there is no conceptual congruence between inherent aspects and grammatical persons and numbers.

Morphophonemic form and processing mechanisms

The differential patterns of development and distribution of *Ving*, *Virreg* and *Ved* require other explanations than those of *Vs*. First, the observed difference between *-ing* and possibly *-ed* (which follow the IAH) and *Virreg* (which does not follow the IAH) suggest a form effect in terms of the regular-irregular distinction. Recent psycholinguistic research has suggested that regular and irregular inflectional morphology differ in terms of the processing principles that operate in their acquisition and use (Bybee 1985, 1995; Pinker & Prince 1994; Ellis & Schmidt, 1998). Briefly, and somewhat simplistically for reasons of space, some researchers (e.g. Pinker & Prince 1994) have argued for two different types of processing mechanisms: lexical (or associative) processing vs. morphological (or productive rule-based) processing. The acquisition and use of *irregular* morphology would primarily (though not exclusively) involve *lexical* rote learning whereas the acquisition and use of *regular* morphology would mainly (but again not exclusively) involve *productive morphological rule-based* processing. Linking such a *Dual Processing* account to the Aspect Model, one could speculate that conceptual-semantic notions (prototypes) such as stativity, durativity and telicity play a steering role in the process of morphological rule learning, which mainly affects regular morphology like *-ing*, but not or less so in associative learning, which mainly affects irregular forms such as *went*, *go*. These irregular forms would be directly mapped onto a given conceptual scene and then stored as a one specific form-meaning unit in lexical memory.

Obviously, evidence for this scenario must come in the first place from the observation that also regular *-ed*, like *-ing*, shows a significantly stronger link with inherent aspect than irregular PAST forms. Something to that extent is indeed suggested by the present analyses (though not demonstrated, for methodological reasons).[21]

Crosslinguistic influence

The previous scenario cannot account for the observed differences in overgeneralization and accuracy rates between the aspect marker *-ing* and the tense markers *-ed* and *Virreg* (see Section 4). The learners in this study were somehow more apt to use *-ed* and *Virreg* as markers of anterior tense than to use *-ing* as a marker of progressive aspect. An explanation for this observation may be found in the notion of

transfer, more specifically the type of conceptual transfer proposed by Slobin (1991). Slobin has argued that the grammatical categories that are most susceptible to influence from the first language are not the ones rooted in universal categories of cognition and perception but, rather, the more language-specific categories which constitute the specific mode of *thinking for speaking* in one's first language. Slobin emphatically singles out tense and aspect as examples of such language-specific grammatical categories. According to Slobin, a speaker's mind is set to a particular mode of thinking for speaking in the course of L1 acquisition and it is very difficult to reset it in the course of L2 acquisition. Following this argument, we can speculate that L2-learners approach the acquisition of the TA system of their target language predisposed by the basic TA distinctions of their L1. This will guide them to search the L2 input for a similar TA system. Any similarities found are then used as a basis for reconstructing the target language system. When no similarities are found, i.e. when learners encounter form-meaning relations in the L2-input which have no apparent counterpart in the L1, they may, as an initial strategy, resort to universal semantic prototypes to help them process these unfamiliar mapping relations. In this case prototypes serve as a starting point for reconstructing the target TA system.

Under this transfer scenario then, Ema and the other learners in the present study came to the acquisition of English predisposed by the tense-prominent grammars of their respective first languages (Dutch and French), expecting that their target language (English) would grammaticalise the same basic distinction as their first languages, namely the tense distinction between anterior and non-anterior time (Comrie 1985; Dahl 1985; Bhardwaj 1988).[22] Their grammatical predispositions being confirmed to some extent, these learners were thus drawn to analyze the *Virreg* and *Ved* forms in their input *mainly* in terms of this anterior/non-anterior distinction. This would account for the early semantically appropriate use of PAST forms and for the fact that our learners rarely overgeneralise these forms to present or future contexts. Under the same transfer hypothesis, the aspect marker *-ing* would be processed differently. *V-ing* forms are phonetically salient, morphophonemically and paradigmatically regular and frequent in the classroom input of our learners.[23] These factors probably contributed to the early emergence and sometimes abundant use of the *-ing* form in the English interlanguage of these learners. The meaning component of *-ing*, however, is not so easily acquired. We speculate that the learners in this study were not prepared by their L1 for their target language to mark aspect distinctions to the same extent as they were prepared for the marking of tense distinctions: grammatical aspect is absent altogether in Dutch while in French it is a relatively minor system, being limited to the past tense paradigm which, moreover, involves a different notion than in English (viz. imperfectivity vs. progressivity). Thus, these learners probably lacked a clear L1-based

frame of reference within which they could analyze the formal contrast between the *simple* and the *Ving* forms in the input. They therefore drew on universal semantic distinctions and cognitive operating principles first, analyzing *-ing* as a marker of the dynamic-atelic-durative prototype before gradually extending it to other, less prototypical predicates and sorting out its targetlike values.

Concluding remarks

The purpose of this chapter was to describe, in as much detail as available data permit, developmental stages in the L2 acquisition of English and to critically evaluate the explanations for this development as proposed by the Aspect Model. Examination of the descriptive claims of the Aspect Model against the data from Dutch and French-speaking learners of English, as exemplified here by the longitudinal data of one learner, suggests that the influence of the inherent semantic principles in the development of TA morphology interacts with, and may sometimes be overridden by, other factors, including (a) L1-based predispositions, (b) properties of the respective TA markers in the input language (e.g. type and token frequency, co-occurrence probabilities, distributional-combinatorial patterns, saliency, transparency, etc.), (c) morphophonemic properties of the respective TA categories, and (d) different processing mechanisms that operate at a particular point in the development of a given TA category.

The results of the analyses presented here, as well as the interpretations and explanations offered for them, are obviously still tentative and need to be confirmed by further empirical studies that include other modes of data collection, different types of data, different methodological and analytic procedures, and alternative theoretical perspectives.

Notes

1. The European Schools are institutes of multilingual education. All European School pupils learn a second language (either English, French or German) as a subject from grade 1 of primary school. From grade 3 onwards the L2 is also increasingly used as a medium of instruction for other, non-language courses. In addition, pupils use their L2 as a vehicular language to communicate with peers from different L1 backgrounds or with the wider out-of-school environment. Theirs then, is a case of *mixed* L2 acquisition, combining elements of instructed and naturalistic acquisition. Further information about the European School system of multilingual education can be gained from Housen (1997a).

2. *Overgeneralization* is operationalized as the ratio of the number of times a verb form is incorrectly supplied (semantically or formally) to its total number of uses. *Undergeneraliza-*

tion is expressed as the ratio of the number of omissions from targetlike contexts to the total number of targetlike contexts for use. *Accuracy of use* of a form was measured by the TLU index (Pica 1984). This is the ratio of the number of targetlike uses of a form to the total sum of correct uses, non-targetlike uses and omissions.

3. The term overgeneralization in the case of *-ing* covers a number of phenomena: (a) overextensions to semantico-pragmatic contexts that do not easily allow for an imperfective or progressive reading (see example (4)); (b) overextensions to grammatical slots that require another (or zero) TA marker (e.g. *he cannot dancing*); (c) overextension to verbs that are incompatible with *-ing* in the target language (e.g. *he was knowing the answer*).

4. This is particularly true after exclusion of the highly frequent *have+got* forms, which is also used in non-past contexts in native British English, the dominant input variety for our learners.

5. The hypothesis that grammatical aspect is primary over tense is derived from findings from language typology (grammatical marking of aspect is more wide-spread than grammatical marking of tense and grammatical aspect markers are closer to the verb stem than are tense markers; see Bybee 1985, Dahl 1985, Foley and Van Valin 1984), language change (tense markers can develop from aspect markers but not the other way around; Lehman 1995), and creolisation (where aspectual distinctions are grammaticized before tense distinctions; see Bickerton 1981). Together, these observations have been taken as evidence for the linguistic, conceptual and ontological primacy of aspect over tense (Lyons 1977).

6. Part of the contradiction is probably due to terminological and conceptual differences between studies. For instance, studies may differ with respect to what counts as 'grammatical' or 'grammaticized' tense and aspect. The criterion used in the present study is *functionality of encoding*: a given TA notion (e.g. pastness, anteriority, perfectivity, imperfectivity) is grammaticised if it is coded *systematically* and *independently of other factors* like pragmatic considerations (e.g. communicative relevance, information status in the discourse context), the inherent semantics of the predicate, or the linguistic context. Some of the studies that found support for the aspect-before-tense hypothesis may have employed a different definition of grammaticization. The instances of early grammatical aspect marking described in Kumpf (1984), Flashner (1986) or von Stutterheim (1986) are probably best considered as instances of *incipient* grammaticalisation; the aspectual contrasts in case do not appear to be grammatically functional in the sense used in the present study. *Probably*, because there is also confusion in some studies between different types of aspectual meaning (*viewpoint aspect* versus *inherent semantic aspect*) and related discourse-pragmatic notions (e.g. grounding). The natural affinities between viewpoint aspects, inherent verb aspects and discourse grounding may make it seem as if learners are using verb morphology to mark viewpoint aspect whereas in fact they are really redundantly marking inherent verb semantics and/or discourse context (see, for instance, Kumpf 1984).

7. The reference time R remains *grammatically* unspecified at this stage. Learners can dissociate R from E and S *lexically*, i.e. through adverbials.

8. The typological distribution of deictic and anaphoric tenses may even be implicationally related: the occurrence of an anaphoric tense form (e.g. a present or past perfect) in a language implies the presence a deictic tense form (e.g. a simple past) while the converse relation does not hold (Bybee 1985).

9. Interestingly, this is the same developmental pattern as the one predicted for imperfective past markers in languages such as French and Spanish (see Bardovi-Harlig 1999: 359; Andersen & Shirai 1996: 533) (see also note 12).

10. The proportions of the respective markers in the last stages of Figures 2 to 4 are hypothetical. Also, contrary to what the same graphs may suggest, progressive, past and present marking are probably not evenly distributed across inherent aspect classes in native speaker speech (see section '*Explanatory claims*') though details of the target language distribution are still unknown.

11. This list is not exhaustive. Not included in this count are our own publications (Housen 1997b, 1998, 2000, forthcoming) which draw on the same corpus as the present paper, and 12 unpublished studies mentioned in the surveys by Andersen & Shirai (1996) and Bardovi-Harlig (1999). Also excluded are studies which investigated the development of English TA from different theoretical perspectives, such as the Discourse Hypothesis (e.g. Bardovi-Harlig 1995; Kumpf 1984; Flashner 1989) Finally, note that the two publications by Rohde (1996, 1997) draw on the same database.

12. The emergence of *-s* is also documented in a few other studies but not analysed in terms of the IAH (Bardovi-Harlig & Reynolds 1995; Bardovi-Harlig & Bergström 1996). The claim that *-s* is associated with states in the early stages of acquisition is derived from empirical observations in the L1 acquisition of English (Bloom et al. 1980). The explanatory argument is that *-s*, as a marker of present tense, conveys (by implicature) durative, generic or habitual situations (Shirai 1991; Andersen 1994). Learners would first use *-s* with verbs referring to situations that are most compatible with the notions of durativity, genericity and habituality, namely states (though Bloom et al. 1980 interpreted *-s* as a marker of durative, completive events that could be identified as accomplishments). Note that durativity, genericity and habituality are aspectual notions akin to imperfectivity. In this light, it is probably not a coincidence that the pattern predicted for the spread of the English present marker *-s* (states > activities > accomplishments > achievements) is identical to that predicted for imperfective past markers in languages such as French and Spanish.

13. It should be pointed out that Andersen and Shirai (1996) discussed task effect as a possible explanation for progressive states in Chinese L1 acquisition data, not in English L2 acquisition data.

14. Although 21% of all achievements in the lowest proficiency group in Robison (1995) were marked by *-ing*, Robison himself did not interpret this as a genuine counterexample to the IAH as most of the relevant cases involved the verb *going to* and significantly more activities were found to be inflected with *-ing*.

15. This interpretation, however, need not necessarily follow from the figures presented in Rohde (1996, 1997): these involve absolute frequency counts of verb types. What is needed are percentages, not absolute frequencies, of both inflected and uninflected verb types per inherent aspect class. This information is not provided, however.

16. For the type analysis, each distinct morphological form of each predicate type was counted only once, but every distinct 'sense' was counted separately. Thus, the form *swimming* in *He cannot swimming* and *He's swimming* represents one type. The instances of

look in *He looks ill* and *He looked ill* represent two types. Also *looks* in *He looks at the frog* and *He looks angry* represents two types (dynamic *look* vs. stative *look*), as does *looked* in *He looked after his little sister* and *He looked behind the trunk of a tree.*

17. Only one of the ten L2 studies included in the review here used a type analysis (Rohde 1996, 1997); eight used a token analysis and one (Robison 1995) calculated both type and token counts but only presented the results of the token analysis.

Ideally, the choice between a type or token analysis should be theoretically motivated. Of relevance in this respect is the observation that type and token frequencies have differential influence on the productivity of regular and irregular morphological forms in language use, historical change and L1 acquisition, though the nature of this influence is still a matter of controversy (see Bybee 1995; Pinker & Prince 1994). Type frequency appears to be more crucial than token frequency (Bybee 1995).

18. This argument only holds for progressive states occurring at the non-initial stages of acquisition. Progressive states would constitute genuine counterevidence for the IAH if they occurred in the very early stages (i.e. the first emergence of *-ing*).

19. The distributional patterns of verb types in the first two data sets must be interpreted with caution because of the small number of counts involved. For instance, 6% out of a total of 17 State verb types corresponds to only 1 *Vs* type (viz. *has*).

20. PAST marking, especially *Virreg*, is consistently scarce among activities across all data sets, including the native speaker data. This would correspond with the inflated use of (past) progressives with activities.

21. This hypothesis raises questions as to the time when the IAH becomes operative in language acquisition. Recall that it is assumed here that the IAH starts to operate in stage 2 of a three-stage developmental sequence for the development of TA, i.e. when verbs appear as invariant, rote-learned forms (see Section 3). This also included rote-learned regular forms such as *dancing*. In contrast, Robison (1995) argues that the IAH can only manifest itself when the learner shows "evidence that the morpheme is being used productively" (Robison 1995: 353).

This raises the possibility that the IAH may operate at two levels and at two stages in acquisition: first, at the initial level of mimicking co-occurrence patterns observed in the input, and later, in productive rule learning, when the learner abstracts a particular temporo-aspectual concept (e.g. pastness, progressivity) via initial prototypical representations (e.g. punctual-telic-complete, durative-dynamic-incomplete) and subsequently maps these abstract concepts onto a specific (regular) morphophonemic form (*-ed*, *-ing*).

22. When a language has both grammatical aspect and grammatical tense, one tends to be more prominent than the other in terms of (a) obligatoriness and (b) paradigmatic distribution of marking. Romance and Germanic languages are tense-prominent languages in the sense that the finite verb obligatorily marks the location of the event time E and the reference time R relative to the utterance time S but it does not obligatorily indicate whether the event is to be viewed perfectively or imperfectively, at least not orthogonally. Romance languages like French have an obligatory grammatical aspect opposition in the past tense paradigm only, not in the present and future tense. By this token, English is more aspect-prominent than French because it has a full orthogonal aspect system. Dutch, on the other

hand, could be called a tense-exclusive languages since there is no obligatory grammatical aspect marking at all.

23. Analyses of samples of classroom input revealed that *Ving* came second after *Vø* as the most frequently occurring inflectional form of main verbs (Housen 1995).

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The aspect hypothesis in naturalistic L2 acquisition

What uninflected and non-target-like verb forms in early interlanguage tell us

Andreas Rohde

Introduction

In this paper, I will follow up on Rohde (1996) and investigate whether the deviant use of inflections in L2 learners' speech is compliant with the Aspect Hypothesis. The main focus is on uninflected verb forms and non-target-like inflections in naturalistic L2 data of four children aged 4 to 9 (L1 German/L2 English). The study shows that the deviant use of inflections is not systematic and does not follow the predictions of the Aspect Hypothesis. Both learner internal and external factors are discussed in connection with the data. I shall argue that compatibility with the Aspect Hypothesis could be formulated more dynamically as an 'aspectual effect' whose strength may be influenced by factors including acquisitional type, L1/L2 combination, and age. Since the early studies by Bronckart & Sinclair (1973) and Antinucci & Miller (1976), the skewed distribution of verbal inflections in first language (L1) acquisition has spawned an extensive number of studies involving languages as typologically diverse as English, Finnish and Japanese (overviews in Andersen 1989; Andersen & Shirai 1996; Rohde 1997).

Since the mid-eighties, the interest in tense-aspect marking has also spread to second language (L2) acquisition involving a wide range of language combinations (overviews in Andersen & Shirai 1994; Rohde 1997; Shirai & Kurono 1998). Despite the fact that there is increasing evidence of the (Primacy of) Aspect Hypothesis in L1 and L2 acquisition, a number of questions remain unanswered.[1] It is still unclear to what extent input and acquisition interact, why some types of discourse are more compliant with the hypothesis than others, or to what extent the methodology used influences the results, to name but a few problems.

The purpose of this paper is to explore the nature and scope of the Aspect Hypothesis by examining whether it is compatible with uninflected verb forms and non-target-like verbal inflections. The results show that the deviant use of tense-aspect do not necessarily follow the predictions of the hypothesis. Whereas the affiliation of verbal inflections with lexical aspect is not called into question, non-target-like use of inflections may follow patterns that cannot be accounted for by the Aspect Hypothesis. Thus, the distribution of target-like verbal inflections does not necessarily reflect the absence or misformation of verbal inflections. In view of a comparison with the results of other L2 studies, it is argued that, in L2 acquisition, the Aspect Hypothesis holds to varying degrees. A number of factors such as individual variation and L1/L2 combination are suggested to determine the degree to which learner data comply with the predictions of the hypothesis.

Rohde 1996

The point of departure for an analysis of verbal inflections in L2 English (L1 German) is Rohde (1996). Three critical observations in that study concerned the morphemes -*ing, -ed,* and -*s.*

-*ing*

The progressive inflection was found with activities and achievements (Rohde 1996: Fig.1, p. 1121, Fig.2, p. 1123). Three observations are relevant for a discussion of the Aspect Hypothesis:

> 1. Activity verbs are affiliated with the present tense progressive.
> *This one is still swimming too.* (Lars, 3;29–months; days of L2 exposure)
> *Who crying down there?* (Heiko, 2;24)

This is predicted by the Aspect Hypothesis: activity verbs, which are generally classified as durative and atelic predominantly appear with the progressive, which marks ongoing events (Andersen 1989; Robison 1990, 1995; Andersen & Shirai 1994, 1996; Shirai & Kurono 1998).

> 2. Achievement verbs are inflected for progressive.
> *I'm not giving all of mine.* (Lars, 5;19)
> *I'm killing you.* (Heiko, 2;15)

This finding would not be a problem for the Aspect Hypothesis if the achievements were in fact punctual activities such as 'jumping', 'banging', 'turning', 'brushing', i.e. achievement verbs that have an iterative meaning when used in the progressive.[2] In contrast, in the data quite a few target-like instances occur where the two boys analyzed, Lars and Heiko, use achievement verbs with future reference.[3] This

clearly goes against the predicted route of acquisition but can be explained quite plausibly. The progressive form in English is polysemous, i.e. it has a variety of functions, the most conspicuous being as a marker for progressive aspect. However, for learners this main function may not necessarily be always transparent. In fact, achievements in the progressive form with future reference violate both the operating principles suggested by Andersen (1984, 1993) and the prototype account (Shirai & Andersen 1995).

In their review of Rohde (1996), Shirai & Kurono (1998: 271–272) suggest that untutored learners of English generally tend to overuse the progressive inflection as it is phonologically salient, frequent in the input and has no allomorphs. Thus, when the children felt the need to tell others about their intentions, "futurate use of progressive probably came in quite handy until they acquired the use of the periphrastic future ('be going to') or modal future ('will')". Shirai & Kurono also quote the study by Wagner-Gough (1978), who reported a child acquiring English who predominantly used the progressive with future reference. As the use of the progressive for this child was modal rather than temporal, Shirai & Kurono suggest that Lars and Heiko may not have focussed on deictic tense distinctions either. This view may be correct as the futurate progressive is exclusively used with first person singular, indicating mode rather than tense. On the other hand, it should be kept in mind that, despite being a marginal function of the progressive, the futurate use of *I'm + ing* is target-like. Furthermore, this construction is not used at the beginning of L2 exposure, but rather after the structure *I'm* + V *("I'm get a drink")* has been abandoned (see below for a discussion of this construction). Periphrastic or modal future are in fact not acquired during the children's six-month stay in California. (Interestingly, *-ing* is clearly more associated with activities in Lars' reacquisition of English during a stay in California two years later (Rohde 2002)).

> 3. Activity verbs are used with both future and past reference.
> *I'm not playing that what you want to do.* (Lars, 4;15)
> *Yes, he was watching Inga.* (Heiko, 3;13)

While coding ongoing activity on the one hand, the children are coding tense on the other hand, i.e. the children's temporal systems cannot be reduced to aspect or aktionsart.

-ed

Regarding *-ed,* there was a clear association between the regular past tense inflection and achievements:

> *I gaved it backwards.* (Heiko, 5;7)
> *Yesterday not, I tooked it off.* (Heiko, 4;22)

This is compliant with the predictions of the Aspect Hypothesis: punctual and telic events are mostly affiliated with past or perfective morphology. However, the use of regular and irregular past inflections on atelic verbs suggests again that the children are in fact marking tense and are not exclusively guided by the Aspect Hypothesis:

> *No, it just looked like it.* (Lars, 5;20*)*
> *I saw a canoe.* (Lars, 1;29)

-s

Finally, Rohde (1996) found a clear association between *-s* and stative verbs.

> *Who likes to fish?* (Lars, 4;0)
> *Inga needs it.* (Lars, 4;11)

This association has also been reported in other L2 studies (Bardovi-Harlig & Reynolds 1995, Robison 1995, Bardovi-Harlig & Bergström 1996).

Uninflected verb forms

As for uninflected verb forms, I argued that their occurrence in our data follows the Aspect Hypothesis in as far as there are more achievements in past contexts than any other inherent aspectual class. However, the findings in Rohde (1996) are not entirely compliant with the Aspect Hypothesis. According to its predictions, atelic verbs (states, activities) are rare in past contexts; if they appear, they remain mostly uninflected (Andersen & Shirai 1994: 138, 144; Shirai & Kurono 1998: 248). It appears to be true that they are rare but they do not necessarily remain uninflected. The class of verbs that do not receive a past inflection in a number of cases is the class of achievements — this is perhaps not surprising since, in past contexts, far more achievements occur than any other category. Thus, the failure to inflect achievements for simple past appears to be relative to the overall number of achievements in the past and is not influenced by their aktionsart. What is a matter of aktionsart, however, is the verb distribution in past contexts. Consequently, what is confirmed is a distributional bias of *aspectual verb class* but not necessarily of *verbal inflections*. This is a subtle but important difference and could suggest that inflections may primarily occur with certain verb categories without redundantly marking aspectual distinctions. In the following, I focus specifically on the data involving uninflected and non-target-like verb forms in order to address the question of whether these instances are compatible with the predictions included in the Aspect Hypothesis.

The data and procedure

In this section I review data from two boys, Lars and Heiko (aged 6 and 9), (see Rohde 1996) plus data from their two sisters Birgit and Inga (aged 8 and 4 respectively). The four German children acquired their L2 English during a six-month stay in California in 1975. The children's spontaneous speech was written down by their father, H. Wode, on a day-to-day basis for the entire stay. In addition, 70 tape recordings were made, each one lasting between one and two hours. Data collection mainly comprised two kinds of interactional settings: family contexts at home or during excursions (when English was spoken) and play contexts with American children. The notes and the tape recordings were intended to complement each other as, in numerous cases, the first occurrence of a new or restructured linguistic element could not be recorded on tape. In those cases, Wode focussed on the spontaneous notes, which he carried around wherever the family went (for more details see Wode 1981).

For this analysis, the entire body of spontaneous diary notes (about 3,000 utterances) and extracts from 20 tape recordings were used, documenting each month of the 6-month-stay. The focus will only be on uninflected verb forms and non-target-like use. I will demonstrate that whereas there is clearly a distributional bias in the children's data, it is questionable whether the children's non-target-like use of verb inflections can be accounted for by the Aspect Hypothesis alone, as the use of inflections may be influenced by various other factors, which I will try to specify.

Each verb or predicate respectively was categorized according to the Vendlerian (1967) categorization. Verbs were identified as states (STA), activities (ACT), accomplishments (ACC), or achievements (ACH). The operational tests used to classify all verb tokens into the four inherent aspectual classes were adopted from Robison (1995) (see his appendix for a full description of the tests).[4] Information on temporal location of the uninflected and non-target-like verb forms was determined according to the contextual information provided by H. Wode in the diary notes or inferred from the respective context in the tape recordings (Rohde 1996, 1997).

Results and discussion

The analysis of uninflected and other non-target-like verb forms reveals five phenomena that have been partly mentioned but not discussed by Rohde (1996, 1997). These will be discussed in some detail:

1. Use of progressive *-ing* with infinitive or 1st/3rd person plural function.

2. Use of progressive -*ing* in past contexts *(was* V*ing).*
3. Omission of past inflections on regular and irregular verbs.
4. Temporary idiosyncratic marking of future events with the construction *I'm* + V.
5. Marking of verbs for 3rd person singular -*s* in the first and second person singular.

Use of progressive -*ing* with infinitive or 1st/3rd person plural function

(1) L (2;26)[5] Something want me to jumping. ACT? ACH?
(2) L (3;12) It's starting to raining. ACH/ACT
(3) L (3;27) They going all, all the fishes going round my eggs and they bite. ACT
(4) L (4;0) We will going to try for bass. ACT
(5) L (4;29) Don't you think you can going swimming today? ACT
(6) H (1;25) I can fishing. ACT

The motivation for the -*ing* form in these examples is probably the similarity between the German infinitive and the 1st/3rd person plural ending -*en* and English -*ing* which is often pronounced as [In]. Moreover, 'fishing' and 'swimming' are *fischen* and *schwimmen* in German so that the overall similarity may play an important role here. This phenomenon can be referred to as a case of L1 transfer. However, it has to be noted that the use of the -*ing* form is compatible with the Aspect Hypothesis as 'fish', 'rain' and 'swim' are all activities, mostly appearing with the -*ing* inflection.

Use of progressive -*ing* in past contexts (*was Ving*)

(7) L (4;3) I was caughted two on one day and on another day one, too. ACH
(8) L (4;3) Yes, I was hooking. I was trying to hook one. ACH/ACC
(9) L (4;3) I was using all the way two. ACT
(10) L (4;3) I was giving this one to Inga. ACH
(11) H (3;8) You can't jump this far. I was jumping this far. ACH
(12) H (3;18) He was riding into me. ACH

The use of the past progressive may seem to be target-like in (9) as a durative verb is inflected here. However, the use of -*ing* inflected achievements in past contexts is odd with punctual/telic verbs such as 'catch', 'ride into' or 'jump'. I do not think that the use of the progressive can be accounted for in terms of lexical aspect in these cases. Rather, this looks like a strategy to mark simple past tense where 'was'

carries the function of past and the *-ing* inflected form is taken as the infinitive form. This interpretation is supported by a closer look at the discourse contexts these utterances are taken from. (13)–(16) are culled from a conversation between Lars (L) and his father, H. Wode (W):[6]

(13)   L: I *was caughting* two.
       W: I don't think you ever had two bites — two salmon bites up there.
       L: Yes.
       W: No.
       L: I *was caughting* two — on — on one day one and then on another day one too.

(14)   W: You didn't hook a salmon yet.
       L: Yes.
       W: No, you haven't.
       L: I *was hooking* it. I *was trying* to hook one.

(15)   W: Tonight when we were bass fishing there at the point, how many crickets did you use? Heiko had five, did he?
       L: I don't know. I *was using* all the way two.

(16)   L: I was — I caught seven basses.
       W: All in all?
       L: Yeah, I catch — I did, I did. I *was giving* this one to Inga and that's — but I catch seven.

In all these examples, Lars' use of the progressive is odd as it obviously does not refer to durative events in the past. Moreover, the preceding utterances by his father in (13)–(16) do not contain progressives so that Lars is not invited to give descriptions of scenes but rather to report punctual events in the past. (14) shows his insecurity as to which form to use (was/caught). Lars uses the construction *was* + V*ing* in past contexts with all types of verbs for a period lasting ten days during the six-month stay. Simple past forms during this period are recorded but they alternate with the past progressive and uninflected forms so that, for example, all three forms 'catch', 'caught' and 'was caughting' are used.

The two utterances from Heiko are taken from the diary data, where the full discourse context is not available. However, according to Wode's description of the scenarios, the uses of 'jumping' and 'riding into' refer to two punctual events in the past, one being that Heiko demonstrates how far he jumped in comparison to his brother. Thus, 'jumping' refers to a single event rather than to an activity, whereas Heiko uses 'riding into' in order to report a bicycle accident he had with an American friend. According to the context description, Heiko is not demonstrating this accident but simply making a statement. By using *was* + V*ing* the children appear to

be bypassing the simple past forms, possibly because this construction is more transparent than the simple past with its three regular allomorphs and numerous irregular forms. There is a parallel in the variety of German that the children speak: in spoken northern German, the *Präteritum* (comparable to the simple past) is generally avoided in favour of the *Perfekt* (formally corresponding to the present perfect) which is also a construction consisting of an auxiliary plus participle. It is possible that the structure 'auxiliary + participle' is a matter of L1 transfer.

Interestingly, Kumpf's (1984) subject, an L1 speaker of Japanese, also uses the present participle when referring to past actions ('we *diggin* junk out' / 'somebody *throwin* brick onna trailer'*)* with the difference that the tensed auxiliary is absent (Kumpf 1984: 139).

Omission of past inflections on regular and irregular verbs

(17)   L (1;29)   Heiko catch two fish. ACH
(18)   L (4;7)   I just kick him. ACH
(19)   L (4;11)   He jump the right there. ACH
(20)   L (4;11)   You give it already to me. ACH
(21)   H (3;22)   They just grab the eggs. [answer to "how did they bite?"] ACH
(22)   B (3;1)   I turn off. [answer to question of whether somebody turned off the tap of the garden hose] ACH

These selected examples represent the most common phenomenon among the non-target-like forms. All the four children use uninflected telic verbs with past reference. In two of these cases the verbs are irregular in English and the children may have heard the target-like form but cannot provide it. In other cases they simply fail to 'deliver' the appropriate regular inflection. Generally, the children appear to be very cautious with regard to the inflections they provide. In other words, the children seem to be following a principle like 'if in doubt, do not inflect the verb'. Whereas they have correctly analyzed that practically every verb can appear in the progressive form, yielding regular and predictable forms, they are less certain about past forms. There are only very few genuine overgeneralizations, some of which even fail to qualify as such, since forms like 'stoled' have also been recorded in the input provided by American children with whom the Germans were in contact.

One possible reason for the failure to come up with a regular past inflection in some contexts may be a phonological one. In the following examples (23–28), the verbs used by the children end in an alveolar plosive requiring the [əd]-allomorph in view of a productive rule for past marking. With regard to such a rule, the children could be expected to come up with forms such as 'bited', 'finded', 'hided',

'eated' etc. However, none of the four children acquire this allomorph during the six-month stay. Thus, the verb forms in the following examples possibly remain in their base form, since the children have not yet acquired the [əd]-allomorph or the target-like irregular past forms.

(23) L (3;5)   He bite on my fishing pole. ACH
(24) L (5;15)   He hide it under this bed. ACC
(25) H (3;1)   How many eggs you eat in your life, Henning?[7] ACC
(26) H (3;13)   I eat one time nine pancakes, that was my first time I eat them. ACC
(27) H (4;8)   I find the house. It is under the ocean. ACH
(28) I (4;26)   She bite me. ACH

As for the distribution of aspectual verb classes, the bulk of verbs belongs to the class of achievements as expected according to the Aspect Hypothesis. However, the failure to inflect these verb forms cannot be accounted for in terms of lexical aspect. The uninflected verbs indicate that in our data the relationship between verb and inflection is not as strong as otherwise suggested. This is in contrast to some of the data Robison (1990: 328) discusses, where there is obviously a close link between verb and inflection in misformations such as the following: 'And here, do you want something, you *buyed* it', meaning 'In the United States, if you want something, you buy it'. Irrespective of the fact that the verb 'buy' has a habitual reading in this context, the speaker marks the verb for simple past, not because she or he is not able to distinguish the different English tenses but on the grounds that 'buy' is a punctual and telic verb that is generally associated with a completive event. Once the verb 'buy' is inflected for past, it seems to irretrievably stick with the past inflection even if future events are referred to. In addition, Robison (1990: 326) quotes the following utterance: 'The one guy tell me, I want to you *makin* one pant…', meaning something like 'one guy might tell me, I want you to make me a pair of pants'. 'Make' is inflected for progressive here, apparently due to the fact that it usually describes a situation of indefinite duration. And again, once the verb is inflected for progressive to express the inherent aspect of duration, verb and inflection are inseparable irrespective of temporal reference. In these two cases the inherent lexical aspect of the verb determines the use of verbal inflections. The learner is indeed "guided by inherent aspect" (Andersen & Shirai 1996: 536) or "influenced" (Andersen & Shirai 1994: 133) by it. Cases where an inflection virtually sticks with the verb across tenses and redundantly marks the lexical aspect of the verb are noticeably absent in our data. The uninflected forms used by the German children suggest a looser link between verb and inflection. I believe that there is a subtle but important difference between the notion of a verb distribution that predicts the occurrence of verbal inflections (e.g. Andersen & Shirai 1996) and

a distribution that predicts the occurrence of aspectual verb classes. In other words, the occurrence of numerous verbs belonging to a specific aspectual class does not necessarily entail that these verbs are also inflected for that class.

In order to specify the influence of lexical aspect on past inflections (*-ed* and *irregular forms)* in past contexts, I have applied a traditional method of quantification of the data described in Rohde (1997): Suppliance in Obligatory Contexts (hereafter SOC, cf. Brown 1973 for L1 acquisition; Dulay & Burt 1974; Pica 1983; Robison 1990 for L2 acquisition). Past contexts were determined with the help of contextual information in the diary data provided by Wode or inferred from the interactions documented on the tape recordings. Whereas traditional SOC analysis distinguishes up to four different ways of scoring inflections (Cazden 1968), I have only coded the data in terms of +*supplied/–supplied.* Overgeneralizations such as 'broked' or 'tooked' were counted as +*supplied* as the question here is not whether the use of morphemes is target-like. Past contexts in which the progressive was used inappropriately were ignored (for a discussion of these cases, see phenomenon 2: *was* + V*ing).* Despite the shortcomings of SOC (Rosansky 1976; Cook 1993), the method may cast some light on the influence of lexical aspect on verb inflections in past contexts. Table 1 gives the percentages for the suppliance of past inflections with regard to the aspectual verb classes for each of the four children.[8]

Although the data for the two girls are barely sufficient, the overall picture clearly shows that telic predicates (ACH and ACC) are a lot more frequent in past contexts than atelic ones (ACT and STA). This is predicted by the Aspect Hypothesis. However, the reverse conclusion that atelic verbs largely remain uninflected in past contexts does not seem to be true for these children. Nearly all stative verbs receive a past inflection in obligatory contexts. This is clearly not compatible with the Aspect Hypothesis as it predicts that learners have more difficulty in supplying appropriate inflections in obligatory past contexts for states and activities (Bardovi-Harlig & Reynolds 1995; Shirai & Kurono: 249). Similar to Kumpf's (1984) subject, quite a few of the inflected states are accounted for by forms like 'was' and 'were', however, there are also instances of 'wanted', 'saw', 'looked' or 'had' (on the other hand, 'catched' and 'caught' are quite frequent too and boost the number of inflected achievements). Although there is hardly a sufficient amount of activity verbs to draw any conclusions, there does not appear to be any tendency to leave these verbs mainly uninflected. Thus, the occurrence of verbal inflections with telic verbs in past contexts does not necessarily predict the absence thereof with atelic verbs.

Table 1. SOC analysis for the four German children

+ *supplied*	−*supplied*		
Lars – 107 obligatory past contexts			
35 ACH (71%)	14 ACH (29%)		
19 ACC (86%)	3 ACC (14%)	telic	atelic
6 ACT (55%)	5 ACT (45%)	+ 54 −17	+ 30 −6
24 STA (96%)	1 STA (4%)	**76%**	**83%**
Heiko – 107 obligatory past contexts			
43 ACH (86%)	7 ACH (14%)		
25 ACC (78%)	7 ACC (22%)	telic	atelic
5 ACT (56%)	4 ACT (44%)	+ 68 −14	+ 20 −4
15 STA (100%)		**83%**	**83%**
Birgit – 28 obligatory past contexts			
15 ACH (83%)	3 ACH (17%)		
1 ACC (33%)	2 ACC (67%)	telic	atelic
	1 ACT (100%)	+ 16 −5	+ 6 −1
6 STA (100%)		**76%**	**86%**
Inga – 32 obligatory past contexts			
11 ACH (69%)	5 ACH (31%)	telic	atelic
3 ACC (50%)	3 ACC (50%)	+ 14 −8	+ 8 −2
8 STA (80%)	2 STA (20%)	**64%**	**80%**

Temporary idiosyncratic marking of future events with the construction *I'm* + V

(29) H (1;24) I'm play on the net. ACT
(30) H (1;25) I'm kill you, you stupid funny man. ACH
(31) H (1;29) I'm the rattlesnake. I'm bite you. ACH
(32) B (2;1) I'm pitch. ACH
(33) B (3;11) I'm sing. ACT
(34) I (4;6) I'm get it for Tiff. ACH

Future in English can be expressed by various means, two of them being the construction *will* + V and the so-called 'going-to future'. There is a phase for all four children during which future is expressed by an idiosyncratic structure, possibly based on the latter. The future marker appears to be encoded in the contracted form 'I'm'. This does probably not represent an unanalyzed, monomorphemic form, as 'I' is used by all children from very early on. For Heiko, this structure is

only of minor importance; Lars, however, uses it for a period of at least two months. For the girls there is not sufficient data to make any further claims.

This idiosyncratic way of marking the future again shows that it is not the aspectual verb class that influences the presence or absence of inflections. Rather, these examples suggest that the children favour transparent constructions, i.e. structures that contain an explicit tense marker for them (see *was* + V*ing*) and the infinitive form of the verb that may either be the target-like infinitive form or the non-target-like 'German flavoured' progressive (cf. 'singin(g)' and *singen)*. Again, the class that mostly appears in the future (as in past contexts) is the class of telic verbs (achievements, accomplishments).

Marking of verbs for 3rd person singular *-s* in the first and second person singular

  (35)   L (2;22)   I wants too. STA
  (36)   L (4;7)   That's like I does it. ACT
  (37)   L (5;7)   Hey John, you looks like a girl. STA

There are only three examples from Lars for this phenomenon. And in these particular cases, the inflected forms may actually be evidence for the Aspect Hypothesis. Here the 3rd person singular inflection is overgeneralized to the first and second person singular, possibly to emphasize the stative or habitual aspect of the verbs. The affiliation of the 3rd person inflection with states has been documented in various studies (e.g. Bardovi-Harlig & Reynolds 1995; Bardovi-Harlig & Bergström 1996; Robison 1995; Rohde 1996). It can be regarded as a specific feature of the Aspect Hypothesis for English (Bloom et al. 1980; Shirai 1991).

How to account for the uninflected and non-target-like forms

How can the German children's deviant use of verbal inflections be explained? In general terms, one determining factor may be the very nature of L2 acquisition. Vogel (1989), who analyzed some of the data discussed in this paper, has shown that semantic and pragmatic functions are acquired separately from formal coding systems. The children are capable of referring to events in the past or intentions in the future without requiring the corresponding verb morphology. The acquisition of functions does not require the acquisition of forms or vice versa. Both functions and forms develop independently and even after a few months of extensive exposure to English, the children's use of inflections is not fully systematic; one reason being that grammatical morphemes do not encode any new or vital information for

the learners. They do eventually acquire verb morphology, partly due to a process of convergence between them and their American peers.

In more specific terms, the following two sets of variables may be responsible for the use of verb morphology by the German children and in L2 acquisition in general. They may be interrelated to varying degrees. Therefore, it is important to note that some of the evidence discussed in connection with one specific factor may actually be related to other factors as well.

Learner internal factors

Individual variation

In our data, phenomenon 4 (temporary marking of future events with *I'm* + V) and 5 (overuse of 3rd person singular *-s*) may be explained in terms of individual variation. It is somewhat problematic to attribute certain structures to individual variation as one child's specific use of verb morphology may influence the other children and make them pick up a particular structure. With regard to *I'm* + V with future reference, it is clear that Heiko uses this structure first a number of times during the second month of the stay in the U. S. The other children follow in due course. As for the overuse of 3rd person singular *-s,* this construction is only observed for Lars.

The L1/L2 combination

This factor may partly account for phenomenon 1 *(infinitive or 1st/3rd person plural function)* and 2 (*was* + V*ing* replacing the simple past), regarding the use of the progressive. Depending on the nature of how tense and grammatical aspect are encoded in the languages involved, the acquisition of verbal inflections may support the Aspect Hypothesis to varying degrees. One important factor for the combination L1 German/L2 English seems to be the problem for the L2 learner to identify the most prototypical function of the progressive form to mark ongoing activities, while at the same time, the *-ing* inflection bears some resemblance to the German infinitive ending and is therefore used in places where it is not target-like. Thus, we may be dealing with a case of transfer here.

Shirai & Kurono (1998: 252) point out some interesting features of inherent lexical aspect in the particular case of Japanese that influence the distribution of verbal inflections. With regard to achievements, Japanese can highlight the duration of the state that obtains as a result of the punctual action, whereas English can focus on the process leading up to the actual achievement. This has repercussions in Japanese as the progressive marker *-te i-* is mostly affiliated with achievements. The Chinese learners of Japanese in the study, however, use *-te i-* more often with activity verbs, probably as a result of the similarity between the Chinese progressive

marker *zai* and Japanese *-te i-* which share the function of progressive but not resultative meaning (ibd.: 265–266).

Robison's (1990) subject, an L1 Spanish speaker acquiring English, inflects a number of stative verbs for progressive, which Andersen & Shirai (1996: 559) attribute to possible L1 transfer of "a more general imperfective notion of the progressive marker". The evidence available suggests that the combination of the languages involved may play an important role with regard to the predictions of the Aspect Hypothesis although further empirical research has to elaborate on this question.

Learner age

This factor may influence all five phenomena discussed, although, at present, it is not possible to attribute any specific learner structure to the age factor. It is possible that young children and older learners differ in their acquisition and use of verbal inflections. Kumpf's (1984) subject, for example, a Japanese who had been in the U. S. for 28 years at the time of data collection, shows quite limited verb morphology in general, compared to the German children in this study. The Japanese woman, Tomiko, has created a tense-aspect system that does not correspond to the L1 or the L2 (Kumpf 1984: 141). Robison's (1990) subject, a 30-year-old native of El Salvador, on the other hand, uses verb morphology in a way that shows the great influence of lexical aspect in utterances such as 'do you want something, you buyed it' where the inflection literally sticks with the verb irrespective of tense marking (see above). As noted above, the use of inflections in this particular way is not recorded for any of the four German children.

The general role of age in L2 acquisition is a hotly debated issue. There are a number of studies suggesting that there may be a critical age dividing younger and older learners, suggesting that younger learners master a second language, including its morpho-syntactic structures, better than older learners (Long 1990; Singleton 1995). As for syntactic structures, Patkowski (1980) and Johnson & Newport (1989) present evidence according to which such a cut-off point may be at about age 15. It is suggested that after this point, native-like achievement of L2 structures is unlikely for L2 learners. The disadvantage for older learners is often accounted for in terms of access to UG (Universal Grammar). However, it is controversial whether and to what extent L2 learners have access to principles and parameters of UG (White 1989, 1991; 1996, for a discussion see Mitchell & Myles 1998).

If further research supports the claim that younger learners are more successful L2 learners than adults, age may be one of the reasons why the German children's verb morphology looks relatively native-like at the end of their six-month stay in the U. S. It is especially the two boys, Lars and Heiko, who achieve a high degree of accuracy in terms of verb marking (Rohde 1997).

Learner external factors

The acquisitional type

All five phenomena discussed above may be influenced by the acquisitional type. As naturalistic L2 acquisition is non-tutored language learning, there is more space for individual variation or personal strategies for the learners than in a classroom situation. This view is supported by differences that show up in both types of learner data. Untutored learners, for example, seem to overuse the progressive: the German children use the progressive with a variety of non-target-like functions (phenomenon 1: *infinitive or 1st/3rd person plural function,* phenomenon 2: *was +* V*ing* replacing the simple past). In addition, they use it in a target-like way with future reference (Rohde 1996), however, to a higher degree than expected according to the Aspect Hypothesis. In the same vein, the untutored learner in Robison (1990) shows an extensive use of states inflected for progressive. This overuse is absent in tutored learners' speech (Robison 1995, Bardovi-Harlig 1998, Bardovi-Harlig & Bergström 1996, for a discussion see Shirai & Kurono 1998: 268–269).

The time of exposure

All five phenomena are influenced by this factor as they all gradually disappear during the children's exposure to English. If the data are traced from the very first L2 utterances to an L2 achievement that is near native-like in some areas, one intriguing issue is: are there times at which the children's use of verb morphology complies better with the predictions of the Aspect Hypothesis than at others? The answer is yes. If, for example, Lars' spontaneous speech is analyzed during the fourth month of exposure, Figure1 in Rohde (1996: 1121) reveals that achievements marked for progressive actually outnumber the amount of activities appearing with -*ing.* In the fifth month, the use of -*ing* inflected achievements and activities is balanced. It is only during the last month that the activities in the progressive form prevail — as predicted by the Aspect Hypothesis. Thus, analysis of verb marking at different times may result in different degrees of compatibility with the hypothesis. This observation is corroborated by Robison's (1995) study where the connection between lexical aspect and verbal inflections may indeed strengthen with proficiency.

Input

Although both the quality and quantity of the input directed at the learners is certainly an important factor in the acquisition of verb morphology, it is impossible to single out any factors determining the acquisitional process. As a skewed distribution of verb inflections can be observed in native discourse (the Distributional Bias Hypothesis, e.g. Andersen & Shirai 1994), it could be argued that learners are

simply mimicking the input. However, this would be far too simple as it would not explain the learners' deviant use of verb inflections. Moreover, as I have pointed out, the German learners in this study produce a number of constructions which are difficult to explain in terms of L2 typical developmental sequences towards native-like behaviour.

It is possible that the German children behave the way they do as a result of them predominantly interacting with native American children. This would require a fundamental difference in the use of verb inflections between the input provided by children and adults (see Andersen & Shirai 1996 for a discussion). Table 2 compares the input source for the four German children, data from nine American children, with input from an English-speaking child interacting with a non-native child and input provided by a native adult (Shirai 1990 and Yap 1990, as quoted in Andersen 1993).[9]

The data for the American children are similar to the other input data with regard to the predicted highest frequencies. Thus, native discourse of adults and children may not be fundamentally different as to a distributional bias. However, there are of course a few differences. In Shirai's data there are hardly any past inflections on activities and in our data there are a lot more accomplishments occurring with both PAST and -*ing* than in the other two studies. Andersen (1993: 322) speculates that the difference regarding the high number of past inflections across all verb classes in Yap's data in contrast to Shirai's may be attributed to the fact that Yap's data come from an interview. However, our data show that in play contexts, children may also use a considerable amount of activities and accomplishments, i.e. durative verbs, inflected for past.

One intriguing observation in the input directed at the four German children is the predicted pattern of -*ing* inflected verbs. In fact, the American children show a clear preference for activity verbs to appear in the progressive, supporting the Distributional Bias Hypothesis. Thus, the temporary affiliation of achievements with -*ing* with future reference observed in Lars' and Heiko's data is not reflected in the input. On the other hand, the lack of stative progressives and the high proportion of achievements with past inflections in the input data correspond to the distributional patterns yielded for the four German children.

Discussion

I would like to suggest that the six explanatory factors listed above all influence the acquisition and use of verbal inflections.[10] The factors are interrelated and their impact may vary, which is shown by the degree to which the predictions of the Aspect Hypothesis are met. Note that I am not questioning the validity of the

Table 2. Three English case studies (Yap 1990; Shirai 1991 and Rohde 1997). Distribution of past and -ing forms in token and type counts (adapted from Andersen 1993: 322)

	Token counts				Type counts			
	STA	ACT	ACC	ACH	STA	ACT	ACC	ACH
	%	%	%	%	%	%	%	%
Yap								
PAST	31	11	[17]	[42]	33	15	[19]	[33]
ING	16	[62]	10	11	27	[42]	15	15
Shirai								
PAST	21	1	4	[74]	30	3	[9]	[58]
ING	9	[59]	6	25	9	[52]	9	30
Rohde								
PAST	13	9	[35]	[44]	17	15	[22]	[46]
ING	0	[55]	28	17	0	[52]	28	20

	Raw scores									
	Token					Type				
	STA	ACT	ACC	ACH	Total	STA	ACT	ACC	ACH	Total
Y-Past	37	13	20	51	*121*	18	8	10	18	*54*
Y-*ING*	10	38	6	7	*61*	7	11	4	4	*26*
S-PAST	14	1	3	50	*68*	10	1	3	19	*33*
S-*ING*	3	19	2	8	*32*	2	12	2	7	*23*
R-PAST	10	7	28	35	*80*	7	6	9	19	*41*
R-*ING*	0	46	23	14	*83*	0	24	13	9	*46*

hypothesis. It is supported by such a high number of studies that I believe that it is a universal which cannot be explained away. However, it should be obvious that the predictions of the Aspect Hypothesis are supported to different degrees: they may be evident within a range from a distributional bias reflecting the L1 input to the deviant, non-target-like use or omission of verbal inflections that is clearly determined by lexical aspect (e.g. past inflections with achievements across tenses, base forms with states or activities in past contexts). The uninflected and non-target-like forms analyzed in this paper can only be partly reconciled with the Aspect Hypothesis. Whereas the German children's target-like use of verbal inflections largely supports the hypothesis (Rohde 1996, 1997), their deviant and non-target-like use has to be explained otherwise. I have attempted to show that it may be the six

factors discussed, which, in concert, determine the compatibility with the Aspect Hypothesis. The strength of individual factors probably varies in specific L2 situations so that the predictions of the hypothesis are met to varying degrees.

In view of the evidence available, I suggest that we should speak of an 'aspectual effect' which can vary in strength rather than of an Aspect Hypothesis that is either supported or not. The strength of the aspectual effect results from the relationship between real world events, their linguistic coding, and the two sets of factors related to the learner discussed above.

Conclusion

The data reviewed in this paper show that the deviant use of verbal inflections in the naturalistic acquisition of English by German children is only partly compatible with the predictions of the Aspect Hypothesis. Thus, while the distribution of inflections clearly displays the affiliation of inflections with lexical aspect (Rohde 1996), the misformation of -ing or the lack of past inflections can generally not be explained in terms of the hypothesis. The study of uninflected forms reveals that the verbs occurring in past contexts are predominantly telic (achievements and accomplishments) with atelic verbs being rare. Thus, the verb distribution seems to be a matter of lexical aspect and is in line with the Aspect Hypothesis. Not in line with the hypothesis, however, is that quite a few achievements remain uninflected and that the atelic verbs (activities and states) are in fact mostly inflected. The failure to inflect achievements for simple past appears to be relative to the overall number of achievements in the past. Consequently, what is confirmed is a skewed distribution of aspectual verb class (as in L1 English) but not necessarily of verbal inflections.

The German children's non-target-like use of verbal inflections differs from subjects reported in other L2 studies. I have suggested that a number of learner internal and external factors may determine the degree to which the predictions of the Aspect Hypothesis are met. Although I have tentatively explained some of the observed phenomena with a specific factor such as acquisitional type or L1/L2 combination, the overall evidence is too scarce in order to arrive at more precise conclusions. What is clearly needed is further studies involving both tutored and untutored learners of different ages with a wide range of language combinations. The most intriguing question that future research will have to deal with is not whether the Aspect Hypothesis holds but rather, under which conditions it may not be supported.

Notes

1. More accurately, the term should be *inherent lexical aspect* as it is crucial to distinguish inherent lexical aspect or aktionsart on the one side and grammatical aspect on the other. The former refers to the properties of the logical structure of predicates: the verb *smash,* for example, has the properties punctuality and telicity (it includes the endpoint of the situation/event). Grammatical aspect highlights aspectual distinctions that are marked explicitly by auxiliaries and inflections: progressive in English, the perfective-imperfective distinction in Russian, Polish or Spanish are grammatical aspect categories (Comrie 1976).

2. The category of punctual activities is problematic as single instances of jumping, kicking and kissing are usually classified as achievements in Vendler's (1967) terms and thus denote telic verbs. If continuous jumping etc. is described, however, single instances are backgrounded and an iterative reading is created. Accordingly, iterative jumping and kicking are regarded as activities that are atelic by definition. These examples reveal the complex relationship between inherent lexical aspect and grammatical aspect such as the progressive.

3. Andersen & Shirai (1994: 137) explicitly refrain from statements on the ability of tense marking in language acquisition. However, Robison (1995: 345) as well as Bardovi-Harlig & Reynolds (1995: 111) draw a clear connection to tense marking, the hypothesis in the latter study being "lexical aspect will influence the acquisition of simple past tense" (ibd.).

4. Note, however, that I have not adopted Robison's (1995) six-way classification of aspectual verb categories.

5. L=Lars, H=Heiko, B=Birgit, I=Inga. (3;12) = (months;days) of L2 exposure. Every example is followed by the identification of the aspectual verb class of the verb(s) used. ACT = activities, ACC = accomplishments, ACH = achievements, STA = states. In questionable cases, a '?' is added.

6. The extracts stem from tape # 52, recorded on August 5th, 1975 in Trinity Center, California.

7. As this is a question, the absence of the inflection is probably due to the interrogative structure requiring do-support.

8. In Rohde (1996: 1132), I have erroneously listed six uninflected activities for Lars. In fact, there are only five as 'swim' in 'I caught one. It swim' (Lars 2;26) clearly has present reference.

9. The data are taken from seven tape recordings made during a period of six months in 1975 in Trinity Center, California.

10. There are at least three other factors influencing the results of tense-aspect studies. However, they are rather related to methodology than to characteristics of learner language. The first factor concerns the nature of the data collected. It can be assumed that experimental studies such as film retellings or grammatical judgement tasks produce different tendencies regarding the distribution of verbal inflections than diary or case studies. In the former, the learner almost exclusively focuses on tense-aspect marking and is made aware of temporal and grammatically aspectual distinctions whereas in the latter it is one single structural area amongst many others. Secondly, in analyzing inherent lexical aspect, it is

taken for granted that learners use verbs in a native-like way. However, it is conceivable that learners use lexical items with sets of semantic features different from native speakers. As yet there is no means of identifying such deviant use (Housen 1998: 308f.). The third factor is the type of discourse analyzed. As suggested in a number of studies (e.g. Andersen & Shirai 1996), the predictions of the aspect hypothesis are presumably supported to a greater extent in everyday conversation than in say an academic account of historical events.

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How do learners acquire the classical three categories of temporality?

Evidence from L2 Italian

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Introduction

Within Second Language Research the issue of temporality has received much attention (Klein 1986; Andersen 1991; Bardovi-Harlig 1992; Housen 1995; Dietrich, Klein and Noyau 1995; Giacalone Ramat 1995a, etc.), so much so that after almost two decades of investigations a number of insights have been reached that might also be of interest to scholars in general linguistics. The basic assumption for many researchers is that looking at the way a language is learned should reveal much on its internal mechanisms (Klein and Perdue 1997; Giacalone Ramat 1999). In this paper I will review a number of issues, related to temporality adopting a functional theoretical framework which combines universal semantic cognitive structures with language specific factors. In doing so I draw on results from a number of investigations concerning the acquisition of Italian in comparison with results obtained for other European languages. The generalizations obtained are discussed with a view to identifying the diverse conditioning factors, such as learners' strategies, L1 transfer, but also the morphological typology of the languages involved as potential determinants of the course of development. This paper will focus on the role of actionality (i.e. lexical aspect) as a trigger for learning tense and aspect, drawing primary evidence from the acquisition of the imperfect and supporting evidence of two periphrastic forms, the progressive and the "proximative" periphrases.

General issues

Research on temporality has focused on the categories of tense, aspect and actionality. The last category is sometimes called "lexical" or "inherent" aspect, in contrast

to grammatical aspect which is typically morphological. Following a recent tradition (Bertinetto 1986; Giacalone Ramat 1995a; Bertinetto and Delfitto 2000) I prefer the term actionality to lexical aspect in order to avoid possible terminological confusion. In this paper then the term aspect is referred to grammatical aspect, as usually in the typological literature (Dahl 2000). A discussion of the theoretical questions concerning these three categories — on which there exists an abundant literature, from Reichenbach's (1947) analysis in terms of a "time line" to Klein's (1994) approach introducing the term of Topic Time defined as the time for which an assertion is made — is beyond the scope of this paper. I limit myself to clarifying some concepts as used in this paper. Actionality refers to the temporal characteristics of the lexical contents of verbs. Accordingly, verbs can be subcategorized into states, activities, accomplishments and achievements, if one adopts Vendler's (1967) classification, which, while open to criticism (Smith 1991; Dahl 2000), still constitutes a basis for crosslinguistic comparison.

Although languages clearly differ in the way they explicitly mark the three categories of tense, aspect and actionality, it has however been possible for typologists to establish that there are limitations to the variation among languages as to the structure of these categories (Dahl 1985; Bybee and Dahl 1989). Diachronically, grammatical elements marking tense, aspect and modality develop from lexical sources along a limited number of grammaticalization paths. Thus, movement verbs develop grammatical meanings: e.g. "come" may become a marker of anteriority and past (Heine 1993; Bybee, Perkins and Pagliuca 1994: 56). This is a challenging hypothesis for second language acquisition: indeed some similarities and convergences in historical change and learner varieties have been pointed out in the field of modality (Giacalone Ramat 1995c) as well as in the development of clause combining (Giacalone Ramat 1999).

The three categories of tense, aspect and actionality interact both semantically, through preferred associations of temporal relations of events and speaker perspective on events (Comrie 1976), and formally, since different languages combine them by means of different devices and even related languages such as English and German do not express them in corresponding ways in each case. Actionality, i.e. inherent semantic properties of verbs, may be expressed through derivational morphology (affixes). German has a fairly regular subsystem of prefixes: *blühen* "to flower" may be modified in *er-blühen* "to start flowering", *ver-blühen* "to wither", while in English particles are used for this purpose: *to eat* (activity), *to eat up* (completive, telic). In Italian besides durative *dormire* "to sleep" there is the inchoative *addormentarsi* "to fall asleep". In those language where aspect is encoded as a grammatical category, it may be expressed both by morphological and syntactic means. Chinese has specific affixes indicating "durative" (*-zhe*), or perfective (*-le*) aspect, Slavonic languages have developed a systematic morphological opposition

between "perfective" and "imperfective" aspect, mostly by prefixation. Aspectual oppositions may also be expressed by means of various locative adverbial phrases (Comrie 1976: 98 ff): German and Dutch use such constructions to express progressive meaning: *ich bin beim Lesen*, "I am reading", *hij is aan het tuinieren* "he is at/on the gardening" (Ebert 2000). Finally tense, at least in the European languages, is regularly marked on the finite verb through inflectional morphology, but in isolating languages, such as Chinese and Burmese verbs are not inflected.

Verbal morphology in Second Language Acquisition

For second language acquisition as well as for Creole languages it has been claimed that verbal morphology initially develops to encode inherent aspect distinctions (i.e. actionality) rather than tense (Andersen 1991; Givón 1982).[1] The hypothesis that actionality guides the acquisition of tense-aspect marking was supported by Bardovi Harlig (1992, 1998), Robison (1995), Bergström (1997) and was recently tested against a non-Indo-European language using L2-Japanese (Shirai and Kurono 1998). Empirical data from the acquisition of Italian (Giacalone Ramat 1990, 1995a) have provided parallel evidence to Andersen's findings: much as learners of Spanish, learners of Italian in initial stages use only present-like forms with no systematic use of inflections of any kind (called "basic" forms), then they start to use past participles or "*passato prossimo*" forms (i.e. auxiliary + past participle) to express past-time reference with telic verbs. At a third stage the imperfect appears with stative and durative verbs. However, Giacalone Ramat (1995a) also found early occurrences of inherently durative verbs viewed in a perfective aspect perspective in adult learners of Italian, although the association of telic verbs and perfective aspect by far outnumbers the association of durative verbs and perfective aspect. It was concluded that adult learners, even at early, but not initial, stages, are able to extend the category of grammatical perfective aspect to all types of verbs. This conclusion was borne out by Wiberg (1997) (data of Swedish-Italian bilingual children and adolescents) who found that "*passato prossimo*" was used with all kind of verbs, as natives would do. On the other hand, in the data analyzed by Wiberg, there is a limit to the attainment of native competence in the fact that punctual and telic verbs are rarely attested in the imperfect.

In recent years empirical research by Housen (1995) Wiberg (1997), Kihlstedt (1998), has provided valuable data analyses for English, Italian and French as second languages and has on the whole confirmed the role of actionality in providing access for the learners to the temporal and aspectual system of the target language, although the link between past (preterite/perfect) morphology and the telic or punctual nature of the predicate has proved less strong than claimed

(Schlyter 1996). The Italian data support the claim that *grammatical aspect* also develops in strict concomitance with inherent verb properties to encode the distinction perfective/imperfective past (Giacalone Ramat 1995a). In contrast to these convergent results, the comparative project "Second language acquisition by adult immigrants" funded by the European Science Foundation (=ESF) (Klein and Perdue 1992; Dietrich, Klein & Noyau 1995) has yielded the conclusion that "tense clearly precedes aspect marking" for English L2 (Klein 1995: 51) and French L2 (Noyau, 1995: 205). For German L2 the absence of aspectual differentiation has been noted by Dietrich (1995: 107). Noyau (1995: 205) states: "there is no evidence that even advanced learners acquire it (=a grammaticalised aspectual distinction)". The claim that grammatical aspect distinctions are not acquired even by advanced learners seems to be coloured by the particular informants investigated (migrant workers with limited education and minimal proficiency at the start of the investigation: Klein and Perdue 1992: 6) and the typological organization of some of the target languages: German and Swedish do not mark grammatical aspect in verbal morphology.[2]

The emergence of verbal morphology in learner Italian was described in terms of stages of acquisition in several studies (Bernini and Giacalone Ramat 1990; Bernini 1990; Berretta 1994; Giacalone Ramat 1992, 1995a, etc.). This is not the place for an in-depth discussion, however it is worth noticing that this approach made it possible to assess the changing linguistic competence and to represent the dynamics of development focussing on a morphosyntactic analysis of learner productions. In such a perspective, the conflicting claims about whether early verb morphology encodes aspect or tense may be resolved in two ways. The first possibility is to allow for reflexes of the grammatical distinctions incorporated in the source language to manifest themselves in the acquisition of the target language. A learner might be influenced by the specific encoding of time and aspect in the grammar of his first language. Below I will pursue this issue by looking at the acquisition of the imperfective aspect by German and English learners of Italian.

A second possibility would be to adopt a more flexible explanatory framework that does not take aspect and tense as two irreconcilable wholes. Both Shirai and Andersen (1995) for the first language and Giacalone Ramat (1995a) for the second language have argued in favor of a prototypical approach to the acquisition of tense and aspect categories. They derive this ideas from previous research: a prototypical approach to the tense category is advocated by John Taylor (1989), moreover a prototype of the category perfective was described by Dahl (1985: 78) as referring to "a single punctual event that occurred in the past, with a clear result or end state". Such a description allows the prediction that in language acquisition verbs combining the features "punctuality" and "telicity" will first receive a specific marker when referring to past situations. The model does not exclude that durative

verbs, which occupy a more marginal position in the category, may also receive perfective markers, but we do not expect this to happen frequently. This distribution is also evident in early child language, as observed by Bybee (1985: 77). The predictions based on the prototypical approach are borne out by the findings based on the acquisition of Italian as L2. In Giacalone Ramat (1995a) a "Principle of selective association" was proposed to account for the tendency to put together features (or notions) that are semantically congruent such as telicity, perfectivity and pastness. Although this principle was proposed for language acquisition, it might be extended to describe the mutual relations in the temporal and aspectual organization of languages. The semantic solidarity between the above mentioned features has a concrete counterpart in native languages in terms of frequency: perfective aspect is more frequently found with telic verbs than with statives and duratives (Bertinetto 1986: 109ff ; Andersen 1993; Kihlstedt 1998: 40).

Imperfectivity and past

A good example of interaction between different categorizations of tense and aspect and their consequences for the learning process may be found in the acquisition of past time encoding devices in Romance languages by speakers of Germanic languages.[3] In these languages past time reference is differently encoded with respect

Table 1. The encoding of past time reference with respect to aspect

aspect	German, Swedish	French, Italian
perfective		passé composé, passato
	Präteritum	prossimo (simple past[4])
imperfective		imperfect

to the aspectual distinction perfective/imperfective, as shown in the Table below. This means that in expressing situations that took place in the past a speaker of Italian or French will automatically take an aspectual perspective which leads to distinguish an imperfective (1a, b) and a perfective (2a, b) meaning:

(1) a. Italian: Giovanni giocava tutti i giorni in cortile
     b. French: Jean jouait touts les jours dans la cour
         "John used to play every day in the courtyard"

(2) a. Italian: Giovanni ha giocato un'ora prima di andare a scuola
     b. French: Jean a joué pendant une heure avant d'aller à l'école
         "John played for an hour before going to school"

Similarly a speaker of Spanish will distinguish:

(3) a.   Juan jugaba en el jardín todos los días
     b.   Juan jugó una hora antes de irse al colegio
     (or c. Juan ha estado jugando/corriendo una hora antes de irse al colegio)

while in German and Swedish the same form is used (in German, but not in Swedish, also the perfect *hat gespielt* could be used in both cases):

(4) a.   German: Johann spielte jeden Tag im Hof
     b.   Johann spielte eine Stunde bevor er zur Schule ging

(5) a.   Swedish: Johan lekte på gården varje dag
     b.   Johan lekte en timma innan han gick till skolan

Originally, the Italian *passato prossimo* as well as the French *passé composé* were present perfects (or anteriors, as they are often called: Bybee, Perkins and Pagliuca 1994: 54). Today the original function of the "perfect" has collapsed with the perfective (aoristic) function and the forms simply express past time reference, although under specific circumstances they still include the meaning that a past action is relevant to the current situation (Bertinetto 1986; Vet 1980). As shown by Bybee and Dahl (1989), the development from anterior to past or perfective is well documented in the languages of the world. In modern spoken German the periphrastic construction combining the auxiliary "have" or "be" with a past participle (so-called *Perfekt*) which was a present anterior has spread into the domain of the past and taken over the functions of the older simple past (*Präteritum*), except for "be" and modal verbs (Hentschel and Weydt 1990; Thieroff 2000). By contrast, in Spanish the periphrastic construction is used in very much the same contexts as the English perfect (Bybee, Perkins and Pagliuca, 1994: 85).[5] As a matter of fact, English and Swedish have a present perfect which has not developed to a past, but has preserved the meaning of "current relevance" (Comrie 1976). It may be further noted, following Bybee and Dahl (1989), that in Romance languages the perfective aspect is restricted to the past, while the imperfective is divided into present and past. This means that the tense distinction is only relevant in the imperfective. This is not without consequences for the acquisition: one might hypothesize that the past imperfective will emerge later than the past perfective since the perfective has one formal expression, while to express the imperfective one has to learn after the present a further distinction, the past imperfective. But be that as it may, in learner Italian past time relations are first encoded by the *passato prossimo* (Giacalone Ramat 1990, 1995a), and the same holds true for French (Kihlstedt 1998; Schlyter 1996). The situation is different for German and Swedish where "the simple past is semantically more general since it

can also be used to signal past time for situations viewed imperfectively" (Bybee, Perkins and Pagliuca, 1994: 84).

As for learner languages, the domain of past time reference has proved to be a crucial point in contact between Germanic and Romance languages: Kihlstedt (1998) shows the difficulties that Swedish advanced learners of French have in using the French imperfect as a consequence of the fact that imperfective aspect in the past has no morphologically distinct form in Swedish. The Romance morphological opposition between perfective and imperfective aspect has no counterpart in English either. Indeed English has grammaticalized a particular opposition between progressive and non-progressive meaning, which is comparable to the first only for a limited set of verbs (non-stative) (Comrie 1976: 7). This consideration is not given sufficient attention in studies on the acquisition of temporality, but it may explain some of the problems encountered by learners of English.

The acquisition of the Italian imperfect

In this section I will take as a starting point a temporal domain, past time reference, and will investigate which forms appear in past time utterances in learner Italian. Possible candidates are unmarked present-like forms, infinitives as main predicates (both attested in initial learners), past participles without auxiliary, *passato prossimo*, imperfect, pluperfect (see Giacalone Ramat 1990; Bernini 1990 for results from initial learners). I will also investigate the claim as to whether the aspectual imperfective reference in the past (grammatical aspect) combined with past time reference emerges in connection to a particular actionality (inherent aspectual) class. As stated above, this claim is a modified version of Andersen 1991; Bardovi-Harlig 1992, 1998. I will first provide an overview from previous studies on Italian L2, then I will offer a more in-depth investigation of some case-studies. I will not provide, however, much in the way of descriptive statistics to support the claims, but I will limit myself to present the main results in tabular form. This methodological choice which follows the spirit of the European research (Klein and Perdue 1992; Dietrich, Klein and Noyau 1995, etc.), allows to sketch a profile of individual learners and to present larger excerpts from data.

Emergence of the imperfect

As already pointed out by Bernini (1990), the diverse aspectual, temporal and modal functions make the acquisition of the imperfect a difficult task for learners of Italian both in the initial and in more advanced stages. The imperfect is acquired after the present (actually a "basic form") and the *passato prossimo*. The acquisi-

tional sequence for verbal morphology runs as follows (Bernini 1990; Giacalone Ramat 1990, 1995a):

> present > *passato prossimo* > imperfect > future

This sequence is implicational: no learners in our corpus developed the imperfect before the present and the *passato prossimo*. As for lexical types and frequency, we found that the imperfect of the copula *essere* is the first form to appear and statistically by far the most frequent also for more advanced learners who are in the so-called "post-basic variety" characterized by productive use of verbal morphology (Dietrich, Klein & Noyau 1995). Modal predicates *volere* "want" and *potere* "can, may" and stative *avere* "have" are the second most frequent items. After that we find different lexical verbs which, barring very few exceptions, are stative and activity verbs.

Functions: in initial learners the use of imperfect forms to code the imperfective past is inconsistent since the present as unmarked form may still be used for imperfective past:

(6)   questo io ho comprato   quando io c'è
      this   I buy-PASS-PROSS when   I   there be-PRES
      a mia+nostra nostra città
      at my our   our city
      "I bought this (ring) when I was still in my city, Asmara"
                              MK-L1 Tigrinya (at 2m, 22d after arrival in Italy)

Note that the learner uses the *passato prossimo ho comprato* for the perfective past and the present *c'è* for the imperfective past. As already noted by Bernini (1990: 163ff), it is important for the general development of the learners tense/aspect system to consider the *discourse function* of the imperfect. The imperfect tends to appear in background utterances, introducing the setting or providing information on participants, in subordinate temporal and causal utterances, in later stages also in conditional utterances. We will look for further evidence in our data.

The Italian imperfect is aspectually ambiguous in that it can be assigned a progressive and a habitual meaning; moreover it is also characterized by a number of *modal* uses which are very frequent in spoken Italian and include counterfactuality and various non-factual values of attenuation or courtesy (Bertinetto 1986: 368ff; Delfitto and Bertinetto 1995).[6] Modal uses in learner languages are much less frequent and mostly limited to conditional contexts:

(7)   se io ero   suo padre o sua madre a quella
      if I   be-IMP   her father or her mother to that

ragazza l'ammazzava
girl   her I.kill-IMP
"if I were her father or her mother, I would have killed that girl"
                                        AB-L1 Tigrinya, 1 year after arrival in Italy

In order to test the hypothesis that L2 learners draw upon their L1 knowledge when attempting to mark temporal and aspectual relations in their L2, in the following sections the speech of learners with German and English as source languages will be analyzed.

The acquisition of German learners

In this paper the following German learners are considered for the development of the imperfect and for progressive and "proximative" periphrases:

- MT, a 22 old University student, recorded for ten months following his arrival in Milan one and a half months before. Recordings December 1989-September 1990. He is a good learner, who rapidly develops the grammatical means of the target language (see also Giacalone Ramat 1999 for his development of clause combining strategies),
- AN, aged 20, born in Berlin, courses of Italian at the Università per Stranieri, Perugia. At the time of observation (August 1993–May 1994) she was working as a social assistant in a community for handicapped people in Torre Pellice (Piedmont) (Giacalone Ramat 1999),
- UL a 33 old woman already living in Italy for three months when first recorded, a teacher of German, with some previous knowledge of Italian. Recordings December 1989-September 1990,
- FR a 48 old woman, in Italy since 7 months when first recorded, recorded for 14 months, fossilized at a post basic variety stage, with strong features of L1 influence (see Bernini 1990 for her use of the imperfect and Giacalone Ramat 1999 for clause combining strategies). Recordings October 1985-November 1986.

Data from these learners were collected through guided conversational interviews including personal narratives; for MT and UL also narratives based on a short silent film *Il portafoglio* "The wallet" were collected. Except for the untutored learner FR, the other learners were learning Italian in the host environment with the help of some instruction. More details on data collection methodology can be found in Bernini (1990), Giacalone Ramat (1999).[7] For the purposes of the development of the imperfect I will extensively discuss only MT because his observation began at an early stage and he made considerable progress toward the Italian standard. The

other three subjects analyzed fit into the overall picture, but did not show clear developmental progress during the observation period. Below I will briefly summarize their main features and occasionally refer to their productions.

Throughout the period of observation FR's verbal system shows no noticeable development. The highest frequency of imperfects occurs with *essere* and *avere*. Many cases of overextension of *passato prossimo* in place of the imperfect were found, which do not tend to decrease in time, as is the case for MT. In the first encounter AN produced 9 occurrences of the imperfect used correctly. Of them 3 are *c'era* "there was", then stative *sapere* "know" and activities like *parlare* "speak", *piovere* "rain". Although her overall production shows instances of unmarked presents in place of expected imperfects, on the whole the use of the imperfect is appropriate (only one incorrect use over 80 instances). She however uses some *passato prossimo* forms to refer to imperfective, habitual situations, as in the following:

(8)   ma non era   possibile andare   da sola in giro
      but not be-IMP possible go-INF   alone   around
      per++   sempre qualcuno è venuto   e
      because always someone come-PASS-PROSS.3SG and
      ha chiesto   "cosa fai oggi?"
      ask-PASS-PROSS.3SG   "what are you doing today"?
      "(When I was in Perugia) it was not possible to walk around alone because
      somebody would always come and ask 'what are you doing today?' "
      AN 02

Although appropriate, AN'S use of the imperfect is restricted in comparison with native use, since only stative and activitiy verbs are inflected for the imperfect. In AN the inherent semantics of predicates plays a crucial role in determining tense choices: as said above, features congruence guides learners in the acquisition of verbal morphology.

The general picture of UL's development is similar to AN, although her proficiency level is a bit higher. The total number of imperfect forms is 99 ; 53, or 53,5%, of those are tokens of the copula: *era* "was", *erano* "were", or the existential *c'era* "there was". Also stative and activity verbs are well attested, while no instance of accomplishments and achievements was found, except for the following incorrect production, where the situation would require the *passato prossimo*:

(9)   e   lei diceva- prendeva la list de + le med e   diceva   che
      and she say-IMP take-IMP the list of medicines and say-IMP that….
      "and she said- she took the list of medicines and said…."
      UL 04

Both in AN and UL the distribution of tense morphology is correlated to the

semantic classes of predicates. By contrast, native speakers and more advanced learners use imperfect forms with all dynamic verbs, including telic verbs.

When first recorded, MT's verbal system has two forms: the present which is used to refer to present situations, but is occasionally found as unmarked form for past situations, and the *passato prossimo* for past situations: he is in the second stage of the acquisitional sequence presented above (present > *passato prossimo* > imperfect > future). The aspectual distinction perfective vs. imperfective is not acquired at this stage and *passato prossimo* is sometimes used along with the present for imperfective situations, as shown in the extract below :

(10) Come pensavi che fosse la vita qui prima di venire?
      "How did you expect life in Italy to be before coming?"
      MT.   Eh- non ho pensato perché ++   ho avuto un po' di paura
            Not I.think-PASS-PROSS because I.have-PASS-PROSS a bit fear
      di essere ++ * entäuscht * come si dice?
      to be   * entäuscht * how do you say?
      "I didn't think at all, because I was afraid of being disappointed"
      MT 01 (at 1m, 19d from arrival in Italy)

In the first recording only a few imperfect forms of the copula are found, as illustrated by the following extract, which contrasts imperfect *era* "was" in the background description and *passato prossimo ho preso* "I took" in the main line:

(11) C'era   il sole alora- boh ++era   la prima vista della città
      there be-IMP the sun then boh it.be-IMP the first   visit of the town
      ero   contento +poi ho preso   l'autobus al centro
      I.be-IMP glad   then I.take-PASS-PROSS the bus   downtown
      e   ho subito   trovato   il fratello del mio padrino
      and I.find-PASS-PROSS immediately the brother of my   godfather
      "it was sunny and it was my first visit to the city, I was very glad then I took
      the bus downtown and I found my godfather's brother immediately "
      MT 01

Note that although this sequence is perfectly correct in Italian, it does not prove that MT has got the aspectual distinction. It might well be the case of a positive transfer that reflects the L1 system, in particular the spoken German in Southern Germany where the *Perfekt* is generally used for past situations and the *Präteritum* (simple past) is limited to *sein* "be" and modal verbs.

Figure 1 shows the encoding of past time reference in MT. The distribution is based on the formal parameters of tense morphology associated with the category of grammatical aspect. The expected morphological choices are: *passato prossimo* (PROSS), imperfect (IMP), *passato remoto* (REM, scarcely used in the spoken

language), pluperfect (PLUPF). The present is not expected. The grammatical aspect distinctions are imperfective, perfective and perfect (Comrie 1976, Dahl 1985). Note that the category of "perfect" indicating the "continuing present relevance of a past situation" (Comrie 1976) is coded in native Italian by *passato prossimo*, as stated above. Thus, the combinations Z-PROSS and Y-PROSS are both allowed. In order to code aspectual meaning each situational context was analyzed and assigned to imperfective or perfective aspect, or perfect. The task of discriminating between perfective aspect and perfect was not always easy, some problematic cases must be taken into account.

This presentation shows how usage changes over the period of investigation. Apart from rare cases of *passato remoto* (probably due to the influence of instruction) and pluperfect, the vast majority of verbs are *passato prossimo* forms which conflate perfective past and perfect (Y-PROSS and Z-PROSS in Figure 1). Note, however, the proportion of present forms to mark imperfective past (=X-PRES in Figure 1), which decreases with time. The three occurrences of X-PRES in MT 06 and 07 do not indicate a deictic relation, but belong to indirect speech, whose rules for tense marking are mastered with difficulty. Note also a certain number of non target-like uses of *passato prossimo* to code imperfective aspect (=X-PROSS) (as in ex.8 from AN), which also tend to decrease (no instance was found in the last two encounters). Equally non target-like are imperfect forms to code perfective past and perfect (=Y-IMP and Z-IMP). Occurrences of Y-IMP are strikingly high in the second recording, which may suggest that the learner is trying to test hypotheses on the meaning of the imperfect form (see below). This considerable variation is a further confirmation of the hypothesis that the morphosyntactic marking of the imperfective past is a late acquisition both on the level of form and function. Figure 2 shows the distribution of imperfect forms across the actionality classes.
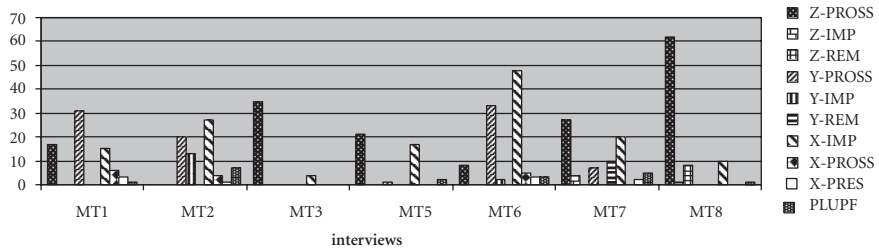
IMP	=	imperfect	PLUPF	=	pluperfect
PRE	=	present	X	=	imperfective past
PROSS	=	passato prossimo	Y	=	perfective past
REM	=	passato remoto	Z	=	perfect

Figure 1. MT: The encoding of Past-time reference (verb forms used in past-time clauses)
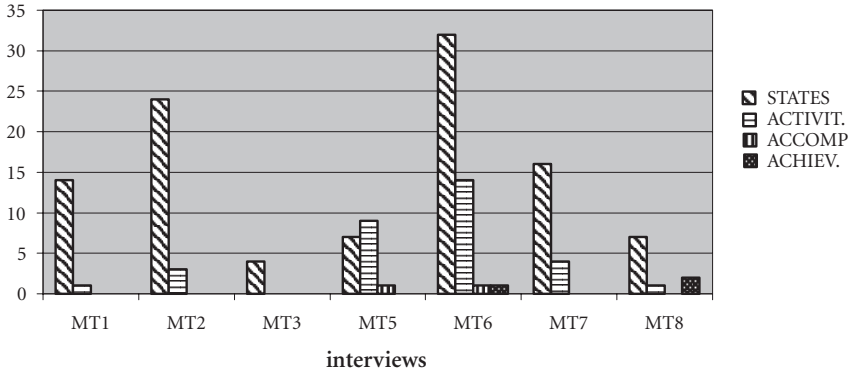
Figure 2. Distribution of imperfect forms across the actionality classes

The major concentration of imperfect forms is on states and activities. These findings support Andersen's (1991), Bardovi-Harlig's (1992) and Giacalone Ramat's (1995a) claim that the distribution of interlanguage tense/aspect marking is governed by the actionality classes. In the case of the learner considered, states and activities first receive imperfect inflections, then in the following months imperfect markers spread to telic and punctual verbs like *entrava* "he came in", *faceva un disegno* "he made a picture". In the second interview (see Figure 1), we observe the sudden spread of imperfects to mark perfective aspect in narrative contexts (film retellings) in which standard Italian might allow the imperfect only as a literary marked stylistic device (so-called "imperfetto narrativo": Bertinetto 1986). However, the most likely choice for native Italian would be *passato prossimo*, or even narrative present. In MT's data such overuses of the imperfect may represent an interim hypothesis of the learner who is trying to check if the imperfect is a functional alternative to *passato prossimo* in all past contexts. Significantly, no instance of association of perfective aspect with imperfect forms (Y-IMP) was found in later encounters.

(12) c'era   una bella giornata+c'era   il sole   e   lui
      there.be-IMP a beautiful day   there.be-IMP   the sun   and he
      diceva   di fare + una gita+ allora usciva dal/dalla casa
      say-IMP   to make a trip   then he.go out-IMP from the house
      con la macchina fotografica eh eh ++prendeva la sua macchina
      with the camera   eh+ eh he.take-IMP his car
      e andava via
      and he.go-IMP away
      "it was a beautiful day and he suggested we make a trip. Then he went out
   of his house with his camera, took his car and went away"
      MT 02

The general conclusion for the first four recordings is that MT has not yet fully acquired the ability to encode the functional distinction between perfective and imperfective past through verb morphology. As for grammatical aspect, the most frequent use of the imperfect is semelfactive (single case reading); the habitual reading is first expressed by *passato prossimo* associated with adverbials like *sempre* "always" which disambiguate the habitual reading (as in example 8 above). From the fifth month of his stay in Italy (MT06) the imperfect is increasingly used to mark imperfective past, including habitual and progressive uses, and from the seventh month (MT 08) the distinction seems to be acquired. Thus, we may state that his system has undergone a restructuring which has led to a native-like use.

These data largely confirm that the pattern of acquisition of form and function of the Italian imperfect is influenced by the semantic classes of verbs: state and activity verbs are more frequently used with imperfect forms for all learners observed. However, for MT, whose development from a post-initial to an intermediate stage was documented, the emerging trend is fairly consistent with the target language system: *passato prossimo* and imperfect are distributed across past time situations according to the aspectual values, while the present, which is in competition in the initial stage with the imperfect to express the imperfective past, drops significantly.

English L1–Italian L2

The acquisition of temporality for English learners of Italian was first investigated by Bernini (1990) for the initial stages. His subjects were three young teachers of English in Italy for one year. Data from more advanced learners were collected by Bendiscioli (1994–95). Her informants were 4 English students (KV, SA, PAUL, KATH) who studied Italian for 2 years in England and then spent one year at the University of Pavia as Erasmus students. They were recorded after 8 months of stay in Italy: recordings included retellings of a film excerpt from *Modern Times* and of the short silent film *Il portafoglio* (The wallet). Their approximate proficiency level was intermediate. The tasks were meant to provide abundant materials relevant to temporal relations. The present study, based on Bendiscioli's data collection, has refined the categories of analysis and tested further hypotheses to support the claim that learners use is determined both by actionality classes and grammatical aspect.

We predict that for these English learners the most crucial problem in dealing with time relations is the choice between imperfect and *passato prossimo*, just as for the German learners. We suspect however that the distribution of tense/aspect forms may be different in the two groups because of the different organization of temporality in both languages. The Italian imperfect expresses a range of imperfective notions which are partially covered in English by the past progressive and
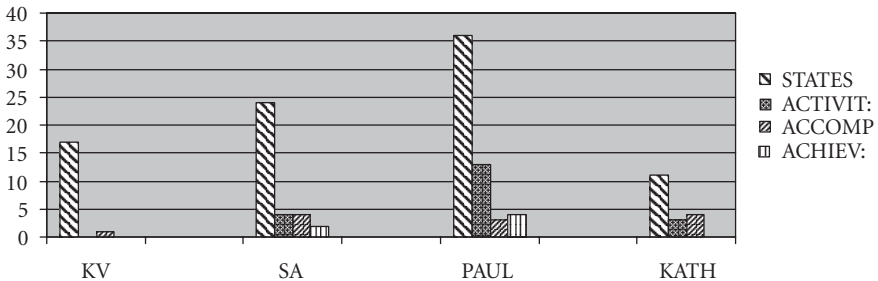
Figure 3. Distributions of imperfect forms across the actionality classes for 4 learners with English as L1

partially by periphrases for iterativity and habituality such as *used to, would* but also by the simple past for states. Given these conditions, the English learners will be driven to establish an equivalence neither between the English past progressive and Italian imperfect nor between the English present perfect and *passato prossimo,* because the latter covers past tense functions, unlike the English perfect. Moreover we expect learners to have difficulty with marking of the perfective/imperfective contrast with stative predicates. Figure 3 shows the distribution of imperfect forms across the actionality classes for the 4 English learners.

These data are congruent with the findings of previous studies on L2 Italian (Bernini 1990) as far as the strong association of stative predicates with imperfect is concerned. However, we note that the proportion of activities and accomplishments produced by SA and KATH are comparable, and that SA and Paul also use the imperfect with achievements verbs. It appears that in these learners the imperfect morphology has spread across all verb/situation types. Except for KV, they have overcome the stage in which the imperfect is found only with semantically congruent stative predicates. It is no surprise then to discover that the less advanced learner KV shows a similar distribution of verb classes as MT in the first recording, while SA, PAUL and KATH behave as MT in the last recordings. KV's use of imperfect morphology is limited to *essere* and *avere*, while other stative predicates still show present morphology in past-time contexts, or receive a *passato prossimo* marking, as in the following extracts:

(13) e loro hanno voluto una casa insieme
      and they want-PASS-PROSS a house together
      "and they wanted a house to live in together"

(14) Non ha voluto essere libero
      (he) not want-PASS-PROSS be free
      "he didn't want to be free"

There is still some variability also among more advanced learners SA, PAUL and KATH who have learned the difference between imperfective and perfective past, but fail to apply it consistently and show overextensions of the imperfect to a perfective context, as in the following excerpt from PAUL:

(15)   la ragazza che il padre moriva   in un incidente
       the girl   that the father die-ɪᴍᴘ in an accident
       non capivo   bene che tipo di incidente era
       (I) not understand-ɪᴍᴘ well what type of accident   be-ɪᴍᴘ
       "the girl whose father died in an accident- I didn't understand well
       what kind of accident"

The tendency to use the imperfect in perfective situations anyway seems stronger than the opposite tendency, i.e. the use of the *passato prossimo* in imperfective contexts: both for PAUL and SA we have counted six cases of overextensions of the imperfect to perfective situations against one case of *passato prossimo* where the imperfect was required. Such cases mostly include stative predicates such as *essere*, but also telic predicates (*tornare a casa* "go back home", *trovare* "find" are present.

       For the German learners of this study the opposite tendency toward overextension of *passato prossimo* was noted: Bernini (1990: 166) states that the learner FR frequently uses *passato prossimo* as an imperfective past, but this use is also noticeable in other learners. In MT I have counted 16 overextensions distributed in the 6 first encounters (see X-PROSS in Fig.1), while all uses of both tenses *passato prossimo* and imperfect in the last encounters 07 and 08 are correct, as said above. For the English learners overextensions of the imperfect may be influenced by the L1 tense/aspect organization and facilitated by formal similarity between the English simple past and the Italian imperfect, as in the following excerpt from PAUL:

(16)   non era la ragazza invece io ero/ero io che ha preso/che ha
       it not be-ɪᴍᴘ the girl on the contrary I be-ɪᴍᴘ who
       rubato   questo pane
       take/steal-ᴘᴀꜱꜱ-ᴘʀᴏꜱꜱ this bread
       "It wasn't the girl, it was me who stole the bread"

The narrative texts produced by the four English learners have also been analyzed for the distribution of imperfect and *passato prossimo* with respect to the notions of *foreground* and *background*. This distinction has been suggested to be an universal of narrative discourse and to be relevant in investigating the distributional patterns of tense/aspect morphemes (Hopper 1979). Bardovi Harlig (1995) has suggested that tense use in interlanguages may be influenced by narrative structure. To test this hypothesis she used an excerpt from *Modern Times*, thus offering a good comparative ground to the Italian data.[8] Her conclusion was that "learners mark
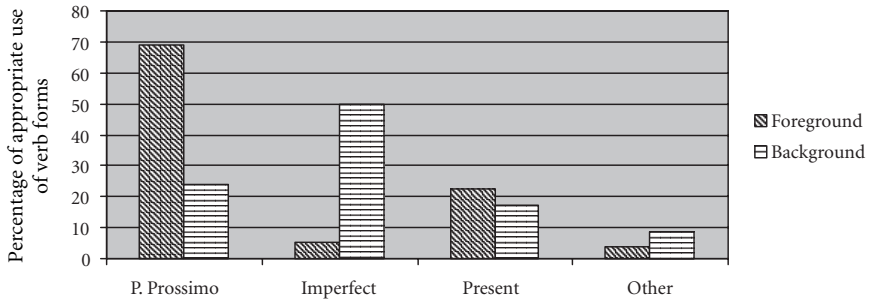
Figure 4. Distribution of imperfect, present and *passato prossimo* in Foreground and Background for four English-speaking learners of Italian (means).

foreground events for past first and use a variety of forms in the background, progressing toward a more native-like distribution with increasing proficiency" (1995: 286).

As for our data, the distribution observed in Figure 4 fits the prediction that the imperfect morphology will mainly concentrate on background clauses, while the *passato prossimo* is favored in the foreground that relates events belonging to the main story line. The most salient function of past perfectives appears to be the narration of sequences of events in the past, as pointed out by Hopper (1979).

Thus, the claim that learners will mark the verbs in the foreground differently from those in the background in narrative discourse is supported by the data of this study. Less significant evidence to support this claim has been found by Housen (1995: 350), who investigated a less advanced group of learners and mostly used conversational data. The comparison with our results would suggest that proficiency level and discourse mode are a likely factor in the distribution of tense. Note the significant percentage of present forms in Fig.4: they are found in all learners and may sometimes reflect limitations in linguistic competence, but may also reflect the speaker's choice to use a kind of narrative present in relating a series of fiction events in film retelling, as is the case for KATH. In conclusion, the distribution of verbal morphology in our data lends support to the claim that both the semantics of predicates (actionality) and the pragmatics of discourse shape tense/aspect systems in learner varieties (Bardovi-Harlig 1998).

Progressive and "proximative"

I will look now at two periphrastic constructions that belong to those sets of "optional elements" which are of particular interest in studying the process of

language acquisition and the enrichment of morphosyntactic means: the progressive periphrasis *stare* + gerund and the "proximative" periphrasis *stare per* + infinitive. The use of progressive by learners of Italian was investigated by Giacalone Ramat (1995b, 1997). The progressive periphrasis *stare* + gerund is a marked construction in Italian prototypically expressing progressive meaning, i.e. viewing a situation as continuing, ongoing, developing at a given time (Bertinetto 1986, Binnick 1991, Comrie 1976). The periphrastic forms are marked both on formal, distributional and frequency criteria with respect to the simple forms of the present and imperfect which also can have progressive meaning (Giacalone Ramat 1997). Since the progressive forms are optional, one might wonder at what stage and with what function learners of Italian will use them. Results of analyses carried out on a corpus of 20 learners of Italian at initial and intermediate level showed that learners do not start using the progressive periphrasis until they have acquired the present tense, the *passato prossimo* and the imperfect, which constitute a kind of basic verb system. Though delayed, the acquisition of progressive forms follows regular patterns showing that the verb semantics plays a strong role in determining which verbs receive a progressive marking. Activity predicates, mental state predicates (*pensare* "think") and utterance predicates (*dire* "say", *parlare* "speak", *telefonare* "phone") most often co-occur with progressive; some sporadic co-occurrences with accomplishments were also found. This study maintains that progressive forms are not used randomly with any verb, but implement a prototypical view of progressiveness combining universal verb semantic properties. As shown in Giacalone Ramat (1997) the acquisition of progressive forms in learners of Italian suggests interesting insights in the functioning of the category of progressive in itself and in comparison with languages such as English, where the progressive is grammaticalized as an obligatory category of the verb, but semantically has evolved toward an imperfective. As Comrie (1976: 38) states. "there are so many uses (of the English progressive) that it is questionable whether there is a general basic meaning".

In second language acquisition studies, the contrast between simple present and -*ing* forms in learners of English has been treated by some researchers as a clear case of "form preceding function" (Dietrich, Klein and Noyau 1995: 62), while others have pointed to the overextension of -*ing* forms to stative verbs in learners productions (Andersen and Shirai 1994: 142). Housen (1995) yielded mixed results in the use of progressive in his investigations on learner English. These results contrast with the more conclusive evidence from the acquisition of the optional progressive periphrasis of Italian. The Italian data strengthen the support for the hypothesis that the actionality of predicates in congruence with the aspectual imperfective value opens the way for acquisition. With this in mind, we can now look at variation between the learners of this study according to their L1 in the use of progressive in Italian.[9] German learners don't use the progressive form fre-

quently. Progressive marking is not obligatory in German: in spoken German the *am*-form (*er war am Essen* "he was eating") apparently increases (Ebert 2000: 629). Contrary to expectations, also English learners are not encouraged to use the progressive by the presence and frequency of *-ing* forms in their first language. This conclusion reached by Giacalone Ramat (1995b) is confirmed by the behavior of the four English learners of this study. Consider Table 2 below:

Table 2. Use of the Italian progressive periphrasis by German-speaking and English-speaking learners

Use of the Italian progressive			
German-speaking learners		English-speaking learners	
FR	0	KV	0
AN	0	SA	2
UL	3	PAUL	2
MT	6	KATH	9

Note that none of these learners is at the initial stage: all of them have a tense system which includes at different degrees of mastery: present, *passato prossimo* and imperfect. These data fully support the scenario outlined in Giacalone Ramat 1995b: KV has not yet attained the level of structural complexity to develop the progressive form (as said above, he has a limited use of the imperfect); the progressive increases with increasing proficiency. Here below an example is reported of overextension of progressive periphrasis to imperfective habitual context showing that UL's system is not yet consolidated:

(13) eh io non capisco mia moglie stia/stia/ abbiamo vissuto abbastanza
   I not understand-PRES my wife we.live-PASS-PROSS fairly
   comodo io per esempio guardavo la televisione e lei stava leggendo
   well I for instance watch-IMP the television and she read-IMP-PROG
   un libro…
   a book
   "I don't understand my wife: we lived fairly well together: for instance I
   would watch television and she would read a book"

Here the target language would require the imperfect rather than the progressive, since the context is of habituality.

   The periphrasis *stare per* + infinitive belongs to the phasal periphrases, just as the inchoative (*cominciare a* "begin") , the continuative (*continuare a* "keep on"), and the conclusive or terminative (*finire di* "finish"). Coseriu (1976: 104) states that the notion of phase is an independent and clearly marked category in Romance languages. *Stare per* + infinitive has an "imminential meaning" (Coseriu 1976,

Bertinetto 1986: 339): it indicates "a temporal phase located close to the initial boundary of the situation described by the main verb" (Heine 1994: 36). According to Heine, this is an aspectual notion, for which he proposed the term "proxima-tive".[10] The periphrasis manifests both aspectual and actional restrictions: it does not combine with perfective aspect or stative verbs (Bertinetto 1989–90:59):

(14)   a. *Alessandra stette per partire, ma la incoraggiarono a restare
           Alexandra stay-PASS-REM for leave-INF , but they insisted that she stay
           "Alexandra was about to leave, but they insisted that she stay"
       b. *questo aperitivo sta per essere preferito da tutti
           this aperitif stay-PRES for be preferred-INF by all
           "this aperitif is about to be preferred by all"

As noted by Bertinetto (1986: 271), achievement predicates may acquire an imminential value when used in the progressive: the result is that both *sto per partire*, and *sto partendo* have the same meaning " I am leaving" (but *sto mangiando* "I am eating" is not equivalent to *sto per mangiare* "I am about to eat").

   Stare per + infinitive is found only in the more advanced learners: of the German learners, only MT in the last two recordings shows four occurrences of the periphrasis:

(15)   nell'ultimo momento quando il zio Paperone stava già per cadere
       at the last moment when Uncle Scroogie stay-IMP already for fall-INF
       lanciò una corda
       (he) threw a rope…
       "when Uncle Scroogie was almost about to fall…"
       MT 07

The English speaking learners exhibit a number of cases of *stare per*, however their use is not fully congruent with the native use. Consider the following excerpts, both from PAUL's retelling of *Modern Times*:

(16)   hanno fatto una lotta con questi prigionieri che stavano per uscire
       they fight-PASS-PROSS with those prisoners who stay-IMP for go out-INF
       "they fought against those prisoners who were about to go out"

(17)   hanno messo la polizia la/i poliziotti in prigione
       (they) put-PASS-PROSS the police the policemen in jail
       e stavano per scappare quando è venuto Charlie Chaplin
       and (they) stay-IMP for escape-INF when arrive-PASS-PROSS Charlie C.
       "and they were trying to escape when Charlie Chaplin arrived"

Paul seems to attribute to the periphrasis some kind of "conative" value which is

not in the native use. In both contexts an alternative periphrasis with *cercare di* "to try" that implies effort by an agent would be more appropriate to convey the intended meaning. These cases show that form precedes function, even in more advanced learners and provide an interesting illustration of the kind of semantic divergence between advanced learners and native speakers (Coppieters 1987). A more native-like use is found in Jeremy, another of Bendiscioli's subject that was not considered here:[11]

(18) *e lei sta per essere arrestata ma interviene lui*
      and she stay-PRES for be arrested-INF but he steps in
      "and she is on the verge of being arrested, but he steps in"

Conclusion

The task of expressing grammatical aspect in the past is solved by the learners of Italian along a twofold path which shows how actionality (or inherent aspect) and aspect largely overlap and coexist in acquisition. The perfective aspect first receives a codification depending on a prototype which combines congruent features of situations (Giacalone Ramat 1990, 1995, Bernini 1990). The imperfective aspect follows, spreading from the copula first to stative predicates and then to other verb classes. Evidence from the English and German learners considered here roughly follows the predicted pattern and supports the general hypothesis. However, the picture is not uniform. Some uses of imperfect morphology (examples 12 (MT), 15 and 16 (PAUL)) clearly show that learners are struggling to identify a recognizable function for the imperfect. Examples (13) and (14) reveal problems in KV in encoding the imperfective aspect: both inadequacies converge in showing the learners' difficulty. Such oscillations seem typical of the imperfective aspect and do not have a clear counterpart in the perfective aspect, which is more straightfor-wardly encoded by the *passato prossimo.* They also confirm a general principle of Second Language studies — that form precedes function. In conclusion, the imper-fect not only comes later, but more difficult because of the range of notions it can cover (not to mention the modal uses, which were not considered here) and which do not have a formal correspondence in German or in English. Kihlstedt (1998: 260) has also arrived at the conclusion that, although Swedish speaking advanced learners of French are able to use imperfect forms, in some cases "form precedes function"; in particular, she points to the their use of verbs in subordinate clauses as a fragile point where a "basic form" (i.e. present) may still persist.

Evidence from Italian learners considered in this study lends support to both claims outlined in Section 3, namely the universality of the prototypical approach

and influence from L1. Although the semantic actionality classes as well as the notion of aspect are universal, there is significant crosslinguistic variation as far as these notions are grammaticalized or lexicalized in different languages. Many empirical observations made in the course of this discussion point to transfer, however it should be emphasized that the transfer hypothesis as proposed here operates at the conceptual rather than the formal level. German learners seem to assume that in Italian both imperfect and *passato prossimo* code only past tense and tend to use them as they would use *Präteritum* and *Perfekt* in their native variety of German: the simple form for the copula and modal verbs, the periphrastic form for most lexical verbs. This is a motivation for the overuse of *passato prossimo* to code imperfective past that was noted in German learners of Italian. The absence of morphologically marked aspectual distinctions in German grammar may surface not only in still unclear choice between imperfect and *passato prossimo* but also in later emergence of progressive aspect and its scarce use.

For different reasons also the English learners have problems with the imperfect and the progressive in Italian. Although the English subjects are already familiar with grammaticalized aspect, the English characterization of the progressive in present and past time situations is sufficiently distant to positively affect the course of acquisition of Italian. Differences in the conceptualization patterns between L1 and L2 may thus result in learning difficulty (Slobin 1991). The data of this study clearly suggest that the prototypical feature clusters for past perfective and progressive play a role in the acquisition of tense/aspect morphology. As long as they develop their competence, learners expand the prototypes toward the native use.

Indeed, the intermediate learners of this study eventually acquire the semantic contrast between imperfect and *passato prossimo*.

Notes

1. For reason of space I will not recapitulate the discussion around the so-called "Defective Tense Hypothesis", which was originally based on children acquisition and explained on the basis of maturational factors (Antinucci and Miller 1976). Shirai and Andersen (1995) found that in three children learning English the development of tense/aspect morphology was strongly influenced by the actionality values of verbs. In Giacalone Ramat (1995a) I asked the question of whether both the "Defective Tense Hypothesis" and the "Primacy of Aspect hypothesis" (Andersen 1991) would require a more cautious formulation, since they seem too strong versions which are not congruent with the data. The problem of chronological priority is not adequate for L2 learners who do not have to develop the concept of past or anteriority. We thus expect that L2 learners start their learning path endowed not only with the temporal categories of past, present and future, but also with verb types and

actionality distinctions which should belong to the universal perceptual and cognitive faculties (Smith 1991).

2. Dietrich, Klein and Noyau (1995: 266) admit that (aspectual) boundary markers are present in learner varieties through lexical means such as *finish* for English, *fertig* for German (see also Giacalone Ramat 1992 for Italian *basta* as an aspectual marker). The aspectual marker -*ing* is used by the learners of the ESF project, although its appropriate function is acquired only by some of them (Dietrich, Klein and Noyau: 44ff).

3. Here I will focus on Italian and French as target languages, German and English as source languages; occasionally, I will refer to Spanish, Dutch and Swedish. I am interested here in a broad characterization of tense/aspect distinctions, leaving to future publications the task of completing data description.

4. Perfective aspect is also encoded by simple past (*passé simple*, *passato remoto*). This form was not considered here due to its restricted use in spoken language, both in French and in Italian. For Italian an additional information should be added, namely that in Southern Italian varieties the use of simple past is widespread also in the spoken language (Bertinetto 1986 for a general picture). Our corpus of learner Italian was however collected in Northern Italy: thus, some sporadic attempts to use the simple past have probably to be considered as an effect of instruction.

5. I have examined the use of *passato prossimo* in learners of Italian to check whether the meaning of "anterior", i.e. present perfect, emerges earlier than past time reference. In such case, we would have a parallelism between historical development and acquisition. Both Housen (1995) and Bardovi-Harlkig (1997) have addressed the question for EnglishL2. For Bardovi-Harlig the present perfect emerges after the simple past and before the perfect progressive. Overuses of the present perfect are frequent and reflect the learners association of present perfect with past time. Schlyter (1996) has found evidence of an early meaning of perfect in the use of *passeé composé* in learners of French, which probably is under the influence of the Swedish perfect. As for our learners, the emergence of a perfect meaning before that of past is not sufficiently apparent. We have to leave the question open.

6. Bertinetto (1986: 368) states that the modal values of the imperfect "hanno, come denominatore comune, la caratteristica di operare una sorta di traslazione del mondo reale in un altro, frutto di immaginazione (o di supposizione) da parte del locutore".

7. Data from MT and UL were collected by M.Crespi for her *tesi di laurea* (1990–91), who also provided a first analysis of past time reference. Data from FR were collected by F. Drei and from AN by M. Chini and B. Ahrenholz. All data are included in the Pavia corpus on L2 Italian (http://www.unipv.it/www.ling).

8. The learners selected for Bardovi Harlig's study were adult learners of English enrolled in an intensive program at the university level.

9. The learners FR, UL and MT, but not AN, were already included in the previous studies (Giacalone Ramat 1995, 1997). The German AN and the four English learners were first analyzed for progressive in this study.

10. Kuteva (1998) has elaborated on the notion of proximative distinguishing the proxima-tive from a similar construction defined "action narrowly averted", that is an action that

"was on the verge to occur, but did not". The Italian periphrasis does not entail the implication that the situation did not actually occur, but leaves the situation open, also in the past:

> (i) Stavo per uscire quando è arrivato Giorgio. Siamo andati insieme al cinema
>   "I was about to go out when George arrived. We both went to the movies"
> (ii) Stavo per cadere , ma sono riuscito a rimanere in piedi
>   "I was abou to fall, but I managed to remain on my two feet"

11. Only one occurrence is found in SA:

> (iii) stava per mettere in libertà gli altri prigionieri
>   he was about to free the other prisoners

where the interpretation is unclear between an imminential and a progressive meaning.

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Lexical aspect in child second language acquisition of temporal morphology

A bi-directional study

Sonia Rocca

Introduction

This paper reports on a longitudinal bi-directional study carried out with three L1 Italian children learning L2 English and three L1 English children learning L2 Italian. The main objective of this study was to observe the distribution of verb morphology in two typologically different languages used both as source and target language and investigate the role of language transfer in the acquisition of tense-aspect. This paper is divided into four main sections. The first compares the English and Italian tense-aspect systems; the second reviews relevant L1 and child L2 studies; the third presents the empirical study and the fourth discusses its findings.

Tense and aspect in English and Italian

Tense and aspect in English: The simple past

Aspectually, English encodes two oppositions: progressive/non-progressive and perfect/non-perfect. Since the study presented in this paper deals with the past, the focus will be on the simple past and on the progressive form. The primary function of the simple past is deictic in that it locates a situation before the moment of utterance. It is basically a past tense where perfective and imperfective features are conflated. Pulgram (1984, 1987) analyzed the function of past tenses in Romance and Germanic languages by assigning an aspectual label to each tense: aoristic, depictive and resultative, which correspond to perfective, imperfective and perfect. Each one of these aspects is related to an implicit question: 'What happened?' for the aorist; 'What were the circumstances?' for the depictive and 'What is the end,

the result?' for the resultative. Pulgram defined the English past tense as both aoristic and depictive. The depictive aspect in English can be expressed by both the simple past and the past progressive, whereas in Italian it is expressed by the *imperfetto*. This shows that the simple past can act as an imperfective marker for non-progressive meanings. A crucial difference between the simple past and the past progressive is their level of compatibility with stativity. The progressive form is generally incompatible with stative predicates, unless these represent stage-level properties (Carlson 1977; Dowty 1979). Other occurrences of the progressive with statives are considered as a 'marked aspectual choice' (Smith 1997: 124) that de-stativize the predicate (e.g. *we are really wanting to solve this problem*). Therefore, by default, a past state is encoded by a simple past. For example, the use of the progressive form with the stative predicates below would be unacceptable.

(1) a. The little boy had big blue eyes.
    b. John knew everybody in the neighbourhood.

The comparison with the Italian *imperfetto*, which fully grammaticalizes imperfectivity, highlights the imperfective traits of the simple past. In fact for the sentences in (1) Italian would choose the *imperfetto*:

(2) a. Il bambino aveva dei grandi occhi blu.
    b. Gianni conosceva tutti nel quartiere.

The sentences in (1) and (2) belong to that imperfective sub-area known as continuous aspect (Comrie 1976; Bertinetto 1997), which combines stativity and non-progressivity. Although perfectivity and imperfectivity are conflated in the simple past, it can be argued that this tense prototypically conveys a perfective meaning. In his cross-linguistic survey of tense-aspect typologies, Dahl (1985: 78) stated that a perfective verb "will typically denote a single event, seen as an unanalyzed whole, with a well-defined result or end-state, located in the past".

The progressive form in English

As suggested by its name, the progressive form describes a situation as 'in progress', which means that this construction conflates durativity and non-stativity. 'In its basic use the English progressive focusses on the internal stages of durative, non-stative situations' (Smith 1991: 222). The progressive form typically denotes dynamism, and this characteristic derives from viewing an event from the inside and therefore focussing on its successive stages as it unfolds. Thus the progressive form is basically durative and dynamic:

(3) a. At midnight, Mary was still dancing with John.
    a′. A mezzanotte, Maria stava ancora ballando con Gianni
    b. Last night Mary was dancing with John.
    b′. ??La notte scorsa Maria stava ballando con Gianni[1]

The difference between (3a) and (3b) lies in the time reference: the former example refers to a point in time whereas the latter example refers to a period of time. Both examples displays durativity, i.e. continuousness, and dynamism but only the event in (3a) can be considered as prototypically progressive. Conversely, the event in (3b) is continuous but not progressive. This distinction is particularly evident when a comparison with Italian is drawn. Since the Italian progressive form is strongly restricted to the marking of progressive aspect (Bertinetto 1997), it provides a good diagnostics test for the identification of this imperfective feature. In fact, the progressive in (3a′) is acceptable whereas the progressive in (3b′) is not.

Another feature that is closely associated with the progressive form is temporariness: the situation is durative but its duration is somehow limited. The progressive form indicates impermanence because it presents a situation dynamically, as a process in progress and as such the situation cannot last indefinitely. This is particularly evident with statives, which acquire a stage property when occurring with the progressive form. The distinction between individual-level states and stage-level states was originally formulated by Carlson (1977) and further developed in Dowty (1979). Individual- level states represent permanent features, i.e. *be tall, beautiful, intelligent,* whereas stage-level states represent transient features, i.e. *be angry, sick, hungry.* This distinction, dating back to Aristotle's distinction between necessary and accidental qualities, can also be applied to situations. Goldsmith & Woisetschlaeger (1982) distinguish between a structural situation and a phenomenal situation in that the former is constant and occurs in the simple present (4b&5b), whereas the latter is temporary and occurs in the progressive (4a&5a).

(4) a. John was living in London.
    b. John lived in London.

(5) a. John was looking pale.
    b. John looked pale.

The difference between the (a) and the (b) examples above is that the formers imply that John lived in London and looked pale only temporarily whereas such an implication is missing in the latters. Because of its intrinsically progressive nature, the Italian progressive form is incompatible with statives.

(6) a. *Gianni stava vivendo a Londra.
    b. *Gianni stava sembrando pallido.

This comparison between the English and the Italian progressive form carried out here shows that the former has a wider scope and more flexibility than the latter.[2] The Italian progressive form is essentially restricted to prototypical progressiveness and because of its optionality it represents a marked choice.

Tense and aspect in Italian

Italian obligatorily encodes the perfective/imperfective distinction in the past. The perfective past is represented by the *passato remoto* and the *passato prossimo*. As indicated by their names, the former encodes a distant past whereas the latter encodes a close one, thus applying a spatial metaphor to a temporal dimension. The *passato remoto* is used for narrative purposes in the written language; in the spoken language it is present in the central and southern varieties but it is absent in the northern one. In this study, both the children who had Italian as native language and those who had it as target language were exposed to the northern variety, therefore the *passato remoto* is not relevant to this discussion. The *passato prossimo* and the *imperfetto*, the imperfective past, will be illustrated below.

The passato prossimo

The *passato prossimo* is a periphrastic tense that consists of an auxiliary (*avere* or *essere*)[3] followed by a past participle. It originated from the compound past developed in Vulgar Latin as a marker of resultativity, which was absent in Classical Latin. Originally a marker of perfect aspect, the *passato prossimo* expanded at the expenses of the *passato remoto* and acquired its aoristic value. In that respect, it is similar in use to the simple past in English. Following a well-attested pattern in the evolution of Romance languages, the present perfect developed into a perfective (Bybee and Dahl 1989). Taking the spatial metaphor mentioned above, expressing a past event with a present perfect makes it 'closer' to the current experience of the speaker and therefore more salient and relevant.

(7) a.   L' estate   scorsa Gianni   è andato
          the summer   last   Gianni   be-3SG:PRES go-PP
          al   mare. (passato prossimo)
          to.the sea
          'Last summer Gianni went to the seaside'.

    b.   L' estate   scorsa Gianni   andò
          the summer   last   Gianni   go-PRET-3SG
          al   mare.   (passato remoto)
          to.the sea
          'Last summer Gianni went to the seaside.

The *passato prossimo* is ambivalent: although it often substitutes for the *passato remoto*, it stills retains its prototypical perfect meaning in certain obligatory contexts, where the *passato remoto* is disallowed. In that respect, the *passato prossimo* is similar to the present perfect in English.

(8) a.   Il film è appena iniziato.
    a′. The film has just started.
    b.   Gianni è stato in America.
    b′. John has been to America.
    c.   Gianni è triste perchè Maria è partita.
    c′. John is sad because Mary has left.

The examples above share the notion of 'current relevance' (Comrie 1976: 52): (8a&a′) is a perfect of recent past, (8b&b′) is an experiential perfect and (8c&c′) is a perfect of result. According to Dahl (1985: 132), these are prototypical occurrences of the present perfect.

The imperfetto

The *imperfetto* is a past tense that embodies all the basic semantic components of imperfectivity illustrated in Comrie (1976) and Bertinetto (1986, 1997), *inter alia*: progressiveness, continuousness and habituality. Optionally, the progressive and the habitual meanings can be expressed by periphrases: *stare*+gerund is a progressive periphrasis; *essere solito(a)/avere l'abitudine di*+infinitive are habitual periphrases. Both the progressive (9a′) and the habitual (9b′) periphrases are incompatible with statives:

(9) a.   Gianni tornava   /stava   tornando
        Gianni come.back-IMP:3SG/ be-IMP:3SG   come.back-GER
        a casa   quando ha   incontrato Maria.
        at home when   have-3SG:PRES meet-PP   Maria
        'Gianni was coming home when he met Maria'.
    a′. A mezzogiorno Gianni aveva   / *stava   avendo
        at noon   Gianni have-IMP:3SG / * be-IMP:3SG have-GER
        fame.
        hunger
        'At noon Gianni was hungry'.
        Da giovane, Gianni guidava   / era   solito guidare
        as young   Gianni drive-IMP:3SG / be-3SG:IMP used drive-INF
        in modo   spericolato.
        in way   reckless
        'As a young man, Gianni drive/ used to drive in a reckless way'.

> b′. Da giovane Gianni aveva   / *era solito   avere   i
>   as young   Gianni have-IMP:3SG / * be-3SG:PRES have-INF the
>   baffi.
>   moustache
>   'As a young man, Gianni had/ used to have a moustache'.

The optionality of these periphrases is an indicator of their marked status: they can always be replaced by the *imperfetto*, but the reverse is not always possible because they are restricted to a given component of the *imperfetto*. The aim of these periphrases is to highlight the imperfective component they are associated with by making it more prominent. For example, the progressive meaning in (9a) is certainly more salient with the progressive periphrasis than with the *imperfetto* and a similar remark holds for the habitual meaning in (9b) expressed by the habitual periphrasis. The existence of a periphrasis as an alternative form employed to express a certain meaning points to the non-coreness of that meaning: prototypical meanings are characterized by the obligatoriness and systematicity of their expression and by the lacking of alternative forms (Dahl 1985: 188). For example, when expressing progressiveness in English, the progressive form is obligatory and no other linguistic alternative is available.[4] This is not the case for progressiveness in Italian, because the *imperfetto* (and the present tense) can have a progressive reading, which makes the progressive periphrasis non-obligatory. Therefore, the expression of progressiveness is a core feature of the English aspectual system and this is shown by the grammaticalization of the progressive/non-progressive distinction. Conversely, in Italian the non-obligatory encoding of the above distinction suggests that progressiveness is not a core feature of the aspectual system. Thus the *imperfetto* neutralizes the progressive/non-progressive distinction.

Continuous meaning appears to be the most prototypical feature of the *imperfetto*. Bertinetto (1997) suggested that continuous aspect in Italian can be encoded by the continuous periphrasis *andare+gerund* but, its use, as Bertinetto himself recognized, is restricted to certain types of predicates. Therefore this construction can not be used as a reliable diagnostics test to identify the continuous meaning of the *imperfetto*, unlike the progressive and the habitual periphrases, which are reliable markers of the meanings they are distinctively associated with. The difficulty in finding a periphrasis that consistently highlights the continuous aspect of the *imperfetto* suggests that continuousness is such a prototypical feature of this tense that resists systematic attempts at replacing the linguistic form is affiliated with, with an alternative form. Thus, continuous aspect appears to be the central meaning of the *imperfetto*.

As mentioned above, aspect is continuous versus progressive when it is anchored to non-punctual time reference. The restriction of progressive periphrasis

to prototypical progressive aspect makes it a good test for the identification of this imperfective feature. The progressive periphrasis in (10b) is odd because the aspect encoded is not progressive.

(10) a.   Ieri   Gianni indossava   un vestito blu.
          yesterday Gianni wear-IMP:3SG   a   suit   blue
          'Yesterday Gianni wore/ was wearing a blue suit'.
      b.   ??ieri   Gianni stava   indossando un vestito blu.
          ??yesterday Gianni be-IMP:3SG   wear-GER   a   suit   blue
          'Yesterday Gianni was wearing a blue suit'.

Continuous aspect arises also when the *imperfetto* is applied to stative predicates (11a&b), which are inherently durative.

(11) a.   Gianni voleva   a tutti i   costi quel maglione.
          Gianni want-IMP:3SG   at all the costs that sweater
          'Gianni wanted that sweater at all costs'.
      b.   La città si   trovava   alla   foce   del   fiume.
          the town REFL find-IMP:3SG   at.the mouth   of.the river
          'The town lies at the river mouth'.

Because of its incompatibility with measurements of duration and the possibility for a situation to continue beyond the time reference, the *imperfetto* is generally regarded as a 'vague' tense. This vagueness is a common denominator that accounts for the metaphorical uses of the *imperfetto*: narrative (12), unreal (13), hypothetical (14) and softening (15).

(12) All'improvviso moriva   la   speranza e   la.sua   vita
      Suddenly   die-IMP:3SG the hope   and his/her life
      finiva   senza   motivo.
      end-IMP:3SG   without reason
      'Suddenly hope died and his/her life ended without a reason'.

(13) Ho   sognato   che tu entravi   in un castello,
      have-1SG:PRES dream-PP that you enter-IMP:2SG in a   castle
      poi   questo castello spariva   nel   nulla e   tu
      then   this   castle   vanish-IMP:3SG   in.the nothing and you
      volavi   via.
      fly-IMP:3SG   away
      'I dreamt that you entered a castle, then this castle vanished into nothing and you flew nothing'.

(14) Facevi   meglio a stare zitto.
      do-3sg:imp   better to keep quiet
      'It would have been better if you had not talked'.

(15) Volevo   chiederti   un favore.
      want-imp:1sg   ask-inf.you-dat a favour
      'I wanted to ask you a favour'.

To sum up, I would argue that the *imperfetto* can be analyzed as a network of overlapping features bearing 'family resemblances' (Wittgenstein 1958: 66; Rosch and Mervis 1975: 575). Continuous aspect is considered as the prototypical meaning of the *imperfetto*: habitual and progressive aspects represent a less prototypical form of continuousness. Progressive aspect represents continuousness with reference to a time point whereas habitual aspect represents continuousness with reference to a time span. Continousness, progressiveness and habituality are the semantic components of the *imperfetto*, which is generally associated with indeterminacy because of its incompatibility with forms of duration and closed interval. This produces an effect of vagueness that can be exploited for stylistic purposes as well as be metaphorically extended to express counterfactuality and pragmatic softening.

The focus of imperfectivity is on the internal temporal structure of a situation that is perceived as open: since the endpoints are not included, the view can only be partial. For this reason, there is a natural link between imperfective forms and durative, atelic predicates. However, the progressive and the *imperfetto* diverge as to their compatibility with these predicates: the former is most intrinsically associated to dynamic predicates such as activities, whereas the latter naturally covers the whole durative-atelic area. Moreover, there seems to be a strong link between stativity and *imperfetto*. Unlike other lexical aspectual predicates, statives can not occur with either the progressive or the habitual periphrases that optionally replace the *imperfetto*. In this respect, the *imperfetto* represents the prototypical marker of stativity. In the next section, the tense-aspect forms described above will be considered from an acquisitional perspective.

The acquisition of tense–aspect morphology

First language acquisition: L1 English studies

The progressive is the first morpheme to emerge and to be acquired presumably because there are no irregular progressives to confuse the child (Brown 1973: Kuczaj 1978). The progressive is always regular, unlike other inflections such as the past tense, where the presence of both regular and irregular forms induces overgen-

eralization errors. Throughout the five developmental stages, the progressive is used in a bare form without a systematic auxiliary to indicate 'an action or state in fact of temporary duration and true at the time of utterance' (Brown 1973: 318). It is only after Stage V that the full progressive is mastered. Berman & Slobin (1994) found that three- and four-year-olds often omitted the progressive auxiliary.

(16) a. And that — he floating off, uh — sitting down. (3;4)
　　 b. And here, he trying to get the bees, trying to get the bees. (3;11)

According to the researchers, the use of the progressive as a basic present tense is reflected in its overextension to statives which three- and 4-year-olds occasionally produce.

(17) He's seeing that the frog got out. (4;8)

This contrasts with the traditional assumption that the progressive is not overextended to stative predicates (Brown 1973; Kuczaj 1978). Similarly, Shirai (1991, 1994) found stative progressives even in earlier stages of language acquisition.

(18) a. *EVE: I seeing it it.　　　(Eve, 1:11)
　　 b. *NAO: seeing Mickey.　　(Naomi, 1:10)

Shirai analyzed the data of three children: Adam from age 2;3 to 4;10, Eve from age 1;6 to 2;3 and Naomi from age 1;6 to 4;9. Adam and Eve's corpora are from Brown (1973); Naomi's corpus is from Sachs (1983). Shirai concluded that the presence of stative progressives in a child's speech is associated with motherese, as indicated in (19) which represents the frequency of stative progressives out of the total occurrences of progressives produced by the three children and their mothers.

(19) 　　　　　　　　 CHILD 　 MOTHER
　　 a. Adam: 　　　 1/274 　　 0/138
　　 b. Eve: 　　　　 5/217 　　 0/209
　　 c. Naomi: 　　 23/668 　　 20/512

The only stative progressive that Adam produced out of 274 progressives could also be coded as an activity, as Shirai himself admitted.

(20) ADA: with a leg on it # with a leg # standing like this.　　(Adam 3;1)

Eve's five stative progressives involve three instances of *being*, which, as Shirai pointed out, is treated by the child as a lexical item. Moreover, *being* is used twice (*Fraser being silly; you being silly*) to indicate stage-level properties. The predicate in *I going bare back,* which Shirai (1991: 73) considered as a marginal case of stative, can be classified as an activity because *go* is inherently dynamic. Stage-level proper-

ties are also present in the stative progressives produced by Naomi (*feeling better, being good boy, my tummy is hurting, I'm feeling ok, I'm not feeling well*).

As mentioned in the previous section, the distinction between stage-level statives and individual-level statives lies precisely in the compatibility of the former with the progressive marker. Therefore, stative progressives displaying stage-level properties cannot be considered as instances of overgeneralization because they are entirely standard in adult speech. In the data analyzed by Shirai, overgeneralized uses of the progressive include *seeing, needing, loving* and *having* as indicator of possession. The progressive applied to these statives represents a marked choice. More to the point, Shirai argued that stative progressives are not very frequent because they represent peripheral instances of the progressive marker, which is prototypically linked with activities. The past tense is prototypically linked with telic-punctual events (Sachs 1983; Taylor 1989, 1995; Shirai 1991; Shirai & Andersen 1995): Brown (1973: 334) first noticed this:

> Appropriate uses of the past begin with a small set of verbs which name events of such brief duration that the event is almost certain to have ended before one can speak. These are: *fell, dropped, slipped, crashed, broke.*

Antinucci & Miller (1976) reanalyzed Eve's data and found that from the age of 1;9 the child applied the -*ed* inflection, often overgeneralized, only to predicates encoding events with a visible end result (21a&b). States and activities were left unmarked: (21c&d) are considered like activities because they focus on the process rather than on its result.

(21) a. (1;9)   Spilled the milk.   (telling the mother she had spilled it)
      b. (1;10) It falled in the briefcase. (doll had fallen out of box into
                                               briefcase)
      c. (1;11) We eat on napkin.
              Adult:Yes, we had birthday cake on napkins, that's right.
      d. (2;0)   Fraser write a little man, little big man, big man, and a little lady
              and a little man   (Fraser had drawn something)

As for their Italian data (see below), the authors suggested that aspect is more basic than tense and proposed a maturational explanation within a Piagetian framework: at the time when verbal morphology emerges, children are still unable to represent temporal relations between different points on the time axis. Because they are in the sensori-motor period (Piaget 1954, 1971), the children lack a developed cognitive construct of time and therefore their use of past marking is restricted to events with a present, concrete end-state that is the result of a previous process. Similar results were found by Bloom et al. (1980) but the focus here was more on verb semantics than on children's concept of time. The researchers studied the influence of lexical

aspectual features on the emergence of verb morphology in children's spontaneous speech. In fact, -*ed* and the irregular past marked punctual, completive events; -*s* marked completive, durative events; and -*ing* marked noncompletive, durative events. In their 10-month longitudinal study of four children (1;10–2;6), they distinguished three developmental periods. The irregular past was ranked first in emergence, -*ing* and -*s* appeared at about the same time, -*ed* emerged in the second period and was altogether the least frequent morpheme. Although the irregular past and -*s* were often more frequent than -*ing,* the overall absolute frequency of -*ing* was greater in all three periods.

Weist et al. (1984) labelled the claims in Antinucci & Miller (1976) and Bloom et al. (1980) as 'Defective Tense Hypothesis' and disputed the principle that the earliest verb morphology in child language only encodes aspect, not tense, due to an undeveloped concept of past time. Applying Vendler's classification to longitudinal and cross-sectional data on the acquisition of Polish, Weist and his colleagues showed that the earliest instances of past tense inflections are used deictically. Tense and aspect are grammaticalized in Polish and children are able to mark both of them from the start. Weist et al. (1984) suggested that children take perspectives on a situation, viewing it from either an internal perspective or an external one.

> When a situation is viewed internally, features like incomplete, durative and continuous are salient and viewing the situation externally, the salient features are completed, punctual and discontinuous. (p.370)

However, as Andersen (1989) pointed out, what Weist et al. (1984) attacked was an absolute version of the Defective Tense Hypothesis that is too strong to be realistic. According to this all-or-nothing version, only telic verbs receive past-tense inflection, a tense distinction will be redundant and only accompany an aspectual distinction, only references to immediate past situations will be made (Weist et al., 1984, p.348). Andersen (1989) and Bloom & Harner (1989) reanalyzed the tables in Weist et al. (1984) and showed that the children's verb morphology is biased by lexical aspectual features of the predicate. In fact, the overall count of the utterances revealed a lack of past tense inflections with atelic verbs; the majority of telic verbs were inflected for past in the youngest age group (1;8) whereas less than 10% of atelic verbs were past inflected. Therefore, a relative version of the defective tense hypothesis may still hold true (Andersen 1989).

Shirai (1991) interpreted the findings in Antinucci & Miller (1976) and Bloom et al. (1980) as consistent with the predictions of the aspect hypothesis (Shirai 1991: 9–10), a weak version of the defective tense hypothesis: (a) Past/perfective morphology emerges primarily with achievements and accomplishments later extends to activities and finally to statives. (b) In languages encoding the perfective-imperfective distinction, the imperfective past emerges later than the perfective

past, and the imperfective past appears with statives, extending next to activities, then to accomplishments and finally to achievements. (c) In languages encoding progressive aspect, progressive morphology begins mostly with activities and then extends to accomplishments and achievements. (d) Progressive morphology is not incorrectly overextended to statives. Shirai (1991) and Shirai & Andersen (1995) investigated the acquisition of English verb morphology in Adam, Eve and Naomi. The results supports the predictions of the 'aspect hypothesis' in that the children's emerging morphology is strongly affected by lexical aspect: past marking is initially restricted to achievements and progressive marking to activities. Moreover, it turned out that the same tendencies towards the aspect hypothesis were noticed in the mothers' speech when they interacted with their children. According to Shirai & Andersen (1995), the children's morphological development is shaped by input and prototypes. A prototype is the best exemplar of a category (Rosch 1973, 1978) and the acquisition of a linguistic category starts with its prototype and gradually expands to the more peripheral members (Slobin 1981; 1985; Taylor 1989, 1995). The prototypical past is [+telic], [+punctual] and [+result] whereas the prototypical progressive is [–telic], [+durative] and [+dynamic]. The researchers concluded that "initially children restrict their use of tense-aspect inflections to the prototype of a category, then gradually extend the category boundary, and eventually acquire the adult norm" (Shirai & Andersen 1995: 759).

L1 Italian studies

Antinucci & Miller (1976) studied the naturalistic speech of six Italian children from Padua between ages 1;6 and 2;5 and of one child from Rome (Claudia) between ages 1;6 and 2;3. Samples were taken once a month for the Paduan children and twice a month for the Roman child. The cross-sectional data of 48 L1-Italian children aged from 2;0 to 4,4 were added to the longitudinal data. From the beginning of the study, past marking consisted primarily of past participles applied almost exclusively to telic predicates.

(22) a. (1;6)   Mangiato tutto,   bravo Lele.
                  eat-PP   everything good   Lele
                  'Ate everything, good boy Lele'. (The child shows his clean plate)

      b. (1;9)   Seduta.
                  sit-PP:F:SG
                  'Sat'. (Said after climbing back on the chair)

      c. (1;8)   Prese   io (calze = socks, F:PL)
                  Take-PP:F:PL I
                  'I took them'

Similarly, Volterra (1976: 151) argued that 'in the early use of the participle it is the idea of a state that seems to prevail over that of an accomplishment'. According to Volterra, since the idea of accomplishment implies past temporal reference, for young children this is more difficult to conceptualize than the idea of state, which is linked to the *hic et nunc* of the situation. In fact, the earliest participles that emerge at the age of 1;4–1;5 are *caduto* 'fallen' and *seduto* 'seated', where a state is implied for the argument realized as subject. Antinucci & Miller (1976) and Volterra (1976) agree that children first use past participles as adjectives. In fact, the children make the past participle agreed with the subject of intransitive verbs indicating change of state with a clear result as in (22b), and with the object of transitive verbs, as in (23a&b).

(23) a. (1;10) La   signora ha   chius*a*   la   port*a*.
               the   lady   has   close-PP:F:SG   the   door-F:SG
               "The lady closed the door".

     b. (2;1) Pres*a*   Checco campan*a*. (Checco = speaker)
               Take-PP:F:SG   Checco bell-F:SG
               'Checco took the bell'

The past participle and later the *passato prossimo* emerge as a marker of resultativity. This is a core meaning of the *passato prossimo*, and historically, its original one. The researchers argued that the children's past morphology encoded aspect rather than tense and presented two arguments in favour of this claim. The first one is that the past participle is used to describe the end-state of an entity and therefore the agreement with the direct object shows the adjectival function of the past participle. The second argument draws on the semantic nature of the verbs that first receive past marking: these are all change of state verbs, therefore expressing telicity. The aspectual value of early participles and their initial restriction to telic verbs was also found in Calleri (1990). Atelic predicates are first encoded by the present tense and later by the *imperfetto*. This tense emerges at around 2;1 years as a marker of non-actuality in the narration of fictitious events:

(24) a. (2;1) C'   era   una bambina. Una bambina che
               there   be-IMP-3SG   a   little.girl. A   little.girl who
               piangeva.
               cry-IMP-3SG
               'There was a little girl. A little girl who was crying'.

     b. (2;2) Il lupo faceva   woo-woo, l'   orso faceva
               the wolf do-IMP-3SG   woo-woo, the bear do-IMP-3SG
               woo-woo.
               woo-woo
               'The wolf was going woo-woo, the bear was going woo-woo'.

Antinucci & Miller adopted a Piagetian approach and argued that because of cognitive deficit, children lack a relational concept of time and therefore they use past participle or the *passato prossimo* for events resulting in an end state. Similarly, the *imperfetto* does not emerge as a past tense but as a linguistic marker of a fictitious world: it is a form of 'symbolic play' (Piaget 1951), which develops towards the end of the sensori-motor period. From an acquisitional perspective, non-actuality represents the core meaning of the *imperfetto* that is later extended to express pastness. The cognitive distinction between real and unreal is reflected in the linguistic distinction between present and past in that a situation is past when it is non-actual in the present. The initial restriction of the *imperfetto* to states and activities is justified by their durative trait, which makes them natural components of narrative contexts.

 Contra Antinucci & Miller (1976), Calleri (1990) found evidence that the *imperfetto* not only emerged before age 2;1 but also that the children used it from the beginning as a deictic marker to express a real past event:

(25)   a.   (1;8;15)   piangeva
        cry-IMP-3SG
        'S/he cried/was crying'.
   b.   (2;2)   c'   era   M., guardato B.
        there was   M   watch-PP B
        che   correva   (event of a week before)
        that   run-IMP-3SG
        'There was M who watched B running'.
   c.   (2,2,9)   correvo   forte, sono   caduto
        run-IMP-1SG   fast   be-1SG:PRES   fall-PP
        e   piangevo   (event of a few hours before)
        and   cry-IMP-1SG
        'I was running fast, I fell and cried'.

Surprisingly, the *imperfetto* was overextended to the area covered by the *passato prossimo* but the reverse did not happen, i.e. the past participle or the *passato prossimo* were never overextended to imperfective uses.

(26)   a.   (2;1;11)   ieri   Beppe tirava   su
        yesterday Beppe pull-IMP-3SG   up
        l'   aratro.   (event occurred an hour before)
        the   plough
        'Yesterday Beppe pulled up the plough'

b. (2;3;15) mi   sono   punto [self-correction]
           REFL be-1SG:PRES prick-PP
           mi   pungevo.   (event of a few hours before)
           REFL prick-IMP-1SG
           'I pricked myself'

Calleri indicated that the *imperfetto* is used as a general deictic past to signal that the event and its concrete effects are definitely over. Therefore the *imperfetto* is overextended when the results of the event are no longer visible because of the interval between the time of the utterance and the time of the event.

(27) a. (1;10;13) buttati   (said immediately after the event)
                  throw-PP-Mpl
                  'Thrown'
     b. (2;1;26) buttavo la cipolla.   (event occurred a few hours before)
                  throw-IMP-1SG the onion
                  'I threw the onion'

The *imperfetto* can be overextended by attraction in that an *imperfetto* in the utterance can attract a subsequent one. This overextended use of the *imperfetto* was also observed by Bazzanella & Calleri (1991) in the narratives of three-year-olds. While the past participle and the *passato prossimo* are used with telic predicates to mark resultativity, the *imperfetto* is first used as a default past tense that neutralizes the perfective/imperfective distinction and only later is extended to counterfactual contexts such as story-telling. The pattern of the *imperfetto* suggested in Calleri (1990) is specular to that indicated by Antinucci & Miller (1976). However, there is a similarity between the children's use of *imperfetto* in the two studies: with this tense, the children distance themselves from the event they describe. This leads to non-actuality in Antinucci & Miller (1976; 24a&b above) and to underextension of the participle/*passato prossimo* in Calleri (1990; 27b above). It should also be noticed that Calleri (1990) does not provide a data analysis in terms of lexical aspectual categories, therefore a distributional bias can not be observed.

Second Language Acquisition

In second language acquisition, the aspect hypothesis was initially formulated by Andersen (1986, 1989, 1991) as defective tense hypothesis, following Weist et al (1984).

> In beginning stages of language acquisition only *inherent aspectual* distinctions are encoded by verbal morphology, not tense or grammatical aspect. (Andersen 1991: 307)

For the first time in second language research, Andersen applied the Vendler (1967) classification to the analysis of L2 Spanish data collected through a quasi-longitudinal study of two L1 English speakers, one child and one pre-adolescent. Findings show that at first, the preterit is restricted to achievements whereas the imperfect is restricted to states. The acquisitional sequence of the preterit and that of the imperfect are specular, although the former starts earlier than the latter

> PRETERIT: achievement > accomplishment > activity > state.
> IMPERFECT: state > activity > accomplishment > achievement.

The defective tense hypothesis is too difficult to sustain because it postulates a strong clear-cut distinction between tense and aspect. As a relative version of the defective tense hypothesis, the aspect hypothesis predicts that 'early morphology is predominantly guided by aspectual characteristics of the verbs (or the situation they describe)' (Andersen & Shirai 1994: 137) and it is generally supported in both first and second language acquisition (see Bardovi-Harlig 2000 for a thorough overview). However, a point of controversy lies in the overgeneralization of the progressive to statives, which is reported in some L2 studies (Robison 1990).

Andersen & Shirai (1994, 1996) suggested that learners could associate the English progressive with the expression of imperfective aspect in their native tongue since progressiveness is a component of imperfectivity. However, as a far as I know, very few studies have addressed the issue of language transfer in the acquisition of tense-aspect morphology. One of them is Giacalone Ramat, (cf. this volume) who observed L1 influence in adult acquisition of Italian. An earlier study is Flashner (1989). In the English narratives of three L1 Russian speakers, she observed that their tense-aspect system was characterized by the basic past/nonpast opposition: the regular and irregular past forms encoded perfective aspect, whereas the base form encoded imperfective aspect. Furthermore, the past/nonpast alternation correlated with the foreground/background discourse distinction in that past morphology expressed the foreground of narratives, whereas the base form expressed the background. Flashner (1989) attributes the learners' use of past morphology for perfective contexts and the base form for imperfective contexts to transfer from their L1 since in Russian the perfective is the morphologically marked member of the perfective/imperfective distinction. According to the author (Flashner 1989: 96): 'this research argues for the existence of systems in interlanguage which reflect a form-function correspondence with the learner's native tongue'.

The bi-directional study presented in the next section intends to bring a contribution to the research of L1 influence in the acquisition of L2 tense-aspect morphology. But first, I will review some empirical studies concerning tense-aspect morphology in child L2 acquisition of English and Italian.

Child L2 English studies

The two studies reviewed in this section exhibit different learning environments and first languages. In Housen (1995), the children are native speakers of French and Dutch learning L2 English in an instructed environment; in Rohde (1996), the children are native speakers of German learning L2 English in a naturalistic environment.

Housen (1995) observed six ESL learners of the European Schools in Belgium for three years. The participants, three French L1 girls (SAH, LEN, MAG) and three Dutch L1 girls (FLU, EMA, EVA) were eight at the beginning of the study. These learners differ in the amount of L2 exposure outside ESL classes: EVA and EMA have the most, SAH, LEN, MAG, FLU have little or hardly any. There is also one French-Dutch bilingual, EMA. Data were collected at six-month intervals through spontaneous and elicited production, comprising conversation, personal narration, picture description and story retelling. The researcher found that the strongest support in favour of the aspect hypothesis came from the distribution of the progressive marker. This morpheme was primarily associated with durative-dynamic predicates, i.e. activities and, to a lesser extent, accomplishments.

(28)	a.	SAH1:	she dancing	(ACT)
	b.	LEN2:	uh I swimming.	(ACT)
	c.	MAG3:	and then a man coming.	(ACC)
	d.	FLU2:	and there they are # helping him.	(ACT)
	e.	EMA4:	and that they were making a film.	(ACC)
	f.	EVA1:	his nose was blooding.	(ACT)

Gradually, the progressive spread to other aspectual classes, even to states. Stative progressives appeared in the interlanguage of the L1 Dutch speakers.

(29)	a.	FLU1:	here it is raining.
	b.	EVA5:	I was feeling real 0 [=! retches].
	c.	EMA4:	well I was knowing that.

In Housen's analysis, states include predicates indicating weather (*rain, shine*) and posture (*stand, stay*). In my analysis, weather predicates are classified as activities and so are postural predicates, when the subject is animate. Furthermore, as argued earlier, stage-level predicates like (29b) are entirely compatible with the progressive. The French-Dutch bilingual, EMA, is the learner who produced most tokens of stative progressives (64). Interestingly, the one in (29c) would be equivalent to a French *imparfait*.

The influence of telicity and punctuality on past/perfect morphology was not so strong as predicted. Following Pinker and Prince (1991), Housen distinguished irregular morphology, acquired through associative rote-learning, from regular

morphology, acquired through productive rule-learning. In his data, lexical aspect only seems to affect the latter but not the former. From a developmental perspective, rote-learning precedes rule-learning. This could also explain why the link between lexical aspect and verbal morphology was less strong in the L1-French learners than in the L1-Dutch learners. The former group was overall less proficient than the latter group and never reached the stage where they could use the regular past morphology productively.

(30) a. MAG5: uh no but my father and mother go there +…   (ACC)
    b. LEN4: And then we come back to the house.   (ACC)
    c. SAH5: but I have stop it +…   (ACH)

By contrast, the L1-Dutch learners' applied past morphology productively without initial restriction to telic predicates.

(31) a. EVA1: and uh we eated@il.   (ACT)
    b. EMA1: and he heard uhm +…   (STA)
    c. FLU1: I liked it.   (STA)

Housen also argued that learners are predisposed by the basic distinctions in their L1 tense-aspect system and look for similar distinctions in the L2 input. This is the case of the past/non past distinction. Different is the case of the progressive/nonprogressive distinction, since their native languages, French and Dutch, do not obligatorily encode progressive aspect. Here the learners would resort to conceptual prototypes and interpret the progressive as a marker of inherent durativity. However, although French and Dutch do not obligatorily mark the progressive/nonprogressive alternation, their tense-aspect systems are indeed different. Unlike Dutch, French encodes the perfective/imperfective distinction and progressiveness is a component of imperfectivity.

    Using naturalistic L2 data collected by Wode (1981), Rohde (1996) analyzed the speech of two L1-German children, Lars (6) and Heiko (9). These children had learned L2 English during a six-month stay in California in1975. Their speech was tape-recorded and transcribed in a diary on a day-to-day basis for the entire stay. A type analysis showed a link between verb morphology and lexical aspect: past morphology, regular and irregular, is strongly associated with achievements (32a&b), although the irregular past also appeared with statives such as *was, saw, had*.

(32) a. Inga teared it apart.   (Heiko 2;2–ACH)
    b. I lost my shoe.   (Heiko 2;7–ACH)

Statives are mostly encoded by the present inflection *-s*, which developed later than the progressive and the past.

(33) a. Who likes to fish?   (Lars 4;0–STA)
        b. Heiko knows how to do it.   (Lars 4;11–STA)

Contra the predictions of the aspect hypothesis, the progressive appeared not only with activities (34) but also with achievements (35), although with the latter the time reference is future, not past. Three stative progressives (*loving, smelling, seeing*) are also reported.

(34) a. I think Birgit was kissing.   (Lars 4;4–ACT)
        b. What are you doing Craig?   (Heiko 1;17–ACT)

(35) a. I'm coming down in a minute. (Lars 4;27–ACH)
        b. I'm stealing.   (Heiko 1;18–ACH)

The findings in Rohde (1996) appear to be at variance with those in Housen (1995). In the former, irregular and regular past forms are closely linked to achievements, whereas in the latter the correlation between telic predicates and past morphology is not so strong and mainly affects regular past forms. As to the progressive, it is distributionally biased towards activities in both studies, but in Rohde (1996) it is also strongly affiliated to achievements. The two studies show the links past-telicity and progressive-activities but the strength of the correlation varies. However, the comparison between the two studies could be hampered by the dissimilar learning profiles of the participants.

Child L2 Italian studies

The studies reviewed here present typologically distant L1s and different 'types' of acquisition. In Calleri (1992), the children are native speakers of Chinese learning Italian as a second language, whereas for the Swedish-Italian learners in Wiberg (1996) Italian is a heritage language. Calleri (1992) investigated the acquisition of Italian temporal morphology in two Chinese six-year-olds that attended a primary school in Turin. The interviews took place over a year's time and consisted of semi-structured dialogues. SR, who arrived in Italy a year before, had 19 interviews and DZ, who arrived in Italy only two months before, had 17 interviews. In both children's speech, the present and the infinitive were present since the beginning of the study. The present was the form that elicited most preferences and was used to describe actual as well as future situations and, aspectually, to mark durativity. The third person singular inflection was frequently overextended to the first. The infinitive alternated with the present but appeared to be restricted to durative predicates, as previously noticed by Berretta (1990) in the interlanguage of six learners (five adults and one child) from various L1s. The past participle emerged early and occurred primarily with telic predicates (*finito* 'finished', *chiuso* 'closed', *fatto* 'done', *colorato* 'coloured', *tolto* 'removed', etc.). The morphology of the past

participle is generally correct, with only two errors involving number agreement. The past participle alternates with the *passato prossimo*, which appeared in SR on the 6th interview and in DZ on the 9th one. The compound past is problematic for the children, who frequently produced forms such as *ha prendi* or *ha disegnare*, where the past participle is replaced by a present or an infinitive. Furthermore, the perfective auxiliary *essere* is overextended to *avere*. Finally, towards the end of the study, the *imperfetto* emerged with the modal function of counter-factuality. It is almost exclusively employed with *essere* and can generally be replaced by a conditional (SR14: *era qui questo* 'this was here', while playing with a jigsaw; DZ13: *cos'era questa?* 'what was this?'). Calleri (1992) concluded that the temporal system of the children consists of an opposition between unmarked forms (present and infinitive) and marked forms (past participle and *passato prossimo*). This opposition is initially aspectual and then temporal. Later, a modal opposition between present/past participle/*passato prossimo* and *imperfetto* is added. Furthermore, the children's temporal system seemed stabilized: two interviews carried out a year and a half later showed that although their interlanguage developed, their temporal morphology remained basically unchanged.

Wiberg (1996) conducted a study on the reference to past events in 24 Italian-Swedish children aged between 8 and 17 years. All the children had an Italian and a Swedish parent and were born and live in Sweden. She also collected L1 Italian data in Rome from ten secondary school children aged 10–14. In this baseline data, the type of discourse appears to affect the choice of predicate types marked by the *passato*. The *passato prossimo* occurs with both telic and atelic predicates in personal retellings (36) but when retellings turn into narratives, telic predicates are generally preferred (37).

(36)   EVA: a Pitigliano quindi? (talking about the Christmas holidays)
                 [at Pitigliano then?]
         AIO: mhm *è stato* un tempo abbastanza freschino no + …
                 [it was a rather chilly weather, wasn't it]
         EVA: mm.
         AIO: eh invece *siamo rimasti* tutti a casa con gli amici. *Abbiamo giocato* # quello che si fa di solito a Natale in tutte le famiglie # *abbiamo giocato* a tombola a carte a poker. *Sono riuscito* un po' a guadagnare un po' di soldini diciamo.
                 [eh, we all stayed at home instead with the friends. We played # what you usually do at Christmas in every family # we played bingo, cards, poker. I managed to earn some money, let's say]

(37)   DLE: eh sì l'anno scorso a Natale mm la Vigilia *siamo andati* a cena fuori +…

[eh yes, last year at Christmas mm at Christmas Eve we went
out for dinner]

EVA: mm.

DLE: +, eh mm *siamo tornati* verso mezzanotte l'una, diciamo.
[we came back at midnight, one o'clock let's say]

EVA: mm.

DLE: il giorno dopo al mattino verso le cinque e mezza sei, io e mio
fratello *ci siamo svegliati* mentre i nostri genitori dormivano e
siamo andati ad aprire i regali.
[the day after in the morning around five — thirty six, I and
my brother woke up while our parents were sleeping and went
to open the gifts]

EVA: hehe mhm mm.

DLE: poi *abbiamo svegliato* i nostri genitori e gli abbiamo dato i nostri
regali.
[then we woke up our parents and gave them our gifts]

Wiberg divided the L2 Italian children into four 'bilingual levels' according to their
proficiency in the target language. The analysis of their spontaneous production
elicited through partially planned dialogues revealed a predominance of the participle/*passato prossimo*, 253 tokens, over the *imperfetto*, 91 tokens. Past participles
decrease with proficiency levels whereas the *passato prossimo* increases in the two
upper levels, which also show a consistent use of the *imperfetto*. Furthermore, the
most proficient learners moved from personal retellings to narratives, thus displaying the same discourse tendencies that Wiberg noticed in the Italian children.

(38) a. EVA: ah sì? E che hai fatto?
[yes? what did you do?]

         VER: eh # *giocato* # mm # *andato* a mare # e +… (Lev 1)
[eh # played (PP) # mm # went (PP) to the sea # and…]

    b. EVA: l'anno scorso che hai fatto, d'estate?
[what did you do last year during the summer?]

         CLA: eh *abbiamo stati* a Riccione. (Lev 2)
[eh, we were in Riccione]

    c. EVA: e com'era lì?
[and what was it like there?]

        AND: *era* bella # e *abbiamo visto* un gatto morto che *era* nell'acqua
pure. (Lev 3)
[it was nice # and we also saw a dead cat that was in the water]

    d. TAM: …io che *andavo* nel # che *dovevo* cominciare la quinta *avevo*
studiato inglese un anno. *Sapevo* quasi meglio l'inglese che la

mia professoressa (Lev 4)
[I who attended the # who was going to begin the fifth and
studied English for a year I almost had a better knowledge of
English than my teacher]

Wiberg argued that the *passato prossimo* represents a default past tense, used with all predicate types. On the other hand, support from the aspect hypothesis comes only from the restriction of the *imperfetto* to prototypical states such as *essere*. The link between the emerging *imperfetto* and *essere* is documented in other L2 Italian studies (Bernini 1990; Giacalone Ramat 1990, 1995).[5]

To sum up, the learners in Calleri (1992) and in Wiberg (1996) differ in learning environments, L2 proficiency, amount and type of L2 exposure. In Calleri (1992), the most frequent form is the present tense whereas in Wiberg (1996) the most frequent is the *passato prossimo*, which represents a default past tense. In the former study, the *passato prossimo* is less used than the bare past participle, which is mainly restricted to telic predicates. A similarity between the two studies is the late emergence of the *imperfetto* and its strong link to stative predicates, *essere* in particular. However, the *imperfetto* in Calleri (1992) generally expresses modality, whereas in Wiberg (1996) it expresses the background of narratives. In the next section, I will present the bi-directional study that I conducted.

The study

Research objectives

Bearing in mind the predictions of the aspect hypothesis, the main objective of this research is the acquisition of temporal morphology in Italian and English as both the source and target languages of children aged between seven and nine years. As to tense-aspect, Italian and English are typologically different and the bi-directionality of the study will allow the analysis of language transfer in these two languages. The aim is to observe the occurrence of this phenomenon and its directionality from one language to the other.

Methodology

Participants

The participants in this study are 3 pupils of the European School in Oxford (England) and 3 pupils of the European School in Varese (Italy). The first group of

learners is composed of two boys aged 7 (DAN, MAT) and one boy aged 8 (BER). They are native speakers of Italian born in Northern Italy from Italian-speaking parents. They receive L1 Italian instruction and learn English as L2. At the start of the study, they were all attending a beginners' class. They had no previous knowledge of English before going to England. MAT had been resident in UK for 6 months, DAN and BER for one year and a half. The second group of learners shares a similar background. They are two girls aged 8 (FER, HEL) and one girl aged 7 (LOU). They are native speakers of English born in England from English-speaking parents. They are taught in their native tongue but they learn French, and not Italian, as L2. They had no previous knowledge of Italian before going to Italy. Before starting the European School, they all attended Italian nursery schools ('scuola materna') for approximately a year in the area of Varese (Northern Italy), where they live. At the beginning of the study, they had been resident in Italy for 4 years and 9 months. A noticeable difference between the two groups is the length of residence in the L2 country. This difference is motivated on several grounds. First, Italian encodes aspectual oppositions only in the past and the *imperfetto* represents a late acquisition in both L1 and L2, as indicated in the previous section. Furthermore, the L2 Italian children, unlike the L2 English children, do not receive L2 instruction. Since they are educated in their L1 and they also speak it at home, the exposure to the L2 is limited therefore it seems reasonable to assume that the learning pace would be rather slow.

Data analysis

The study is bi-directional and longitudinal. Each participant took part in 15 sessions spread over a period of 6 months, at 1–2 week intervals between each session. Each 30-minute session consists of three parts: the first part serves as a warm-up and elicits spontaneous production about any past events related to the children's everyday life. The other two parts are more structured: retell task and cloze. In the former, the child retells a silent movie projected for a few minutes; in the latter s/he supplies, orally, the missing verbs of a picture story. In both tasks, I presented the children with verbs in the base form, to ensure comparability of results. Each child produced an average of 30 verb tokens per session.

Adopting an across-category analysis (Bardovi-Harlig 2000), the spreads of four verb forms are illustrated: for English, the simple past and the progressive; for Italian, the p*assato*, which includes bare past participle and compound past, and the *imperfetto*. Each predicate[6] is assigned to one of Vendler's (1967) four lexical aspectual classes (STA – states, ACT – activities, ACC – accomplishments, ACH – achievements) according to operational tests adapted from Dowty (1979) and Van

Valin & LaPolla (1997) *inter alia.* As to the verb tokens produced by both groups, accomplishments elicited the highest number of preferences, followed in order by activities, achievements and states.

L2 English data

Table 1. Spread of the simple past

Tokens

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
STA	0	0	0	0	0	0	0	2	0	1	2	4	2	4	3
ACT	0	0	0	1	1	5	1	9	6	11	10	17	15	13	17
ACC	2	2	7	16	12	22	19	31	34	29	27	39	30	31	45
ACH	3	8	5	7	16	16	24	18	8	14	19	34	21	23	21
TOT	5	10	12	24	29	43	44	60	48	55	58	94	68	71	86

Percentages

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
STA	0	0	0	0	0	0	0	3.3	0	1.8	3.5	4.3	2.9	5.6	3.5
ACT	0	0	0	4.2	3.5	11.6	2.3	15	12.5	20	17.2	18	22	18.3	19.8
ACC	40	20	58.3	66.7	41.4	51.2	43.2	51.7	70.8	52.7	46.6	41.5	44.1	43.7	52.3
ACH	60	80	41.7	29.2	55.2	37.2	54.6	30	16.7	25.5	32.8	36.2	30.9	32.4	24.4
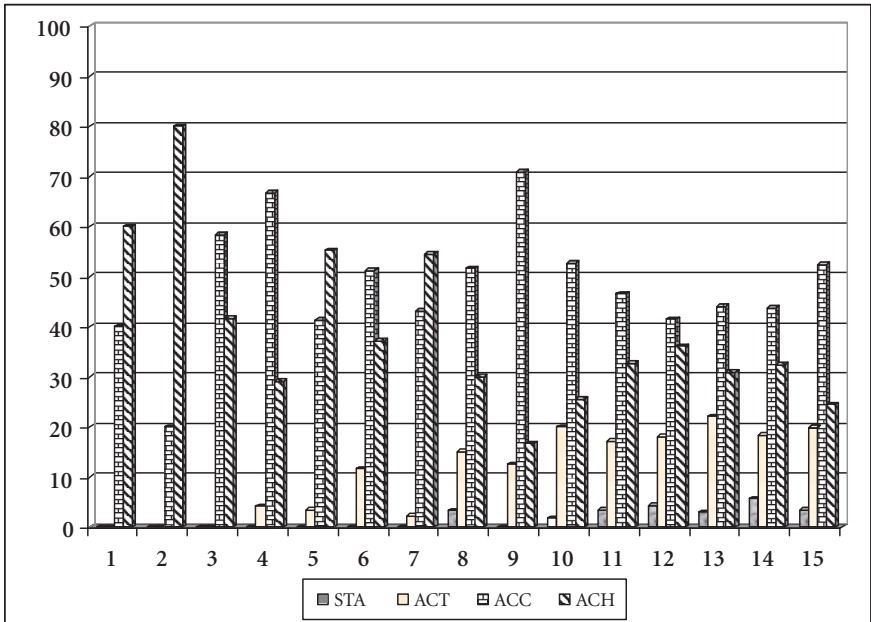
Table 2. Spread of the progressive

Tokens

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
STA	0	0	0	0	0	0	7	3	1	3	9	4	7	8	5
ACT	12	10	18	16	24	11	26	24	21	16	16	11	11	8	8
ACC	1	5	1	1	5	2	5	2	0	0	0	0	0	1	0
ACH	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
TOT	13	15	19	17	30	13	38	29	22	19	25	15	18	17	13

Percentages

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
STA	0	0	0	0	0	0	18.4	10.3	4.5	15.8	36	26.7	38.9	47.1	38.5
ACT	92.3	66.7	94.7	94.1	80	84.6	68.4	82.8	95.5	84.2	64	73.3	61.1	47.1	61.5
ACC	7.7	33.3	5.3	5.9	16.7	15.4	13.2	6.9	0	0	0	0	0	5.9	0
ACH	0	0	0	0	3.3	0	0	0	0	0	0	0	0	0	0
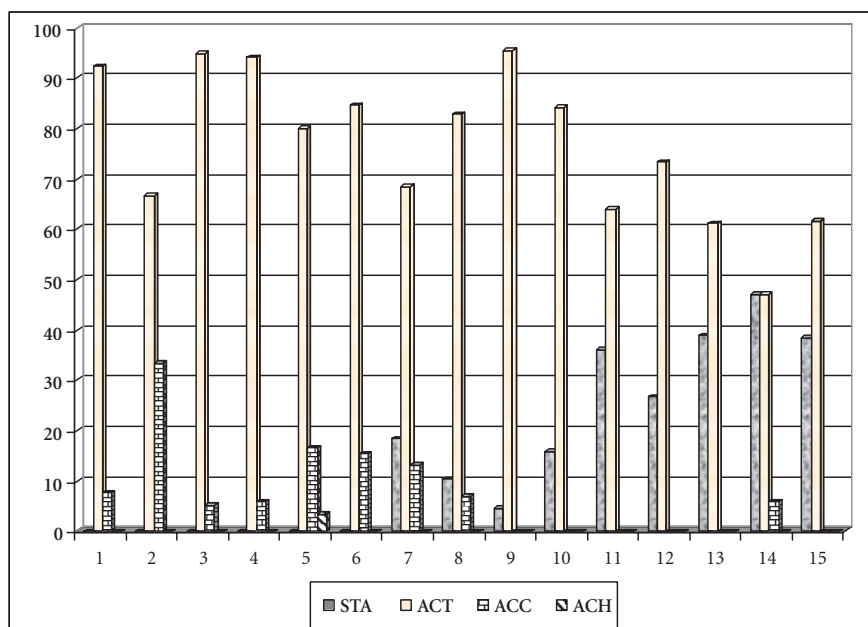
Past morphology, both regular (39) and irregular (40), is predominant with telic predicates since the beginning of the study. Furthermore, the presence of regularized forms shows the productive use of the -*ed* morpheme (41)

(39) a. DAN1: Freddie arrived.
        MAT2: But then she arrived in 'quinta'.
        BER2: I finished the picture.

(40) a. DAN2: Last Friday I went to the Valley of the White Horse.
    b. MAT2: The truck left.
    c. BER2: The old tree fell.

(41) a. BER1: The bird flied to the lion.
        MAT5: I taked a ladybird.
        DAN6: The donkey flied to the flowers and eated the flowers.

Gradually, past morphology spreads to activities and then to states, although it appears to a lesser extent with the latter. However it is the progressive, remaining bare throughout the study (42), that reveals a strong affiliation with activities.

(42) a. MAT1:   I playing with my cousin and I watching the video.
        MAT7:   Bambi walking in the snow.
        MAT15: Then we playing with the fishes in the pond.
        DAN1:   The zebra running.
        DAN8:   I sleeping because I am very tired.
        DAN15: I swimming in the sea.
        BER2:   The mushroom dancing.
        BER7:   A long time ago it carrying precious things.
    i. BER15: She drawing with a magic pencil.

Furthermore, in the second half of the study, stative progressives emerge.

(43) a. DAN8:   Because the daddy wanting a book of Oxford.
        MAT8:   I crying because I wanting the my mummy.
        BER11: Bunny wanting to catch the little devil.

Wanting is the most frequent stative progressive (20/47); others include *seeming, belonging, knowing* and *needing*.

L2 Italian data

Past marking is prevalent with telic predicates. It appears mostly in the form of bare past participles (44). The compound past is present in FER since the beginning of the study (45a), in HEL it surfaces in the fourth session (45b) and in LOU in the eigth (45c). The compound past is formed by a past participle generally preceded by the auxiliary *avere* ('have'). This functions as a default perfective auxiliary and is frequently overgeneralized, as in (45a&c) where *essere* should be selected.

Table 3. Spread of the passato

Tokens

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
STA	0	0	0	0	1	3	7	1	2	10	5	9	10	12	8
ACT	2	7	6	6	7	7	6	11	12	16	12	15	17	17	16
ACC	19	22	23	27	27	26	24	35	26	28	17	29	25	26	43
ACH	13	15	19	13	27	24	23	21	16	15	13	34	18	22	28
TOT	34	44	48	46	62	60	60	68	56	69	47	87	70	77	95

Percentages

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
STA	0	0	0	0	1.6	5	11.7	1.5	3.6	14.5	10.6	10.3	14.3	15.6	8.4
ACT	5.9	15.9	12.5	13	11.3	11.7	10	16.2	21.4	23.2	25.5	17.2	24.3	22.1	16.8
ACC	55.9	50	47.9	58.7	43.5	43.3	40	51.5	46.4	40.6	36.2	33.3	35.7	33.8	45.3
ACH	38.2	34.1	39.6	28.3	43.5	40	38.3	30.9	28.6	21.7	27.7	39	25.7	28.6	29.5
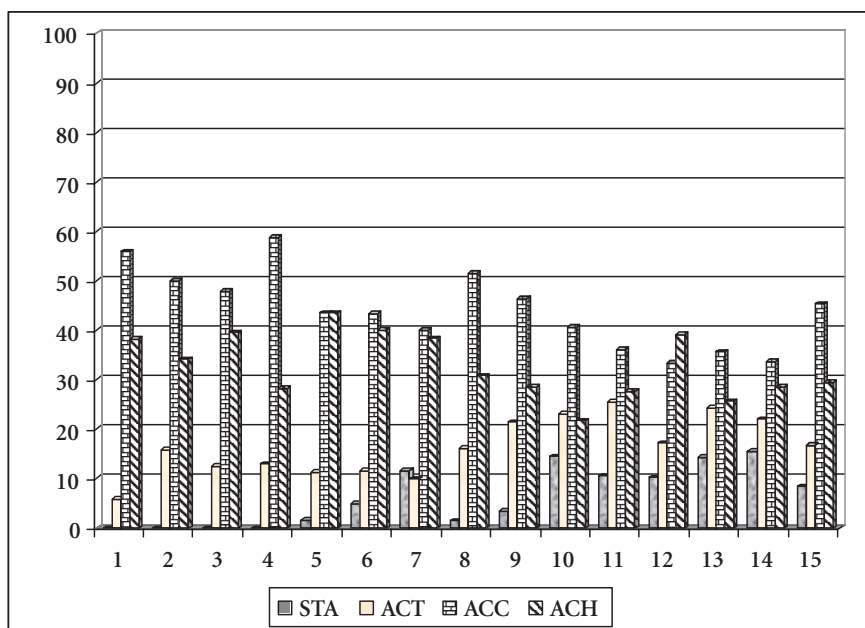
Table 4. Development of the imperfetto

Tokens

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
STA	11	15	6	3	4	6	3	1	0	3	5	4	4	4	2
ACT	8	10	16	15	21	12	19	9	12	10	15	7	8	11	5
ACC	0	2	3	4	1	2	0	2	2	0	0	1	3	1	0
ACH	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
TOT	19	27	25	22	26	21	22	12	14	13	20	12	15	16	7

Percentages

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
STA	57.9	55.6	24	13.6	15.4	28.6	13.6	8.3	0	23.1	25	33.3	26.7	25	28.6
ACT	42.1	37	64	68.2	80.1	57.1	86.4	75	85.7	76.9	75	58.3	53.3	68.8	71.4
ACC	0	7.4	12	18.2	3.8	9.5	0	16.7	14.3	0	0	8.3	20	6.3	0
ACH	0	0	0	0	0	4.8	0	0	0	0	0	0	0	0	0
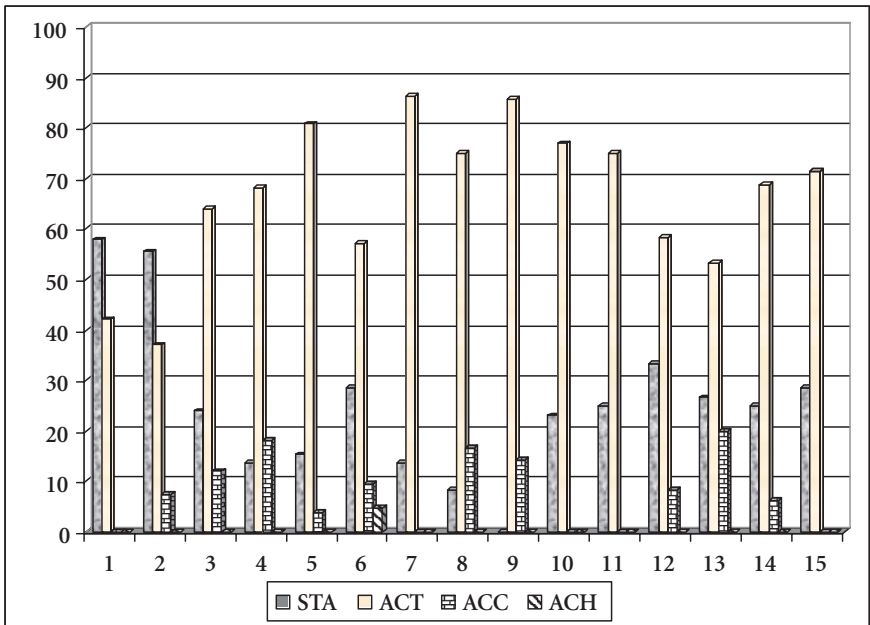
(44) a. HEL1: Io andato al   giardino.
                 I go-PP   to.the garden
                 'I went to the garden'.
      b. LOU6: Tutti   mangiato i   biscotti.
                 everybody eat-PP   the biscuits
                 'Everybody ate the biscuits'.
      c. FER15: Mio papà venuto   con me.
                 my dad come-PP with me
                 'My dad came with me.

(45) a. FER1: Ho   andato a una festa di cavalli piccoli e
                 have.1SGPRES go-PP   to a   party of horses small   and
                 grande.
                 big
                 'I went to a party for big and small horses'
      b. HEL4: Lui ha   prendato tanti di uh come si
                 he has.3SGPRES get-PP   a.lot of how IMP
                 dice presents?
                 say.3SG
                 'He got a lot of uh how do you say presents?'
      c. LOU8: Mercoledì io ho   andato a   cavallo.
                 wednesday I have.1SGPRES go-PP   on   horse
                 'On Wednesday I went horse-riding'.

However, the correlation between telicity and past marking is not as strong as in the L2 English data. In fact, from the first sessions, FER and HEL encoded activities in the past (46a,b). However, in LOU past marking on activities surfaced later (46c).

(46) a. FER1: Qualcuno aiutato.
                 somebody help-PP
                 'Somebody helped'.
      b. HEL2: Guardato la   televisione.
                 watch-PP the television
                 'I watched television'.
      c. LOU7: Mio papà guidato due ore   e   mezza.
                 my dad drive-PP two hours and   half
                 'My dad drove for two hours and a half.

The *imperfetto* primarily marks activities.

(47) a. HEL2: Suonava   l' arpa.
                 play-IMP-3SG the harp
                 'He played/was playing the harp'.

b. FER7:   Saltava,   pattinava   e   rideva.
             jump-IMP-3SG   skate-IMP-3SG   and   laugh-IMP-3SG
             'He jumped, skated and laughed/ he was jumping, skating
             and laughing'.

c. LOU13:   Bugs Bunny giocava   dadi con la   bambino.
             Bugs Bunny play-IMP-3SG   dice with the   boy
             'Bugs Bunny played/was playing dice with the boy'.

Initially, the *imperfetto* is strongly associated with statives.

(48) INV: L' albero brutto…
                  the tree   ugly
                  'The ugly tree…'
      LOU2-FER2-HEL2:   Voleva   l'   albero bello.
                        want-IMP-3SG   the tree   beautiful
                        'He wanted the beautiful tree.

However, this initial strong link gradually fades leading to the *imperfetto* being underproduced with statives.

(49) a. FER12:   Il   soldato voluto   arrestare   Bugs Bunny uh
                    the soldier want-PP arrest-INF Bugs Bunny
                    Bugs Bunny è   scappato.
                    Bugs Bunny be.3SGPRES escape-PP
                    'The soldier wanted to arrest Bugs Bunny but Bugs Bunny
                    escaped'.

      b. HEL13:   Mia piccola sorella gridava   perché lei
                    my   little   sister   scream-IMP-3SG because she
                    voluto   uno yogurt al cioccolato.
                    want-PP a   yoghurt at chocolate
                    'My little sister screamed/was screaming because she
                    wanted a chocolate yoghurt'.

      c. INV: Sul   fiume c'era   un ponte di legno e
                   on.the river   there was a bridge of wood and
                   sotto questo   ponte BEEP un orco brutto e   cattivo.
                   under this   bridge   a troll ugly   and evil
                   'Over the river there was a wooden bridge and under this
                   bridge BEEP an evil ugly troll'.

          LOU: Ha   vivuto.
                  have-3SGPRES live-PP
                  'Lived'.

In the above examples, past forms (*voluto, ha vivuto)* are overextended to background contexts which would normally be expressed through an *imperfetto*.

Discussion

This bidirectional study supports the aspect hypothesis in that the spread of verb morphology appears to be influenced by the lexical aspect of the predicate. This bias is more evident in the L2 English children than in the L2 Italian children. This is consistent with the aspect hypothesis, which applies primarily to the early developmental stages of verb morphology. In fact, the association of the *imperfetto* with activities in the L2 Italian children indicates a more advanced interlanguage development, since, according to the aspect hypothesis, the imperfetto is first restricted to states and then extended to activities. This restriction to states is still visible in the initial sessions of the study. What is interesting in the L2 Italian data is that the spread of the *imperfetto* to activities coincides with its gradual underextension to states. As a result, the past participle/*passato prossimo* takes over and becomes the default option for states. For example, the stative *volere* ('want'), initially inflected in the *imperfetto*, is later marked by a past participle (*voluto*) or by a *passato prossimo*, with *avere* as auxiliary, in contexts where an *imperfetto* would be generally required. The overextion of the past participle/*passato prossimo* to imperfective contexts is not reported in L1 acquisition of Italian. I argue that this overextension of the past participle/*passato prossimo* and related underextension of the *imperfetto* is an effect of L1 influence. Progressivity and stativity are logically incompatible: with the exception of stage-level predicates, the occurrence of the progressive with states is considered as a marked choice. The unmarked choice is represented by a non-progressive form, i.e. the present tense or the past tense, depending on the time reference. This form-function relation transfers resulting in the *imperfetto* being underproduced with states and the past participle/*passato prossimo* becoming the default choice for them. Odlin (1989: 27) defined language transfer as 'the influence resulting from similarities and differences between the target language and any other language that has been previously (and perhaps imperfectly) acquired'. Italian and English both converge and diverge in the way they map aspectual functions onto linguistic forms and this affects the acquisition of verb morphology. Similarities and dissimilarities can be found by comparing the progressive with the *imperfetto*. They both express imperfectivity, which is naturally linked to durativity. In fact, in this bi-directional data, both groups of children associate the progressive and the imperfective marking with durative predicates, namely states and activities. However, if the progressive implies an imperfective meaning, the *imperfetto* does not necessarily imply a progressive meaning. There-

fore, the scope of the *imperfetto* is larger and encompasses progressive and non-progressive forms in the past. The L1 Italian – L2 English children are faced with the task of narrowing down the scope of the *imperfetto* because in the L2 input they are unable to find a form that fully embodies the imperfective function.

If the occurrence of statives with the progressive is confined to stage-level properties or marked contexts, their occurrence with the *imperfetto* is not only natural but highlights the prototypical component of the *imperfetto*, namely continuous aspect. The L2 English data show a high incidence of stative progressives. For example, the stative *want* occurs either as a base form or as a bare progressive. The stative progressive *wanting* can be the result of learners transferring a prototypical feature of the *imperfetto*. As pointed out by Wode (1977) and Zobl (1980), language transfer appears to be developmentally constrained, which explains why this phenomenon is best observed in longitudinal studies. For transfer to occur, the relevant grammatical form has to be present in the learner's interlanguage; in other words, a *locus* for transfer has to be established first. In the L2 English data, the progressive first appears with activities and is later overextended to states; similarly, in the L2 Italian data, the *imperfetto* first appears with states and is later extended to activities and underextended to states. Thus, the initial distribution of the verb morphology in both languages is consistent with the aspect hypothesis and the overextension/underextension patterns related to L1 influence emerge only later. This interaction of language transfer with developmental factors makes it an elusive phenomenon that is difficult to show, for as Kellerman (1983: 112) so succintly put it: 'now you see it, now you don't'.

Acknowledgements

Notes

1. Of course this sentence could be rendered perfectively both in Italian and English.

(i)   La notte scorsa Maria ha ballato con Gianni.
(ii)   Last night Mary danced with John.

Aspectual choices are primarily a matter of personal choice in that it up to speaker to decide whether a situation should be expressed perfectively or imperfectively.

2. The progressive form in English can express habitual meaning. Habituality is characterized by continousness, and continuousness is a distinctive trait of the progressive form which becomes particularly evident when habitual situations are emotionally overstated (31b). In Italian this use of the progressive is disallowed.

(i)   John was regularly eating fruits for breakfast.
(ii)   * Gianni stava regolarmente mangiando frutta per colazione.
(iii)   John is always eating!
(iv)   * Gianni sta sempre mangiando!

Moreover, habituality can combine with progressiveness: a situation can be decomposed into several instances, each one of them is viewed as progressive and the overall situation is viewed as habitual (Comrie 1976: 33). Again, this is possible in English but not in Italian:

(v)   John used to sing happily.
(vi)   Gianni cantava/era solito cantare allegramente.
(vii)   John used to be singing happily whenever we visited him.
(viii) *Gianni era solito stare cantando allegramente quando andavamo a trovarlo.

3. The phenomenon of auxiliary selection in Italian is the subject of a thriving research (Centineo 1996, Sorace 2000, inter alia). Basically, from a lexical-semantic viewpoint, intransitive verbs selecting *avere* (unergatives) are activities, whereas intransitive verbs selecting *essere* (unaccusatives) are achievements, accomplishments and statives.

4. A similar argument holds for the habitual meaning: its peripheral status is pinpointed by availability of various habitual periphrases both in Italian and English: the existence of variation in the linguistic expression of a feature indicates that the feature in question is not prototypical. More to the point, Dahl (1985) noticed that crosslinguistically, habitual aspect tends to be expressed periphrastically and this led him to conclude that habituality generally represents a peripheral meaning in tense-aspect-mood systems. Since habitual aspect is not of direct relevance to the data, its discussion will be limited.

5. One caveat in the study is the 'bilingual' status of the children, with Swedish being the dominant language and Italian being the weaker language. This nomenclature raises issues about the amount and the type of L2 Italian input the children were exposed to. These learners are heterogeneous with regard to their proficiency in Italian, ranging 'from more or less native-like to poor' (Wiberg 1996: 1088) and with regard to their linguistic background in that they have one Italian parent whose place of origin in Italy varies. Furthermore, regional varieties of Italian differ in their usage of tense-aspect forms, as Wiberg herself acknowledges. Thus, the linguistic background of these children is a potentially vitiating variable, especially when addressing the aspect hypothesis, whose predictions apply primarily to the early stages of morphological development.

6. The following cases were excluded from the analysis: predicates with copula 'be' and the Italian equivalent *essere*; instances of 'have got' and *avere* indicating possession; verbs sharing the same form for past and base (e.g. cut, hit).

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Information structure in dialogic future plans

A study of Italian native speakers and Swedish preadvanced and advanced learners of Italian[*]

Eva Wiberg

Introduction

The present article investigates the use and the function of future plans in advanced Italian interlanguage in dialogues produced by Swedish university students, and compares the findings with native speakers of Italian. The two main objectives are (1) to give a general view of the formal and functional means of future plans, including the relationship between present and future tense and the lexical semantic means used, and (2) an investigation into the information structure that the future reference and the tense-switches in surrounding utterances convey. Future plans in native Italian usually involve more than just morphological future or present tense with future meaning. A native-like control of future plans requires syntactic skills of subordination, as well as skills in producing quick tense changes in utterances immediately linked to the future reference that is given. The native speaker thus informs the interlocutor about more than just future events. The information in quick dialogic turns requires a good "procedural knowledge," that is, the knowledge retrieved from the working memory in "on-line" speech production.

The advanced L2 speakers studying Italian at university have a good knowledge of how to construe future plans in their long-term memory, where the "declarative knowledge" is required. However, the findings in this study show that the students, though situated at high levels of proficiency, show deficiencies in procedural knowledge when it comes to the quick tense changes linked to future reference, compared with the native speaker. Even though the L2 speakers have almost the same formal means to express future events as the natives, the information structure in L2 future plans refers to the future more coherently, with fewer tense

switches linked to present or past events, thus being less complex in its information than within the natives. The coherency is shown in a stricter way of sticking to future or present tense with telic verbs, and with fewer links of the future reference to related events in the present or in the past. The verb type might be an important factor when considering prototypical future reference, that is morphological future and present tense, showing that the more constrained the speaker's production, or procedural skill, is, the less prone he will be to use other verb types than the prototypical telic ones. The L2 students need more time and more turn constructions in the dialogue but still do not quite reach the integration between the switches that seems to accompany future plans in Italian NS' dialogues.

Temporal reference

Temporal reference is a rather well studied phenomenon within SLA research and especially studies concerning past reference (cf. Andersen 1991; Andersen and Shirai 1994; Bardovi Harlig 1995, Giacalone Ramat 1990; Kihlstedt 1998; Noyau 1991, Salaberry 1999), where the three categories tense, grammatical and lexical aspect (Aktionsart) have been studied within typologically different target languages, revealing similarities and differences in the morphology and the function of the different tenses. Future reference has been much less investigated, with the few existing studies, especially when it comes to Italian L2, concerning mainly formal issues (Berretta 1990). Simple future is the last main tense that appears in the interlanguage of Italian L2 learners (Giacalone Ramat 1993; Berretta 1990) and among bilingual youths (Wiberg 1997). Furthermore, future sense can be expressed through present tense but also with other constructions that require syntactic skills that go beyond the simple phrase. The field of future reference would therefore be a good issue for analyzing advanced L2 interlanguage of Italian.

The present investigation concerns the information structure in personal future plans produced by Swedish advanced learners of Italian at different levels, compared with those of Italian natives. The advanced learners constitute a particular group of learners that can be denoted "qualified learners" (cf. discussion in Bartning 1999), of the same kind as the university students analyzed by Kihlstedt (in this volume). The "qualified learners" have studied the target language at high school and for shorter or longer periods at university, and have also visited the target language country to a certain extent. Their implicit knowledge of target language grammar and phraseology is rather fine-grained. Furthermore, they have studied at least a third language at high school. The subdivision into different advanced levels is not easily done, the reasons for variation with respect to native uses being sometimes individual, sometimes due to the task. Bartning (1999) uses

the term preadvanced (pré-avancée) for those interlanguage levels that go beyond the post-basic varieties (proposed by Dietrich et al. 1995: 206,). The preadvanced level has, among other qualifications, that of a certain mastery of morphology and subordination (Dietrich et al. 1995; Bartning 1999).

Unlike reference to past events, future reference seems to be a type of discourse that seldom appears for long sequences in dialogues (Wiberg 1997: 236; 2000). Data from bilingual (Italian-Swedish) and native (Italian) youths indicate that micro-texts concerning future events in dialogues are often mixed with other comments that include the speech time, or refer to events that have taken place earlier, but are somehow linked to the future reference introduced (Wiberg 2000). One question that arises is: do the L2 speakers manage to make the quite natural shifts to present/past events that are found in native Italians, or do they keep a more coherent representation of future events, using verbs that clearly express the future meaning, i.e. telic verbs, and making the information structure less complex? Intuitively, the native speaker's production of rather complex future reference that contains many shifts in the domain of tense in a dialogic situation, where there is little time for hesitations, makes us assume that the task of producing such a micro-text should be rather laborious even for the advanced L2 speaker. The capacity of producing future events in dialogues by university students who receive formal instruction at the university level should therefore constitute a good test of the "on-line" skills of tense shifts in L2 speakers at a pre-advanced/advanced level compared to those of native speakers.

Analyzing the information structure in dialogues concerning future reference, the learners may, just like natives, try to make many topic shifts, or alternatively they could stick to single future references, skipping the more laborious processing of domain shifts linked to the future reference in natives. The elimination of laborious processing procedures may be seen in the light of differences in information packaging between natives and L2 speakers. The information packaging is the sets of instructions, part of the propositional content of utterances, with which the speaker directs the hearer so that she/he can retrieve information in an optimal way into her/his knowledge store (Vallduví 1992). The information packaging in L2 could be seen as less complex than the one produced by Italian natives (both from a syntactic and from a text-structure point of view, cf. e.g. Ahrenholz 1998; Giacalone Ramat 1999b; Chini 1998). One possible difference would then be a stricter way of keeping the event time (E) after the speech time (S) for a long stretch of discourse.

Processing and information structure in L2

Studying "qualified" L2 learners from a point of view of the discourse in dialogues where the speaker has no time to reflect, means focusing on language processing

that is somehow automatic within the speaker, without having the possibility of digging into such knowledge that has been learnt formally but that still is not automatic. Several studies have proposed different models to account for this, since Krashen's Monitor Theory. Some studies are worth mentioning, before explaining the model that is being used here. A cognitive and psycholinguistic model like Sharwood-Smith's interface model (1981) is useful in that it tries to account for what happens when the learner acquires control of the linguistic structures in order to be able to use them quickly without reflection. Other psychological theories and hypotheses, as Bialystok's "analysis/control" (Bialystok 1982, 1991) enter into the field of cognitive processing models, in which different domains of language use are described according to how much analysis or control they demand from the speaker. MacLaughlin (1978) uses another interface model that distinguishes between controlled and automatic processing. This model is interesting in that it states that SLA goes from the controlled to the automatic processing, within which no active control or attention is necessary to fulfill the task. Still, these models do not explain what happens at advanced levels, within which it becomes more difficult to split up into what has been acquired and what has been learnt formally and how the learner retrieves necessary information for production from different parts of the memory. However, attempts to explain language processing within L1 and L2 acquisition have been made for roughly twenty years now. Hatch (1983) describes the incremental procedural grammar of Kempen and Hoenkamp (1981) in which the notions of conceptualizer, formulator and articulator are proposed. This grammar was used and further developed by Anderson (1983) in his ACT* theory (Adaptive Control of Thought) for SLA. The ACT* theory together with Levelt's considerations (1989) and certain modifications later made by Towell, Hawkins and Bazergui (1996) constitute the ground upon which the present study relies. These models involve the long- and the short-term memories when explaining the processing of language. Anderson's model has been applied to L2 data in the studies of O'Malley, Chamot and Walker (1987) as well as in Towell, Hawkins and Bazergui (1996).

The term procedural knowledge has been used in different studies, since Kempen and Hoenkamp introduced the production model in 1981. It has been used for L2 since Anderson proposed it in 1983. Let us start from the speech production model of Levelt (1989: 9 ff.), originally created for the native speaker, but applicable to L2 speakers as well. According to this model, the speaker has to deal with two kinds of knowledge: one is declarative knowledge, which is knowledge about the world, extralinguistic knowledge, encyclopedic knowledge, knowledge of discourse and lexicon, and is permanently available in the long-term memory (Levelt 1989: 72 ff.; Towell and Hawkins 1994: 201 ff.); the other knowledge is procedural, and is located in the working memory. Procedural knowledge is necessary for fluent

speech production, and it is present in all the three production blocks imagined by Levelt (conceptualizer, formulator and articulator — cf. Kempen and Hoenkamp 1981). At the same time the three blocks have access to declarative knowledge of different kinds.[1] If, as Anderson (1983: 19 ff.) assumes, declarative knowledge is the base of all knowledge, and as such is stored in long-term memory (Levelt 1989: 73), then declarative knowledge is more laborious for the speaker to use: it takes more "space" and cannot be handled as easy as the procedural knowledge that is processed in the working memory. Nevertheless, procedural knowledge is less flexible, and once in action it is not modifiable (Towell, Hawkins and Bazergui 1996: 89; Anderson 1983: 39). The acquisition of how to process declarative knowledge into procedural knowledge involves three stages according to Anderson (1983: 39): the "cognitive stage," in which the knowledge is declarative and uses interpretive mechanisms to be accessed; the "associative stage," in which a mixture of declarative and procedural knowledge still makes the production rather slow, as declarative knowledge is needed. Finally the "autonomous stage," in which the knowledge is fully procedural.[2]

The studies of Anderson and Towell et al. can been used to describe the fluency of speech that is found in natives and L2 speakers: the native speaker has direct access to procedural knowledge and therefore produces chunks and blocks of speech which are tuned to the grammar and phraseology of the language in question, whereas a nonnative speaker to some extent (depending on the language level reached) probably has to resort to declarative knowledge in order to retrieve the constructions he/she needs. The empirical study of Towell, Hawkins and Bazergui (1996: 108 ff.) shows that advanced L2 speakers of French (English L1) before going to France were less fluent in their speech, with many pauses even after very simple constructions. After the visit abroad the L2 learners had increased the length and the complexity of the linguistic units which were produced between pauses (which to some, lesser, extent had been reduced). The authors explain this fact with the proceduralization of knowledge (inspired by Anderson 1983 and Levelt 1989). The advanced speakers furthermore reached a "plateau" of speaking rate and articulation rate which was below the rates in their L1 (Towel, Hawkins and Bazergui 1996: 113).

The above-mentioned hypotheses and results are interesting for the present study, even if the situation is different: the focus is on dialogues, in which the speaker may rely on the interlocutor in his productions. If we assume, as we did above, that future reference by native speakers is full of shifts in the domain of tense, even in a single turn, this would require procedural knowledge as to the maintenance and shift of tenses in the native. How does the advanced L2 speaker manage this? Does he/she require many turns to make the necessary shifts? Are there long blocks of maintenance of one tense? Can the use of tenses show that a

combination of procedural and declarative knowledge is to be found in dialogues with the L2 speakers, thus confirming the above-mentioned authors' conclusions? When performing "on-line" speech the L2 speakers have to show that they master quick turn-takings in future reference and that they are capable of switching from one tense to another even in one turn. This requires short-term memory skills of already acquired and automatized forms and functions. One way of considering the information packaging is to see the less complex utterances as the result of a lesser capacity to use procedural knowledge in the production of speech, a feature that is typical of L2 learners. In the following sections we will try to focus on the above-mentioned questions. The theoretical framework regarding information structure is mainly inspired by Levelt's "speaking process" (1989). However, dialogues are more complex in their structure than monologues from which the theoretical text models mainly proceed, which means that the analysis must take into account the information structure due to mutual influence between the interlocutors.

The data

The eight preadvanced/advanced L2 learners analyzed here have already studied Italian usually for three years at high school, and some belong to the higher language courses at the Department of Romance Languages at the University of Lund. This means that every student has his/her individual curriculum of formal/ informal studies of Italian and of other languages, as well as stays in Italy, which may influence the language proficiency. Among more or less advanced learners it becomes very difficult to separate the various factors that have contributed to the speaker's proficiency in Italian. However, the informants were chosen so that each of the four courses of university studies was represented by at least one student. The samples are cross-sectional. Of course, individual variation, as well as possible influences from formal instruction, may occur, but the social reasons for such variation will not be investigated here. The control group of five native speakers comes from Rome, two of them are university students, three are employed. Roughly speaking the two groups come from similar social situations (on average middle class). A short description of the L2 informants is given in the appendix. Finally, it must be pointed out that the interlocutor EVA (i.e. the author who is bilingual Italian-Swedish and has lived most of her youth and part of her adult life in Rome) tried to keep the dialogue situation as natural as possible, intervening with soliciting questions in order to elicit further future references only when the speaker trailed off for longer sequences talking about topics that had little to do with parts of the temporal frame given. Interventions were also made when the less proficient L2 speakers failed in giving even smaller portions of future information (see example (4)). The author is aware that her interventions may be decisive for

the tense switches that are analyzed in this study. However, the same criteria of interventions were valid both for the native speakers (Roman group) and for the L2 speakers.

General issues of information structure and reference to future events

The analysis of L2 data within the dialogue situation proceeds from the assertion that natural spoken language is based on dialogues (Linell 1990; Levelt 1989). The interaction thus becomes a feature that has to be taken into account when defining the theme of future reference within a dialogue. The term information structure is used here to describe the temporal information of future, present or past reference that is found in the utterances concerning future plans in dialogues. The utterances may be prompted by the speaker him/herself or produced after solicitations from the interlocutor. Some utterances may be linked to other utterances because they share some conceptual domains (see below), such as temporal features. These utterances might be important to the speaker, but cannot be interpreted without considering the content of the utterances that follow or that precede them, so they can be said to depend on them. Such utterances are here called *dependent structures*, and might contain tense switches. Some utterances are not linked exclusively to previous utterances, but rather constitute such important information (new or old, cf. Molnár 1998) that is continued for at least one other utterance. These utterances, which might have proper conceptual domains that to some extent differ from the previous ones, resulting in e.g. tense switches, will be referred to as *independent structures*. The independent/dependent structures will be further explained in subsequent sections. The speaker may also give metalinguistic information, like comments or digressions. Such information may occur in a dialogue, especially if the speaker needs information because he/she needs clarifications not linked to the topic being discussed. This kind of utterances is called *asides* (cf. Strodt-Lopez 1991). The switching of tenses in the speaker's utterances may be seen in the light of what information is given by the switches, taking into consideration whether the switches that occur in independent or dependent structures or in the asides depend on the interlocutor's solicitations. The notions mentioned above will be further specified in the information structure section.

Although this study will consider the influence of the interlocutor on the temporal information structure in dialogues too, let us first start from the speaker's point of view, and conjure up the ideal circumstance in which certain utterances of the speaker/interlocutor in the dialogue may focus on the same referential frame. Such a referential frame implies a reference to certain conceptual domains, which are agreed upon between the two interlocutors. The conceptual domains are events

and person/s, time, place/s and objects (cf. Levelt 1989; von Stutterheim 1997). If a speaker wants to talk about his/her coming summer vacations, we imagine that the person mainly referred to within this context should be the first person (sg. and/or pl.). Furthermore, the speaker would like to draw the attention of the interlocutor to some event/situation after the moment of speaking, and eventually to certain places or objects connected with the reference to the event/situation located in the future. To sum up, the text structure can thus be divided into utterances that refer to certain specified entities within the above-mentioned domains, or to some other entities within the five main domains, which then may assume a secondary role in the text as a whole. The subdivision into what may be called foreground/background (Hopper 1979), or main/side structure (Levelt 1989; Klein and von Stutterheim 1987; von Stutterheim 1997) thus seems to be easily found. The features that follow the same setup of referential domains should ideally form a sequence of referential chains, which constitute a progression of the themes in the text (cf. Danes 1970: 74 ff.). Some types of texts are thematically coherent in their structure of utterances.[3] Other types of text are less clear cut in their thematic progression and are more difficult to analyze in this way. However, as the structure of coherent future reference might be easier to proceduralize than a less coherent reference in a dialogue, we must define what is meant by coherent future reference.

Most models of information structure in texts (Danes 1970; Hopper 1979; Levelt 1989; Klein and von Stutterheim 1987) proceed from the assumption that discourse is more or less coherent. One definition of coherence is made by Levelt:

> It is characteristic of coherent discourse that a new contribution relates to what was said before, i.e., is relevant to the current state of the discourse model. It will either add further linking information to existing addresses or introduce new referents by linking them to existing ones. (Levelt 1989: 117)

Furthermore, the presupposition made by the speaker when making new entries in the information structure must be anchored within the common ground (i.e. the shared knowledge about the extralinguistic reality). The listener/interlocutor is thus present in the speaker's mind, even if he/she does not take active part in the text production.

A coherent discourse can of course occur in a dialogue too, especially when the interlocutor keeps his/her comments to a minimum, being mostly concerned about giving backchannels that do not disturb the utterances linked together by the thematic progression (Danes 1976) or forming what the *quaestio* model calls a "referential movement" (cf. Klein and von Stutterheim 1987; von Stutterheim 1997). In such a coherent discourse situation the part of dialogue that deals with future reference can behave much like the narrative discourse, linking events that are supposed to take place in the future in an anaphoric chain. This type has been

called an *anaphoric future plan* (Wiberg 2000), and occurs especially in spatial descriptions or in sequential future references. Example (1) is taken from a dialogue with a bilingual Italian-Swedish boy, and shows the future reference in a prediction of the activities during the coming summer vacations.[4] Roughly speaking,[5] each utterance of NIC is linked to the previous one, and thematically brings forward the events prospected for the future. Interestingly enough, the anaphoric chain has a preference for telic[6] verbs, especially punctual verbs (achievements) like *go*, *turn*, and so on, just like a narrative discourse (Wiberg 2000).

(1) 01 *EVA: *eh, lo so. # e adesso quando finisci che farete? Farete qualche festa, così, con la classe?*
         eh, I know. # and now that you finish what will you do? Will you have a party, or so, with the class?

   02 *NIC: *mm, no ai xx non so ancora.* **Partiamo** *l'undici giugno per Grecia.*
         mm, no at xx I don't know yet. We'll leave on June eleventh for Greece.

   03 *EVA: *ah, bello!*
         ah, nice!

   04 *NIC: *in macchina, in macchina.*
         by car, by car.

   05 *EVA: *ah co +/.*

   06 *NIC: *e* **arriviamo** *il ventidue.*
         and we'll arrive on the twenty-second.

   07 *EVA: *ah e # così vedi anche un po' de # dell'Europa andando giù.*
         ah and # then you'll see some o # of Europe going down.

   08 *NIC: *sì,* **passiamo** *con la macchina +/.*
         yes, we're driving through in the car.

   09 *EVA: *la Iugoslavia.*

   10 *NIC: *due giorni, dopo staremo a # in Ancona due giorni un giorno due giorni e xx* **facciamo una** *come si chiama # @s* **kryssare***, come si chiama.*
         two days, then we'll stay a # in Ancona two days one day two days and xx we'll make a what's it called a # @s kryssare, what's it called. [a cruise]

The *anaphoric future plan* is one way of trying to give an account of one's future predictions, and it does not seem to be specific to any particular language.[7] The plan has many features in common with pure narratives, so it seems to prefer telic verbs to narrate main events. On page 295ff. we will analyze the use of different formal means to express future reference and see whether the hypothesis of a preference

for telic verbs can be confirmed, which would be a sign of trying to keep the coherent tenses, instead of making laborious tense switches.

However, the future plan might also be structured in another way, in which the imagined future events rather perform a description of the events, without following the rhetorical "ordo naturalis." The latter expression would mean that the order of mention represents the order of temporal execution of the events, a fact that is often stated as the normal order of appearance of events in narratives (Klein 1994: 227). This second type is called the *descriptive future plan* (Wiberg 2000), in which the speaker focuses on the events themselves and the circumstances around the events, without connecting them to each other. The inherent lexical aspect does not seem to play any role here; the adverbials are sometimes durative (*while, in that period, during*) or indicate a frequency (*sometimes, every Thursday*) (cf. Bertinetto 1991: 17). Example (2), taken from a young Italian native speaker, shows such a *descriptive future plan*, in which both telic and atelic verbs occur.

(2)   *DLE: *eh quest'estate forse :- mm andremo sempre su in montagna +…*
                eh this summer perhaps:- mm we'll as usual go to the mountains
      *EVA: mm.
      *DLE: *+, e a volte torneremo qui a Roma per le partite.*
                and sometimes we'll go back here to Rome for the games.
      *EVA: mhm.
      *DLE: *eh :- mm :- ci riposeremo # eh :- nient'altro.*
                Eh:- mm:- we'll relax # eh :- nothing more.

Specific issues of tense maintenance and shift in dialogic future reference

As was claimed in the introduction, persons talking about future events tend to avoid using long sequences referring to their future plans, but rather mix them with utterances that include the speech time or refer to past events. Before trying to find out whether the claim holds true with preadvanced/advanced L2 learners as well as with the native speakers in the corpus studied here, I would like to point to some specific issues that must be considered before starting the analysis. An analysis of future reference concentrates on the relation between the referential domain of tense, which covers the notion of temporal reference time (more or less extended time spans expressed through temporal adverbials of different kinds, or otherwise possible to deduce from the context) and of predications (events, actions, states) (cf. Levelt 1989: 74). Tense cannot be conceived without connecting the temporal reference time and the predications; furthermore their relation/nonrelation to the speech time (S) must be taken into account. Within the referential domain of tense

I will look upon the way the speaker creates utterances in connection with the future reference, and in connection with other references asked for by the interlocutor. Importance is given to the function the forms have, not to the forms themselves.

If the speaker maintains the domain of tense introduced by the interlocutor or by him/herself, this will be analyzed as a maintenance of the reference, whereby any one of the kinds of temporal forms that may express the tense function in question may be involved. So for Italian future reference the tenses that are possible are e.g. present tense, future, infinitives introduced by modal verbs, periphrastic constructions, subjunctives in subordinate clauses etc. (see p. 295ff.). Let us take one example from the Roman corpus, the control group of native speakers (see appendix). In example (3) we note several tense switches, after the first utterance *faremo faremo* ('we'll do we'll do') in line (2) that is [+future]: the following utterance in the same line *non è che abbiamo progettato* ('we have not yet actually planned') is [+past], indicating a switch to another temporal reference. The utterance in (04) contains a [+present] reference. In the piece of dialogue the interlocutor makes no active changes of the temporal frame, while the speaker ANT makes four utterances before he pronounces a possible event for the frame "Christmas vacations," given as an initial question in (01) by EVA. This question might be a very good candidate for triggering a text that maintains the referential domains of tense, restricting the period of possible events to the Christmas vacations, and to the first person (object and place are less decisive here). Now ANT does not limit his sequences of utterances to the referential domain of [+future], but starts off by telling what the family usually does at Christmas, thus a generic statement about this vacation. The initial question is answered only partially: in fact, the utterance in (02) begins as if ANT was going to answer the question. However, there is a breakdown in the utterance, after the repetition *faremo faremo* ('we'll do, we'll do'), that ends up with ANT's admission that at the present moment no plans have been made. The answer still relies on the topic "Christmas vacations," and therefore it could be considered as a *dependent structure*, as it cannot be interpreted without considering the content of the utterance that preceded it. But you must bear in mind that what the interlocutor interprets as real important answers might not coincide with the speaker's interpretation. This is shown in ANT's utterances 04–06, so the topic that ANT finds most important is not that of the future Christmas, but of "Christmas vacations" in general.

(3) 01 *EVA: *e a Natale che farete?*
            and what will you do for Christmas?

    02 *ANT: *Natale faremo faremo, ancora effettivamente non è che*
            abbiamo progettato.

Christmas we'll do we'll do, we have not yet actually
planned.

03 *EVA: *sì. yes.*

04 *ANT: *il nostro Natale normalmente è un Natale che passiamo in
famiglia.*
our Christmas is usually a Christmas that we spend together
with the family.

05 *EVA: *certo.*
of course.

06 *ANT: *come suol dirsi Natale con i tuoi e Pasqua con chi vuoi.*
as you say Christmas with the family and Easter with
whoever you desire.

07 *EVA: *Pasqua con chi vuoi certo.*
Easter with whoever you desire, sure.

08 *ANT: *quindi probabilmente lo trascorreremo in famiglia.*
so we'll probably spend it with the family.

As can be seen in the example above, the interlocutor EVA, does not try to trigger future tense in a forced manner, but rather lets the speaker follow his thoughts, which are given without hesitation.

Interlocutor's influences on tense maintenances/shifts

Within the conversation the speaker may be influenced by the interlocutor's comments when choosing to maintain or shift tenses in his/her production. Such influences can be seen through the eyes of Levelt (1989), who states that the interlocutors introduce and reintroduce referents and make different predications about them, whereby they build mental models. In doing this the speakers have to deal with four knowledge structures (cf. Levelt 1989: 116 ff.).[8] Let us now look upon the third knowledge structure, i.e. what the interlocutor has contributed to the dialogue. This component, which is seldom considered (but see von Stutterheim and Kohlmann 1998; Ahrenholz 1998), may be essential when the speaker changes entities within the referential domains in order to satisfy specifications requested by the interlocutor. The following example taken from the L2 corpus on future reference shows how PIA, answering EVA's request to mention other events that may occur in the summer (05), gives information that clearly was not her own intention, but the result of the interlocutor's contribution to the dialogue. More [+future] events are thus given than PIA had planned:

(4) 01 *EVA: *[uhm], quanto tempo stai lì a lavorare?*
how long time are you staying there for work?

02 *PIA: *credo # sette # settimane.*
          I think # seven # weeks.
03 *EVA: *sì, okay.*
04 *PIA: *sì.*
05 *EVA: *[uhm], ma farai solo quello, farai qualche altra cosa?*
          but will you do just that, will you do something else?
06 *PIA: *sì naturalmente # andrò alla casa d'estate+…*
          yes of course # I'll go to our summer house+…
07 *EVA: [uhm].
08 *PIA   *+, de mia famiglia [///] della mia famiglia.*
          +, of my family [///] of my family.
09 *EVA: *sì.*
10 *PIA: *ma+…*
          but
11 *EVA: *sì.*
12 *PIA: *[m]resterò a Växjö.*
          [m] I'll stay in Växjö.
13 *EVA: *resterai a Växjö.*
          You'll stay in Växjö.
14 *PIA: *forse i viaggi piccoli+…*
          perhaps the small trips+…
15 *EVA: *i piccoli viaggi, sì.*
          the small trips yes.
16 *PIA: *+, in Svezia, ma +…*
          in Sweden, but +…
17 *EVA: *ti divertirai con gl'amici forse?*
          you'll have fun with your friends, maybe?
18 *PIA: *sì, amici, rimarrò in Svezia.*
          yes, friends, I'll stay in Sweden.

Function of the tense switches

Probably the most natural switches of tenses are due to the speaker's decision to tell the interlocutor what usually occurs in the period set in future; the usual places to spend the summer vacations, the events that occur. These switches are mostly put in present generic tense, while past tense exposes facts done in the past, somehow connected with the topic. According to the claim from the first section, in a dialogue the speaker should be reluctant to give the long coherent sequences of future events presented in the second section. Thus *anaphoric* and *descriptive future plans* actually should be mixed/alternated with tense switches that the speaker finds

important to tell the interlocutor. Furthermore, future reference might also be alternated by past/present reference in the same utterance. These switches can further explain the future events, and may maintain a linkage to the topic. In such cases they are regarded as dependent structures. In (5) the underlined parts are such structures. The modal verb expressed with a conditional "ci piacerebbe" (we'd like to) introduces the future event in the infinitive "andare" (to go), but the two parts are separated through a past event "ne parlavamo proprio, giusto ieri" (we were actually talking about it yesterday). This part is a specification of manner that is joined to the rest of the utterance, but it is clearly a comment on the topic, the anaphoric pronoun (*ne*) expressing the linkage to the future part of the utterance.

> (5)   *LUC: *ci piacerebbe* [FUT] *eh #*, ***ne parlavamo proprio, giusto ieri**,*
> [PAST] ***non so** [PRES] *andare # in qualsiasi posto* [FUT]*.,
> We'd like to eh # **we were actually talking about it yesterday**,
> **who knows** go to whatever place.

The last expression, *non so* is comparable to an adverbial and has the same meaning as *forse* ('perhaps') and not literally 'I don't know'. Still it is dependent on the frame with the topic "Christmas vacations". However, the *dependent structures* are probably only a small part of the whole dialogue and usually occur within a single turn or in two subsequent turns. Other switches can be considered as tense switches whose information is essential to the speaker, so essential that it is kept for more than one utterance; in these cases they are considered *independent structures*. When it comes to the topic that is dealt with in the independent structure, the speaker may choose to keep parts of it, only resetting the domain of time (expressed e.g. by temporal adverbials) and of events (through the tense choice). In example (6) PLA's decision to talk about the generic situation of skiing and attending skicourses cannot be seen as a dependent structure, as this topic is maintained for more than one turn. Thus, what the speaker deems important to communicate might even be old information,[9] as the underlying topic of the ski lessons is mentioned in the previous utterance. Still this information is important enough to be part of the focalized structure in the utterances made. The bold part of the utterances are according to PLA important information, an independent structure, a fact that is seen in her answer to EVA's comment, that lingers on the topic "snow vacations in general."

> (6)   **PLA:**   **e ANT probabilmente prenderà anche qualche lezione di sci.** Ogni
> volta bisogna <ri>[//] ripetere perché facciamo talmente poco
> esercizio.
> and ANT will probably also take some ski lessons. Every time you
> have to repeat because we do so little practice.

*EVA:	*sì sì infatti bisogna ripetere, anche noi infatti, anche noi quando ci andiamo.*	
	yes, yes in fact you have to repeat, we too in fact, we too when we go.	
PAO:	*è anche piacevole passare il tempo in compagnia con un gruppo.*	
	it's also nice to spend your time together in a group.	

Many more features can be analyzed when it comes to the function of the tense switches.

Future reference in Italian native speakers and Swedish preadvanced/advanced L2 learners

In order to understand the way the learners and the natives express future reference, the first part of this section will deal with formal features within future reference, trying to show what forms are available to the learners and what forms are used by the natives. This part is also an attempt to show that the L2 speakers to a certain degree belong to the advanced stages of acquisition. A general view of different ways of expressing future is given. An attempt is made to show that, although the speakers have access to a rather complex morphology and syntax, a fact that puts them within the advanced stages of acquisition, nevertheless the information structure may differ, e.g. with respect to the native speakers' tense switches, when producing future events in the dialogues. The second part of the section will thus try to show in what way the information structure differs from the one found in natives, and in what way similarities between the natives/L2 speakers can indicate general tendencies in future reference giving in dialogues.

Formal and functional means of expressing future reference

The native speakers have different ways of expressing future reference in Italian. Both simple future (*futuro*) and present tense can be used: *domani partirò* (I will leave; *futuro*)/*parto* (I leave; *presente*). Also other means like periphrases with modal verbs and infinitives can be used, e.g. *devo andare* (I have to go), with a significance of obligation due to somebody other than the subject himself (Skytte, Salvi and Manzini 1991: 522). Other future functions are found in subordinate infinitive clauses introduced by a preposition linked to main clauses in which the main verb in present or past tense expresses a modal function (*penso/ho pensato di andare in Francia* 'I think I'll go to France/I've thought about going to F'.). Finally, other forms are possible, still linked to a modal verb or a verb of *pensandi/dicendi* in

The

the main clause. These forms are the conditional or the subjunctive: *credo che lo debba fare* ('I think I have to do it').[10] Now the native speakers in my corpus choose between the above-mentioned different forms when expressing future reference. According to my claim, the actionality of the verb used in the future reference may give a hint as to what kind of type of future reference is made, that is, whether the future reference is following the *anaphoric future plan* or the *descriptive future plan.* The former plan prefers telic verbs and links events temporally one after another in an anaphoric chain, while the latter one does not show a specific preference for actionality and does not link events.

As has been said, the hypothesis put forward on page 283 also presupposes that no long sequences of future reference are given. Thus, even smaller sequences, given between adjacency pairs referring to comments or backchannel signals, can show signs of preference for marking events as clear future events, and the most straightforward way of doing this, when using present tense, is probably using telic verbs, especially achievements, as the inherent meaning of these verb types conveys the transition from one state to another. A telic verb used with present tense makes the interlocutor's interpretation of the future sense easier, while an atelic verb, like *sleep, walk,* needs support from the context, including temporal adverbials in conveying a future sense. The future tense is probably less sensible to lexical aspect, due to the morphological ending that contains the future sense itself (in the case of deictic uses).

Table 1. Total future references (tokens) native speakers (Roman adults).

| | Presente | | | Futuro | | | PER | SUB | Other | Ell *? | Ell |
	telic	activity	state	telic	activity	state					
SIL	7	1				3	4	4	2		2
LUC	1		2			2	4	2	2		2
PAO	4		1	1		2	5	8	3		
PLA	2	1		6	2	2	6	1	2		1
ANT				4	1	4	2	2	1		
TOTAL	14	2	3	11	3	13	21	17	10		5

The table reads as follows:

Presente	present tense
Futuro	simple future
PER	periphrasis with modal + infinitive (especially *dovere* (must) + inf) or a declarative/volition verb introducing an object clause with infinitive (*voglio vivere in Italia*)
SUB	subordinate clause (especially an implicit objective clause introduced by preposition and preceded by a verb *dicendi/pensandi* especially used with present or past tense (*penso di andare in Francia*; ho pensato *di andare in Francia*).
Other	other forms with futural meaning, like condizionale, congiuntivo sometimes introduced by a modal verb which admits finite forms (*Andrei in Italia.* Credo che lo *debba fare*).
Ell*?	ellipses where the finite verb is missing in a nontarget-like manner – see section 4.2. below.
Ell	ellipses where the utterance is given without finite verb, relying on a verb given in a preceding utterance/turn.

Table 1 shows the distribution of formal means expressing future events in the five native speakers, while Table 2 shows the eight advanced L2 speakers who study Italian at university level.

Considering the global tokens in all NS, we find the following percentages: *presente*: 20.2%; *futuro*: 28.7%; periphrases: 22.3%; subordinations: 18%; other: 10.6%. The 94 forms or constructions that are used to express future reference among the native speakers show some interesting characteristics. *Presente* seems to prefer telic verbs, just as was predicted above. The futural meaning of expressions like SIL's *invitiamo una coppia* 'we invite a couple' or *vengono a casa da noi* 'they come to our house', does not need support from temporal adverbials as do expressions like LUC's state *stiamo a casa* 'we stay/are at home', which must be considered with its adverbial *quest'anno* 'this year' (referring to the New Year's Eve to come) to gain futural meaning. Some speakers, like SIL, LUC and PAO, tend to use present tense, while PLA and ANT prefer future tense, quite in line with what was found in a group of NS Roman youths compared with adolescent bilinguals in a previous study (Wiberg 1997: 234–5). The tendency in native colloquial style seems to be to prefer *presente* whenever the futural context is clear (Bazzanella 1994: 108). *Futuro* occurs with all kinds of actionalities, although a slight preference for atelic verbs (especially states) is shown among some informants. There are as many periphrastic forms and subordinate or other forms as there are canonical present or future tense forms, which shows that future reference need not only be restricted to the formal tense forms often highlighted in the literature (Bazzanella 2000; Berretta 1990). A modal component in future reference is perhaps most clearly shown with the periphrasis (per), be it with present tense or *condizionale*, as in the following examples:

(7) *PAO: […] insomma devo orientarmi (per) per iniziare il lavoro (sub).
           so I have to get oriented (per) to start the work (sub).
     *PAO: non so se è ancora presto e se dovrei fare (per) forse un altro paio
           di esami +…
           I don't know if it's too early and if I perhaps would have to do
           (per) another couple of exams+…

Let us now turn the attention to the L2 speakers' formal means to express future events. The informants all study Italian at the university level (three years' Italian at high school is a minimum for admission to the first course) and have passed the exams on Italian grammar and linguistics, as well as the oral exams at their level, so they are to be regarded as preadvanced or advanced learners, at least when it comes to declarative knowledge. If the students have time enough to reflect they can perform a close-to-native competence in morphology and syntax. Taking into consideration their procedural competence, with respect to the means of express-

ing future events, we find that the students are in some cases quite similar to the native speakers, if only less frequently using certain forms. This is shown in Table 2, from which it can be deduced that all L2 informants have at least some constructions that might be either the conditional or the subjunctive, or some subordinate phrase expressing future reference (cf. the columns PER, SUB and other forms). Now, tense studies on L2 acquisition of Italian (Giacalone Ramat 1990; Bernini 1990; Berretta 1990) have shown that the implicational scale *present tense > past participle (with auxiliary) > imperfect > future > condizionale > subjunctive* is followed regardless of first language background. The use of other more complex expressions in the spontaneous discourse other than future tense might therefore imply an advanced interlanguage. In fact, Tables 1 and 2 are not so easy to distinguish from each other at first sight. However, a closer look at the utterances in the dialogue may show interesting differences. As the students CEC, MIA and PIA, placed in the first rows in the table, belong to the first course of Italian, they could be regarded as having had less formal instruction than the others. Indeed, the first two do not use future tense at all. ANN studies the second course, and prefers present tense, except in one case. The fact that CEC and MIA do not use future at all might be due to a difference in procedural competence. The students "know" the future forms, which has been proved in the exams, but fail to use them naturally, even when these are prompted by the interlocutor. However, there is sometimes a tendency to prefer present tense in informal speech (cf. Bozzone Costa 1991: 141), as can be seen among two of the native speakers, SIL and LUC, who never make use of the future tense. It is furthermore important to mention that MIA belongs to the group of bilinguals studied in Wiberg (1997), and that, at the time of the study in 1997, she was regarded as belonging to the less proficient bilinguals, and more similar to L2 speakers. When recorded at the age of 13 MIA did not use future tense, nor does she as an adult. However, there seems to be a difference, mostly due to the uses of less complex forms and functions of future reference, between CEC, PIA and ANN, and the other students including MIA, who, like the natives, have a more productive use of all forms. No nontarget-like ellipses (Ell*?) are e.g. found in the latter groups. Further studies specifying morphological and syntactic features will probably show that the group of CEC, PIA and ANN rather belong to a preadvanced level than to an advanced one.[11]

When it comes to lexical aspect and present/future tense, we note that on average the students seem to prefer telic verbs with both tenses. The difference from the native speakers may be due to a tendency to be more clear when talking about future events, but also to a tendency to use the "anaphoric future plan" rather than the descriptive one. The telic verbs seem to be more accessible to the L2 speakers in the dialogue that requires primarily procedural knowledge. The verb type might be

an important factor when considering prototypical future reference, that is, morphological future and present tense, showing that the more constrained the speaker's production, or procedural skill, is, the less prone he will be to use other verb types than the prototypical telic ones. This might seem to be in line with other research on the importance of aspect in L2 development (cf. Andersen and Shirai 1994), but the use could also be seen as a tendency to be clear when giving the future tense, thus a tense contrast feature (cf. Salaberry 1999). However, further research into this matter would be welcome.

Table 2. Total future references (tokens) L2 speakers

	telic	Presente activity	state	telic	Futuro activity	state	PER	SUB	Other	Ell *?	Ell
CEC	1	1, 1?					5		1, 1?	1	4
MIA	8						8	3	3		2
PIA				1		4	3		1 (1)	2	4
ANN	6	1		1			2	3			4
CRI	4	1		2			7	1	3		4
LIS	1			2		1	8	3	1		4
AKE				1		2	4	2			3
SAR			1	5	4		2	2			5
TOTAL	20	3	1	12	4	7	39	14	9	3	30

Taking the global tokens in all L2 students, we find the following percentages: *presente*: 22%; *futuro* 21.1%; periphrases: 35.7%; subordinations: 12.8%; other constructions: 8.2%. Comparing the two tables we see that the periphrases are more frequent among the L2 speakers: 35.7% periphrases, compared to 22.3% among the NS (although some NS use them more than others, the frequency is lower). Now, there probably is an interference from the native language involved here. The most frequently used Swedish expression for future is periphrastic — "*ska* + infinitive," with a finite modal verb plus an infinitive expressing the future event itself. The modal verb *ska* (=have to) has a deontic meaning when it is used as a lexical verb, but used in a periphrasis for future reference, this meaning has been absorbed and means intention, and future action (cf. Dahl 1985: 105 ff.). In contrast, Italian has a clear deontic meaning with modal verbs like *dovere* (=have to), both in periphrastic constructions and as a lexical verb. The deontic meaning is expressed by somebody else's will rather than from the subject (Skytte, Salvi and Manzini 1991: 522; Bernini 1995: 295). My data show that some periphrases produced by the students belonging to the first courses are clear transfer phenomena from Swedish. The *devo andare* in (8) is an example of this transfer. Nobody is forcing CEC to go to the beach:

(8)   *EVA: sì, con il sole, va bene', se devi rimanere qui che fai? Le altre settimane?
                yes, with the sun, ok, if your staying here what do you do? The other weeks?
       *CEC: lavoro, devo andare alla # spiaggia, alla+…
                I work, I have to go to the # beach, to the+…
       *EVA: alla spiaggia sì, dove andrai in spiaggia?
                to the beach, yes, where will you go to the beach?

Information structure

The analysis of the formal means used to convey future reference in two groups of L2 speakers and NS reveals only slight differences. Most of the advanced learners seem to be able to use, e.g., most of the major tenses in the above-mentioned implicational scale for L2 tense acquisition set up by Giacalone Ramat (1990). Let us now see to what extent the dialogic situation as such may give way to differences in the use of tense switches, which seem to accompany future reference. I have previously pointed out that the switches may occur in *dependent* or *independent structures*. In order to fully understand the function of the tense switches we need to specify still other features that may occur in the dialogue.

In the section on general issues, the coherent future reference was mentioned, but such a reference is difficult to find in a dialogic situation, as the structure of the dialogue often does not deal with a single topic shared by the interlocutors for long sequences, but rather with many different topics. Some authors have called this situation a "local coherence" (Klein and von Stutterheim 1987: 166). In the dialogic situation the topic of the discourse is often what is being talked about in a specific moment, and thus mutually experienced by the interlocutors. A very particular situation of local coherence is the one Brown and Yule call "speaking topically," i.e. "an obvious feature of casual conversation in which each participant contributes equally and there is no fixed direction for the conversation to go" (Brown and Yule 1983: 84). This situation is perhaps one of the less coherent ways of speaking together with somebody. The very loose coherence is kept together by local frames which last only for single adjacency pairs. Now, this type is perhaps not so typical of a whole conversation, but rather of parts of a conversation; it depends on many factors, such as symmetry/asymmetry in the participants' conversational roles, context (both linguistically and extralinguistically speaking), topic(s) and so forth.

Furthermore, parts of speech of the same speaker may have what has been called *asides*, i.e. in a discourse that contains a more or less distinct framework with a particular topic certain episodes may occur that differ with respect to the frame-

work, contrasting with this as to content. *Asides* may be comments, digressions of various kinds. (cf. Strodt-Lopez 1991: 121; Zorzi 1999: 70 ff.). As the dialogue may contain *asides* that can disturb the coherency, these elements are important to recognize and distinguish from other sections that somehow share at least parts of the thematic frame. The asides are not equivalent to the phenomenon of background, in the sense of Givón (1987) or of Hopper (1979). Neither can they be compared to the phenomena of side structures according to the *quaestio* model of Klein and von Stutterheim (cf. von Stutterheim 1991).[12] Within the latter model the side structures and the background parts of a text are connected with the foreground or the main structure, and more or less maintain the topic. The *asides* are, just as the term expresses, steps out of the topic, also in the case of a conversation. The following example shows how CRI uses the *aside* (in bold text) in order to gain metalinguistic information from the interlocutor:

(9)   *CRI: è una guida di, **non lo so come si chiama**, un[/]una *mässa@s+…*
it's a guide to, **I don't know what it's called**, a [/] a mässa@s+…
[fair]

One possible interpretation of the asides would be to sort them under the dependent or the independent structures, but the asides require new information that is not dependent on the previous utterances, and they usually give way to an answer on the part of the interlocutor, an answer that is isolated with respect of its content from the other utterances, and that can contain tense switches. Other tense switches occur in the independent structures, in which more than one utterance follow a new topic that the speaker wants to mention, and in dependent structures, the parts that do not directly constitute focused topics, but rather specify the topics further. The specification of details about the mentioned events are still essential to the speaker, and parts of the conceptual domains remain the same, even if e.g. the domain of events may be changed to past or present reference, or the domains of person/place are changed. The full interpretation of the dependent structures relies on some part of a preceding utterance, a part that does not necessarily have to be prompted by the speaker himself.

   Dependent structures can appear in independent as well as in subordinate clauses, as can be seen in the relative clause in the native speaker PAO in example (10) below. The relative clause, with present generic reference, depends on the preceding utterance, with future reference, receiving an anaphoric link through the relative pronoun. Still the part is important to PAO, as it explains why she and her friend have to study for a particular exam starting in September. Furthermore, the relative clause specifies the object "un esame" in order to sort it out with respect to other exams. The second example in (10) is an explanation as to why PLA is unsure

about the plans for New Year's Eve (with future reference). Also this part is essential to PLA, who decides not to make utterances within the future frame set by the interlocutor. The most important message for PLA is thus the explanation, and as such it depends on the preceding utterance "vedremo un pochino" (we'll see what turns up), being the reason why no plans can be made right off — the social situation has changed (two clauses with past and one with present reference), giving the family opportunities to choose activities during vacations that it had not had before.

The abbreviation FUT.REF. means that the preceding clause is a future reference; PRESENT REF. means the clause contains present tense reference; PAST.REF. is a reference to past events:

(10)   *PAO: […] per dicembre cerchiamo di preparare un esame (FUT. REF) che è piusttosto pesante e lungo (PRESENT REF.)+…
for December we'll try to prepare an exam that is rather hard and time-consuming+…

*PLA: a capodanno vedremo un pochino (FUT.REF.) perché questi anni noi abbiamo sempre avuto problemi con mio padre perché stava male (PAST.REF) […] adesso mio padre non c'è più… (PRESENT REF.)
for New Year's Eve we'll see because during these years we've always had problems with my father because he was ill […] now my father is no more…

Let us now consider the maintenance of tense or the tense switches that are to be found in the NS (Table 3) and in the L2 speakers (Table 4). According to the hypothesis put forward on page 283, the native speakers would tend to avoid speaking about future events for long sequences, whereby many tense shifts would appear in a dialogue referring to such events. Furthermore, the procedural knowledge necessary in fluent speech should be involved also when making the many tense shifts in single utterances. The question is: do the L2 speakers differ from the natives with respect to this?

Tables 3 and 4 show how the speakers change or maintain a certain tense within the parts of dialogue that deal with possible events in a stretch of time after the speech time. Only the first change in temporal frame is counted, e.g. the tense might be continued for the rest of the utterance or for more utterances. Furthermore, the tables indicate whether the interlocutor has had influence on the speaker's tense change/maintenance. For every informant at least one tense change to future reference is due to the interlocutor EVA, as can be seen in the column "fut" "within the interlocutor's influence." This influence consists of the first triggering question to events in the future, e.g. "What are you going to do next

summer?" The tense frames of future, present or past referred to in the tables are intended in a functional way, with the possibility of different formal means conveying a future, present or past meaning. "New topic" means that the speaker has completely abandoned the topic that the interlocutor introduced. If e.g. holiday was a topic, and the person starts talking about last year's studies for more than one turn, a topic change has occurred. Example (11) shows how PLA changes topic from speaking about going abroad, to the children's language skills:

(11) *PLA: (talking about going abroad in a remote future) ci interesserebbe […] di andare

in un paese di lingua inglese […] dare a loro la possibilità di parlare la lingua sul posto […]

we would be interested […] in going to an English-speaking country […] to give them (the children) the opportunity to speak the language on the spot.

*EVA: mmm.

*PLA: poi hanno proprio la facilità con l'inglese anche a scuola. SIM già lo parla correttamente.

Then they really find English easy also at school. SIM already speaks it fluently (topic change — continued for several turns, dealing with the children's language skills)

The decision to talk about past or present events in a frame set in the future, and the entity of such tense switches, is also linked to individual variation, as can be seen in LUC's many past references when talking about New Year plans: fifteen past event references against two future events and eight present events. He is constantly comparing to previous New Year celebrations, when his child was small, or talking about the general situation surrounding the holiday, which is then referred to with present tense. Other informants, like ANT, have fewer past events in their future reference. In contrast, PLA has many present tense shifts and maintenances, due to her long explanations of what the family usually does on New Year's Eve.

The utterances with finite/non-finite verb amount to 240. The percentages of switches are: future reference: 38.3 %; present reference: 40.4%; past reference: 21.2%. On average, future reference is used almost to the same extent as reference to present events. Also past reference is rather well represented among the informants. A mere look at the percentages seems to confirm my hypothesis that speakers tend to avoid speaking only about future events, entering on topics about what usually happens or what has happened in a particular time frame (e.g. vacations, Christmas etc.). This is probably due to the fact that the future has to be anchored to present or past reference to make it more relevant to the interlocutor. This can be seen in (10) above, where PLA talks about New Year's Eve and plans for

Table 3. Tense maintenance/change – native speakers

Speaker	Topic	Own tense reference change or maintenance					Interlocutor's influence on tense change			
		FUT	PRES	PAST	ellipse	new topic	FUT	PAST	PRES	new topic
SIL	holiday	13	8	7	1	1	1			
	New Year	8	7	9			1			
LUC	holiday	5	3	5			1			
	Christmas Eve	5	6				1			
	New Year	2	8	15		1	1			
PAO	theses	8	3	2	2	1				
	univ. start	6	8	1			1			
	holiday	2	6	3			1			1
	New Year		9			1	1			
	remote fut.	7	1				1			
PLA	holiday	4	9	1	1		1			
	mountain	5	4	1			1			
	New Year	8	15	4			1			
	remote fut.	8	3	1		1	1			
ANT	holiday	3	7	1	2		1			
	remote fut.	8	2	1			1			1
TOTAL		92	99	51	6	5	15			2

this occasion, going from the future plan to the past New Year holidays and finally talking about present time.

There may also be a difference between reference to future events that lie in the near future and to ones that belong to a remote future. It might be the case that remote future reference prefers fewer frequent tense shifts to present/past than is the case with more immediate futural plans like holidays or New Year's Eve. This is at least what can be noticed in the natives ANT, PAO, PLA. Perhaps the phenomenon is due to the fact that when speaking about events far ahead in time, the tendency is to see the future reference with its modal component of uncertainty as the most appropriate one because you have no comparison to make with other similar situations.

Table 4 shows the L2 speaker's way of changing/maintaining the tense in the dialogue. Total utterances with finite/non-finite verb: 227; future reference: 53.7%; present reference: 34.8%; past reference: 11.4%. Compared with the native speakers' tense choices, we clearly see a stronger preference to maintain the future reference among the L2 speakers (53.7% against 38% among the natives). Present reference is less frequent (L2: 34.8%; natives: 40%), while past reference seems to be rarer in these speakers (L2: 11.4%; natives: 21.2%). Of course, individual variations occur. The interlocutor has quite an influence on the L2 speakers' tense change and also on tense maintenance: a total of 39 influences on future reference change/ maintenance, against 15 with the natives. This suggests that once the interlocutor has triggered a future topic, the natives mostly continue on their own, while the L2

Table 4. Tense maintenance/change – L2 speakers

Topic		Own tense reference change or maintenance					Interlocutor's influence on tense change			
		FUT	PRES	PAST	Ellipse	new topic	FUT	PAST	PRES	new topic
CEC	vacation	7	2	1	4		5			
	holiday	5	2	1	6		2	2	1	
	studies		1	2	2	1	2	1		
MIA	holiday	9	2	1	2	1	2			
	brother	11	8			1				
	studies	7	5	5	1	1	1			
PIA	holiday	5			11		3	2		
	studies	5	2		2		1	1		
ANN	holiday	13	8	2	9		4	1	1	
CRI	holiday	10	4		6		2	2		
	studies	6	5	1	3	1	1			
	work	6	7	2	5		2		1	
LIS	holiday	12	10	3	5	1	3	1	1	1
	studies	4	4	1	1		1			1
AKE	holiday	7	5	4	3	1	3			
	studies	2	5	1	2	1	2			1
SAR	holiday	7	3	2	8	1	2			1
	studies	6	5		1		3			1
TOTAL		122	78	26	71	9	39	10	4	5

speakers need more support. The influences on present/past reference are non-existent among the natives, while the L2 speakers received 10 present and 4 past triggering questions or comments. In the latter group the future reference would in some cases have stopped, and with it, the topic as a whole. The triggering questions are typically needed for the L2 speaker to go on with his/her turns (cf. Wiberg 2000). This is the case with the less proficient university students, but also with the more advanced ones. Example (4) in 3.1 shows how the interlocutor has to trigger PIA in order to make her produce utterances linked to the future vacation. As the L2 speaker does not present the same, quite natural, tense changes a native speaker does, the interlocutor has to trigger these changes too. In the spontaneous dialogue the interlocutor prompted such questions or comments automatically, especially at self-trailing-offs, or hesitations and long pauses from the speaker. Example (12) shows quite clearly that ANN does not manage to give the information in a single turn as she probably would have done had her procedural knowledge been better.

(12) *EVA: cosa farai questa estate?
            what will you do this summer?
      *ANN: eh vado in Italia.
            eh I'll go to Italy.
      *EVA: uhm.

> *ANN: a Milano eh # per lavorare+…
>   to Milan eh # to work+…
> *EVA: ah bene!
>   ah good!
> *ANN: nel consolato di Nova Zelanda.
>   in the consulate of New Zealand.
> *EVA: ah sì, benissimo.
>   ah yes, very good.
> *ANN: faccio in questo estate.
>   I do [that] this summer.
> *EVA: uhm, hai avuto questo lavoro da xxx? (past change)
>   uhm, did you get this work from xxx?
> *ANN: sì.
> *EVA: *sei contenta immagino?* (present change)
>   I suppose you're satisfied?
> *ANN: sì, molto contenta, sì, [/] sì, è fantastico.
>   Yes, very satisfied, yes, yes it's fantastic.

What information is then conveyed in the tense shifts with future reference? As was mentioned in the beginning of this section, we may point out that some clauses and utterances can be subdivided into independent/dependent structures. Furthermore, some structures are clear asides. The dependent structures are prompted by the speaker because he/she presupposes the information to be necessary for the interlocutor's understanding of the situation. The dependent structures are however not the comments or the thoughts expressed by modal verbs preceding the infinitive in constructions like *pensiamo di* + infinitive ("we're thinking about + inf.") or *devo* + infinitive ("I have to + inf."). In these cases they occur within the future reference and are not tense shifts. The verbs here are comparable with adverbials that give personal perspectives or restraints to the event expressed in the lexical verb that appears in the subordinate clause (e.g. *perhaps, probably, necessarily*). These modals or verbs of thought are in the main clause but are not the most important information.[13]

Tables 5 (NS) and 6 (L2) show the distinction between tense switches that constitute *independent structures*, with information that is essential to the speaker (even if the domain of temporal reference has been changed) and that continues for more than one utterance, and *dependent structures* with tense switches that depend on a preceding utterance with another tense frame. The last column shows the occurrences of structures that constitute *asides*. Table 5 shows that the natives, despite having as many as 66.9% independent switches, still present one third of them in dependent structures. The asides are absent. There is thus a better integra-

tion in the natives' switches, with more complex linguistic units that indicate a more skilled procedural knowledge than is the case with the L2 speakers. Despite a tendency to prefer future reference, as was seen in Table 4, the L2 speakers use more independent switches than the NS. In fact, in Table 6, we see that for L2 speakers, the amount of independent switches is greater — 70.5% on average — while the dependent switches amount to 19.4%. The presence of *asides* is mostly due to metalinguistic comments and questions to the interlocutor, which the natives obviously do not need.[14] Once again we find evidence that the Swedish students need more time and more turn constructions in the dialogue but still do not quite reach the integration between the switches that seems to accompany future plans in Italian dialogues. The dialogue structure among the L2 speakers is more vertical with shorter turn-takings, and thus more possibilities to use independent switches, as the interlocutor's dialogic turns come in between (cf. example 12), giving the speaker more time to reflect.

The possible dependent structures in tense switches are sometimes recognizable through conjunctions or relative clauses bound to a noun. These conjunctions or relative clauses, as in the case of the example below, show an advanced language

Table 5. Function of tense changes – natives (tokens)

	turns	Independent	Dependent	asides
SIL	38	28	10	
LUC	27	20	7	
PAO	26	16	10	
PLA	17	7	10	
ANT	13	10	3	
TOT	121	81	40	

Percentages: independent changes: 66.9%; dependent: 33%

Table 6. Function of tense changes – L2 speakers (tokens)

	turns	Independent	Dependent	asides
CEC	18	15	2	1
MIA	39	32	5	2
PIA	12	9	2	1
ANN	19	17	2	0
CRI	26	15	7	4
LIS	33	19	8	6
AKE	22	12	7	3
SAR	21	15	4	2
TOTAL	190	134	37	19

Percentages: independent changes: 70.5%; dependent: 19.4%; asides: 10%

in the L2 speaker. The utterance of SAR contains many advanced language features: future tense, relative clause with a progressive *stare* + gerund all together in a complex utterance is the utmost sign of advanced language. Especially the fact that the relative pronoun refers to the object *la tesina* ('the paper') has been reported to be rare even in L2 learners at an advanced level (Chini 1998: 135). The dependent structures are in bold.

(13)   *SAR: [/] lavorerò con la tesina **che sto scrivendo** +….
                  I'll work with the thesis **that I'm writing** +…

Some causal *perché* ('because') clauses may be considered dependent structures, because the attention is paid to explaining the cause of the event. This is for instance the case in the L2 student ANN, who uses a tense shift to explain why she has to study in the autumn:

(14)   *ANN: ma devo anche [/] devo anche studiare un po', **perché non ho fatto questo esame cultura e società.**
                  but I also have to [/] I also have to study a bit, because I haven't done this exam culture and society.

The causal clauses can also be within main clauses and still belong to a dependent structure among the switches. The dependent structure can sometimes be seen as such in relation to the preceding question by the interlocutor, which the native PLA answers in the following example. Both interlocutors share the knowledge that in the mountains you could be expected to ski. So PLA presupposes that EVA might want to know that she does not ski:

(15)   *EVA: cresciuti [!=ride] poi arrivati lì che fate?
                  grown [!=laughs] then arrived there what do you do?
         *PLA: **ma io non scio** quindi probabilmente farò delle belle passeggiate +…
                  but I don't ski so I'll probably take some nice walks +…

The expression "ma io non scio" (but I don't ski) could have been a point of breaking the frame of future reference and start talking about interests or similar subjects. But the utterance is not followed by other utterances within the same frame (whereby it would have been an independent structure with its own tense domain, person, object(s)) but by a quick return to the previous tense domain of future tense, and can therefore be considered as dependent structure, depending on the utterances that follow. On the whole, however, the most important function of the tense switches is to keep at least part of the topic which is dealt with in the dialogue, and the information must be considered as essential to the speaker, be it a native or an advanced L2 speaker.

Discussion and conclusion

In this paper I have tried to investigate the information structure in dialogic future plans made by five native speakers of Italian and by eight Swedish students studying Italian as a second language at a university. The L2 level may be considered as preadvanced or advanced, but certain differences in the way information is concentrated into single utterances can still be found with respect to the natives. I started from the presupposition put forward by Anderson (1983) and furthermore by Towell, Hawkins and Bazergui (1996), namely, that native speakers can concentrate information in complex utterances due to their ability to use procedural knowledge when performing a dialogue. This ability should be less pronounced in the advanced L2 speaker, who will make use of his/her declarative knowledge, which is more laborious and is processed in the long-term memory. Anderson (1983: 39) put forward a series of stages, according to which the acquisition, before reaching the "autonomous stage" in which the procedural knowledge is at work to the same extent as in the native speaker, reaches an "associative stage" in which the mixture of declarative and procedural knowledge slows down the production.

While tests of declarative/procedural knowledge up till now have been concerned with the "fluency of speech" (Derchert, Möhle and Raupach 1984; Towell, Hawkins and Bazergui 1996), my concern was to investigate whether the proceduralization of future reference in dialogues could be measured. My previous investigations have pointed out that references to future plans in dialogues seldom appear for long sequences and that they often are mixed with present/past reference switches (Wiberg 1997; Wiberg 2000). The task of producing such a micro-text with prompt switches would therefore be rather laborious even for the advanced speaker, who would tend to stick to future reference without making laborious switches in surrounding utterances.

The easiest and most clear-cut way of presenting future plans in a coherent discourse situation is to link the events in an anaphoric chain, using preferably telic verbs to express the events in the future (Wiberg 2000). Probably such an *anaphoric future plan* is more likely to turn up in a monologue than in a dialogue. Furthermore, the necessity to explain facts about the future plans is probably more natural in the presence of an active interlocutor. The question is then: do the L2 speakers manage to make the quite natural shifts to present/past events that are found in native Italians, or do they keep a more coherent anaphoric chain, sticking to future events with telic verbs, whereby the information package becomes less complex? The answer is yes: they keep a more coherent future plan, with fewer switches: in the L2 learners 53.7 % of all tense changes or maintenances regard future reference, while the NS show only 38%. Even if the advanced learners have almost the same formal means to express future events as the natives, thus not only expressing the

future events through present/future tense, but also through complex periphrases and subordinate clauses, still, there is a greater preference for telic verbs, both with present and with future tense. The natives, however, prefer telic verbs only with present tense, while future is less sensible to lexical aspect.

Furthermore, the tense information packaging is less complex in the L2 speakers' productions than in the natives'. When looking upon the temporal reference switches or maintenances that occur among the natives, we see that future reference is less frequent (38.3%) than present reference switches or maintenances (40.4%), while past reference amounts to 21.2%. The L2 speakers keep the future reference to a greater extent, with 53.7% future references, 34.8% present and 11.4% past references within the future plans. The interlocutor's influence on tense changes or maintenance of future reference is so much greater with the L2 speakers who need on average five solicitations in order to present future reference, while the natives, once the interlocutor has triggered the future topic, generally through an initial switch to future tense, continue on their own. Thus, while the natives continue referring to future plans mixed with present/past events, the L2 speakers need much more support to continue the dialogue, and even to perform the quite natural tense switches sometimes triggered by the interlocutor. The difference between natives and L2 speakers therefore seems to be that of less packaged information among the latter group.

To sum up — the temporal complexity in the native utterances is very seldom completely reached by the advanced learners, even if they show that they master the tenses in a correct way. When one looks at the function of the tense switches this situation becomes even more evident. The natives can link the tense switches to each other, in one third of the cases keeping a dependency between the switches, often within the same dialogic turn, while the L2 speakers produce 10% metalinguistic switches, asides, which are needed in order to continue the dialogue. Furthermore, the L2 dialogic turns contain 70.5% independent structures with switches or maintenances mostly of future reference, which often occur in between the turn-takings, more seldom within the same turn, as was the case with the NS. Thus, the preadvanced and advanced speaker of Italian at the university level still has many constructions to proceduralize, in order to keep up speed in a dialogue. The proceduralization of tense switches in Italian dialogic future reference seems to be a good test for finding out whether the advanced learner is becoming a near-native speaker or still needs to have access to his declarative knowledge during the turn-taking. A comparison with other studies, in which the interlocutor has the role of a more or less "silent listener" and in which at any rate only the speaker's production is analyzed (von Stutterheim 1997: 12–13; Carroll 1998: 189; Chini 1999: 219), would probably reveal differences within many structures, as the

speaker is more or less holding the floor on his own. However, the comparison is difficult to make, as the information structure found in my data is influenced also by the interlocutor's interferences. In any case, the results seem to indicate that the more difficult the communicative task is, e.g. quick tense-switches in future reference, the more likely is the L2 speaker to try to concentrate on coherent text production, with some help from the interlocutor. Finally, the advanced L2 learner may be further specified with help of the dialogic situation. A speaker classified as near-native may still show a discrepancy between the declarative knowledge that often has been tested in acquisitional studies, and the procedural knowledge. The dialogue seems to offer good opportunities to measure the latter. Further studies may show a more fine-grained distinction among different advanced learners.

Notes

1. The access to discourse model, situation knowledge, encyclopedia etc. is due to the conceptualizer that generates messages and is guided by monitoring from the speaker him/herself. The articulator has access to the mental lexicon in which syntactic and semantic, pragmatic meanings are tuned to the message (cf. Levelt 1989: 9 ff.; Towell, Hawkins, Bazergui 1996, 85 ff.).

2. Anderson's process is problematic, however, and must be regarded with some skepticism, as small children certainly do not proceed from declarative knowledge from the beginning of their language acquisition. The assumption that all knowledge is initially declarative is therefore rather dangerous. At the same time different acquisitional situations may give different results; e.g. natural vs. formal acquisition probably turns up with different uses of declarative/procedural knowledge (cf. Bialystok 1982). Furthermore, Anderson has not considered the different production situations that may occur. A context with highly specialized terms which the speaker hardly manages even in his native language may require declarative knowledge to a greater extent than everyday conversation.

3. One way of analyzing such chains of utterances is to use the *quaestio* model, which puts the utterances in relation to a central initial (sometimes implicit) question, the *quaestio* (von Stutterheim 1997; Wiberg 2001a). According to this model a text can be interpreted as following a certain path: those blocks that answer the central question belong to the main structure and constitute the most important information, while the parts of the text which do not answer the central question belong to the side structure.

4. The words marked with bold text indicate telicity and anaphoric adverbials.

5. The comments of EVA in turn 07 might be seen as an interference, but NIC's utterance in 08 can be seen both as a response to 07 and as a side structure/dependent structure to his own "referential chain" connected to the utterance in 06. In fact the utterance in 08 makes sense even if you skip the 07 turn.

6. In this work, I use the term "telic" verb in the sense of Bertinetto (1986: 98), as this is very common in L2 research concerning inherent lexical aspect, which often takes inspiration from Vendler 1967 (see studies of Giacalone Ramat 1990; Bernini 1990 on Italian; Andersen 1991 on Spanish; Bergström 1995 and Kihlstedt 1998 on French). Thus the category includes the verbs which all have the feature [+limit]. The category of "telic" verbs can be further subdivided into accomplishments "read a book," "do two lessons," and achievements "go to X," "arrive."

7. A similar structure occurs in Klein & von Stutterheim (1991: 26–7), although the nationality of the speaker is not mentioned.

8. The first structure is the "common ground," i.e. the knowledge he believes he shares with the listener, independent of what the interaction has given. The second knowledge structure is what the speaker believes that he has managed to convey to the listener up to now, and that can be said to be shared knowledge introduced by the speaker himself. The third knowledge is the shared knowledge that the interlocutor has contributed so far to the conversation. The fourth knowledge is the information that the speaker still intends to convey, that is, information to be conveyed (Levelt 1989: 116 ff.).

9. The old information is often referred to as theme with regard to the interlocutor, Molnár (1998).

10. The periphrases and the subordinate clauses are all testimonies of the modal component of future reference. For a more detailed description of the means of expressing future see Wiberg (2001b).

11. In Wiberg (2001b) the preadvanced and advanced levels are investigated further, putting the future reference in relation to syntactic complexity. CEC, PIA and ANN show a less developed syntactic complexity than the other L2 speakers.

12. However, von Stutterheim (1997: 100) distinguishes between "rahmeninterne" and "rahmenexterne Nebenstrukturen," whereby the latter in many ways fulfills the task asides have here. They are thus steps out of the frame. Ahrenholz (1998: 98 ff.) uses the term *subquaestio* for utterances arising from the interlocutor's additional remarks or demands for clarification; these parts resemble asides.

13. Similar ideas, such as the fact that background is not always found in the subordinate clause, can be seen in Ahrenholz (1998: 98). However, many ESF studies seem to point to such a linkage for L2 speakers, while natives have greater possibilities to use subordination also in order to give main structure information (Chini 1998: 147 ff.; von Stutterheim 1995).

14. The metalinguistic comments constituting asides, occur only among the L2 speakers. Among the asides we find, e.g., *si dice così?* ('do you say like that?' – CRI) or *non so come si chiama* ('I don't know what it's called' – SAR).

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Appendix

The L2 data

Eight Swedish L1 speakers studying Italian at the Department of Romance languages constitute some of the informants that are analyzed in dialogues in the project "The Lund Corpus of Advanced L2 Italian." The students have chosen to study Italian language and literature and belong to different courses, from the basic course (20 points) to the most advanced one (80 points) on which they write a paper for a master's degree. Each course of 20 points is considered equivalent to one term's full-time studies. The basic course is only accessible to those students who have studied at least three years Italian at high school or to those who pass an equivalent examination at the department.

CEC, 22 years old. Formal Italian for three years at high school. One month in 1998 at the university for foreigners in Perugia. Basic course 20 points.

MIA, 22 years old. Bilingual (previously studied as bilingual, Wiberg 1997; was 13 years old when the data were collected, rated at one of lower levels, and more like an L2 speaker at the time. Mother Italian, father Swedish. Italian mother tongue lessons at school, plus high school studies for two years. Visits to Italy every second year, or less. Does not speak Italian with the mother. First university course, 20 points.

PIA, 21 years old. High school studies in Italian for three years. Before finishing high school she spent three weeks in Italy. Formal Italian, but virtually no natural opportunity to speak the language. First course, 20 points.

ANN, 21 years old. Visits to Italy: three months. Italian boyfriend. No formal Italian, but passed our university test. Second course, 40-points.

CRI, 23 years old. No formal Italian at high school; passed our university test. Ten months in Florence in 1997, where she studied Italian (beginners). Seven of ten months she stayed with an Italian lady who spoke English to her; three months speaking Italian with another landlady. Second course, 40-points.

LIS, 38 years old. Formal Italian (high school for adults), 2 years 1985–87 in Rome as an *au pair* in an Italian family. Nearly every summer in Italy for at least a few weeks. Third course, 60-points.

AKE, 49 years old. No formal Italian at high school. Passed the university test. Visits to Florence, one month in 1969, where he attended beginners' course. Conversational courses in Sweden for several years. Some vacations in Italy. Fourth course, 80- points (master's degree).

SAR, 35 years old. Italian, two years' high school for adults. Conversation course for one year. Florence summer courses three weeks during two summer vacations. Summer vacations in Italy. Fourth course, 80-points (master's degree).

Reference to past events in dialogue

The acquisition of tense and aspect by advanced learners of French

Maria Kihlstedt

Introduction

Most studies on the acquisition of temporality in French have focused on learners at early and intermediate stages, when morphological distinctions begin to appear (cf. Bergström 1995; Dietrich et al. 1995; Noyau 1991; Schlyter 1990, 1996; Salaberry 1998). The study reported on in this chapter takes the other end of the interlanguage continuum as a starting point, i.e., where morphological marking takes place in a virtually systematic way. This is an ill-documented area in the field of tense-aspect research. As pointed out recently by Bardovi-Harlig, "whereas the field has nearly accomplished the necessary documentation of early to intermediate stages of acquisition […] there are still gaps in our knowledge of advanced stages in most languages" (1999: 369). The present study aims to help fill this gap. It is based on longitudinal conversational data from four Swedish university students of French and a control group of French native speakers. The underlying question is how the use of tense and aspect differs between the individual learners on the one hand, and between the learners and the native speakers on the other hand. The differences are analyzed with the aim of establishing grammatical and discourse features distinctive of different advanced stages of acquisition in French.

Grammaticalization processes in SLA

Several current European research teams on second language acquistion (SLA), especially those situated in the functionalist framework, make use of the term grammaticalization to describe the development of learner language (Bartning

1997; Dietrich et al. 1995; Giacalone-Ramat 1992, 2000; Klein & Perdue 1997; Noyau 1997). In this approach, learner language is seen as evolving from lexical means of expression to grammatical ones, in the same manner as, in many languages, a new grammatical form emerges from a lexical item, e.g. when an originally lexical verb of motion becomes an obligatory future marker. Giacalone-Ramat (2000, this volume) argues that despite clear differences in the conditions of implementation, the learning of a grammatical structure of the target language may be compared to diachronic grammaticalization in natural languages. Drawing on the unidirectionality of change from lexical categories into grammatical ones (and never the other way round) in both cases, she suggests that a similar process is at work, illustrating a general tendency of language change.

Within this framework, a distinction is made between grammaticalization which leads to the emergence of a new form and grammaticalization that leads to the discovery, use and mastery of an existing form. As pointed out by Noyau (1997), it is useful to distinguish between *creative* (typological) and *adaptive* (developmental) grammaticalization processes. Creative grammaticalization is when a language acquires a new grammatical category, whereas adaptive grammaticalization corresponds to when learners acquire a grammatical category from the linguistic environment. The driving force, however, is considered to be the same (Giacalone-Ramat 2000). Grammaticalization in language learning then means the restructuring of hypotheses of the form/function relationships of a certain grammatical marker, which, once confirmed by the linguistic environment, allows for qualitative changes of the learner's L2 system toward more target-like use. This approach has the advantage of considering not just a specific inflection in isolation, but the whole system which is being built up by the learner to express temporal reference. Applied to tense/aspect, this means considering verb forms and functions from a context-oriented angle.

Grammaticalization of temporality at different stages of acquisition

Not all learners grammaticalize. The grammaticalization of verbal morphology is a fairly late phenomenon for adult second language learners outside the classroom. In the European Science Foundation project (the ESF project, Dietrich et al. 1995), two thirds of the learners fossilized at a *Basic Variety* stage, where temporal relations were expressed without L2 morpho-syntax. Lexical verbs appeared in a base form, temporal sequencing was conveyed by pragmatic principles, such as *the principle of natural order* ("unless marked otherwise, the order of mention corresponds to the order of events") and a rich repertoire of temporal adverbials. However, some learners evolved beyond the Basic Variety and started moving toward a more grammaticalized system with morphological differentiation of verb forms and

subordination. Morphological distinctions first emerged with specific verbs in specific discourse contexts and were enhanced by communicative shortcomings. For instance, the principle of natural order led to conflicting constraints, when a telic event did not move time forward but appeared in the background, or when the order of mention of events was different from the order in which they took place. Expressing a reverse-order relation between two past events was problematic without morphology. Furthermore, the pragmatic constraints of the Basic Variety did not allow for aspectual differentiation, including the difference between *he was going* and *he went*, nor for distinguishing between a single case reading and a habitual reading (Dietrich et al. 1995; Noyau 1997, this volume).

The learners of the present study differ from the ESF learners in a number of ways. First, they learned French primarily in a classroom rather than in a naturalistic context. Their explicit (also called declarative, see Anderson 1983; Towell et al. 1996) knowledge of French was more important than that of the ESF learners, because of differences in the context of acquisition. This raises the question as to whether their explicit, metalinguistic knowledge of tense and aspect was available as implicit (also called procedural, see e.g. Anderson 1983; Towell et al. 1996) knowledge, retrievable in on-line speech production. The learners were examined in a dialogue situation, which requires rapid, automatized access to implicit knowledge. In addition, the learners had moved beyond the stage of emergent morphology at the time of the data collection. The investigation started at a moment when morphological distinctions were being used more or less systematically. Particularly, the learners abundantly produced the two main past forms of French, *imparfait* and *passé composé*. The final stage in the grammaticalization process is native use, i.e. the capacity to use tense/aspect morphology in all types of contexts, with different types of verbs and in the same form/function coalitions as in native use. It was hypothesized that some "critical contexts" for morphology were still lingering on despite general use of tense/aspect markers in the learner data, as compared to native use. Our goal was to identify these contexts and thereby bring out relevant features for distinguishing different degrees of grammaticalization in advanced French interlanguage, as regards temporal reference.

Temporality in Swedish and French

Adult learners enter the acquisition process endowed with grammatical knowledge from their first language. This knowledge is a potential blocking factor during the grammaticalization process. In the successive restructuring of hypotheses of form/function relationships, learners might be sensitive to a concept of time and aspect encoded morphologically in their first language and search for its counterpart in

the target language. Conversely, a temporal/aspectual meaning grammaticalized in the L2 but not in the L1 might be resistant to restructuring and elude even the most advanced learner (Noyau 1997 this volume; Giacalone-Ramat this volume).

Let us therefore look precisely at what our learners know from their first language and what they need to know in order to master the temporo-aspectual notions in French. Both languages dispose of two tense forms for reference to past time. These are morphologically similar: there is a stem + suffix form (Sw. *preteritum* and Fr. *imparfait*) and a compound form with auxiliary + past participle (Sw. *perfekt* and Fr. *passé composé*). In Swedish, however, these forms encode tense, not aspect. This means that the fundamental relation for pastness is encoded differently in the two languages: by the compound form *passé composé* in (oral) French, *il a joué* 'he played', and by the simple form *preteritum* in Swedish, *han spelade* 'he played'. The only aspectual distinction is the perfective/imperfective opposition, expressed by *passé composé*[1]/*imparfait* in oral French. The three functions encoded morphologically in the two languages are thus Perfect, Aorist and Past Imperfective. The distinction *perfekt/preteritum* in Swedish is temporal and deictic (relation between Reference Time (R) and Speech Time (S), cf. Reichenbach 1947), while the *passé composé/imparfait* distinction is aspectual (relation between Event Time (E) and R, Klein 1994). The term "perfectivity" is relevant only in French, since Swedish *preteritum* marks pastness but not perfectivity. When needed, "aorist" will be used as a neutral, language-independent term for pastness.

Passé composé

The French *passé composé* is not only perfective. It is a form with with two basic meanings in modern French: perfective and perfect. In its perfect use, R moves to S, but E is still located before S. The event referred to took place (partly or entirely) in the past, but gives supplementary information about the result of the past event at Speech Time, thus marking the "continuing present relevance of a past situation" (Comrie 1976: 56). Originally, *passé composé* had purely perfect meaning, before it developed into a perfective form and took over the functions of *passé simple* in oral French. This diachronic grammaticalization process, called the *perfectivization path* (Bybee & Dahl 1989; Bybee et al. 1994) has advanced further in French than in many other Romance languages.[2]

The development from perfect, also called anterior, to perfective is a well-documented change in the languages of the world. Besides Romance languages, it has also taken place in some Germanic languages, such as German and Dutch, where the perfect form (auxiliary + past participle) has taken over the functions of the preterite form. Given that neither German nor Dutch encode aspect (perfective/imperfective), the perfectivization process is not exactly parallell to the one in

Romance languages, but the common denominator is the same: the compound past time form takes over the main "pastness" function. The perfectivazition of the perfect tense, however, has not taken place in Swedish. The distinction between *preteritum* and *perfekt* in Swedish can be considered grammatically and functionally equivalent to the simple past and the present perfect in English. In neither language is the perfect form used in aoristic contexts, as opposed to German and Dutch. However, Swedish differs from English in that there is no aspectual form, like the progressive. Swedish therefore constitutes an interesting middle case in comparing the acquisition of French by learners with a Germanic first language. As opposed to Dutch and German learners, who might be helped by the formal and functional similarity between *passé composé* and the perfect form in their first language, Swedish learners need to discover the two functions fused in the *passé composé.* As opposed to English learners, they also have to discover how aspect is expressed morphologically.[3] An additional difficulty is that French imperfect can express a great range of functions (habituality, progressivity, characterization, cf. below). It has often been suggested that L2 learners tend to treat grammatical morphemes as if each form has only one function, following the "one form-one function" principle (Andersen 1984). Swedish learners would then probably have more problems figuring out the different funtions encoded by *imparfait,* none of which is morphologically expressed in Swedish, than the two functions merged in the *passé composé,* both of which are grammaticalized in their first language. To summarize, there is a simple and a compound form for past time reference in both French and Swedish. Aorist is encoded by *passé composé* in French and by *preteritum* in Swedish. The imperfective/perfective distinction merges in the aoristic *preteritum*, whereas perfective and perfect are more or less distinguishable in the *passé composé.*

Imparfait

Imparfait is a source of difficulty in the acquisition of French, as has been witnessed in numerous previous studies (Bergström 1995; Brum de Paula 1998; Dietrich et al. 1995; Harley 1978, 1992; Kaplan 1987; Schlyter 1990, 1996). These studies all agree on three points: *imparfait* always emerges after *passé composé* in L2 acquisition, its frequency of occurrence is lower than that of *passé composé* and it shows initial lexical restriction to a number of frequent stative verbs, such as *avait* 'had', *voulait* 'wanted', and *était* 'was'. It is a well-known fact learners often start using a new morpheme with certain verbs only. Bybee (1995), Devitt (1999), Noyau (1997) and Howard (1999, forthc.) advocate a lexical approach to the acquisiton of temporality. In his study on the emergence of tense/aspect morphology in French in an 11-year-old anglophone, Devitt observed that a couple of frequent irregular verbs, *aller*

'go' and *venir* 'come', resisted the regular Aux V+e pattern of *passé composé*, observed for many other verbs. Howard (forthc.) shows evidence for important clustering of the imperfect to a few stative verbs in Irish university learners of French.

Most earlier studies have investigated the initial emergence of *imparfait*. Relatively little is known about what happens after this stage, as well as what functions present specific difficulties for learners. Some recent studies indicate that acquisition of the imperfect is easier for learners of French whose L1 marks imperfective aspect morphologically (De Lorenzo 2001; Brum de Paula 1998). On the other hand, Coppieters' (1987) study of nearnative speakers of French, selected by native-speaking friends and colleagues for perceived nativeness in production, showed nonnative intuitions on the perfective/imperfective distinction in French in a judgement test. Given its notorious difficulty, and the fact that imperfectivity is not marked in the first language of the learners, specific attention was paid to the use of this form. Three aspects were focused on. First, the lexical distribution of the imperfect on different verbs (other than *était/avait/voulait* 'was/had/wanted') was investigated. Secondly, the inherent aspectual character (*Aktionsart*) of these verbs was considered. Thirdly, the aspectual values attributed to sentences with *imparfait* were taken into account. The last factor seemed to be the least examined one in previous research.

Aspectual values of imparfait

Perfective aspect treats the situation as a self-contained whole. The focus is on the completion of the event. E and R coincide, so that successive events expressed in the perfective form by default contain temporal move. Imperfective aspect cuts up a portion only of Event Time. It "views a situation from within" (Comrie 1976: 24) and ignores its endpoints. French imperfect has a broad functional scope, including some pragmatic uses traditionally not found in descriptions of imperfectivity. A subdivision of imperfectivity is often made between *continuousness*, i.e., when a situation is considered as ongoing at a specific R, and *habituality,* when the situation referred to is viewed as a characteristic feature of an entire time period (Comrie 1976; Bybee et al. 1994). French imperfect expresses both. It is used for descriptive situations in the background, for habitual actions and continuous situations. In all its uses, the time span from which the event is considered (R) more or less overlaps with the time taken up by the event on the time line (E). According to the predominant view, *coreferentiality*, i.e., overlap between E and a past-time R, is the semantic invariant behind all aspectual values of the imperfect (Berthonneau & Kleiber 1993; Combettes et al. 1993; Kamp & Rohrer 1983; Vet 1991). The precise

nature of this coreferentiality was used as a methodological tool in the present study.

The different relations of overlap were subdivided into four groups, in order to see what relations seemed particularly problematic for the learners. The R to which the event was attached was first identified. Secondly, the internal structure of the situation within this time span was investigated. Since aspectual values, such as habituality and progressivity, are not mutually exclusive, no absolute classification of each occurrence could be made. Instead, the sentences with the imperfect were ordered on a continuum stretching along four typical cases with increasing distance between E and R: Imperfect of Total Overlap, Habitual Imperfect, Imperfect of Short Overlap and Imperfect "on the limits." The four cases were established by Kihlstedt (1998, in press) and are summarized below:

Imperfect of Total Overlap

In (1), Event Time of <vouloir travailler> 'want to work' completely coincides with R, expressed by the time adverbials *avant* and *maintenant*:

(1)[4]   Oui parce que *avant je voulai:s* travailler avec le français. Maintenant je trouve que ça marche pas très bien (Yvonne, interview 3)
'Yes because *before I wanted*-IMP to work with the French. Now I think that is not working so well.'

Nothing indicates that there was a single moment of R during which the situation was not valid. In addition, Event Time does not extend beyond Speech Time, as indicated by the presence of *maintenant,* 'now'. E and R thus fully overlap. In this type of contexts, *imparfait* marks the characterization of an entire time period. The characterizing value of the imperfect was frequent in our data, where speakers often talked about typical situations of previous stays in France.

Habitual Imperfect

In its habitual value, *imparfait* also marks characterization of a time interval. This is the defining feature of habituality: a situation seen not as an incidental property, but as a characteristic feature of a whole time span (Comrie 1976: 28). I would, however, like to make a point of the fact that Habitual Imperfect, although presenting a situation as characteristic, does not mean total overlap between E and R, as in (1). The pattern of occurrence of habitual situations may vary. Habitual Imperfect refers to *more or less* repeated occurrences of E within R. In (2), <parler français>, 'speak French' covers the entire time span talked about, a language course that Eva

attended during a previous stay in France. Every time that Eva spoke in that course, she spoke French. The adverbial *tout le temps,* 'all the time' reinforces the interpretation of a continuously repeated situation, occurring throughout R:

(2) Eva: C'est-à-dire que c'était seulement des professeurs français. Et on *parlait* seulement le français *tout le temps.* (Eva, interview 2)
'That is to say there were only French teachers. And *we* only *spoke* IMP French *all the time.*'

In (3), *imparfait* presents a habitual situation repeated with irregular frequency, in the sense of 'now and then' rather than 'all the time'. E then takes up smaller fragments of R, as in the following example from a native speaker (NS), who talks about what she used to do on weekends when she lived in Rouen as a child:

(3) I: Que faisiez-vous le week-end quand vous étiez à Rouen ? vous alliez vous promener ou?
Catherine: Oui oui *je me promenais.* on *allait faire* des des petits tours en voiture sur la côte. (Catherine, NS)
'I: What did you usually do-IMP at weekends when you were-IMP in Rouen? Did you go-IMP for walks or?
Catherine: Yes yes *I used to go*-IMP *for walks.* We *used to go* IMP for small trips by car along the coast.'

In both cases, the speaker refers to subintervals of a global temporal frame: the language course in (2) and weekends in (3). The event <speak> takes up every subinterval of a *language course* in (2), whereas the events <go for walks> and <go for small trips> in (3) only cover some of the subintervals of *on weekends*. In (3) the pattern of occurrence of the event is *irregular* and habitual. The important point here is that R and E are less contiguous in (3) than in (2). Sometimes the frequency was made explicit by adverbials, such as "every two years" or "all the time", as in (2). If not, it was established by pragmatic inference, as in (3).

Imperfect of Short Overlap

In its habitual value, *imparfait* requires a time span long enough for repeated occurrences of the event to take place. But an imperfective situation can also be viewed as ongoing at a short reference time. This value is close to progressivity. French disposes of a lexical periphrasis to express progressivity, *être en train de* + VInf, 'be busy V-ing'. In languages where progressivity is not obligatorily expressed, as in French, nothing excludes that *imparfait* takes progressive *and* habitual meaning (Comrie 1976: 33f). However, what is here referred to as Imperfect of Short

Overlap (*IMP d'inclusion brève*, cf. Kihlstedt in press) can never take habitual meaning. There is no global temporal frame as in Habitual Imperfect. Instead, R is short, often given by an adjacent predicate in the *passé composé,* as in the following example from a native speaker:

(4) Anne: On *s'est fait gentiment remettre* en place parce *qu'on marchait pas* du bon côté sur le trottoir. On était du côté vélo et non pas du côté piéton. (Anne, NS)
'We *were kindly told off*-PC because *we were not walking*-IMP on the right side of the pavement. We were on the bicycle side and not on the pedestrian side.'

The event <walk on the wrong side> is considered from a tiny part of its total extension, the short interval corresponding to "we were told off" in passé composé. E is then only briefly overlapping with R. The walking may or may not extend beyond R. It is impossible to tell, since imparfait excludes endpoints. In this use, it simply marks "ongoing at (a short) R".

Imperfect "on the limits"

Given that *imparfait* focuses on duration and leaves endpoints open, it is usually incompatible with punctual events, such as achievements. To override this semantic clash, two interpretations are possible (Gosselin 1996; Vet 1994). In one interpretation, the event is viewed as habitual, expressing an indeterminate series of repetitions, as in *elle partait tous les matins à 8h* 'she used to leave every morning at eight'. The other possibility is to focus on a preliminary stage, detachable from the event itself (Smith 1991), as in the following classical example from Imbs (1960: 62):

(5) Vous avez de la chance de me trouver, je sortais.
'You were lucky to find me, I was leaving-IMP.'

In the fourth and last case, the event is viewed as not having reached its endpoint in the sense of 'I was just about to leave'. This is a marked use of *imparfait,* referred to as Imperfect "on the limits" of the temporal system (*imparfait aux confins,* Kihlstedt, in press). The overlap between E and R is here only hinted at. Kuteva (1998) calls this aspectual value "proximative", and defines it as "a temporal phase located close before the initial boundary of the situation described by the main verb". In French, it is expressed by *imparfait,* especially when *imparfait* is used with punctual verbs. It is one way of solving the inherent contradiction between the durative, nonlimited character of *imparfait* and punctual, nondurative verbs. From total overlap, as in (1), to a light touch, hardly tangible as in (5), the coreferentiality

of *imparfait* is a many-faceted phenomenon. All clauses with *imparfait* were analyzed according to the distance between E and R, following these four typical cases. It was hypothesized that learners had not yet grammaticalized the wide range of aspectual values of *imparfait.* By comparing the values expressed in learner and native data, it was hoped that an indication of what values were particularly problematic would be brought to the fore.

Aktionsart

Grammatical aspect is what native speakers have at their disposal. In accordance with how they view a situation, imperfective or perfective aspect marking can be used basically with any verb. This is the "terminus" of acquisition (Andersen 1991), or the ultimate stage of grammaticalization in learner language. During the acquisition process, however, the inherent semantic aspect of the verb (*Aktionsart* or *lexical aspect*) seems to guide the learner's use of verb forms. Following Vendler's (1957) division of Aktionsart into four classes (states, activities, accomplishments and achievements), numerous L1 and L2 studies have shown its influence on the early acquisition of tense/aspect morphology (see overviews in Andersen & Shirai 1994 or Robison 1995). The Aspect Hypothesis states that verb morphology is constrained by Aktionsart, so that aorist (past + perfective) forms are first used with telic and punctual verbs,[5] progressive inflections with activity verbs and past imperfective inflections restricted to states and activities (Andersen & Shirai 1994). This is congruent with previous studies on the acquisition of French: the first forms of *imparfait* appear with state verbs. For the advanced learner of French, who already makes productive use of the prototypical combinations, the question to be addressed is whether learners have freed themselves from the semantic constraints predicted by the Aspect Hypotheses. The perfective/imperfective distinction combines with all four Vendlerian verb categories in French, even if the "nonprototypical associations" give rise to some specific interpretations, as shown in example (5) above.

However, it is important to keep in mind that even in native French, *imparfait* typically appears with states and activities, in the same way that there is an affiliation between bounded verbs and perfective *passé composé* or *passé simple* (Vet 1994; Vikner 1985). The Distributional Bias Hypothesis (Andersen 1993) claims that also native speakers' use of verb morphology reflects the prototypical combinations predicted by the Aspect Hypothesis. Therefore, the precise question addressed in the present study was the following: are advanced learners still more sensitive to the distributional bias of the input so that the prototypical associations of *imparfait* and *passé composé* are more strongly reflected by the learners than by the native speakers?

Have the learners acquired the "non-prototypical" combinations, i.e. *passé composé* with state verbs and *imparfait* with telic verbs for the functions expressed by these combinations in native use? To answer this question, all predicates in *passé composé* and *imparfait* were classified according to their Aktionsart. A modified version of Vendler's model was applied. I used a hierarchic feature analysis, based on the ±dynamicity, ±telicity and ±transitionality of situations. Transitionality (cf. Vet 1994) replaced the notion of punctuality to further subdivide the category of telic verbs. This notion was chosen instead of punctuality for two reasons. Some punctual events are semelfactive and behave more like activities, because they do not have an inherent endpoint, such as *frapper* 'knock' or *rajouter des signes* 'add marks'.[6] Secondly, the difficulty to distinguish accomplishments from achievements solely on the basis of the punctual character of the event has been pointed out in several studies (Comrie 1976; François 1990; Shirai & Andersen 1995; Smith 1991; Vet 1994).[7]

In the present study, the common feature of the two telic verb classes was the notion of boundary. A distinction was then made, inspired by Vet (1994) between transitional and merely bounded verbs. Transitional verbs mark a change-of-state of a person or an object after the event, regardless of the gradual or punctual character of the change, such as *aller à Paris* 'go to Paris' and *gagner* 'win'. The other telic verb class comprises verbs with a boundary that simply indicates a *nonarbitrary endpoint* of a durative situation and no change-of-state, as in *faire les cours de littérature* 'take the literature classes' and *lire les livres au programme* 'read the course literature'. In summary, one could say that a transitional verb has a change-of-state endpoint, while bounded verbs have an endpoint not necessarily of the change-of-state type. The superordinate term *telic* comprises both.

Unmarked base forms

The Aspect Hypothesis predicts that some verbs remain unmarked during the acquisition process. In Romance learner languages, verbs are not always inflected in past imperfective contexts, since imperfectivity appears after perfectivity (Giacalone-Ramat 1992, this volume, Howard, forthc., Schlyter 1990; Wiberg 1996). Even in advanced French interlanguage, verbs are not always inflected for tense. Although the data were characterized by a high degree of systematic inflection, a few contexts of "morphological breakdowns" (chutes morphologiques, Kihlstedt 1998: 259ff) could be observed. Learners sometimes backslid to the use of an unmarked base form. This form was predominantly a present form in third person singular, used in past contexts. The base forms were examined in

detail in the present study, in order to see whether they appeared systematically (with certain verb types and/or in certain learners), thus indicating a specific stage of acquisition, or in a random manner. Special attention was given to the discourse context to see whether there was a common contextual factor that triggered the backsliding to base forms.

Research questions

To sum up the issues outlined above, the following specific questions were singled out as relevant:

1. What is the distribution of past tense forms? Is the frequency of *imparfait* lower than that of *passé composé,* as evidenced in studies on learners at initial stages?
2. Are there any lexical restrictions? Do the learners spread the tokens of *passé composé* and *imparfait* to the same amount of verb types as the native speakers?
3. Are advanced learners still more sensitive to the distributional bias of the input, so that the prototypical associations of *imparfait* + states and activities, and *passé composé* + telic verbs are more strongly reflected by the learners than by the native speakers?
4. What aspectual values are expressed by *imparfait?* What relations between Event Time and Reference Time seem particularly problematic for the learners?
5. Are there still any unmarked base forms, showing that past time marking is not fully grammaticalized in all contexts? Do these forms appear in specific contexts and/or in specific learners, or do they appear at random?

Data and procedure

The data

The data were taken from the InterFra corpus (Bartning 1997), established at the Department of French and Italian at Stockholm University. The Interfra corpus[8] consists of oral data from 32 advanced university learners of French, split in a longitudinal and a crossectional group, a group of 20 high school learners and a control group of 20 native speakers. The analyses were based on interview data from four learners in the longitudinal group and four native speakers from the control group. Data collection took place at regular intervals during a period of two years. The longitudinal learners participated in four or five interviews of about fifteen minutes each. The native informants were recorded only once. The learners

were students of French in the Department of French and Italian at Stockholm University. The recordings started during their first term at the university. They had all taken French in high school and had spent between 4 and 12 months in a French-speaking country,

The topics of the interviews, made by the same native speaker in the learner and in the control groups, covered personal history, general opinions of Sweden and France, previous academic and professional experience, hobbies, future plans, etc. All in all, 22 interviews, 18 non-native speakers (NNS) and 4 native speakers (NS), from eight informants (four NNS and four NS) were included in the study. The interviews were composed of 47,000 words, 5746 of which were finite verb forms. A first form/function coding was made in order to single out the 1212 forms that carried past time reference. These forms were then classified according to the research questions outlined above. All codings, calculations and concordances were carried out with the help of the PCBeta and Tagger software (Brodda 1991).

The advanced learner and stages of development

The considerable individual variation in advanced learners is an often mentioned factor (see e.g. Bartning 1997; Regan 1997). However, the relationship between level of acquisition and this factor has rarely been explicitly examined as far as temporality is concerned. Research in this area typically focuses on the initial emergence of morphological distinctions and the upgoing development curve over time. When studying advanced learners, indications of L2 development are less obvious. At later stages, when the lexical and grammatical means of the target language are less of an obstacle to expression, the options available to learners increase, giving them greater leeway to personal choice of expression. Therefore, it is difficult to know whether variation in linguistic behavior between two recordings from the same individual is a sign of progression towards more target-like use, or simply a reflection of variation in personal choice of expression from one time to another. This is probably the reason why most studies on advanced learners are cross-sectional, based on statistic analyses of one or a few specific surface phenomena in larger corpora. However, this design allows neither a real understanding of what an advanced learner is able to express with respect to temporo-aspectual notions, nor the discovery of potential progression or backsliding over time. These factors can only be captured longitudinally, with an indepth analyses of extensive data from one or a few individual learners. Thus, the reason for choosing a longitudinal design was not primarily to capture a developmental curve, but to have access to extensive data from a few learners in order to distinguish systematic variability from nonsystematic. This seems to be the only way to separate factors pertaining to

personal choice of expression from factors pertaining to different levels of acquisition in advanced interlanguage.

Procedure

When the investigation started, there were few studies available on the acquisition of temporality in advanced French interlanguage. Therefore, an exploratory, inductive method was used. Every phenomenon that could potentially be classified as an "acquisitional" feature was passed through a three-tier filter, where the following questions were examined:

1. Is this feature characteristic (= occurs repeatedly) of the production of this learner?
2. Is it a feature in which there is systematic inter-individual variation, so that it occurs in some learners' production but not in others' (or only in learner versus only in native data) during the investigation period?
3. Is it a feature in which there is systematic intra-indivual variation, so that it occurs in every interview with the learner? If not, does it occur more and more often (or seldom), indicating that a development takes place during the investigation period? Or does it occur randomly, e.g., in the first and last interview, but not in the second and the third?

The two first questions had to be answered in the affirmative to continue the analysis of a specific feature. For instance, if *imparfait* was less frequent than *passé composé* in all learners, but not in the native data, it was considered as an acquisitional feature on which learners had not yet attained native-like use. Likewise, if Habitual Imperfect appeared only in two learners and in the native data, this was taken as an indication of a relevant acquisitional feature, which did not vary randomly. As regards the third question, it was treated in three steps. Firstly, if there were, e.g., unmarked base forms in all the interviews of a learner, it was assumed that this learner had fossilized at a "less advanced" stage of acquisition.

Secondly, if a feature was present in the first two interviews but not in the last two (or the other way round, e.g., only in the last interviews), this was taken as an indication that the learner had moved from a less advanced to a more advanced stage during the investigation period. Thirdly, if the feature appeared randomly in some interviews, e.g. the first and the last, other factors were taken into account. Could its apparently random variation be due to its general low frequency in French? The first measure was therefore to examine whether it occurred in the native data. Also, the context was examined, in order to find out whether the feature occurred in a particularly difficult context (e.g. complex temporo-aspectual functions and/or a syntactically complex environment) . This method of scrutiniz-

ing each feature in relation to interindividual, intraindividual and native/learner variation led to the establishment of bunches of *implicationally related* features, which coincided regularly and systematically. However, a fine-grained analysis like this must, for practical reasons, be limited to a few individuals. The results established in this manner allow for subsequent testing on larger groups of learners. With a few exceptions, little substantial progress was noticed over time. It was rather a question of finding out what features were representative of a "less advanced" (or intermediate) and a "more advanced" level of acquisition.

Results

Formal analysis

Table 1 gives the distribution of all verb forms carrying past tense reference. Given that our learners were relatively advanced, the *production* of past forms was no longer a problem. The relative proportions of *passé composé/imparfait* seemed to depend solely on random variation. Marie and Yvonne preferred *imparfait* to *passé composé* (44% PC vs 53% IMP (Marie) and 57% IMP vs 27% PC in Yvonne's data), whereas *passé composé* is more frequent in Lena's and Eva's production (53% PC vs 34% IMP (Eva) and 59% PC vs 40% IMP in Lena's data). Similarly, the same learner sometimes used more PC than IMP, e.g., 33% PC and 63% IMP in Marie's Int 1, as compared to the completely opposite distribution, 35% PC and 65% IMP, in her second interview. On this point, the study differs from a number of previous studies on the acquisition of French, in which *imparfait* appears considerably less frequently than the perfective tense (Bergström 1995; Harley 1978; Kaplan 1987). However, a clear systematic inter-individual variation was observed for other past forms. The pluperfect was only used by two learners, Lena and Marie, and by all native speakers. Unmarked base forms occurred in the production of the two other learners, Eva and Yvonne, to 14% and 16% respectively, but were absent from Lena's and Marie's production. This was assumed to be two acquisitional features: the presence of the base forms implied the absence of the pluperfect (Eva, Yvonne) and vice versa (Lena, Marie, NS). As a matter of fact, the use of the pluperfect turned out to be a decisive variable for distinguishing between different levels. It will be treated in more detail below.

Table 1. Past time forms in learner and native data

NNS	Eva											
	Int 1	%	Int 2	%	Int 3	%	Int 4	%	Int 5	%	Total	%
IMP	6	22%	14	47%	19	57%	3	12%	3	17%	*45*	*34%*
PC	16	59%	10	33%	11	33%	20	80%	13	72%	*70*	*53%*
PPF	-	-	-	-	-	-	-	-	-	-	-	-
UBF	5	18%	6	20%	3	9%	2	8%	2	11%	*18*	*14%*
Total	27	100	30	100	33	100	25	100	18	100	*133*	*100*

NNS	Lena											
	Int 1	%	Int 2	%	Int 3	%	Int 4	%	Int 5	%	Total	%
IMP	29	54%	12	27%	15	35%	19	39%			*75*	*40%*
PC	23	43%	32	73%	28	65%	29	60%			*112*	*59%*
PPF	2	4%	-	-	-	-	-	-			*2*	*1%*
UBF	-	-	-	-	-	-	-	-			-	-
Total	54	100	44	100	23	100	48	100			*189*	*100*

NNS	Marie											
	Int 1	%	Int 2	%	Int 3	%	Int 4	%	Int 5	%	Total	%
IMP	19	33%	15	65%	18	53%	24	57%	55	62%	*131*	*53%*
PC	36	63%	8	35%	16	47%	17	40%	30	34%	*107*	*44%*
PPF	2	4%	-	-	-	-	1	2%	4	4%	*7*	*3%*
UBF	-	-	-	-	-	-	-	-	-	-	-	-
Total	57	100	23	100	34	100	42	100	89	100	*245*	*100*

NNS	Yvonne											
	Int 1	%	Int 2	%	Int 3	%	Int 4	%	Int 5	%	Total	%
IMP	10	22%	41	57%	54	77%	50	60%			*155*	*57%*
PC	19	42%	19	26%	11	16%	23	28%			*72*	*27%*
PPF	-	-	-	-	-	-	-	-			-	-
UBF	16	36%	12	17%	5	7%	10	12%			*43*	*16%*
Total	45	100	72	100	70	100	83	100			*270*	*100*

NS	Anne		Catherine		Jérôme		Mélanie		*Total NS*		Total	
	Int 1	%	Int 1	%	Int 1	%	Int 1	%	*NS*	*%*	*NNS*	*%*
IMP	52	46%	64	58%	26	37%	56	41%	*198*	*46%*	*406*	*53%*
PC	57	50%	46	41%	41	58%	75	54%	*219*	*51%*	*361*	*46%*
PPF	4	4%	1	1%	4	6%	7	5%	*16*	*4%*	*10*	*1%*
UBF	-	-	-	-	-	-	-	-	-	-	*62*	*7%*
Total	113	100	111	100	71	100	138	100	*433*	*100*	*839*	*100*

IMP = *imparfait*, PC = *passé composé*, PPF = pluperfect, UBF= unmarked base forms, NNS= Nonnative speaker, NS= Native speaker. Int = Interview

The lexical analysis of type/token ratio showed no systematic increase over time, but varied randomly from one interview to the other. It was a factor linked to the individual rather than to the acquisitional dimension. That is the reason why the following tables only give the total figures for each learner's production and not the figures of each interview:

Table 2a. Type / token ratio of IMP forms in learner data

NNS	Eva	Lena	Marie	Yvonne	Total	Average
Tokens	45	75	131	155	406	
Types	8	14	25	20	67	
Ratio	.18	.19	.20	.13		.16

Table 2b. Type / token ratio of IMP verbs in native data

NS	Anne	Catherine	Jérôme	Mélanie	Total	Average
Tokens	52	64	26	56	198	
Types	18	19	10	13	60	
Ratio	.35	.30	.38	.23		.30

Table 3a. Type / token ratio of PC forms in learner data

NNS	Eva	Lena	Marie	Yvonne	Total	Average
Tokens	70	112	107	72	361	
Types	35	38	39	29	141	
Ratio	.50	.34	.36	.40		.39

Table 3b. Type / token ratio of PC forms in native data

NS	Anne	Catherine	Jérôme	Mélanie	Total	Average
Tokens	57	46	41	56	200	
Types	32	25	24	13	94	
Ratio	.56	.54	.58	.23		.47

The tables show that native speakers distribute their use of *passé composé* and *imparfait* on a wider range of verb types than the learners do. This seems plausible and could be expected. The difference is more striking in the use of *imparfait* than in the use of *passé composé*. In other words, *passé composé* displays a lexical differentiation which is still less varied than that of the native speakers, but far more varied than the differentiation of *imparfait*. In fact, *imparfait* shows the highest discrep-

ancy between NS and NNS use. The native speakers use *imparfait* with twice as many verbs (.30) as the learners (.16). On the individual level, Marie and Yvonne both use more *imparfait* forms than *passé composé* forms, but the forms produced by Yvonne cluster in fewer verb types than those of Marie. The copula *être,* 'be' is the most frequent verb in French (Muller 1974), and the use of *imparfait* is highly restricted to one lexical item, *était,* 'was'. To sum up the quantitative findings, two features seemed to pertain to acquisitional stage: the (non)use of the pluperfect versus +/–presence of unmarked base forms and lexical differentiation of *imparfait.* The proportion of *passé composé/imparfait,* on the other hand, seemed to depend more on individual variation.

The impact of Aktionsart

All verbs that occurred in *passé composé* and *imparfait* were classified according to their Aktionsart, following the hierarchic classification procedure described above. The results of the classification of *Aktionsart* are presented in Tables 4 (*imparfait*) and 5 (*passé composé*).

Table 4a. Aktionsart of IMP forms in learner data

	Eva		Len		Mar		Yvo		Total	
IMP forms	44		66		126		152		388	
States	41	93%	54	84%	114	88%	133	87%	*342*	*88%*
Activities	3	7%	8	8%	7	8%	10	7%	33	*7%*
Telic/B	0	0	3	2%	2	0%	0	0%	5	*1%*
Telic/T	0	0	1	6%	3	4%	9	7%	13	*3%*
Total telic	0	0	4	8%	5	4%	9	0%	18	*5%*

Telic/B = telic bounded, Telic/T = telic transitional

Table 4b. Aktionsart of IMP forms in native data

	Ann		Cat		Jér		Mél		Total	
IMP forms	52		64		25		56		197	
States	42	81%	54	84%	22	88%	49	87%	167	*85%*
Activities	8	15%	5	8%	2	8%	6	11%	21	*11%*
Telic/B	0	0%	1	2%	0	0%	0	0%	1	*1%*
Telic/T	2	4%	4	6%	1	4%	1	2%	8	*4%*
Total telic	2	4%	5	8%	1	4%	1	2%	9	*5%*

Telic/B = telic bounded, Telic/T = telic transitional

Table 5a. Aktionsart of PC forms in learner data

	Eva		Len		Mar		Yvo		Total	
PC forms	70	100	112	100	107	100	72	100	361	100
States	10	14%	29	26%	28	26%	5	7%	72	20%
Activities	29	41%	35	31%	31	29%	25	35%	118	33%
Telic/B	12	17%	22	20%	7	6%	16	22%	55	15%
Telic/T	19	28%	26	23%	41	38%	26	36%	109	31%
Total telic	31	44%	48	43%	48	45%	42	58%	164	45%

Telic/B = telic bounded, Telic/T = telic transitional

Table 5b. Aktionsart of PC forms in native data

	Ann		Cat		Jér		Mél		Total	
PC forms	57	100	47	100	46	100	75	100	219	100
States	7	12%	11	24%	12	29%	22	29%	52	24%
Activities	10	18%	13	28%	7	17%	17	23%	48	21%
Telic/B	4	7%	10	22%	5	12%	12	16%	31	14%
Telic/T	36	63%	12	26%	17	42%	24	32%	89	41%
Total telic	40	69%	22	48%	22	54%	36	48%	120	55%

Telic/B = telic bounded, Telic/T = telic transitional

The Aktionsart-past form factor varied in an unsystematic manner over time in each speaker. For the same reason as the one mentioned concerning the type/token ratio factor, only the total score of the learner is presented in Tables 4 and 5. The tables reflect a tendency similar to that of Tables 2 and 3 above: the lexical spread in different verb types is more important in the use of *passé composé* than in the use of *imparfait*. The latter clusters predominantly in states, both in the learner group (88%) and the native group (85%), whereas *passé composé* is used more generally across all verbs, but a little less with states. The "nonprototypical" associations (*passé composé* with states, *imparfait* with telic verbs) are used in similar proportions in the native group (24% *passé composé* with states, 5% *imparfait* with telic verbs) and in learners (20% *passé composé* with states, 5% *imparfait* with telic verbs). So, generally speaking, the learners are not more constrained by *Aktionsart* in their use of past inflections than the native speakers are. From a purely quantitative viewpoint, the Distributional Bias of the input (cf. Andersen 1993) is equally reflected in both groups. This is not to say that *Aktionsart* plays no role for the choice of past forms in learners. Let us first look at *passé composé*. On the individual level, it may be noted that the scores for stative verbs are relatively low in Eva's (14%) and Yvonne's production (7%). In the production of Lena (26%) and Marie (25%), the figures are more similar to those of the native speakers.

The following example shows how Lena elaborates on a newly discovered combination between states and *passé composé,* triggered by a question from the interviewer where this combination appears. Most of the highlighted forms are somewhat peculiar in French, and would have appeared more natural in *imparfait.*

(6)   I: J'aimerais avoir ton avis sur tes études aux vingt points ? Tu peux me raconter un peu comment *tu as vécu* cela?
Lena: ça a été bien . Je trouve que [..] *ça a été* très intéressant. Je trouve d'abord que les professeurs *ils ilS ont été* très bien enfin . Et la littérature *a été* intéressant très intéressant sauf pour un ou deux livres que *j'ai pas aimé.*
(Lena, interview 2)
'I: I would like to have your opinion on your studies at twenty points [the first semester]? Can you tell me a little about how *you experienced*-PC it?
Lena: *it was*-PC good. I think that *it was*-PC very interesting . First I think that the teachers *they were*-PC very good finally . And the literature *was*-PC interesting very interesting except for one or two / books that *I didn't like*-PC.'

In Lena's production, stative verbs in *passé composé* showed the following development: 4 tokens (Int 1), 17 tokens (Int 2), 5 tokens (Int 3) and 3 tokens (Int 4). Interview 2, from which the preceding example is taken, contained a considerable increase (17 tokens). After that recording, the frequency fell again in the the two following interviews. It seems as though Lena started questioning her hypothesis of how *passé composé* can be combined, testing it with states in the second interview. As often observed in SLA studies, the discovery of a new certain form/function relationship often leads to a momentary over-use, as in (6), before the learner moves towards more target-like use which Lena seems to do in the two following interviews. The increase in Interview 2 lead to a native-like percentage in Lena's total production but with non target-like functions, as shown in the example above (6). As regards *imparfait,* the results are a little less conclusive and call for some comments. There is a high clustering in states in both speaker groups. The "nonstative" use is mainly restricted to activity verbs in all speakers, even in the native group.

At the individual level, it may be noted that Eva uses 3 and Yvonne 7 activity verbs in the *imparfait.* These verbs were *parler* 'speak', *travailler* 'work', *étudier* 'study', *faire* 'do', *discuter* 'discuss', and *lire* 'read', frequent verbs in talking about previous studies in France and Sweden. These verbs first occurred in *passé composé* in Eva's and Yvonne's data. So, when *imparfait* first appeared with dynamic verbs, it was restricted to verbs already used in *passé composé.* Eva and Yvonne started exploring *imparfait* with dynamic verbs, keeping one foot on "familiar ground",

applying it first to verbs already used in *passé composé*. Activity verbs in *imparfait* in Lena's and Marie's data, on the other hand, were lexically more varied. By comparing these observations to the results from some previous studies on *imparfait* in L2 French, the following acquisitional order is suggested:

> Stage 1
> IMP with frequent stative verbs
> *était/avait/voulait* 'was/had/wanted'
> (Bergström 1995, 1997; Brum de Paula 1998; Harley 1978, 1992; Kaplan 1987; Schlyter 1990)

> Stage 2
> IMP with activity verbs already used in PC
> Eva, Yvonne

> Stage 3
> IMP with various dynamic verbs, including a few telic verbs
> Lena, Marie, Yvonne

Yvonne used *imparfait* with a few telic verbs. The verbs all appeared in a context of indirect speech, where Yvonne referred to the arguments given by her colleagues in a discussion of immigrants in Sweden. In this context, the present or *passé composé* would have been more target-like. It seemed as though the first clause in *imparfait* served as a trigger for a whole range of imperfect forms:

> (7) Yvonne: Ils *avaient comme comme argument* qu'ils *venaient* ici qu'ils *prenaient* toutes les travaux qu'ils *ouvraient* toutes les entreprises. (Yvonne, interview 4)
> 'They *argued*-IMP that they [=the immigrants] *came*-IMP here, that they *took*-IMP all the jobs that they *opened*-IMP all the companies.'

On the other hand, an appropriate use of *imparfait* with telic verbs was found in Marie's production. She used this combination in a habitual context, when describing an evening course in French for adults, where she was the teacher. This is a native-like use of Habitual Imperfect, where the habitual character of the event is reinforced by the frequentative adverbial *chaque fois*, 'every time':

> (8) Marie: Chaque fois que les Suédois *disaient* que "ça c'est très difficile. on n'a pas ça en suédois" ils pouvaient expliquer […] ce qui *donnait* une sorte de… (Marie, interview 5)
> 'Every time the Swedish people *said*-IMP "this is very difficult. We don't have this in Swedish" they could explain […] which *gave*-IMP a sort of…'

So, verb inflections in advanced French interlanguage are partly governed by *Aktionsart*. But when past inflections begin spreading to the nonprototypical combinations, such as telic verbs in *imparfait* (7) and states in the *passé composé* (6), they do not necessarily express the same functions as in native use. Also, the principal semantic division of inflections was +/–dynamicity rather than the predicted +/–telicity division. *Passé composé* preferred all dynamic verb classes, but appeared scarcely with states. Conversely, *imparfait* was mainly used with states and, to a much lesser extent, with activities, and even more rarely with telic verbs.

A number of studies on the acquisition of Romance languages, using both conversational and narrative data, have shown that perfective inflections appear early on in the acquisition process with all three dynamic verb classes (Bergström 1995, 1997 and Schlyter 1996 for L2 French, Lubbers-Quesada 1999; Salaberry 1999 for L2 Spanish and Giacalone-Ramat, this volume; Wiberg 1996 for L2 Italian), whereas *imparfait* is for a long time restricted to states. These findings confirm that the crucial semantic division is +/–dynamicity rather than +/–telicity in both Romance and Germanic languages. In any case, the greater spread of past perfective inflections in the three dynamic verb categories observed in the present study cannot be explained by the fact that the learners studied here are more advanced. In Salaberry's (1999) study, even states appeared with perfective inflections from the beginning. At later stages, lexical aspect (*Aktionsart*) was more decisive for the learners' choice of past forms. Salaberry (1999: 167) suggests that, in the beginning stages of acquisition of Spanish by English-speaking university learners, learners mark past tense rather than lexical aspect. The Preterit is then used as a "default past tense marker" across all four verb classes. Wiberg (1996) assigns a similar role to *passato prossimo* in Italian L2. Bergström (1997) suggests another explanation, based on the weak "pastness" of *imparfait*. Modal and aspecto-temporal values coexist in this form. And even when *imparfait* takes past time reference, only a part of the situation is presented as completed (= the part overlapping with R, cf. above), the other part being only potentially completed, since *imparfait* does not mark boundaries. According to Bergström, learners have several cues of the pastness of *passé composé,* whereas this is not the case for *imparfait*. This would explain why *passé composé* is the preferred past tense form used by the university learners of French that she studied. The pattern observed here conforms to the assumption that *passé composé* takes the function of a general past tense marker regardless of *Aktionsart,* expect for states which mainly receive past imperfective inflection.

The semantic determination of +/–dynamicity is even higher in the use of *imparfait*. This form is predominantly used with states in all speakers. But a high proportion of these forms corresponds to one single highly frequent verb, *était*. This means that the two factors "frequency in the input" and "stative Aktionsart" cannot be distinguished to account for the general great clustering of *imparfait* in

states. It is true that this clustering is certainly greater in learner than in native data (cf. Tables 2a and 2b), but it is uncertain whether stativity is what triggers imperfective inflection or whether it is just a question of mimicking a frequently encountered lexical item in the input. Dietrich et al. (1995: 271) suggests that "the aspect hypothesis has to be weighed against competing strategies for mimicking the input, such as frequency […] whatever the verb class." Our findings confirm this statement. The real grammaticalization of *imparfait* beyond the frequent verbs *avait* 'had', *était* 'was' and *voulait* 'wanted' seemed to start when it appeared with dynamic verbs. Only then was the pattern for *imparfait* used in new lexical combinations and for new functions. Interestingly, these new, less frequent combinations were not limited to dynamic verbs. Marie hesitates and asks for confirmation when extending *imparfait* pattern to a less frequent stative verb, *valoir* 'be worth':

(9) Marie: Et comme je ne l'étais pas ce ce *ce ne valait pas la peine.* ça ne oui? (Marie, interview 5)
'And since I wasn't / *it was-*IMP *not worth it.* / It not / yes?'

However, the most conclusive results for *imparfait* were found when looking at the values expressed by this form. This issue will be treated in the next section.

Aspectual values of imparfait

In learner data, *imparfait* marking a relation of total overlap between E and R was the most frequent use. In fact, the learners tended to make explicit by lexical means that E and R were entirely simultaneous.

(10) Lena: J'ai travaillé comme journaliste en provence . […] Et là je eu:h *je faisais ça pendant deux ans.* (Lena, interview 1)
'I worked-PC as a journaliste in the countryside. […] And there I *I did-*IMP *that for two years.'*

(11) Yvonne: Oui parce que *avant je voulai:s* travailler avec le français. *Maintenant* je trouve que ça marche pas très bien. (Yvonne, interview 3)
'yes because *before I wanted-*IMP to work with French. *Now* I think it isn't working so well.'

In these two examples, E includes the entire R. Nothing indicates that there was a single moment of R during which the situation was not valid. Furthermore, E does not extend beyond S, as indicated by the adverbials *pendant deux ans* 'for two years' in (10) and *maintenant,* 'now' in (11). This is not a relation imposed by the target language. On the contrary, *imparfait* can very well be used for situations that extend over S. Given that *imparfait* does not mark endpoints, the situation may or may not

be over at S (see Klein 1994; Gosselin 1996; Smith 1991). Here is an example of a situation in *imparfait* that extends beyond S. The interviewer asks what the couple in Yvonne's host family studied. Nothing rules out that he (= the husband) is still studying English and still wants to become a teacher at S:

(12)   I: Qu'est-ce *qu'ils étudiaient*?
       Yvonne: Lui *il étudiait* anglais […] parce qu'il *il voulait* être professeur. (Yvonne, interview 2)
       'I: What did *they study*-IMP?
       Yvonne: *He studied*-IMP *English* […] because *he wanted*-IMP to become / a teacher.'

It should be noted that this use of *imparfait* is introduced by the interlocutor, and Yvonne just repeats the forms provided by him. When learners used *imparfait* on their own initiative, the tendency was to explicitly mark its duration, and particularly to specify that the situation did not hold at S. A common configuration was "time adverbial + e1" in the first clause, followed by "*maintenant* 'now' + e2" in a second clause, as in (11) above. Sometimes this explicitness led to nonnative-like uses. *Imparfait* is normally incompatible with time adverbials that express a quantified, limited duration, such as *pendant deux ans* 'for two years' in (10). The only possibility to combine *imparfait* with a quantified time adverbial is when the situation can be seen as habitually repeated within a global temporal frame, as in the following example from a native speaker. The situation <be with my grandmother> took place regularly two or three months within the global time span 'all the summers'.

(13)   Catherine: Pendant tous les étés j'étais chez ma grand-mère *pendant deux trois mois.* (Catherine, NS)
       'All the summers I used to stay-IMPF with my grand-mother *for two three months.*'

A habitual frequentative reading like this is however not possible in learner example (10). In a grammatical judgment test made by some native speakers on this example, they unanimously chose the *passé composé* in this context (Kihlstedt 1998: 128). This difference is implicit in English, where the habitual character can optionally be marked lexically by 'used to' or by 'would' + the infinitive. The same goes for Swedish, where '*brukade*, 'used to', marks the same value. Lena has not yet discovered the morphological possibility of marking habituality in French, nor the impossibility of using *imparfait* for a single, completed event in the past, **je faisais ça pendant deux ans* 'I did-IMPF that for two years'.

       Imparfait of Total Overlap relation was found frequently in all learners' pro-

duction. The most striking differences between the learners were observed in habitual contexts. The *passé composé* was the basic past tense form for dynamic verbs, regardless of aspectual environment. Only at the most advanced level was *imparfait* used for irregularly repeated habitual actions, where E only covers detached fragments of R, as in the following example from Marie's production:

(14)   Marie: J'étais assez petite à l'époque. Mais quand même *je suivais mon père* dans les tracteurs. (Marie, interview 4)
'I was-IMP rather young at that time. But still *I used to follow-*IMP my father on the tractor.'

In a similar context, Lena oscillates between the two past tense forms. She first uses *imparfait* — *si quelqu'un venait* 'if somebody came' — and then the *passé composé* in a relative clause *c'était moi qui a fait interview* 'it was me who would interview him'. The second situation is expressed in the *passé composé*, even if it marks exactly the same relation as the first situation:

(15)   Lena: S'il y avait par exemple *quelqu'un qui qui venait* comme Bengt Westerberg ou quelqu'un c'était moi qui *qui a: qui a fait interview* avec lui. (Lena, interview 4)
'If for example *somebody came-*IMP like Bengt Westerberg or somebody I was the one who *who would interview-*PC him.'

Lena and Marie take the initiative in using the Habitual Imperfect in (14) and (15). It is noteworthy that the other learners rarely supply answers in *imparfait* to habitual questions. They answer without past forms or in the *passé composé*. Even after prompting from the interlocuteur *oui? ils rentraient?* 'oh yes? they used to come-IMP home?' as in the following example, Eva gives elliptic answers to imperfective questions marking habituality:

(16)   I: *Ils le faisaient* dans la famille où tu étais?
Eva: Mhm .
I: Oui? *Ils rentraient* du travail à midi?
Eva: Chaque jour. Oui . (Eva, interview 2)
'I: *They used to do-*IMP *so* in the family where you stayed-IMP?
Eva: mhm.
I: Yes ? / *they used to come-*IMP *home* from work at noon?
Eva: Every day. Yes .'

This is interesting, since Eva is a learner who tends to repeat past forms supplied by the interviewer in a near-systematic manner, when these occur in *passé composé*. A certain level of proficiency has to be attained before *imparfait* is introduced on the

learner's initiative. Before that, imperfective questions rarely trigger imperfective forms (Kihlstedt 1998: 187ff; Schlyter 1998) The late acquisition of Habitual Imperfect has also been observed in English-speaking pupils in the Canadian French immersion project (Harley 1992). Similarly, Starren (1998) shows that this value disappears early from the French interlanguage of Dutch au-pair girls some time after their stay in France. However, no explanation has been suggested as to why Habitual Imperfect is difficult for learners. Habitual Imperfect presents a situation as taking up fragments of R only. This means that E and R are more or less separated. As observed above, learners give priority to Imperfect of Total Overlap, where E and R coincide. This might be the reason why learners hesitate on this value.

Imperfect of Short Overlap was even less often observed in the learner data. This value typically occurs in narrations, when a durative imperfective situation constitutes the background to a punctual event in *passé composé*. The imperfective situation is spotted from a short, momentary R. In (17) from Marie's production, the situation <Dallas be on> only covers the tiny time span "squeezed in" between the two events *j'ai ouvert la télé* 'I put-PC on the TV' and *j'ai immédiatement fermé* 'I turned it off-PC immediately'. The overlap between R and E is here even shorter.

(17) Marie: Hier *j'ai seulement ouvert* la télé pour regarder si *c'était* quelque chose avant d'aller au cinéma mais *j'ai immédiatement fermé c'était* Dallas là. (Marie, interview 1)
Yesterday *I only put on*-PC the TV to see if *there was*-IMP something on before going to the pictures but *I turned it off*-PC *immediately. Dallas was*-IMPF *on.*'

Yvonne backslides to an unmarked base form in the present in this context. The situation <do the seminars in Swedish> is viewed from the short time point covered by the situation in *passé composé: quand je suis venue* 'when I came':

(18) Yvonne: Oui mais c'est une grande différence je pense pour les cours en France et les cours ici parce que *quand je suis venue / tout le monde fait* [=*faisait*] *les séminaires* et tout ça en suédois. (Yvonne, interview 1)
'But there's a big difference I think for the courses in France and the courses here because *when I came*-PC *everybody does* [=*did*-IMP] *the seminars* and all that in Swedish.'

As discussed above, *imparfait* combines uneasily with achievements, except when the focus is on preliminary, detachable stages of the event. This value, called Imperfect "on the limits", was only observed in the native data. In the following example, Anne, a native speaker, talks about her Swedish classes, which were just about to finish (but never did). Giacalone-Ramat (this volume) shows that even advanced learners of Italian have difficulty in choosing the right linguistic form for

expressing this notion of "being on the verge of doing something." *Imparfait* indicates in this case that the event was not brought to completion. Thus, there is a maximal distance between E and R. Given that learners tend to expliclitly mark Total Overlap Imperfect, it is not so surprising that this value is not observed in learner data.

(19) Mélanie: Mais pendant deux mois j'ai suivi huit heures par semaine. Les cours *prenaient fin.* On a réussi à obtenir la plupart des étudiants ERASMUS ont demandé à ce qu'on puisse avoir des cours supplémentaires (Mélanie, NS)
'For two months, I took-PC [=Swedish] eight hours per week. The course *was about to finish*-IMP. We managed-PC to obtain, most ERASMUS students asked-PC for extra classes.'

On the basis of the analysis, an implicational scale for the acquisition of the functions of *imparfait* was posited. This scale is presented in the summary section below.

Unmarked base forms

Two learners, Eva and Yvonne, sometimes backslid to the use of unmarked base forms. The most frequent base forms were *a* 'has' and *est* 'is', replacing *imparfait* forms *était* 'was' and *avait* 'had'. They often co-existed with the correct past form:

(20) Eva: Quand j'ai habité à Val de Loire *c'est / il y a / il y avait* beaucoup de vins qui *sont* bien. (Eva, interview 1)
'When I lived-PC in Val de Loire *it's / there is / there were*-IMP many wines which *are* good.'

(21) Yvonne: Oui il y *a* un festival du jazz quand j'étais là. (Yvonne, interview 2)
'Yes there *is* a jazz festival when I was-IMP there.'

The unmarked base forms occurred in every interview made by Eva and Yvonne. 14% (Eva) and 16% (Yvonne) of their total production of past time forms were unmarked base forms (cf. Table 1). It also turned out that the context of emergence of the base forms was systematic and not random. First, they almost exclusively appeared in imperfective contexts, as in (20) and (21) above. This is in line with research by Giacalone-Ramat (this volume), Howard (forthc.), Schlyter (1990) and Wiberg (1996), where a base form in the present competes with *imparfait* (or *imperfetto* in Italian).

Secondly, the base forms appeared in contexts of temporal subordination,

which is the case in (20) and (21). I will return to this point shortly. Thirdly, learners who made use of base present forms also used *passé composé* in contexts requiring the pluperfect. Interestingly, the contexts are very similar in (22) and (23). Both learners talk about the number of books they had read when they started taking French at the university.

(22)   Eva: Quand j'ai commencé ici *j'ai* seulement *lu* [j'avais lu] un livre en français. [..] Maintenant c'est c'est une quinzaine. (Eva, interview 2)
'When I started-PC here *I have* only *read*-PC [= I had only read] one book in French. Now it's fifteen.'

(23)   I: Alors quand tu es venue à l'université ce sont les dix premiers livres que tu as lus ?
Yvonne: Ah oui les livres en non *j'ai lu* [= j'avais lu] *un livre avant* (Yvonne, interview 3)
'I: So when you came-PC to university those were the first ten books you read-PC?
Yvonne: Oh yes the books in no *I have read*-PC [= I had read] one book before.'

No free variation with the target form (the pluperfect) could then be observed — the pluperfect was absent at the less advanced stage, i.e. in the production of Eva and Yvonne. On this point, our data are consistent with the findings reported by Bardovi-Harlig (1994) for English L2 and Howard (forthc.) for French L2, who showed that general morphological stability of past forms was a necessary condition for the emergence of the pluperfect in advanced learners. I would like to suggest an additional explanation, related to the capacity of handling several Rs in the past simultaneously in discourse.

The pluperfect and temporal shifts

The pluperfect is conceptually complex in that it marks a temporal relation of "past in the past". The pluperfect is a morphological means of transgressing the principle of natural order (Klein & Perdue 1997), and letting the order of mention be different from the order of events. It is a past time form that inherently marks a temporal shift backwards on the time axis. Besides, it typically occurs in utterances with temporal subordination, which is, as we have seen, a "critical context" for morphological marking in Eva's and Yvonne's production (cf. 20–23) The pluperfect is thus a formally and functionally complex form and turned out to be a crucial factor for distinguishing between the less and the more advanced stage. In Kihlstedt (1998), I made an indepth analysis of all temporal shifts in the past marked within a

single turn in native and learner data. Only temporal shifts occurring independently of the interlocuteur were taken into account. It was shown that this factor separated the more advanced learners from the less advanced, as well as the learners from the native speakers.[9]

Marie used the pluperfect more than the other learners (cf. Table 1). She also made use of some syntactically complex means of temporal ordering of events, such as the elliptic syntactic constructions *avant d'aller au cinema* 'before going to the movies'. The temporal shifts are indicated by the codes $t(ime)^1$ and t^{1-1}, t^{1+1} in the following example:

(24) Marie: Hier j'ai seulement ouvert la télé (t^1) pour regarder si c'était quelque chose *avant d'aller* au cinéma (t^{1+1}) mais j'ai immédiatement fermé (t^{1-1}). C'était Dallas là. (Marie, interview 1)
'Marie: Yesterday I only put on-PC the TV (t^1) to see if there was-IMP something *before going* to the movies (t^{1+1}) but I immediately turned it off-PC (t^{1-1}).Dallas was-IMP on.'

The following examples show how the same type of question triggers two different answers in learner and native data. Three temporal shifts were observed in the example from the native speaker Jérôme, expressed by the pluperfect, adverbials and change-of-state verbs. This temporal information was left implicit by Yvonne. It is impossible to retrieve the order between the past events in in (26).

(25) I: *Et où as-tu étudié?*
Jérôme: *J'ai étudié donc à Paris* (t^1). je me suis promené entre Paris et Lyon . Parce *que j'avais commencé des études à Paris* (t^{1-1}). Finalement *je suis revenu* (t^{1+2}) à Lyon pour une année universitaire. Et *j'ai terminé* (t^{1+3}) *le reste de* mes études à Paris. Assas la Sorbonne les sciences politiques. (Jérôme, NS)
'I: *And where did you study-PC?*
"Jérôme: So *I studied in Paris*-PC (t^1). I moved about between Paris and Lyon . Because *I had started my studies in Paris* (t^{1-1}) . Finally *I came back*-PC (t^{1+2}) to Lyon for one year one academic year. And *I finished*-PC (t^{1+3}) the rest of my studies in Paris. Assas la Sorbonne political science.'

(26) I: *Comment as-tu appris le français?*
Yvonne: *J'ai étudié à: Komvux . Et aussi j'ai étudié j'ai fait deux cours en France* une à Avignon et une à Besançon. (Yvonne, interview 1)
'I: *How did you learn-PC French?*
Yvonne: *I studied*-PC a:t Komvux . And also *I studied I took*-PC *two courses in France* one in Avignon and one in Besançon.'

The fact that the order between past events is not specified at a lower level does not hamper communication, but it creates a higher degree of impliciteness and less redundancy in discourse. It should be pointed out that a native speaker could naturally have responded in a similar way to Yvonne, listing his/her previous experiences of French studies. Listing does not require any temporal sequencing, and is a legitimate answer to the interviewer's question here. However, native speakers tended to specify the temporal order between past events more often than the learners. The same observation was made by Wiberg (this volume) for temporal shifts in future plans.

On this feature too, Marie outperformed the other learners. Her capacity for temporal linking in discourse consisted of frequently expressing temporal moves back and forth on the time axis by her own linguistic means, as in (24). Yvonne, on the other hand, tended to place all events in a default "past time" frame, without explicit marking of the temporal links between them, as in (25). It is impossible to know whether the event <study at Komvux> precedes or follows the event <take two courses in France>. As shown by Wiberg (this volume), in dialogues, native speakers of Italian marked more temporal switches between the future, the present and the past tenses, when talking about future events than Swedish university learners of Italian, even if the latter had attained nearnative command of morphology. Also, the native switches were temporally and syntactically more integrated and complex than those observed in the learners. This conforms to the findings of the present study, as illustrated in the examples discussed above (22–26).

Summary and discussion

Table 6 presents the features that were singled out "acquisitional", thus overriding individual variability. They distinguish an "early" versus a "late" advanced stage. They did not all appear diachronically in the production of each individual learner. However, the features correlate synchronically, which means that a learner who makes use of Habitual Imperfect will also use the pluperfect and vice versa. From the examples and tables discussed in the preceding sections, it has become clear that a late advanced stage corresponds to the features found in Marie's production, whereas Eva and Yvonne's learner profiles contain the features of an early advanced stage. The fourth informant, Lena probably represents an intermediate advanced stage.

The features are of different kinds: some of them are purely formal in nature and can easily be verified, whereas others are more semantic and functional in character. It should be remembered that these features were established inductively, following the typical European "bottom-up" approach to SLA, as opposed to the more "top-down"-oriented American method in the terms of Towell (1997).

Table 6. Characteristic features for the expression of temporality in dialogue at advanced stages (Adapted from Kihlstedt 1998: 259)

Form/function	Early	Late	Ex/Table
1. PPF	–	+	Table 1
2. Low lexical variation of IMP	+	–	Table 2
3. IMP limited to dynamic verbs already used in PC	+	–	Table 4
4. Telic verbs in IMP	–	+	Table 4
5. State verbs in PC	–	+	Table 5
6. Habitual IMP	–	+	12, 14, 15, 16
7. Short overlap IMP	–	+	17, 18
8. A base form in the present with past time reference	+	–	20, 21
9. PC in pluperfect contexts	+	–	22, 23
Interactional/discourse features	**Early**	**Late**	
10. Initiative + answers with IMP forms	–	+	14, 17
11. Elliptic answers to IMP questions	+	–	16
12. PC in answer to habitual IMP questions	+	–	15
13. Morphological breakdowns in subordinate clauses	+	–	18
14. Temporal shifts between past events	–	+	24, 26
15. Elliptic infinitive constructions for temporal shifts in past-time contexts (*avant de* 'before')	–	+	24

IMP *imparfait,* PC = *passé composé*, PPF = the pluperfect

No claims can be made about their validity beyond our data, nor about their validity in other types of linguistic tasks. Nevertheless, they seem to provide a fruitful starting point for subsequent studies focusing on tense and aspect morphology in advanced interlanguage. Table 6 shows that despite productive morphological marking, the grammaticalization of past time reference is not yet fully attained. A common denominator that accounts for several formal/functional and interactional/discourse features in Table 6 is the capacity to entertain simultaneously two or more time intervals in past-time discourse. Temporal shifts requires the syntactic and morphological handling of different time points. A learner at a more advanced stage has a higher morphological accuracy, marks more temporal shifts, and uses specific syntactic devices for temporal ordering. The emergence and use of the pluperfect, a tense that obligatorily encodes a move backward on the time line, coincide with these features. Marie and the four native speakers used them, but they were absent from Eva's and Yvonne's data. Both factors give more temporal information about the situation than its mere location in the *before now*.

Our findings can be summarized in two points:

Form precedes function. This principle, also stated by the researchers in the ESF project (Dietrich et al. 1995), accounts for the general tendencies observed in the present study. Production of forms precedes mastery of their semantic functions.

This is especially clear in the case of *imparfait,* which is limited to a small number of verb types and to a limited range of its aspectual values

The default relation of reference to past time is *before now.* The more the event is specified, *aspectually*, with respect to the relationship between the time spoken about (R) and the time of the event denoted (E), or *temporally*, in relation to other Rs in the past, the higher the acquisitional stage.

Imparfait

Use of the *imparfait* turned out to be a particularly good indicator of different levels of grammaticalization. This form is abundantly used by all learners, but its lexical and functional variation lags behind. The question can be raised as to whether learners have internalized some lexical items rather than a grammatical marker. As regards the values expressed by *imparfait,* the following implicational scale summarizes our analysis. The numbers in parentheses refer to examples: It should be noted that all values appeared in the four native interviews, despite the fact that they were recorded only once, in contrast to the four learners, who were recorded longitudinally.

The different values on this scale should not be considered as mutually exclusive, but rather as accumulative or implicational. They are used here as a methodological tool for capturing the inherent polyfunctionality of *imparfait*. It should also be emphasized that the scale is assumed to be valid only for the discourse type examined here, i.e. dialogues. For instance, in elicited narrative data, the fourth value, characteristic of backgrounding *imparfait*, would probably be more frequent. However, in our conversational data, *imparfait* was most often used for situations where Event Time and Reference Time were close or completely overlapping. To summarize (and somewhat simplify) the discussion above, one could say that the larger the distance between E and R in sentences with *imparfait,* the higher the acquisitional stage. Given that *imparfait* has a wide functional range, none of which is morphologically expressed in the first language of the learners, the low

Table 7. Implication scale for the aspectual values of *imparfait* (adapted from Kihlstedt, *in press*)

1. Total overlap IMP (10, 11)
Eva, Lena, Marie, Yvonne, the NS
        2. Irregular habitual IMP (13,14,15)
        Lena (?), Marie, the NS
                3. Short overlap IMP (17)
                Marie, the NS
                        4. IMP "on the limits" (19)
                        the NS

functional differentiation of *imparfait* could be an effect of transfer, probably reinforced by the fact that *imparfait* violates the "one form-one function" principle characteristic of learner language (Andersen 1984).

Whatever the case may be, it is clear that despite explicit instruction on the perfective/imperfective distinction in school and at university, in their spontaneous oral production, the learners restricted *imparfait* to a few verbs for a limited range of its aspectual values. Explicit knowledge is not enough to acquire a native-like use of *imparfait*. Few studies have examined whether it is possible to attain native-like performance on this distinction outside the target community. A study by Harley (1989) tested the impact of functional grammar teaching on the *passé composé/ imparfait* distinction, but could only show a temporary effect on the English classroom learners' use of these forms. Further research in this area would need to elicit comparable data on the use of *imparfait* in different linguistic tasks, by learners with and without the same morphological distinctions in their first language.

Temporal relations

The default temporal relation marked by the learners is "before now". The *passé composé* was the general past marker, and when *imparfait* was used, learners tended to make explicit that the situation was over at S. On the basis of these findings, and those reported in Kihlstedt (1998), the following implicational order for temporal relations is suggested: passé composé → pluperfect → temporal shifts. The use of the pluperfect seemed to be a first step towards more native-like expression of temporal relations in the past. A learner who used the pluperfect generally marked more temporal shifts by more complex means and did not use the unmarked base form (cf. ex. 24). Lena used a few pluperfect forms (cf. Table 1), no unmarked base forms but not yet so many temporal shifts. Eva and Yvonne used the unmarked base form (ex. 20–21) but did not use the pluperfect (ex. 22–23) and marked temporal shifts less often (ex. 26). There thus seems to be a link between morphological accuracy, syntactic complexity and discourse capacity at the more advanced level. The (non)use of the pluperfect seemed to be a good prognostic factor of this link. Finally, the unmarked base forms in our data did not occur at random. They were typically observed in past imperfective contexts of temporal subordination. This raises the question as to the reason why morphological breakdown occurred specifically in these contexts. The fact that contexts of temporal subordination constitute a vulnerable morphological area has not, to my knowledge, been reported before.

Declarative and procedural knowledge at advanced stages

Towell et al. (1996) points to the relationship between explicit (declarative) and implicit (procedural) knowledge to account for language production in advanced learners. They studied advanced English learners of French in the same task before and after a period in France. The learners did become more fluent after the stay abroad. However, rather than just speaking faster, there was a decrease in hesitation units and in increase in the length and complexity of the linguistic units uttered between pauses, showing that "what has changed is the rapidity with which syntactic and discourse knowledge can be accessed for in on-line speech production (1996: 113)." I think that a similar explanation could be used to account for the differences between learners (Marie and Yvonne) and between the learners and the native speakers as regards the marking of temporal shifts. Declarative, explicit knowledge, with which university learners are typically richly endowed, requires the attention of the speaker. It takes time and space from the limited capacity of working memory to apply an explicit rule before uttering a linguistic unit. In order to keep up the speed in on-line speech production, there is simply not enough space in working memory to attend to the correct morphological form simultaneously. Therefore, an important task for advanced learners is to convert the explicit knowledge into procedural skills, accessible in on-line production. Towell et al. (1996: 88) states:

> Knowledge of this kind [= explicit] takes up much more 'space' than knowledge which does not require the attention of the speaker. Therefore, less of it can be handled at one time. Procedural knowledge, on the other hand, does not require the attention of the speaker and can be processed in working memory in larger units without exhausting the working memory capacity.

Tense shifts require a high degree of proceduralized, automatised linguistic knowledge. The more the morphology is automatized or "proceduralized", the more it is cognitively cost-less, giving way for longer and more complex linguistic units. Marie, who shows a high morphological accuracy, also has the capacity to mark temporal shifts by various devices (the pluperfect, elliptic infinitive constructions and subordinate clauses), still to a lesser extent than the native speakers, but to a higher degree than, e.g. Yvonne, who represents another stage of acquisition. Towell et al.' s (1996) finding of an increase in the length and complexity of linguistic unit poses the question of the maximal processing unit in advanced interlanguage. More precisely, how big linguistic units can be handled simultaneously in short-term memory in advanced L2 production? The present study showed that temporal subordination in the past led to morphological breakdowns at a less advanced stage, indicating a lower procedural knowledge. Further research on advanced learners would need to look more closely into the exact nature of syntactic and discourse capacity from a processing skill perspective.

Concluding remarks

This study sought to describe the forms and functions of verbs with past reference used by four Swedish university learners of French, in order to establish a "less advanced" and a "more advanced" stage of development. Our findings indicate that grammaticalization processes in the domain of tense and aspect are still at work, even after past tense morphology is used productively. The form/function coalitions that characterized advanced interlanguage are not the same as in native use. The way in which *imparfait* was used turned out to be a crucial factor, distinguishing native speakers from advanced learners, and less advanced from more advanced learners. A developmental difference seemed to exist between learners who restricted their use of *imparfait* to states, and those who extended it to dynamic verbs. This factor correlated with lexical variation, the range of aspectual values expressed, and interactional behavior around *imparfait*. Absence of base forms, use of the pluperfect and temporal shifts also characterized a more advanced stage of development.

The study was an attempt to pinpoint some regularities within the "slow, gradual and continuous" (Dietrich et al. 1995: 270) development beyond the Basic Variety, and to define the gains and shortcomings at post-basic, advanced levels as far as the acquisition of temporality is concerned. The findings suggest that some critical contexts of morphological marking remain at advanced stages. These contexts are best accounted for in a context-oriented approach, which considers the acquisition of tense and aspect as a process shaped by several competing factors, including both linguistic (semantic and functional) and cognitive ones, linked to processing skills.

Notes

1 Since our data consist of oral production, we do not consider *passé simple*, the perfective form of written French.

2. In some contexts, *passé composé* retains its original perfect meaning. With certain adverbials, such as *maintenant* 'now' and *déjà* 'already', only a perfect interpretation of *passé composé* is possible, especially with change of state verbs (Vet 1992), as in *il est parti* = 'he has left', the result of the event being that he is not here now.

3. As shown in earlier studies, English learners do have problems using *imparfait* (see, e.g., Bergström 1997; Harley 1989, 1992), i.e., they are not helped by the aspectual distinction of their L1. This is not so surprising. The functional scope of English progressive is very different from that of French imperfect (cf. Comrie 1976: 33ff).

4. In this paper, all nonverbal items from the original extracts in the InterFra corpus (hesitation marks, pauses etc.) have been excluded to increase readability.

5. In the following, the term verb refers to the verbal predicate, i.e. to the verb and its arguments.

6. In a study of the acquisition of English L1 (Shirai & Andersen 1995), semelfactive events were associated with progressive inflections rather than with past perfective inflections. This was taken to indicate that "punctuality of the verb by itself does not trigger past perfective marking" Shirai & Andersen (1995: 758).

7. For more details, see Kihlstedt (1998: 73–82).

8. For a detailed presentation of theInterFra project, see Bartning (1997).

9. For a discussion and further empiric evidence, see Kihlstedt (1998:211–246).

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On viewpoint aspect interpretation and its L2 acquisition

A UG perspective

Roumyana Slabakova and Silvina Montrul

Introduction

Research within Universal Grammar (UG) and second language acquisition (SLA) has focused on the question of access to UG in adulthood for more than two decades. Most attention has been concentrated on whether learners of a second language have acquired knowledge of the L2 grammar (syntactic) principles and parameters, as manifested in, for example, judging the grammaticality of L2 sentences. Recently, however, there has been increased interest in the acquisition of the interpretive aspects of the second language (Dekydtspotter, Sprouse, and Anderson 1997; Dekydtspotter, Sprouse, Swanson, and Thyre 1999). One manifestation of this line of research is the investigation of the types of meanings learners attribute to constructions in the target language. For example, Dekydtspotter et al. 1997 investigates the sensitivity of 90 English learners of French to the process-result distinction with respect to the licensing of multiple postnominal genitives. Despite lack of direct positive or negative evidence for this contrast in the input, the authors find support for such a distinction in the learners' grammars, and argue that the UG-governed mapping between syntactic structures and semantic interpretation guides the development of interlanguage grammars. The present article extends this line of investigation to the area of temporal and aspectual distinctions.

An important domain of extensive study in second language research has been the development of temporal-aspectual systems in interlanguage (see Andersen and Shirai 1996; and Bardovi-Harlig 1999 for recent surveys of the approaches and findings of this research). As Bardovi-Harlig points out, "two main strands of inquiry can be distinguished: the investigation of the expression of semantic concepts through various linguistic devices and the investigation of the distribution of

verbal morphology as an indicator of the underlying semantic system of interlanguage (Bardovi-Harlig 1999: 345)". Both of these lines of inquiry have relied predominantly on spontaneous and elicited production data (see Table 1 and Table 2 in Bardovi-Harlig 1999 for a survey of designs). The approach we take here looks at the problem of tense-aspect development from a slightly different point of view. Taking advantage of recent advances in the theoretical linguistic literature on tense and aspect (Giorgi and Pianesi 1997; Bonomi 1997), we investigate more directly the interpretations that learners assign to sentences with the Preterite and Imperfect past morphology. In our test, learners have to demonstrate, based on comprehension of an L2 clause, what semantic implications they attribute to that clause. Thus, our approach reveals another piece of the aspectual past development puzzle.

Within the generative approach to SLA, a principled distinction has been made between functional and lexical categories. The latter include verbs, nouns, adjectives, adverbs and prepositions, which carry categorial features and combine to bring about the idiosyncratic meaning of each sentence. For example, the two nouns *John*, *an apple*, and the verb *eat* compositionally denote the event of John's eating an apple. Note that at this point of mere combination and ordering of lexical items, the speaker is not committed to whether the event took place in the past, is happening at present, or will obtain in the future (tense meanings); neither is she indicating whether the event is complete or still in progress (aspectual meanings). These latter facets of the linguistic message are grammatical meanings and are reflected in functional categories on a phrase structure tree.

Functional categories have to do with the instantiation of inflectional morphology or closed-class words (e.g., in English: past and present tense morphemes *-ed*, *-s*, progressive aspect morpheme *-ing*, person and number agreement marker *-s*, relative clause complementizer *that*, etc.). Importantly, however, they are argued to be a meeting point of form and meaning; that is, they encode the functional (or grammatical) meanings related to the particular inflectional morphemes, including tense and aspect morphology. Recent developments in linguistic theory, particularly Chomsky's (1995) Minimalist Program, conceive of functional categories and their feature specifications as the locus of all cross-linguistic differences. This approach has important implications for language acquisition. The general assumption is that if learners have acquired a specific functional projection, they will have knowledge both of the inflectional morphology (or other closed-class lexical items) and the conceptual-interpretive properties (i.e., semantics) associated with this projection. UG ensures that there is no dissociation between morphology and the conceptual-interpretive interface. The issue will be discussed in more detail in Section 4.

As linguistic theory and language development researchers have observed, languages differ parametrically as to what aspectual meanings they encode in their

inflectional morphology. Giorgi and Pianesi (1997) have used a semantic contrast between English and Romance aspect to argue for a parametric distinction between those languages, explaining various syntactic and semantic effects that affect the whole temporal-aspectual system. Within the functional categories paradigm outlined above, a theory of this kind would predict that learners who have mastered a particular piece of aspectual morphology in the target language will also have acquired its interpretive properties. The present study adopts the same approach in a second language acquisition context. Based on Giorgi and Pianesi's parametric analysis, we continue and expand the L2 research focusing on the semantics of temporal-aspectual systems.

Terminology and background

The term *aspect* refers to the internal temporal structure of events as described by verbs, verbal phrases (VP) and sentences (Comrie 1976, Chung and Timberlake 1985, Smith 1991, 1997). It is the property that makes it possible for a sentence to denote a bounded (terminated) or an unbounded (continuing) event. It is important to distinguish between two types of aspectual marking in natural language (Smith 1991, 1997). The first type, *situation aspect* (also known as VP aspect, or lexical aspect) refers to aspectual classes of verbs (the Vendler-Dowty classification). Verbal phrases are distributed among the four lexical classes as given in (1), where states and activities are the atelic classes, and accomplishments and achievements are the telic classes:

(1)

Atelic		Telic	
Stative		Dynamic	
state	activity	accomplishment	achievement
know	*run*	*run a mile*	*notice*

Viewpoint aspect (also called IP aspect, sentential aspect, or grammatical aspect) is indicated by perfective and imperfective past morphemes. The latter reflect "different ways of viewing the internal temporal constituency of a situation" (Comrie 1976: 3). The perfective looks at the situation from outside and disregards the internal structure of the situation. This is how Smith (1991, 1997) visualizes the fact that the initial (I) and final (F) moments of the event of building a house are

included in the event described by the perfective sentence *Laura built a house.*

(2)   Laura built a house.
  [//////////]
  I   F

The imperfective, on the other hand, looks at the situation from inside and is concerned with the internal structure without specifying the beginning or end of the situation. Thus, by definition the imperfective viewpoint subsumes the habitual ("event takes place from time to time") and the progressive ("event is in progress at the moment of reference"), since both these meanings are unbounded. The English Progressive Tense falls broadly within the imperfective marking.

(3)   Laura was building a house.
        [. . //// . .]
        I   F

The perfective/imperfective aspectual distinction is realized in Spanish by the inflectional morphology of the Preterite/Imperfect contrast. The contrast pertains only to past tense.

(4)   Laura construyó una casa.   PRETERITE — PERFECTIVE
      Laura build-PRET a   house
              [//////////]
              I   F
(5)   Laura construía una casa.   IMPERFECT—IMPERFECTIVE
      Laura build-IMP a   house
              [. . ////. .]
              I   F

But the differences between English and Spanish do not stop here. It is not the case that Spanish Imperfect and the English Progressive are equivalent in meaning. Spanish has a further distinction within the marking of imperfective meaning: it distinguishes between Simple and Progressive tenses as well. Thus, Spanish exhibits a four-way contrast within the past tenses while English has only a binary contrast. The following table gives examples of the respective contrasts.

(6)

	SPANISH	ENGLISH
PRETERITE	Julieta practicó tenis.	Juliette practiced tennis.
IMPERFECT	Julieta practicaba tenis.	–
IMPERFECT PROGRESSIVE	Julieta estaba practicando tenis.	Juliette was practicing tennis.
PRETERITE PROGRESSIVE	Julieta estuvo practicando tenis.	–

The Spanish Imperfect can often (but not always) be translated into English with the progressive. The Simple Past can convey a habitual meaning when the VP itself (*practice tennis)* is atelic. What is more, English has other lexical means to mark (grammatical) aspect, such as the use of the verbs *used to/would* to convey, to some extent, the meanings of the Spanish Imperfect with habituals. For example, the Spanish Imperfective form can be translated in the following ways, depending on the context:

(7) Julieta practicaba tenis. = Juliet was practicing tennis (when I saw her yesterday at noon). PROGRESSIVE MEANING

= Juliet practiced tennis (but no longer does it on a regular basis). HABITUAL MEANING

= Juliet used to practice tennis. HABITUAL MEANING

Another difference between Spanish and English aspectual past involves the distribution of lexical classes with the respective viewpoint aspect. In Spanish, all lexical aspectual classes can be expressed both with Preterite and Imperfect. In English, the Simple Past goes with all classes (see translations), while the Progressive is generally infelicitous with states.[1]

	PRETERITE	IMPERFECT
STATE		
(8) a.	El auto me costó $20.000.	b. El auto me costaba $20,000.
	'The car cost me $20.000.'	'The car cost/would cost/*was costing me $20,000.'
ACTIVITY		
(9) a.	Juan durmió en el sofá.	b. Juan dormía en el sofá.
	'Juan slept on the sofa.'	'Juan was sleeping/would sleep/ slept on the sofa.'
ACCOMPLISHMENT		
(10) a.	Juan corrió 5 kms.	b. Juan corría 5 kms.
	'John ran 5 kms.'	'Juan was running/would run 5 kms.'
ACHIEVEMENT		
(11) a.	El hielo se derritió.	b. ?El hielo se derretía.
	'The ice melted.'	'The ice was melting/would melt.'

Note that in the case of accomplishments as in (10) and achievements as in (11), the Spanish Preterite can be translated only with the English Simple Past, whereas the Spanish Imperfect can be translated with progressive as well as with habitual modals. In the case of activities as in (9), the English Simple Past can express a one-time finished event (9a) as well as a past habit (9b). A major problem, then, for the

English speaker learning Spanish is that the Simple Past in English is sometimes ambiguous (or neutral) and can convey the bounded/unbounded meanings of the Preterite and Imperfect in Spanish.

This can be most clearly illustrated with states in embedded clauses in Sequence of Tense (SOT) Phenomena. For example, the English sentence in (12) can have both interpretations in Meaning 1 and Meaning 2, while in Spanish the two meanings are distinguished with Preterite and Imperfect morphology in (13a) and (13b).

(12)   Peter said that María was pregnant.
        Meaning 1= María is still pregnant.
        Meaning 2= María was pregnant and is no longer pregnant.

(13)   a.   Pedro dijo que María estaba embarazada.
           Pedro said that Maria is-IMP pregnant
           'Pedro said that María was pregnant' (She was pregnant at that time and she might still be pregnant)
     b.   Pedro dijo que María estuvo embarazada.
           Pedro said that Maria is-PRET pregnant
           'Pedro said that María was pregnant.' (Maria was pregnant and is no longer pregnant)

Another example of the same phenomenon demonstrates different entailments of the Simple Past in English: both (14a) and (14b) are possible sentences.

(14)   a.   The concert lasted 3 hours and that is why I went home before the end.
     b.   The concert lasted 3 hours and I heard all of it.

In the case of (14a), the speaker did not stay until the end of the concert, so she is voicing her reasonable expectations about the concert duration, something along the lines of *the concert was supposed to last three hours*. In the case of (14b), however, she witnessed the whole concert to the end. The English verbal form itself does not convey whether the endpoint of the first clause event has been attained in the presence of the speaker or not. No such ambiguity exists in Spanish with the Preterite and Imperfect past, since this semantic difference is grammaticalized.

(15)   a.   El   concierto   duraba   3 horas   y   por   eso   me   fui
           the   concert   last-IMP 3 hours   and that   is   why   I went
           a casa   antes de   que   *terminara.*
           home   before   it   ended
           'The concert was going to last 3 hours and that is why I went home before the end.'

    b. ?El concierto duró 3 horas y   por eso   me fui a casa antes de que
        terminara.

    c. El   concierto duró   3 horas y   lo escuché hasta el final.
        the concert   last-PRET 3 hours and it heard to   the end
        'The concert lasted 3 hours and I heard it until the end.'

As the above examples indicate, the use of the Preterite in the first clause necessitates the concert-goer being present until the end of the event, hence, precludes the addition of the second clause in the case of (15b) and makes the second clause quite logical in the case of (15c).

    In sum, the choice of the Imperfect or the Preterite in Spanish has effects on the semantic interpretation of the event. Preterite denotes a bounded (one-time) event and Imperfect an unbounded event, either habitual or progressive. English lexicalizes some aspectual distinctions (*used to, would*) and neutralizes others (as, e.g., with states in the Simple Past). The interpretive distinctions between the two languages can be summarized as in the following diagram (see also King and Suñer 1980).

	Meaning	Expressed in English by:
	Habitual	Simple Past with states
		Simple past with activities
Spanish Imperfect ⟨		Modal verbs *would, used to*
	Progressive	Progressive
Spanish Preterite	One-time event	Simple Past with accomplishments
		Simple Past with achievements

It is important to note that the imperfective viewpoint value is not represented by a single tense in English, while it is represented by the Imperfect tense in Spanish. This fact crucially affects the learning task of English native speakers acquiring Spanish. Thus, the acquisition of the Preterite/Imperfect contrast is notoriously difficult for English learners of Spanish. It is the mismatch in the morphology that might cause learners to have difficulties with its interpretive properties. The different interactions between viewpoint and situation aspect further complicate acquisition. In some cases (as with accomplishments and achievements) learners can rely on the progressive and *used to/ would* to interpret the progressive and habitual meanings of the Imperfect. In other cases, however, as with stative predicates, where English neutralizes the distinction morphologically and semantically, learners might be at a loss. In this paper, we investigate whether, despite the morphological mismatch, L2 learners eventually acquire the semantic opposition in Spanish and whether they are aware of how viewpoint aspect interacts with situation aspect.

Previous L2 acquisition studies of the Spanish temporal/aspectual distinction

As pointed out by Bardovi-Harlig (1999), previous studies of tense and aspect in L2 acquisition have focused on two aspects of the learners' competence: how different semantic concepts are expressed (her "concept-oriented approach") and how different morphological forms are used in interlanguage production (her "form-oriented approach"). We give the main findings of the two approaches in brief. Our intent is to show that these studies have addressed different research questions from the question of the present study.

Within the concept-oriented approach, a number of L2 studies completed as part of the European Science Foundation Project (Klein and Perdue 1992; Dietrich, Klein, and Noyau 1995) have tried to determine the factors that constrain the mapping of grammatical function onto linguistic form. The studies found no marking of tense or aspect in the earliest stages of acquisition (the "Basic Variety" in their terminology). Instead, the learners resorted to gestures, boundary-marking lexical items like *start* and *finish*, and later, to adverbial phrases (e.g., *yesterday, Tuesday*) in order to capture the notions of temporality in their L2. Since no morphological marking of tense/aspect (T/A) was observed, the question of what meaning learners attributed to the (very limited) T/A morphology does not arise with this approach. We will discuss a theoretical proposal related to this approach in the next section.

Within the form-oriented approach, the Primacy of Aspect Hypothesis (POA) (Andersen 1991, Andersen and Shirai 1994, 1996; Bardovi-Harlig 1992, 1994, 1997; Robison 1990, 1995; Salaberry 1999, 2000; Shirai 1991, 1993; see also Chapter 1 in this volume) asserts that lexical aspectual classes, or telicity marking, guide the learner in acquiring the T/A markers. Perfective morphology appears initially on telic predicates, imperfective morphology appears initially on states and later spreads to activities. Studies on the acquisition of Spanish mainly follow this approach, providing evidence either for or against it (Hasbún 1995, Lafford 1996, Liskin-Gasparro 2000, Salaberry 1999, 2000). In his study of the acquisition of Spanish by two child native speakers of English in Puerto Rico, Andersen (1991) finds that the children use the inherent lexical class of the verb phrases to acquire Spanish Preterite and Imperfect morphology. L2 studies working with the POA hypothesis do not usually address the question of the actual meaning attributed to the past verbal morphology by the learners at the different stages of their linguistic development. Instead, researchers report percentages of Preterite and Imperfect past morphology that appear in each lexical class. Since theoretical interpretation is based on findings of percentage of use in appropriate context, these studies indirectly assume that learners are aware of aspectual morphology meanings. However,

few studies in this vein (with the notable exceptions of Bardovi-Harlig and Reynolds 1995, Shirai and Kurono 1998) explicitly address the issue with other experimental means like acceptability judgements or cloze-type tests. Still within the form-oriented approach, the Discourse Hypothesis (Bardovi-Harlig 1995, Kumpf 1984) argues that verbal morphology acquisition is based on narrative structure, past tense forms being mapped on the foreground and a much bigger morphological diversity being mapped on the background. Again, this approach only indirectly implies that learners are indeed aware of T/A semantics but no researcher has tested this empirically.

The Distributional Bias Hypothesis (Andersen 1993, Andersen and Shirai 1996) has been proposed as an explanation of the findings of the POA. It claims that L2 learners reflect the distributional bias of native speaker input as to lexical class : A/T marker correlations. Clearly, the latter hypothesis assumes that if learners closely follow native speakers in the percentage of past tense/progressive tense that appears with each aspectual class of verbs, then learners also mirror native speaker knowledge of T/A meanings. However, no experimental findings confirm this assumption.

In summary, most of the theories surveyed briefly above focus on the interaction of lexical aspect and verbal morphology marking. The extent to which these theories address the issue of viewpoint aspect is to investigate the relationship between use of morphology and its correlation with semantic or discourse features. None of the major approaches to T/A acquisition directly addresses the issue of whether learners really know what the target language T/A morphology stands for. What is more, most of the existing research is based on elicited or spontaneous production data. Thus, the research question that the present study addresses with other experimental means, namely, what semantic implications learners attribute to Preterite/Imperfect morphology in comprehension, complements the existing T/A development inquiry.

Theoretical account

Recent advances in linguistic theory can help us gain more precise knowledge of the nature of temporal-aspectual interpretations in interlanguage. As mentioned in the introduction, within the (Chomskian) Principles and Parameters framework (Chomsky 1986, 1995, among others) a principled distinction is made between lexical and functional categories in a phrase structure representation. The lexical categories verb (V), noun (N), adjective (A) and preposition (P) head what is known as lexical phrases VP, NP, AP, PP, respectively. Apart from those projections, a phrase structure tree also includes functional projections like Agreement phrase (AgrP), Tense phrase (TP), etc. Lexical phrases are assumed to be projected

by words with idiosyncratic lexical information combined with categorial features (e.g., ±N, ±V), while functional phrases are argued to host inflectional morphology or closed class items, and to impart grammatical meaning to the sentence. For example, the VP *eat an apple* has to be combined with the inflectional morphology of the past tense, bounded aspect and agreement in order to attribute the meaning of complete past event to the sentence *Juliette ate an apple*. Sentence meaning is determined compositionally, by combining the functional (grammatical) and the lexical meanings.

What does acquiring a functional category entail?

Acquiring a functional category entails acquiring both the correct inflectional morphology and the interpretation that it brings about. Semantic interpretations are captured by formal features. UG provides (and constrains) an array of all formal features that are possible to express in a natural language. In addition, features can be specified as strong or weak. When they are strong, they trigger overt syntactic movement for feature-checking purposes; when they are weak, movement is covert. The status of functional categories and their feature value specifications vary across languages. Acquiring a first language, the child has to learn which particular features are expressed with the functional categories in her language. Acquiring a second language, the learner is faced with one of three alternatives of unequal difficulty: 1) the features of a functional category in the native language are exactly the same as the features of the target language category; 2) a particular functional category in the L2 is not instantiated in the mother tongue, in which case the learner has to acquire both morphological realization and formal features; 3) a particular functional category is instantiated in the L2, but with a different formal feature specification. In the latter case, the learner has to acquire the new feature specification, correct interpretation being an indication of successful acquisition.

The idea that aspectual meanings are among the grammatical meanings reflected in functional categories has been gaining theoretical and empirical support (Borer 1994; Chomsky 1995; Travis 1992, 1994, among many others). One recent L2 acquisition proposal that assumes functional status for aspectual categories is based on the data from the European Science Foundation project (see previous section). Klein and Perdue (1997) propose that the Basic Variety (the stage of interlanguage characterized by no use of verbal morphology but successful expression of temporality through adverbials and other lexical means) is constrained by UG and can be explained with the help of feature specifications. It is usual in the linguistic literature (e.g., Borer 1984; Chomsky 1995) to assume a strong link between overt morphology and strong features of a particular functional category; no morphology usually correlates with weak features (but see Sprouse 1998 for

arguments against such a view). Thus, the Basic Variety is argued to be the perfect internalized grammar (I-language) in the sense that in this learner variety all features of functional categories are weak. As a result, learners do not produce any morphology but are aware of temporal aspectual meanings. We will not discuss this proposal in detail (see various critiques in the same journal issue, *Second Language Research* 13 (4), 1997), but we follow it in assuming that aspectual categories are constrained by UG.

English bare verbs are [+perfective]

Our analysis generally follows Giorgi and Pianesi (1997), a parametric study of sentential aspect in Germanic and Romance languages within the Minimalist Program (Chomsky 1995). English verbs, they argue, are "naked" forms that can express several verbal values, such as the bare infinitive, the first and second person singular, and the first, second and third person, plural. Many English words are even categorially ambiguous in that they can either identify an "object" or an "action", such as *cry, play, drive,* and many others. Giorgi and Pianesi (1997) propose that verbs are disambiguated in English by being marked (invisibly) with the aspectual feature [+perfective]. English verbs (of the dynamic aspectual classes only, cf. (1)) acquire categorial features by being associated with the aspectual marker [+perfective]. Thus children acquiring English can distinguish verbal forms from nominals, whose feature specification bundle will exclude the feature [+perfective]. In Romance languages, on the other hand, all verbal forms have to be inflected for person, number and tense. Thus, nouns and verbs cannot have the same forms, unlike English, in which zero-derivation abounds. The Spanish verb, for example, is associated with typical verbal features as [+V, person, number] and it is recognizable and learnable as a verb because of these features. Nominal inflections are distinguishable from verbal ones. Spanish verbs are therefore not associated with a [+perfective] feature.

Evidence for this claim comes from the fact that the English bare form always denotes a bounded (closed, or perfective) event. Notice the following contrast:

(16) a. John saw Mary eat an apple.
      b. John saw Mary eating an apple.
      c. Juan vio a Maria comer   una manzana.
          Juan saw Maria eat.INF an   apple

In English, perception verbs can take as their complements either "naked" verbs (e.g., infinitive without *to*), or present participle (e.g., *eating*). It is well known that naked forms allow only a perfective reading. Therefore (16a) means that John saw an event of Mary eating an apple, and that event is already bounded, or complete.

There is nothing left of the apple at the present moment. On the other hand, the complement verbal form in (16b) is progressive, and the event is interpreted as unbounded. Even in the case of the apple being only half-eaten, the truth conditions of (16b) are still going to be satisfied. The Spanish equivalent of (16a) is (16c). It is ambiguous between a bounded and an unbounded interpretation: the apple can be wholly consumed; but also the event could have been interrupted before the complete consumption of the apple. Thus, there is a contrast in the English and Spanish bare verbal form interpretations: the English one is interpreted only as bounded while the Spanish one is not necessarily so. Giorgi and Pianesi (1997: 165) argue that this contrast supports their treatment of English verbal forms as essentially marked as [+perfective] in the lexicon.

The two types of aspectual meanings distinguished by Smith (1991, 1997), viz., situation aspect and viewpoint aspect, have been argued to be located in two different syntactic positions (see Kempchinsky 2000 for this claim in Spanish). Since this paper discusses viewpoint aspect only, we will not review proposals about the relative position of lexical (situation) aspect, and those aspectual projections are omitted in the tree below.

(17)   TP
        |
        T'
       / \
      T   AspP [±perfective]
              |
              Asp'
             /   \
           Asp   ProgP [±progressive]
                     |
                     Prog'
                    /   \
                 Prog   VP
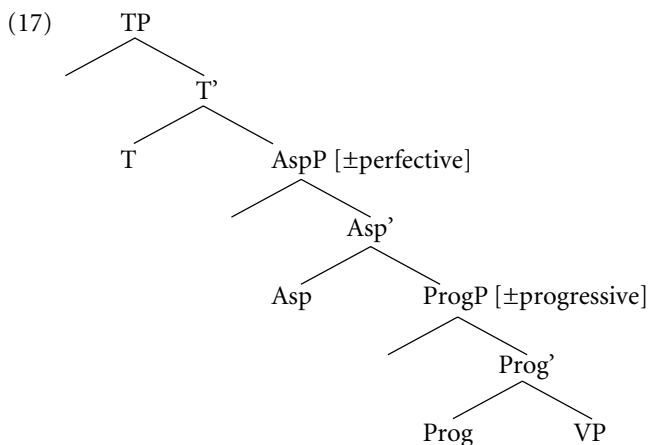
In our analysis of the distinctions between English and Spanish grammatical aspect, we argue that minimally two functional projections are necessary for capturing the Spanish facts. As we have shown above (see examples in (6)), Spanish has both progressive and Preterite/Imperfect affixes in the past, giving rise to a four-way distinction. Thus our analysis is driven by the necessity to overtly check the formal features of those aspectual morphemes. We have labeled the lower ProgressiveP (ProgP) and the upper, AspectP (AspP). The progressive inflectional morphology and the perfective/imperfective morphology are located in the heads of these projections and, if filled, both are checked sequentially when the verb moves up the

tree. In English, the ProgP projection alone suffices to capture the binary aspectual opposition, thus the upper AspP may not be projected at all.

Keeping this analysis in mind, we argue that the learning task of the English-speaking L2 learner of Spanish will involve the following steps:

1. Learning that verbs in Spanish are not morphologically "naked" (see 4.2);
2. Learning the appropriate morphological distinction between Preterite and Imperfect and the meanings that are associated with this morphology (see 4.1):
   a. Associate Preterite morphology with the feature [+perfective], that is, the event is bounded, terminated.
   b. Learn that Imperfect morphology is aspectually neutral to the [± perfective] value (see Giorgi and Pianesi 1997 for more justification for this claim).
   c. Learn that stative verbs are not excluded from the Preterite/Imperfect contrast.

The study

Hypotheses

It is well known that L2 learners of Spanish at early stages of development have difficulty mastering the Preterite/Imperfect morphology. We set out to investigate whether L2 learners experience difficulty in the interpretive domain as well. The following general research questions are at the basis of our experimental study: Are learners capable of acquiring the bounded/unbounded semantic contrast between these two tenses, irrespective of the semantic class of the verbs? Furthermore, what is the interaction between lexical classes and tense interpretation? In other words, is acquisition of the semantics influenced by the lexical features of the predicate? We hypothesize that knowledge of the Preterite/Imperfect morphological distinction will be a sufficient condition for the acquisition of the semantic features [± perfective] associated with each tense. This general hypothesis follows from our approach to the acquisition sequence proceeding by learning whole functional categories, overt morphological realization and semantic features together.[2]

Furthermore, based on the assumption of L1 transfer of functional categories (Schwartz and Sprouse 1996), we suggest that (beginning) learners of Spanish will assume some parallels between the Imperfect tense in Spanish and the English progressive tense. The Imperfect and the Progressive are in binary opposition to the Preterite and the English Simple Past tense, respectively, the latter being the [+perfective] marked tenses. Such parallels, of course, will be justified in the case of telic predicates but not in the case of stative predicates. Finally, as a third research

question, we test whether the Primacy of Aspect (POA) hypothesis extends to the interpretive domain. Recall that the POA made predictions about the emergence of Preterite and Imperfect morphology with different aspectual classes. Learners first use perfective marking on telic classes and later extend it to atelic classes; learners first use imperfective marking on statives, then extend it to activities, and finally to telic classes. In fact, Salaberry 1999, in a movie retell task, found this biased production not only in his beginner participants, but through all the proficiency groups he tested, including the advanced learners. If the POA extends to the interpretive domain, we expect learners to be more accurate with states in the Imperfect than states in the Preterite, and vice versa, to be more accurate with the telic classes in the Preterite than in the Imperfect.

Based on the above considerations, the following specific hypotheses were formulated:

Hypothesis 1: Learners will recognize the semantic contrast between Preterite and Imperfect tense meanings.

Hypothesis 2: Learners will be able to acquire the semantic contrast with telic predicates partly assisted by L1 transfer. Since the acquisition of the contrast in stative predicates works differently in Spanish, we expect states to present some problems for learners initially.

Hypothesis 3: Some differential acquisition of the semantic properties of either Preterite or Imperfect with the various lexical classes of verbs is expected, following the POA.

Methodology

To test directly claims about the effect of the L1 in the acquisition of an L2, ideally, one should include groups of learners of different language backgrounds. In this study, however, we only tested English-learners of Spanish at different proficiency levels. Thus any conclusions about L1 effects in the results can be taken as suggestive. Sixty adult English-speaking learners of Spanish participated in the experiment. Their mean age was 24.6 years, and they had started learning Spanish on average at the age of 13. They had studied and, at the time of the experiment, some were still studying Spanish in a formal classroom setting. All participants were undergraduate and graduate students at two major research universities in the US. They had started using Spanish for communication after puberty. The participants were paid for their participation. A control group of seventeen Spanish native speakers (mean age 35.3 years) was also tested.

The tests included a Spanish Proficiency Test (adapted from the *Diploma de Español como Lengua Extranjera* (DELE) (Embajada de España, Washington, DC) consisting of a cloze passage with 20 blanks and a multiple-choice vocabulary test.

Second, we administered a Morphology Test, consisting of the "Psycho" passage from the textbook *Pasajes* (Bretz, Dvorak and Kirschner 1992), based on Salaberry (1999). Participants had to select from two choices the correct form of the verb in the past. The test had a total of 30 blanks, correct answers included 15 Preterite, and 15 Imperfect verb forms. We excluded cases in which both forms of the verb were appropriate. The purpose of this test was to check whether learners could choose correctly between the two past forms based on the ample context that the story provided. Here is an example sentence from the morphology test with the translation below:

> (18) El jefe le (1) *daba/dio* el dinero a la empleada para depositarlo en el
> banco. La empleada (2) *trabajó/trabajaba* para la compañía pero no (3)
> *estuvo/estaba* contenta con su trabajo y (4) *quiso/quería* otro trabajo. . . .
> "The boss *gave* the money to the employee to be deposited in the bank.
> The employee *worked* for the company but *was* not happy with her job
> and *wanted* another job . . ."

The main task of the experiment was the Sentence Conjunction Judgment Task (based on Slabakova 1997, 2001). Participants had to judge the combinatory felicity of two conjoined clauses. The purpose of the test was to find out whether learners are aware of the semantic implications of the specific past tense form. Thus, in example (19), the Imperfective tense in the first clause allows the negative meaning of the second clause, since the first event is not viewed as bounded, or terminated. The expected answer was 2.

> (19) La   clase   era   a las 10 pero empezó a las 10:30.
> The   class   was-IMP at   10 but   started at   10:30.
> 'The class was supposed to be at 10 but started at 10:30"
> −2   −1   0   1   ②

In (20), on the other hand, the use of the Preterite precludes the second clause from negating the first clause, hence the expected answer was −2.

> (20) La   clase   fue   a las 10 pero empezó a las 10:30.
> The   class   was-PRET at   10 but   started at   10:30.
> 'The class was at 10 but started at 10:30"
> ⊖2   −1   0   1   2

The test comprised a total of 56 sentences, equally distributed into 28 logical and 28 illogical combinations. Furthermore, three different lexical classes of verbs were used. The test items included 14 achievements, 14 accomplishments, and 14 stative VPs, 7 each in the Preterite and Imperfect tenses, as well as 14 distractors, 7 logical and 7 illogical. Activities were not included in the test since Preterite and Imperfect

clauses sound illogical when negated.[3] Thus, activities did not fit the format of the test. The distractors were included in order to ascertain that the learners were capable of judging felicity of clause combinations in general, independent of the past tense morphology. All the test sentences and their translations appear in the appendix.

Results

The results of the proficiency test (see Table 1) allowed us to divide the participants into advanced and intermediate learners. The means of the two groups are significantly different.

Table 1. Performance on the proficiency test

	Intermediate learners (n = 33)	Advanced learners (n = 27)
Range (n=50)	20 – 36	37 – 49
Mean	28.76	43.88
SD	4.59	3.87

ANOVA $F(1,55) = 45.92$ $p < .0001$

As Table 2 shows, the intermediate learners were on average 77.5% accurate on the Morphology test. The advanced learners were 92.8% accurate as a group. Even though these means are statistically different, we can still accept that both groups are proficient with the Preterite and Imperfect morphology in the context of a narrative.

Table 2. Performance on the morphology test

	Intermediate learners (n = 33)	Advanced learners (n = 27)
Range (n=30)	14 – 28	21 – 30
Mean	23.26	27.85
SD	3.78	2.06

ANOVA $F(1,55) = 38.937$, $p < .0001$

Group results

The mean scores of the different participant groups on the Sentence Conjunction Judgment Task are visualized in Figure 1 below (the raw scores are provided in Figures 2–5).
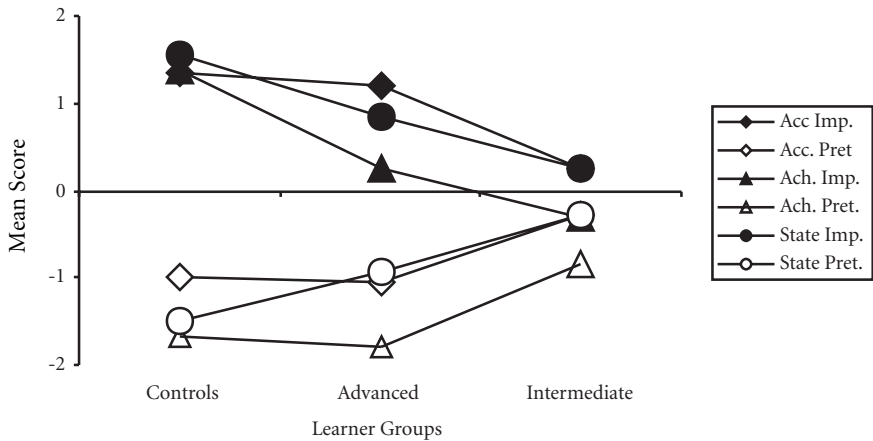
Figure 1. Test of semantic interpretation: Overall mean by proficiency group

We are interested in seeing whether the learner groups distinguish significantly between the semantic implications of the Preterite and Imperfect tenses. A clause in the Imperfect (the filled symbols) can be negated by a subsequent clause, making the whole combination plausible, hence high positive scores are expected. A clause in the Preterite (the outline symbols), however, cannot be negated by a second clause, and the combination is implausible, or semantically unacceptable, hence negative scores are expected. As Figure 1 shows, the native speakers are sufficiently aware of this contrast, and so are the advanced learners, while the judgements for the Intermediate group are much closer together. In what follows, we will examine each contrast in turn. Since we believe in investigating interlanguages as legitimate grammatical systems in their own right, we shall not be interested in whether the learner groups' performance is statistically different from the native speakers', but in whether the learners have acquired knowledge of the contrast. This will be indicated by statistically different means on Preterite and Imperfect test sentences.

Let us start with the contrast for the distractors, or fillers. Some participants did not demonstrate recognition of the contrast between logical and illogical fillers. Since our main test was based on recognizing the combinatorial felicity of clauses in a complex sentence, these participants (three learners from the intermediate group) were eliminated from further consideration. The test items comprised logical and illogical combinations of clauses. As Figure 2 indicates, both learners and controls are capable of judging the contrast correctly. Single factor ANOVA shows $p < .0001$ for all groups ($F(1,34) = 832$ for the controls; $F(1,54) = 1494$ for the advanced learners; $F(1,58) = 554$ for the intermediate learners).
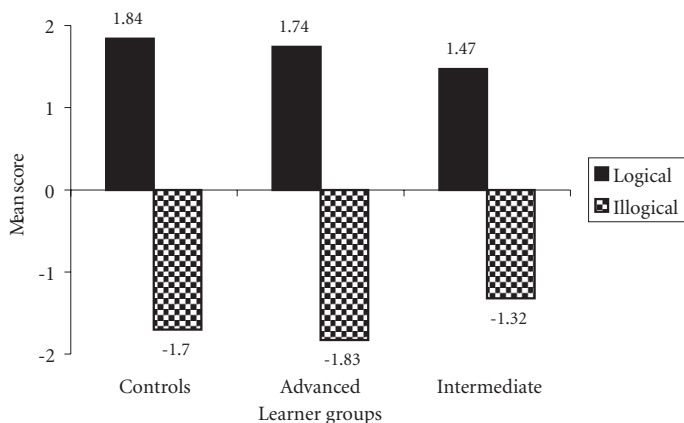
Figure 2. Mean score for distractors

Figure 3 demonstrates the contrast for the lexical class of accomplishments. No particular difficulties were expected in this category of test items, since Spanish Imperfect and English Progressive have more or less the same semantic implications (e.g., *Marisa leía un cuento por las noches pero no llegó al final* 'Marisa was reading a story in the evenings but she didn't finish it'). The contrast is highly significant for the three groups ($F(1,34) = 145$, $p < .0001$ for the controls; $F(1,54) = 125$, $p < .0001$ for the advanced learners; $F(1,58) = 5.54$, $p = .02$ for the intermediate learners).
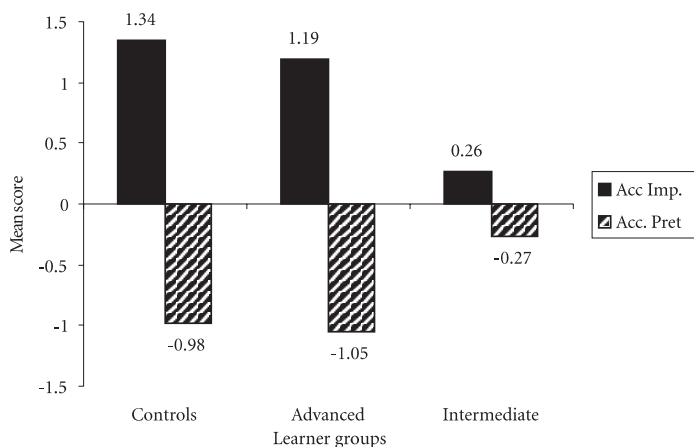
Figure 3. Mean score for accomplishments

The judgment means for achievements (see Figure 4) present a somewhat different picture from the judgment means for accomplishments. Although both learner groups demonstrate that they distinguish between sentences in the Preterite and in the Imperfect ($F(1,34) = 387$, $p < .0001$ for the controls; $F(1,54) = 129$, $p < .0001$ for the advanced learners; $F(1,58) = 6.97$, $p = .01$ for the intermediate learners), both means are close to zero or on the negative side.
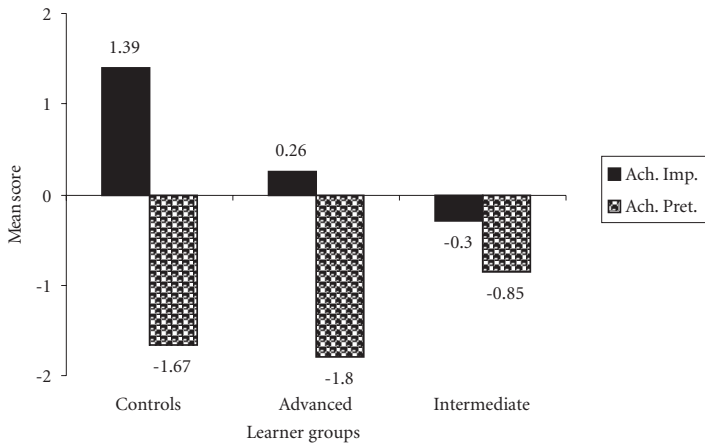
Figure 4. Mean score for achievements

Unlike native speakers, the English speaking learners as groups do not judge achievement VPs in the Imperfect to be quite felicitous followed by a negating clause (e.g., *Los González vendían la casa pero nadie la compró* 'The Gonzalez family were selling their house but no one bought it'). This is certainly the product of the interaction between the telic aspectual class and the unfinished nature of the aspectual tense, in other words, the interaction between situation and viewpoint aspect. Still, learners judge negated achievements in the Preterite to be much worse. In other words, the contrast Preterite/Imperfect is part of their grammar.

Figure 5 illustrates the mean score for the stative test items (e.g., *El BMW me costó (PRET) $80,000 pero no lo compré* 'The BMW cost $80,000 and I didn't buy it' versus *El yate me costaba(IMP) $1,000,000 pero no lo compré* 'The yacht cost $1,000,000 and I didn't buy it'). Note that English stative verbs in the past neutralize the Spanish distinction. All contrasts are again significant ($F(1,34) = 336$, $p < .0001$ for the controls; $F(1,54) = 86$, $p < .0001$ for the advanced learners; $F(1,58) = 6$, $p = .017$ for the intermediate learners). Recall that it was predicted (cf. Hypothesis 2) that learners would have more difficulty with the stative examples, since English and Spanish differ in this respect. These results indicate that the [± perfective] contrast extending to states is also part of their grammar.
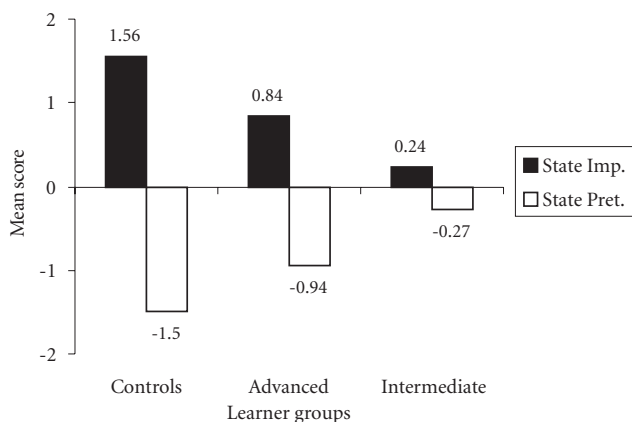
Figure 5. Mean score for states

If the POA hypothesis extended to the interpretive domain (cf our Hypothesis 3), one would expect the intermediate group of learners to do better on states in the Imperfect than on states in the Preterite; and vice versa, to do better on telic classes in the Preterite than on telic classes in the Imperfect. In order to check this hypothesis, the scores of the learners were converted to accuracy scores based on distance from zero. For example, if a learner judged a sentence like (19) *La clase era (IMP) a las 10 pero empezó a las 10:30* with +2, their accuracy score was again 2, the integer distance from zero. If a learner judged a sentence like (20) *La clase fue (PRET) a las 10 pero empezó a las 10:30* with -2, their accuracy score was still 2, since the integer distance from zero is exactly the same as in the previous example. Three separate one-way ANOVAs were performed on the accuracy scores for the states, accomplishments and achievements classes of the intermediate learners. It was considered inappropriate to extend this test to the advanced learners, since in this group the effects of the POA are usually deemed to have been long overcome by the meaningful L2 input and/or by the learning curve (but see Salaberry 1999). As visualized in Figures 3 and 5, the intermediate learners were equally accurate with accomplishments in the Imperfect and in the Preterite ($F(1, 58) = .002$, $p < .97$); and also equally accurate with states in the Imperfect and Preterite ($F(1, 58) = .019$, $p < .89$). As Figure 4 indicates, however, the learners were significantly more acccurate on achievements in the Preterite compared to achievements in the Imperfect ($F(1, 58) = 31.5$, $p < .0001$). This result can be explained with the English native speakers' consistently lower acceptance of achievements in the Imperfect (compare also the mean scores of the advanced learner group). We claim that this

rejection is due to pragmatic considerations, and we return to the issue in the discussion below.

Individual results

Group results are only half of the picture when we are interested in ultimate acquisition and developmental sequences. The contrast between the aspectual tenses' meanings have to be demonstrated in the grammars of individual learners. To evaluate the level of acquisition of each learner, the following procedure was established. A paired t-test compared the raw scores for each participant for each lexical class in Imperfect and Preterite. Thus we ended up with three results for each learner, indicating whether they had acquired the contrast with accomplishments, with achievements, and with states. Every t-test was significant at the $p < .05$ level. The following table gives the individual results.

Table 3. Number of participants in each group who demonstrate/do not demonstrate the contrast

| | Accomplishments | | Achievements | | States | | Distractors | |
	YES	NO	YES	NO	YES	NO	YES	NO
Controls	17	0	17	0	17	0	17	0
Advanced	20	7	22	5	18	9	27	0
Intermediate	6	24	6	24	6	24	30	0

Note that all participants with no exception can distinguish between logical and illogical combinations of clauses in the distractor items of the test. In fact, the three intermediate learners who did not accomplish this were eliminated from further consideration. All of the controls demonstrated significant contrasts between Preterite and Imperfect sentences for all lexical classes. In the advanced group, the contrast in states has not been acquired by 9 participants, compared to 5 for achievements and 7 for accomplishments. Only one fifth of the intermediate learners have acquired one or another contrast.

Still, Table 3 does not indicate whether, for example, the six intermediate learners who have acquired the contrast with achievements are the same six learners who have acquired the contrast with accomplishments. The Venn diagrams in Figures 6 and 7 illustrate how participants were distributed among the different lexical classes. Each circle represents a lexical class. The number of participants who are in the intersection of three circles (the middle one) have acquired the contrast with all three classes; the number of participants in the intersection of two circles, say accomplishments and achievements, have acquired the contrast in both of those

telic classes; the number of participants in a single circle have acquired the contrast with only that class.

The comparison between Figures 6 and 7 clearly demonstrates the acquisition sequence of the semantic contrast with the different lexical classes. All native speakers demonstrate the contrast with all lexical classes. In the advanced learners' group, the majority of learners (n=14) have acquired all the contrasts, which is
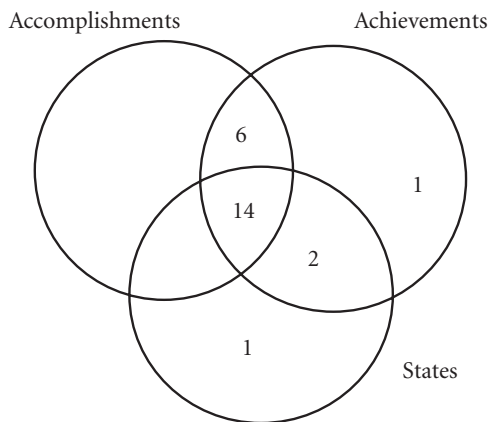
Figure 6. Number of advanced learners who have acquired the contrast with one/ two/three lexical classes
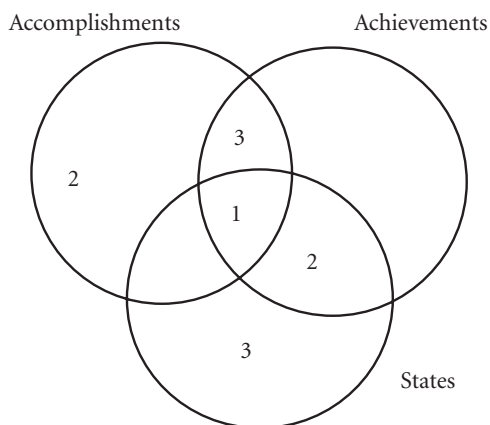
Figure 7. Number of intermediate learners who have acquired the contrast with one/ two/three lexical classes

consistent with our Hypothesis 1. Of the rest, six demonstrate knowledge of the contrast with the telic classes but not with states, thus suggesting that states would pose more difficulty for English native speakers, since in English, they do not appear in the Progressive tense (cf. Hypothesis 2). In the intermediate group, however, the picture is notably different from the advanced group. There is only one learner who has acquired the three contrasts, the one in the middle of the three circles. Three learners have acquired the contrast with the two telic classes, three others have acquired the contrast in states, etc. The suggestion that states would pose more difficulty for English native speakers is not confirmed by the individual results of the intermediate learners. Three advanced learners and nineteen intermediate learners demonstrate knowledge of no contrast. In sum, there is a clear developmental trend in acquiring the interpretive properties of Spanish Imperfect and Preterite tenses, with the intermediate learners starting to acquire the contrast, and the majority of advanced learners having already acquired it.

Discussion

The purpose of this study was to investigate whether intermediate and advanced learners of Spanish as a second language were aware of the semantic implications of the Preterite and Imperfect aspectual tenses. But first we should introduce our basic premise in analyzing the data. We do not attempt to show that the participants in our study have acquired the Preterite-Imperfect contrast as well as native speakers. In this we follow Bley-Vroman (1983), who warns against the comparative fallacy of contrasting L2 learner with NS performance on a given property of grammar. In a similar vein, Grimshaw and Rosen (1990: 189) argue that children's performance should be judged not on how they compare to adults but whether they "treat the two classes of sentences in a systematically different way." In this study, we are investigating the interlanguage grammars of learners as natural, although developing, grammatical systems and trying to establish whether the learners demonstrate systematic knowledge of the aspectual contrast.

All learners were divided into two groups on the basis of their proficiency in Spanish. It was ascertained that both groups passed a test of aspectual morphology, that is, they were capable of choosing the correct form in appropriate context at least 77% of the times. The results of the Sentence Conjunction Judgment Task indicate that intermediate learners as a group show sensitivity to the semantic contrast with all aspectual classes, although their mean scores are statistically different from the advanced and native groups. Thus, our specific Hypothesis 1 was supported by the results. The advanced learners as a group seem to have learned to differentiate the semantic features [±perfective] associated with each viewpoint

aspect. The intermediate learner group also demonstrates a contrast with accomplishments and especially with states, although the latter were predicted to be more difficult for them (see below).

Hypothesis 2, based on L1 transfer and predicting that the contrast in states will be more difficult for the learners than the contrast with the telic classes, was not strongly supported (see individual results). If L1 transfer of functional categories was operative in the grammar of the learners, we would expect the intermediate learners to assume some parallels between the progressive tense in English and the Imperfect. That would lead to their assumption that the perfective/imperfective contrast is not marked on stative verbs, which is incorrect. Thus, we would have expected the intermediate learners to be less accurate with states than with the telic aspectual classes. In fact, the individual results do not show such a dissociation in accuracy. These results would point to the conclusion that L1 transfer is not operative in the interpretive domain, but there is reason to believe that this conclusion would be too strong. It is possible that our intermediate participants were too advanced to demonstrate L1 transfer, and that they are already well on their way to acquiring the Spanish contrast. Further investigation into this issue is necessary.

It is also the case, as pointed out above, that the correspondence between Spanish and English considered here only pertains to the past time domain. As an anonymous reviewer correctly pointed out, when learners make L1-L2 correspondences in the domain of progressive and imperfective aspect, they might do so for the present and then move on to the past time domain. Past progressive has been known to develop much later compared to the present progressive. In order to make concrete predictions for L1-L2 correspondences and L1 transfer, one needs to look at the whole system of viewpoint aspect mapping. The issue awaits further research. In the meantime, due to the scope of the study and the relatively advanced learners we tested, we conclude that our findings are weakly compatible with a hypothesis of L1 transfer.

It was also hypothesized that the POA will extend into the semantic domain (Hypothesis 3). This does not seem to be supported by our results. The POA would predict that beginner and intermediate learners would be more accurate with the meaning of accomplishments and achievements in the Preterite than in the Imperfect (since they predominantly use the Preterite with telic classes), and again, more accurate with the meaning of states in the Imperfective than in the Preterite (since they predominantly use states in the Imperfect). In other words, different lexical classes would interact differently with the aspectual tenses. No such differentiation was detected in our data. As mentioned above, however, it is possible that our learners are too advanced to demonstrate such a differential treatment of telic and atelic lexical classes.[4]

The results of the advanced and intermediate learners with achievements are unexpected, and deserve some comment. Our participants as a group tend to reject achievements in the Imperfect, although they rate achievements in the Preterite even lower, thus demonstrating knowledge of a contrast. This is indeed an intriguing interaction between viewpoint and situation aspect. Achievements are a class of predicates where the change of state is momentary, e.g. *notice, realize, find.* It takes but a brief moment to realize or notice something. There are some achievements, however, in which the actual change of state is still instantaneous, but the process leading up to this moment of change can be extended, e.g. *reach the top, win a game.* Games take time to unfold, and even if winning comes at the very end and is over in a second, the English sentence *Eric was winning the game when he fell unconscious* is a possible and logical sentence. The progressive aspect applied to the achievement predicate *win the game* makes it clear that the process leading up to winning was in progress at the moment of reference, but Eric's actual winning of the game never came to pass. This process of extending the period leading up to the change of state in achievements is a matter of pragmatics, and more precisely, of aspectual coercion. De Swart (1998) defines it as an "implicit contextual re-interpretation mechanism triggered by the need to resolve aspectual conflict" (De Swart 1998: 360). The conflict, in this case, is between the achievement verbal phrase (e.g., *win the game*) not including a process part and the use of the progressive tense, which necessitates such a process. Although English native speakers are perfectly capable of using this pragmatic mechanism in their native language, they do not readily transfer it to their L2, although Spanish uses a similar mechanism. We must tentatively conclude that pragmatics is outside of Universal Grammar, and acquisition of pragmatic contrasts are not guided by the same principles that guide the acquisition of the viewpoint contrast. However, this conclusion must await further research as well.

The individual acquisition results indicate that there is a developmental sequence in the acquisition of the Preterite/Imperfect semantic contrast. This contrast begins to emerge in the intermediate group, but only single individuals show that they have acquired the semantic contrast with one class or another. In most of the advanced learners, however, this process is already completed, and they demonstrate semantic knowledge comparable to that of native speakers. This developmental sequence does not seem to be different for the different lexical classes of predicates. Our results do not clearly indicate that the contrast in the telic classes of predicates is acquired earlier than the contrast in the stative predicates. However, as we acknowledged before, this could be an artifact of the proficiency groups selected in this study.

Conclusion and directions for further research

In this study, we have assumed that the acquisition of the Preterite/Imperfect semantic contrast falls within the range of UG phenomena (contra Coppieters 1987). There are two main reasons for that assumption: the contrast involves inflectional morphology, and is describable in terms of a universal classification of aspectual meanings (Comrie 1976; Smith 1991, 1997). Moreover, languages vary with respect to the functional categories they project and to the different formal features of those categories. Both the individual and the group results support our main research hypothesis, namely, that English native speakers are capable of acquiring the semantic contrast of Spanish viewpoint aspect. Thus, they are capable of acquiring features of functional categories that are not instantiated in their native language (see also Dekydtspotter et al. 1997).

This study leaves open the question of how strong the morphology–semantics connection is. In other words, is it only learners who have mastered the morphology that exhibit knowledge of the semantics, or is it the case that the two are not related in the acquisition process? It is pertinent to continue this line of research with expanding the proficiency levels of the participants and focusing on establishing the morphology-semantics relationship. We take up these tasks in a further experimental study: Montrul and Slabakova (in press).

Notes

1. Statives are not grammatical with the progressive in Spanish either (e.g. *El auto me está costando $20,000* 'The car is costing me $20,000'). This similarity between Spanish and English is important, if English learners of Spanish initially transpose the progressive meaning onto the Imperfect meaning (see our L2 acquisition Hypothesis 2).

2. However, we do not concentrate on the acquisition of the viewpoint aspect morphology in this paper, except to test whether it is successful for all our participants. For a study focusing on the morphology-semantics connection see Montrul and Slabakova (in press).

3. Sentences with activities were hard to construct and the responses with the two tenses yielded illogical interpretations most of the time:

> (i) María corrió (PRET) por una hora pero no corrió   (illogical)
> 'Maria ran for an hour but she did not run'
>
> (ii) María corría (IMP) por una hora pero no corrió.   (illogical if the imperfect tense entails habituality and perhaps possible if the Imperfect is interpreted as a modal meaning intention *was going to*).

Due to these difficulties, we felt that activity predicates did not fit the overall design of the test and we decided to exclude them. However, we do think that the behavior of activities is puzzling and interesting. We defer this topic for future research.

4. An anonymous reviewer suggests that, if we undertake comparisons between learner and native speaker groups, our findings will be compatible with the POA, in the sense that advanced groups are closer or indistinguishable in accuracy from native speakers, while intermediate learners lag behind. We do not doubt that this is indeed so in the case of accomplishments (see Figure 3), and even states (Figure 5). However, as we point in the text, we consider this fact to shed little light on the POA and its operation in interlanguage, simply because our advanced learners are too proficient to show any differential knowledge of viewpoint aspect correlated to lexical class. If there is any influence of the POA in the interpretive domain, it ought to be detected among less proficient, even beginning, learners. What we attempt to test is whether there is equal accuracy in the interpretation of states, accomplishments and achievements with Imperfect and Preterite for each learner group. In other words, we are interested in the systematic contrasts in the learners' interlanguage grammars.

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Apppendix

Battery of sentences in the Sentence Conjunction Judgment Task

ACHIEVEMENTS

(1)   Los González *vendían* (IMPERF) la casa pero nadie la compró.
"Los Gonzáles were selling their house but nobody bought it."

Mis padres *vendieron* (PRET) el auto pero nadie lo compró.
"My parents sold their house but nobody bought it."

(2)   El equipo de Brasil *ganaba* (IMPERF) el campeonato de fútbol pero salió segundo.
"The Brazilian team was winning the soccer championship but came up second."

André Agassi *ganó* (PRET) el campeonato de tenis pero salió segundo.
"André Agassi won the tennis championship but came up second."

(3)   Carlos y Adriana se *casaban* (IMPERF) ayer pero hoy siguen solteros.
"Carlos and Adriana were getting married yesterday but today they are still single."

Julio y Verónica se *casaron* (PRET) ayer pero hoy siguen solteros.
"Julio and Verónica got married yesterday but today they are still single."

(4)   El tren *partía* (IMPERF) de la estación central pero salió de la estación nueva.
"The train was leaving from the central station but departed from the new station."

El avión *partió* (PRET) del aeropuerto JFK de Nueva York pero salió de La Guardia.
"The plane left from JFK airport in New York but departed from La Guardia."

(5)   Lucía *venía* (IMPERF) a buscar su ropa al lavadero pero nunca llegó.
"Lucia was coming to my office to get the methodology books but he never arrived."

Alberto *vino* (PRET) a buscar los libros de metodología a mi oficina pero nunca llegó.
"Alberto came to my office to get the methodology books but he never arrived."

(6)   Mi tío se *moría* (IMPERF) de cáncer pero finalmente se recuperó.
"My uncle was dying of cancer but he finally got well."

La abuela de Carla se *murió* (PRET) de neumonía pero finalmente se recuperó.
"Carla's grandmother died of cancer but she finally got well."

(7)   El avión *arribaba* (IMPERF) al aeropuerto a las 8 pero apareció a las 10.
"The plane was arriving at the airport at 8 but appeared at 10."

El transatlántico *arribó* (PRET) al puerto a las 10 pero apareció al mediodía.
"The transatlantic arrived to the port at 10 but appeared at noon."

STATES

(1) La película *era* (IMPERF) a las 7 pero empezó a las 7:30
"The movie was supposed to be at 7 but started at 7:30."

La clase *fue* (PRET) a las 10 pero empezó a las 10:30
"The class was at 10:00 but started at 10:30."

(2) El yate me *costaba* (IMPERF) $1,000,000 pero no lo compré.
"The yacht cost $1,000,000 but I didn't buy it."

El BMW me *costó* (PRET) $80.000 pero no lo compré.
"The BMW cost $80,000 but I didn't buy it."

(3) El concierto *duraba* (IMPERF) hasta las 7 p.m. pero terminó a las 8 p.m.
"The concert was supposed to last until 7 p.m. but finished at 8 p.m."

La reunión *duró* (PRET) hasta las 6 p.m. pero terminó a las 6:30 p.m.
"The meeting lasted until 6 p.m. but finished at 6:30 p.m."

(4) El tren *tardaba* (IMPERF) 3 horas en recorrer el camino pero lo hizo en 2.
"The train took 3 hours to travel the road but did it in 2."

El camión *tardó* (PRET) 3 horas en llegar a destino pero lo hizo en 2.
"The truck took 3 hours to travel the road but did it in 2."

(5) Margarita *contaba* (IMPERF) con la ayuda de Carlos para correr el sillón pero al final lo hizo sola.
"Margarita counted on Carlos's help with the moving but at the end she did it on her own."

Dolores *contó* (PRET) con la ayuda de Pedro para la mudanza pero al final la hizo sola.
"Dolores counted on Pedro's help with the moving but at the end she did it on her own."

(6) Nos *faltaba* (IMPERF) una semana para terminar el proyecto pero lo pudimos terminar a tiempo.
"We needed 3 more days to finish the project but we were able to finish it earlier."

Me *faltaron* (PRET) 3 días para terminar la tesis pero pude terminarla antes.
"I needed 3 more days to finish the thesis but I could finish it earlier."

(7) *Bastaba* (IMPERF) con calma para solucionar la situación pero no fue suficiente.
"Patience was enough to solve the situation but it was not sufficient."

Bastó (PRET) con paciencia para solucionar la situación pero no fue suficiente.
"Patience was enough to solve the situation but it was not sufficient."

ACCOMPLISHMENTS

(1) Joaquín *corría* (IMPERF) la carrera de fórmula 1 pero no participó.
"Joaquín was going to participate in Formula One race but he didn't take part in it."

Pedro *corrió* (PRET) la maratón de Barcelona pero no participó.
"Pedro ran the Barcelona marathon but he didn't take part in it."

(2) Amanda *llevaba* (IMPERF) el paquete hasta el correo pero se le perdió en el camino.
     "Amanda was carrying the package to the post office but lost it on the way."

     Julia *llevó* (PRET) el sobre hasta la administración pero se le perdió en el camino.
     "Amanda carried the package to the post office but lost it on the way."

(3) Adrián *tomaba* (IMPERF) una coca-cola y se le volcó la mitad sobre el pantalón.
     "Adrián was drinking a coke but spilt half of it on his pants."

     Marcelo *tomó* (PRET) una cerveza y se le volcó la mitad al suelo.
     "Marcelo drank a bear but spilt half of it on the floor."

(4) La empresa constructora *contruía* (IMPERF) un edificio pero no pudieron terminarlo.
     The building company was building a house but could not finish it."

     Los Fernández *construyeron* (PRET) una casa pero no pudieron terminarla.
     "The Fernández built a house but could not finish it."

(5) El novelista *escribía* (IMPERF) un ensayo pero el ensayo no está terminado.
     "The novelist was writing an essay but the essay is not written."

     El poeta *escribió* (PRET) un poema pero el poema no está terminado.
     "The poet wrote a poem but the poem is not written."

(6) Gonzalo *leía* (IMPERF) un cuento por las noches pero no llegó al final.
     "Gonzalo was reading a book in the evening but didn't reach the end."

     Juan *leyó* (PRET) un libro por las noches pero no llegó al final.
     "Juan read a book in the evening but didn't reach the end."

(7) *Ibamos* (IMPERF) al lago pero nos quedamos en casa a causa de la tormenta.
     "We were going to the lake but stayed at home due to the bad weather."

     Fuimos (PRET) a la sierra pero nos quedamos en casa a causa del mal tiempo.
     "We went to the hills but stayed at home due to the bad weather."

DISTRACTORS

Illogical

(1) Fui a la escuela en auto y llegué en bicicleta.
     "I drove to school and I arrived by bike."

(2) Había 5 personas en el cine y no había nadie.
     "There were 5 people at the movie theater and there was nobody there."

(3) La farmacia cerró a las 5 pero todavía no cerró.
     "The drugstore closed at 5 but hasn't closed yet."

(4) Mis amigos me invitaron a una fiesta y no fui invitada.
     "My friends invited me to a party and I was not invited."

(5) Melisa llegó tarde a clase y no vino a la clase.
     "Melisa arrived late to class and she didn't come to class."

(6) Los padres de Susana salieron de viaje y no se fueron a ninguna parte.
     "Susana's parents went on a trip and they didn't go anywhere."

(7)   Los niños jugaron en la calle y no salieron de la casa.
        The children played in the street and they didn't leave the house."

Logical

(1)   Estaba jugando al tenis y llegó Pedro.
        "I was playing tennis and Pedro came."

(2)   María trabajaba en una panadería y trataba bien a los clientes.
        "Maria worked in a bakery and got along with the customers."

(3)   Marcos estaba cocinando y Pilar lo ayudaba.
        "Marcos was cooking and Pilar helped him."

(4)   Susana estaba manejando y se detuvo a cargar el tanque.
        "Susana was driving and stopped to fill the tank up."

(5)   Julián estaba fumando en la oficina y el jefe lo vio.
        "Julian was smoking in the office and his boss saw him."

(6)   Jorge viajaba a menudo a Europa y compraba lindos regalos.
        "Jorge would often travel to Europe and he would buy nice presents."

(7)   Los bomberos apagaron el incendio y rescataron al hombre.
        "The firemen extinguished the fire and rescued the man."

Tense and aspect in the selection of Spanish past tense verbal morphology

Rafael Salaberry

Introduction

The development of tense and aspect has become a central topic of research in recent studies of L2 (second language) acquisition (e.g., Andersen 1986, 1991; Andersen & Shirai 1994, 1996; Bardovi-Harlig 1992, 1994, 1995; Bergström 1995; Buczowska & Weist 1991; Harley 1989; Hasbún 1995; Housen 1994; Lafford 1996; Liskin-Gasparro 1996, 2000; Ramsay 1990; Robison 1995; Salaberry 1998, 1999, 2000; Sato 1990; Wolfram 1985). The use of verbal morphology has also been analyzed among L2 untutored language learners (e.g., Bayley 1994; Dietrich, Klein & Noyau 1995; Perdue & Klein 1992; Schumann 1987; Trévise 1987). Despite such extended research, however, there is still conflicting evidence about the sequence and rate of development of L2 past tense morphological marking: compare claims from Andersen and Shirai (1994) versus Buczowska and Weist (1991) and Meisel (1987). Of particular importance for the analysis of the present study is the claim that in emergent linguistic systems, aspect marking precedes the appearance of tense marking (e.g., Bybee 1985, 1995; Bybee & Dahl 1989; Frawley 1992).[1] Along these lines, some researchers have proposed a Lexical Aspect Hypothesis, claiming that in the preliminary stages of L2 development L2 learners use verbal morphology to mark aspectual instead of tense distinctions (Andersen 1986, 1991, 1994; Robison 1990, 1995). That is to say, the prediction is that verbal inflections will correlate more strongly with lexical aspect rather than grammatical tense in the learner's second language. The present study investigates these claims by analyzing data from English speakers learning L2 Spanish in a classroom setting. The structure of the chapter is as follows. In the first section I will define the notion of lexical aspect and summarize the proposal made by the lexical aspect hypothesis. Then, I will review some of the empirical studies that have investigated the development of verbal morphology and recent modifications to the lexical aspect hypothesis. Subsequently, I will introduce the hypotheses, participants, materials and operational

tests used to analyze the data from the present study. Finally, I will present the analysis of the data and I will offer a general discussion of the major findings.

The lexical aspect hypothesis

Aspectual distinctions in a language can be marked overtly (grammatical aspect) or covertly (inherent lexical aspect) (Andersen 1991; Binnick 1991; Klein 1994; Smith 1991; Tenny 1994). Grammatical aspect refers to the morphological markers of temporality such as Preterite-Imperfect in Spanish, *Passé Composé-Imparfait* in French or Progressive (*be + -ing*) in English. On the other hand, the inherent aspectual meaning of the verb (lexical) is determined by the temporal features intrinsic in the semantics of the predicate in its base form plus the value of internal and external arguments as well as adjuncts (e.g., Dowty 1986, Maingueneau 1994; Smith 1991; Verkuyl 1993). The classification of lexical aspectual values of verbal predicates is important because several researchers have directly tied the inherent lexical value of the verb to the development of verbal morphology. This notion, referred to here as the lexical aspect hypothesis, was originally proposed by Andersen (1986) in his analysis of the development of verbal morphology in the Spanish interlanguage data from two adolescent untutored language learners. Andersen (1991) proposed a stable sequence of developmental stages for the acquisition of aspectual marking among L2 learners: (a) the use of perfective markers spreads from punctual verbs (achievement) to stative verbs, and (b) the use of imperfective markers spreads from stative verbs to punctual verbs.

The original proposal of the lexical aspect hypothesis (Andersen 1991) has been modified (a) to account for the contradictory findings revealed by some recent empirical data or (b) to incorporate the role of factors other than tense or aspect on the development of past tense morphology. Following the analysis of his own data, Robison (1990: 330, italics added) changed his original standpoint on the effect of the primacy of lexical aspect *during the beginning stages of acquisition*, and adopted the more conservative (although ambiguous) position that such effect will happen during "*some stage of development.*" This is no minor change of the claim of the lexical aspect hypothesis as the latter modification no longer predicts that the motive for the development of verbal morphology during the initial stages will be lexical aspect. On the other hand, Andersen and Shirai (1994) have incorporated the role of both narrative grounding and input biases (distributional effects in the use of verbal morphology among native speakers) to their framework of analysis of the development of past tense verbal morphology among nonnatives.[2]

Testing the lexical aspect hypothesis

The distinction between what are called *untutored* and *classroom* learners is an important variable to consider in the analysis of data from previous empirical studies on the effect of lexical aspect in the development of verbal morphology. By definition untutored learners do not receive explicit instruction on the target language; rather, they develop their L2 through normal social interaction with speakers of the target language. In contrast, classroom learners do not have access to everyday social interaction but rather to instruction and, at best, didactically constrained social interaction in more communicative approaches (e.g., task-based instruction: Long 1991; Loschky & Bley-Vroman 1993). In general, the available data from untutored learners do not allow for testing the theoretical claims of the lexical aspect hypothesis. Most studies of adult untutored learners do not show any extended use of verbal morphology as is usually reported in the case of classroom learners (e.g., Dietrich et al. 1995; Klein & Perdue 1992; Meisel 1987; Perdue & Klein 1993; Rohde 1996; Sato 1990; Schumann 1987; Trévise 1987; Véronique 1987), or they show that verbal morphology develops very slowly (e.g., Andersen 1986, Klein et al. 1995; Kumpf 1984). For instance, after 10 months of immersion in the target language setting, the two Vietnamese speaking adolescents in Sato (1990) did not mark temporality in English with morphological markers (i.e., *-ed* ending) but they used lexical and discourse-pragmatic strategies instead (e.g., adverbs, interlocutor scaffolding) (see also Wolfram 1985). Furthermore, in some studies, the *semantic features* which underlie the lexical value of some verb types do not coincide with the use of overt verbal endings. For example, Robison's (1990) data — based on informal conversations with an adult Spanish speaker learning English — show support for the lexical aspect hypothesis for the punctual-durative distinction but not for the stative-dynamic distinction. Robison's subject marked a higher proportion of stative verbs — instead of dynamic verbs as predicted by the lexical aspect hypothesis — with the progressive marker (*-ing* inflection).

In contrast, data from classroom learners across a variety of languages appear to offer support for the lexical aspect hypothesis. A detailed analysis of these data, however, reveals some inconsistencies with the prediction of a sequential development of past tense marking according to lexical aspectual class (Bardovi-Harlig & Bergström 1996; Bergström 1995; Hasbún 1995; Lafford 1996; Ramsay 1990; Salaberry 1998). For instance, the analysis of L2 English data in Bardovi-Harlig and Bergström's cross-sectional study (1996) reveals that among the lowest level learners of their sample, "… achievements and accomplishments show the same level of past marking, with 46.4% and 47.1%…" (p. 317–8) More important, "the use of simple Past with states increases noticeably from Group 1 (15.0%) to Group 2 (56.9%)…" Along the same lines, Bergström's (1995) data show that L2 French

learners consistently used *Passe Composé* with all three dynamic verb classes (achievements, accomplishments and activities) irrespective of proficiency level (see also Salaberry 1998 for a similar observation). Bergström's data show (a) that the emergence of the Imperfective with stative verbs was in competition with the Perfective (see also Leeman, Arteagoitia, Fridman, & Doughty 1995), and (b) that the Imperfective was associated with a limited number of stative verbs: 81.3% of uses of Imperfective corresponded to two verbs: *to be* and *to have* (p. 162). As a consequence, Bergström states that her data do not show "any kind of development in the *Passé Composé*. It may be that the acquisition of the *Passé Composé* is rather rapid and difficult to capture" (p. 155). A similar conclusion for L2 Spanish development was presented by Hasbún (1995), who reported "no significant association" between past tense morphological marking and lexical aspectual classes at beginning stages of acquisition (second semester, first year of instruction). Hasbún claimed that "[b]eginning at Level 2, the learners in this study are *most likely using verbal morphology to establish tense differences.* There is no definitive evidence to prove that they are only redundantly marking lexical aspect since the grammatical markers are also tense aspects [sic]" (p. 204, italics added). In sum, the data from the above mentioned studies show that the transition from aspect to tense marking may be so rapid and transient that it may conceal the effect of tense constraints during the first stages of the development of verbal morphology.

Some researchers have gone further and have explicitly rejected the tenets of the lexical aspect hypothesis — at least for the beginning stages of development of past tense verbal morphology. For instance, Buczowska and Weist (1991) claimed that the analysis of their data shows that tense plays a more important role than aspect in the development of English among Polish speakers. Similarly, Wiberg (1996) proposed the unmarked past tense hypothesis: the perfective marker is used primarily as a past tense marker across all lexical aspectual classes. Finally, the analysis of Spanish oral data from Salaberry (1999) revealed that second semester learners at the college level used a single marker of past tense across lexical aspectual classes (i.e., a default past tense marker). The studies from Buczowska & Weist and Wiberg, however, are based on data from languages other than Spanish, and the study from Salaberry was based on data from a limited number of participants that does not allow for the generalization of his findings. The present study will analyze the previous claim among a larger number of L2 Spanish students that allows for the use of statistical tests.

Present study

Hypotheses

As mentioned above, the lexical aspect hypothesis predicts that past tense morphological marking in L2 Spanish of adult tutored learners is correlated to inherent lexical aspectual value of verbal predicates (i.e., statives are prototypically associated with the Imperfect and telic events are prototypically associated with the Preterite). In the present study I intend to show that the effect of lexical aspect may not be as prevalent as thought during the beginning stages of development of past tense forms among classroom learners of Spanish. For the purpose of this study, prototypicality will be determined by the agreement of the lexical aspectual value of the verb and the grammatical encoding of aspect (the congruence principle: see Andersen & Shirai 1994). The non-prototypical value is represented by the case when the aspectual inflection is in direct contradiction with lexical aspect (see Taylor 1989 for an analysis of prototypes in linguistic theory). Hence, the null hypotheses for the analysis of the data from the present study is as follows:

> H0: Past tense morphological marking in L2 Spanish of adult tutored learners is independent of the inherent lexical aspectual value of verbal predicates.

Participants

The participants in this study were students from two college-level Spanish language courses: 25 students from a third semester course and 24 students from a sixth semester course. The intermediate group was represented by two out of a total of six course sections (groups) which comprised that level of instruction, and the advanced group was represented by all three course sections comprising the advanced course. All students were placed in their course level according to successful completion of the immediately previous course in the semester-based sequence of instruction, and (in some cases) with a placement exam administered after they were admitted to the University (non-mandatory). Additionally, instructors made necessary adjustments to this basic placement system during the first week of classes of any given semester to compensate for potential strengths or weaknesses not taken into account by regular course grades or placement tests. Even though this is an indirect way of defining proficiency levels, it was expected that the spacing of three course levels that span three semesters of instruction (and correlated performance according to the expectations of the instructors) would provide enough discrimination among levels of experience with the language. The students in the intermediate course met five times a week for one hour each time, whereas the ones

in the advanced course met three times a week for one hour each time. All participants spent an average of approximately three hours per week studying for the course they were taking. All learners rated themselves in their perceived proficiency in Spanish on a scale from 1 (lowest) to 5 (highest): the average for the intermediate level was 1.81 whereas the average for the advanced group of students was 2.58. The self-rating procedure was intended to be a rough measure of the students' perception of their abilities in the target language. As such it is dependent on what the students perceived as the gap between what they can do and the types of models and interactions they have (most likely academic interactions only).[3] A group of 32 monolingual native speakers of Spanish residing in their native country acted as a baseline group. The majority were college-level students (from Spain) who were studying English in an academic setting (only two of the 32 participants mentioned using English during travel and with friends).

Materials and procedure

All participants completed a cloze-type fill-in-the-blanks task that contained a total of 41 target items. The context for the cloze test was based on four different short passages (Appendix A). There were three original excerpts from two famous Spanish-speaking literary authors: Juan Rulfo (number one) and Benito Pérez-Galdós (numbers two and four). A fourth passage (number three) was written by the author to incorporate potential examples of non-prototypical use of non-stative verbs (e.g., Preterite with stative verbs) which were not exemplified in the literary texts. The passages were cited by Lunn (1985: 58–9) as the types of narratives that contain examples of non-prototypical marking of aspect (viewpoint aspect). As such, they provided the whole range of options of grammatical aspect marking accounted for by the lexical aspect hypothesis (i.e., the eight stages proposed by Andersen 1991).

The data were collected during regular class hours. All participants received a packet containing a consent form, a biographical questionnaire sheet and the one-page fill-in-the-blanks test. The cloze test was timed (10 minutes) to limit monitoring of form (Ellis 1987, Ochs 1979). In order to prevent the use of historical present the instructions specified that the narrative was set in past time without specifying which of the two forms of Spanish past tense was necessary.[4] The analysis of the data from the cloze test was based on the semantic contrast between perfective and imperfective markers of past tense. As such, the violation of orthographic conventions (e.g., *reproducio* instead of *reprodujo*) or spelling mistakes including accent markers (e.g., *supó* instead of *supo*) were not taken into account in the analysis. These types of mistakes have no bearing on the type of discursive-semantic contrast exemplified by past tense inflectional suffixes. Furthermore, the use of forms other

than past tense indicative (e.g., subjunctive or conditional) was not included in the analysis of the data (those forms were quite rare).[5] The reliability of the cloze test instrument was relatively high: Cronbach's alpha coefficient of 0.93 (measured on third semester students).

Classification of verbs: coding criteria and operational tests

The selected dependent variable for the analysis of data was represented by the verbal morphological ending chosen by the students. Two categories were considered: Preterite and Imperfect. All verbs were also classified according to their inherent lexical aspectual semantics. Three categories were considered for this second classificatory system: statives, atelic events (activities), and telic events. As mentioned above, telic events were not classified into punctual and non-punctual events (accomplishments and achievements) (e.g., Dowty 1986; Klein 1994; Mourelatos 1981).[6] The classification of each verb in terms of inherent semantic aspect was done by the researcher in accordance with two major criteria: telicity and stativity (e.g., Dowty 1986; Klein 1994; Shirai 1991; Smith 1991). Two operational tests were used to distinguish lexical aspectual classes:[7]

> *Test of stativity* distinguished stative versus non-stative verbs: Can the verb have a non-habitual interpretation? If it can it is a stative verb.

> *Test of telicity* distinguished telic versus atelic verbs: If you stop in the middle of V-ing have you done the act of V (entailment test)?[8]

The application of these tests was performed sequentially. That is to say, if a verb was stative, the following test was not relevant. If a verb was non-stative according to the first test, the second test was applied (for additional information on the application of these tests see Dowty 1979 and Shirai 1991).

Data analysis

A summary of the results is presented in Table 1. The average scores associated with each lexical aspectual class reflect the overall tendency of all participants to mark all items classified within each lexical aspectual category. The number of items corresponding to each lexical aspectual class is included in the Table as the N-size for each category.

Table 1 shows that the range of scores across lexical aspectual classes in the cloze test is markedly different for the advanced Spanish learners compared to the other two groups. The average marking of verbal endings among advanced students

Table 1. Distribution of use of Imperfect/Preterite by verb type and level

Verb Type (N)	3rd semester	6th semester	Natives
Stative (10)	27%/73%	63%/23%	25%/75%
Atelic events (14)	15%/85%	40%/60%	30%/70%
Telic (17)	08%/92%	18%/82%	18%/82%

reflects a clear relationship between lexical aspectual classes and past tense verbal endings: the use of Imperfect is associated with stative verbs (63%) and the use of Preterite is associated with the telic event category (82%). In contrast, the morphological marking of verbs among the intermediate learners is not necessarily correlated with lexical aspectual types: the use of the Preterite is dominant in all lexical aspectual categories. Curiously, native speakers seem to pair up with less experienced speakers (intermediate) — instead of advanced speakers — in their selection of morphological marking (mostly Preterite used with all lexical aspectual classes). Notice also that the overall range of scores across lexical aspectual classes varies across levels. For instance, for the advanced students the range of scores for the Imperfect spans an overall scope of 45 percentage points: from 18% with telic verbs to 63% with statives.[9] On the other hand, the overall range of scores of use of Imperfect for the other two groups is much more restricted: 12 percentage points for native speakers (from 18% for telic events to 30% for atelic events) and 19 percentage points for intermediate students (from 8% for telic events to 27% for statives). The association of morphological marking and lexical aspect is apparent in both groups of L2 Spanish learners. The magnitude of that association, however, appears to be substantial for the advanced group of students only. On the other hand, the distribution of scores of native speakers is not strongly determined by lexical aspectual class (i.e., no sequential distribution of inflectional markers according to lexical aspectual classes). In order to test the statistical significance of these differences the raw scores of the dependent variable (selection of Imperfect or Preterite) were submitted to an Analysis of Variance (ANOVA). The dependent variable was represented by the scores obtained in the cloze test. The experiment was based on a 3 x 3 factorial design: three levels of aspectual class x three levels of knowledge of Spanish. Table 2 shows the results of the ANOVA test.

The results of the factorial ANOVA revealed significant main differences for lexical aspect ($F_{(2, 21.236)} = 0.001$), Spanish level ($F_{(2, 22.207)} = 0.001$), and also interaction effects between lexical aspect and L2 knowledge ($F_{(4, 4.779)} = 0.001$). Most important, the squared multiple R associated with the data is 0.46. In other words, the effect of the factors selected for the analysis (i.e., lexical aspectual classes and level of experience with the L2) on the scores of the cloze test account for approximately 50% of all the variation present in these data. A post hoc analysis

Table 2. Results of ANOVA test of statistical significance

Source	Sum squares	DF	Mean squares	F-ratio	p-value
lexical aspect	1.157	2	0.578	22.207	0.001*
Spanish level	1.157	2	0.578	22.207	0.001*
interaction	0.498	4	0.125	4.779	0.001*
error	2.970	114	0.026		

(Tukey) showed that the differences in scores were statistically significant for the comparison among all lexical aspectual classes: stative versus atelic events (p = 0.035), stative versus telic events (p = 0.001), and atelic events versus telic events (p = 0.001). Similarly, a post hoc analysis (Tukey) applied to Spanish levels of experience showed that the differences in scores were statistically significant for the comparison across all levels except for the contrast between native speakers and intermediate level students (p = 0.109). The other two contrasts were statistically significant: intermediate and advanced (p = 0.001), and advanced and natives (p = 0.001). In sum, even though the morphological marking of verbs is associated with the lexical aspectual class of the verb for both groups of students, it is only the data from the more advanced group the one that shows statistically significant results.

The analysis of the summation of the average scores from all items combined within each lexical aspectual class by group can be analyzed in finer detail if we classify the scores from each item separately and range them into groups of scores according to the strength of response associated with each item. Table 3 presents the summary of items in terms of three ranges of scores by level. The low range scores are the ones below the 40% marker, mid-range scores cover the middle band between 40% and 60%, and the upper-band is represented by scores between 60% and the maximum score of 100%. Extreme scores (upper and lower bands) reflect a clear stand taken by the speaker about the possible morphological marker associated with each specific item. Mid-range scores reflect a degree of uncertainty about the specific morphological marker of particular items (i.e., 10 percentage points above and below the uncertainty marker of 50%). In other words, scores below 40% reflect a distinct selection of Preterite, scores above 60% reflect the distinct selection of Imperfect, and scores between 40% and 60% reflect a wide range of responses among individuals within the group (ambiguity of the item or uncertainty about the selection of verbal morphology).

The analysis of the data in Table 3 shows that the average scores for all items from the intermediate Spanish group fall below the 40% division irrespective of lexical aspectual class. In other words, the data from intermediate learners show a clear preference for the use of Preterite irrespective of lexical aspectual classes. In contrast, the average scores from the advanced learners shift progressively accord-

Table 3. Distribution of ranges of scores per item across levels

	3rd semester			6th semester			Native speakers		
	State	Atelic	Telic	State	Atelic	Telic	State	Atelic	Telic
< 0.39 (PRET)	10	14	17	0	6	16	6	9	16
0.40-0.60	0	0	0	6	3	0	4	5	1
> 0.61 (IMP)	0	0	0	4	5	1	0	0	0

ing to lexical aspectual class: Imperfect marking (above 60%) is mostly restricted to stative and activity verbs, whereas Preterite (below 40%) is restricted to nonstative verbs. The data from the advanced students, however, show an outlier: item 36 represents the only telic verb marked with a score higher than 60% (non-prototypical marking of telic verbs). Notice, however, that item 36 corresponds to the verb *saber* (to know), a typical stative verb which was classified as a telic event according to the operational tests of lexical aspectual classes. It is plausible that the advanced students were particularly sensitive to the distributional bias associated with this particular verb and they selected the verbal ending most commonly associated with it (irrespective of the outcome of the operational test). In sum, the data from the written task used in this study reveals that the aspectual distinctions represented in the form of lexical aspectual classes may be relevant for the use of inflectional morphology in relatively more advanced stages of tutored L2 development (as reflected in the proficiency levels of the participants in this study).

Discussion

The results from this study do not lead to a categorical rejection of the null hypothesis given the different results obtained in the selection of inflectional endings among intermediate and advanced students. That is to say, for intermediate L2 Spanish speakers (third semester of college instruction) the use of past tense morphology in L2 Spanish is not categorically associated with the inherent lexical aspectual value of verb phrases. For these learners, the relatively strong effect of tense is represented by the extended selection of the Preterite as a default marker of past tense across lexical aspectual categories (see Wiberg 1996). On the other hand, the data from the more advanced students (sixth semester of college instruction) show that the use of verbal morphology is not independent of the effect of inherent lexical aspectual value of verb phrases. The rejection of the null hypothesis only for the advanced group of learners hints at developmental effects occurring between the two levels of L2 proficiency represented in this study. In sum, the effect of lexical aspect on the selection of Past tense verbal endings in L2 Spanish is not as strong during the early stages of acquisition of L2 Spanish as is evident in more advanced

levels of proficiency (among English-speaking adult classroom learners). In other words, the effect of lexical aspect appears to increase with level of experience in the target language.

The argument that tense may be more important than lexical aspect for the use of past tense markers during the beginning stages of the development of L2 Spanish necessitates a cogent explanation for why that would be the case. For instance, the Imperfect, in principle, may also be a candidate for such marker of past tense. However, previous writings on this topic point in the direction of the Preterite as a more likely choice considering the following factors. First, if we were to consider the possible effect of L1 transfer, we can safely assume that simple past tense in English will be likely equated with the Preterite (Giorgi and Pianesi 1997; Taylor 1987). In contrast, the Imperfect may be more easily associated with the periphrastic constructions. Arguably, another potential determinant of the use of the Preterite as a default marker of past tense among the less proficient learners (third semester) is the effect of the classroom environment to which these learners had immediate access. Although we have very little information on this topic, the few available studies that have described the type of classroom input about past tense show that there may be a distributional bias in the input to the extent that the perfective forms are used more often in typical classroom discourse (for French data see Kaplan 1987; Swain 1992). Additionally, the sequence of instruction generally favored by textbooks in the US is biased towards the use of perfective markers of past tense: the Preterite is presented first and/or practiced more often in classroom instruction (see data from Hasbún 1995; Bergström 1995). It is important to point out that although the independent variables selected for this study accounted for about 50% of the variation in these data, the relative effect of other independent variables may go a long way towards explaining the use of the Preterite — but not the Imperfect — as a default marker of past tense. An analysis of the relative weight of the other potential independent variables, however, lies beyond the scope of this paper because no data were collected on the input available to these learners in classroom instruction.

Finally, it is important to accommodate the findings of this study within the overall picture we have of the development of past tense verbal morphology according to previous proposals and correlated empirical studies. Several studies have provided support for the claim that lexical aspect is associated with the development of past tense verbal morphology in a variety of languages in academic settings (e.g., Bardovi-Harlig 1994, 1995; Harley 1989; Hasbún 1995; Ramsay 1990; Robison 1995), as well as natural settings (e.g., Andersen 1986; Bayley 1994). As mentioned above, however, some studies have revealed a number of discrepancies with the prediction of the lexical aspect hypothesis (e.g., Bardovi-Harlig 1992; Bergström 1995; Buczowska & Weist 1991; Lafford 1996; Salaberry 1999, 2000;

Wiberg 1996). Such discrepancies are in line with the results from the present study: There was a relatively stronger effect of lexical aspect among relatively more advanced learners (i.e., sixth semester college students in the context of the present study). Arguably, an even stronger effect of tense (as opposed to lexical aspect) may be detected in earlier stages of development, especially with open-ended tasks in which speakers are given the option of selecting any tense. The data from this study, however, showed that such transient effects can be detected by means of particular constraints of data collection procedures.

Conclusion

The analysis of data from L2 Spanish classroom-learners from the present study raises doubts about one of the basic theoretical claims of the lexical aspect hypothesis, that is, in emergent linguistic systems aspect markers precede the appearance of tense markers. In effect, the analysis of data from this study showed that the Preterite (signaling tense contrasts) may be used as a default marker of Past tense among third-semester college students, whereas the effect of lexical aspect on aspect marking is only apparent among sixth semester students. Notice, however, that these results do not entail that lexical aspect does not have an effect on the development of past tense markers. To the contrary, the data from sixth semester students did show a strong correlation between lexical aspectual classes and the use of past tense markers. Although Robison (1990) did not go as far as claiming that the effect of tense predates the effect of lexical aspect in L2 development, the data from this study (restricted to classroom learners) do provide preliminary quantitative evidence for such a claim. Notwithstanding the previously mentioned modification of the original lexical aspect hypothesis as proposed by Robison, it appears that even stronger modifications are needed. For that to happen future studies should analyze in detail the transition across levels of proficiency as the comparison of data of this study revealed a distinct outcome (i.e., potential developmental stages). Furthermore, as argued above several potential factors may underlie the use of the Preterite as a default marker of Past tense (i.e., L1 transfer, instructional effects and a distributional bias in the input). Future empirical studies should investigate the potential effect of the above mentioned factors as well as their relative weight as there may be important interaction effects among them.

Notes

* This chapter is a revised version of one of the two studies described in Salaberry (2000). I would like to thank Yas Shirai and an anonymous reviewer who provided me with useful feedback on an earlier version of this chapter.

1. It is open to question whether the same historical sequence of language development will be instantiated in L2 acquisition, especially in cases like Spanish where both (past) tense and aspect markers are fused into a single morpheme.

2. It is important to point out that such analysis, however, does not reject the original claim of the lexical aspect hypothesis as is evident also in more recent articles (e.g., Shirai & Kurono 1998).

3. Moritz (1995) presents an analysis of the limitations of self-rating procedures.

4. Previous studies on the acquisition of past tense aspect have dealt with this constraint in similar ways (e.g., Bardovi-Harlig 1992; Bergström 1995; Hasbún 1995; Salaberry 1998).

5. One of the notable exceptions was item (31) which was sometimes marked with the conditional by the native speakers. This item was not counted in the analysis since the aspectual contrast is not conveyed by morphological means with the conditional suffix.

6. There are also some studies in L1 acquisition which have used a similar three-way classification: Cziko and Koda (1987), Stephany (1981).

7. Robison (1990, 1995) used three tests per category, but two tests have been used in other studies (e.g., Bergström 1995; Salaberry 1999).

8. These two operational tests are among the most widely used tests in previous studies (e.g., Hasbún 1995; Shirai 1991) due to their relative robust results compared to similar tests.

9. Moreover, the differential scores for the use of Imperfect between each two lexical aspectual classes is proportional: 22 percentage points of a difference between telic and atelic events, and 23 percentage points between atelic events and statives (for a total of 45 percentage points).

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Appendix A: Cloze test

Please, conjugate verbs in parentheses in PAST TENSE. Words in italics have been translated.

Text 1: Yo _____ (1) _____ (pensar) en ti Susana. Cuando _____ (2) _____ (volar) papalotes. _____ (3) _____ (oir) allá abajo el rumor del pueblo mientras _____ (4) _____ (estar) encima de él, arriba de la loma, en tanto se nos _____ (5) _____ (ir) el hilo del papalote arrastrado por el viento. 'Ayúdame, Susana.' Y unas manos suaves _____ (6) _____ (apretarse) a mis manos. El aire nos _____ (7) _____ (hacer) reír; _____ (8) _____ (juntar) la mirada de nuestros ojos, mientras el hilo _____ (9) _____ (correr) entre los dedos del viento, hasta que _____ (10) _____ (romperse) con un "crack". Y allá arriba, el pájaro de papel _____ (11) _____ (caer) arrastrando su cola, perdiéndose en el verde de la loma.

arrastrado = dragged   cola = tail   dedos = fingers
hilo = thread   loma = hill   papalote = kite
viento = wind

Text 2: En su inseguro sueño, la imaginación le _____ (12) _____ (reproducir) todo lo que había hecho aquella noche, desfigurándolo sin alterarlo en su esencia. _____ (13) _____ (oir) el reloj de la catedral; _____ (14) _____ (ver) con alegría a la criada, durmiendo en su cama. _____ (15) _____ (salir) del cuarto muy despacio para no hacer ruido; _____ (16) _____ (bajar) la escalera tan suavemente que no _____ (17) _____ (mover) un pie hasta no estar segura de poder evitar el más imperceptible ruido. _____ (18) _____ (salir) a la huerta, deteniéndose un momento para mirar al cielo.

criada = maid   huerta = vegetable garden   sueño = dream

Text 3: _____ (19) _____ (Estar) despierto toda la noche después que _____ (20) _____ (saber) la verdad sobre mi tía María. _____ (21) _____ (Ser) horrible su muerte. _____ (22) _____ (Vivir) su vida dedicada a los pobres y los _____ (23) _____ (ayudar) desinteresadamente. ¡Qué irónico! _____ (24) _____ (Ser) uno de ellos — a quienes tanto _____ (25) _____ (ayudar) — quien la _____ (26) _____ (matar). _____ (27) _____ (Tener) sueños horribles toda la noche. Aunque _____ (28) _____ (tomar) muchas píldoras no _____ (29) _____ (poder) dormir. _____ (30) _____ (Pensar) que tía María _____ (31) _____ (volver) de la muerte, … pero _____ (32) _____ (ser) un sueño. Tia María _____ (33) _____ (estar) muerta definitivamente.

Text 4: _____ (34) _____ (oir) de vez en cuando el sonido de las palabras, y _____ (35) _____ (notar) la diferencia. Porque las palabras que había oido — entonces lo _____ (36) _____ (saber) — no _____ (37) _____ (tener) ningún sonido, no _____ (38) _____ (sonar); _____ (39) _____ (sentirse); pero sin sonido, como las que se oyen durante los sueños.
— ¿Quién será? — _____ (40) _____ (preguntar) la mujer.
— Quién sabe — _____ (41) ____ (contestar) el hombre.

Translation

Text 1: I _____ (1) _____ (to think) about you Susana. When _____ (2) _____ (to fly) kites. _____ (3) _____ (to hear) down there the rumor of the town while _____ (4) _____ (to be) above it, on top of the hill, while _____ (5) _____ (to leave) the thread of the kite dragged by the wind. 'Help me, Susana.' And the smooth hands _____ (6) _____ (to hold) my hands. The air _____ (7) _____ (to make) us laugh; _____ (8) _____ (to join) the look of our eyes, while the thread _____ (9) _____ (to run) between the fingers of the wind, until _____ (10) _____ (to break) with a "crack". And up there, the paper bird _____ (11) _____ (to fall) dragging its tail, getting lost in the green color of the hill.

Text 2: In her insecure dream, the imagination _____ (12) _____ (to reproduce) all that she had done that night, disfiguring it without altering its essence. (She) _____ (13) _____ (to hear) the cathedral clock; (she) _____ (14) _____ (to see) with happiness the maid, sleeping in her bed. (She) _____ (15) _____ (to leave) the room very slowly to avoid making noises; (she) _____ (16) _____ (to go down/descend) the stairs so smoothly that (she) _____ (17) _____ (to move) a foot until (she) was not sure (she) could avoid making the slightest noise. (She) _____ (18) _____ (to leave) to the orchard, stopping for a moment to look up at the sky.

Text 3: _____ (19) _____ (to be) awake all night until _____ (20) ____ (to know) the truth about my aunt María. _____ (21) _____ (To be) horrible her death. (She) _____ (22) _____ (to live) her life dedicated to the poor and ____ (23) _____ (to help) them unselfishly. ¡How ironic! (It) _____ (24) _____ (to be) one of them — who she had so much _____ (25) _____ (to help) — who _____ (26) _____ (to kill) her. _____ (27) _____ (to have) horrible dreams all night. Although _____ (28) _____ (to take) many pills (not) _____ (29) _____ (to be able to) to sleep. _____ (30) _____ (To think) that Aunt María _____ (31) _____ (to return) from death, … but _____ (32) _____ (to be) a dream. Aunt María ____ (33) _____ (to be) definitely dead.

Text 4: _____ (34) _____ (To hear) once in a while the sound of the words, and _____ (35) ____ (to notice) the difference. Because the words (s/he) had heard — then _____ (36) _____ (to know) it — (they, not) _____ (37) _____ (to have) any sound, (they, not) _____ (38) _____ (to sound); (they) ____ (39) _____ (to feel, reflexive); but without sound, like the ones one hears in a dream.
 — Who could it be? — _____ (40) _____ (to ask) the woman.
 — Who could know — _____ (41) ____ (to answer) the man.

The acquisition and use of perfective aspect in Mandarin[*]

Patricia A. Duff and Duanduan Li

Introduction

Despite the growing body of second language acquisition (SLA) research in recent years on the acquisition of tense/aspect in Indo-European languages such as English, Spanish, and French (e.g., Andersen & Shirai, 1994; Bardovi-Harlig, 2000; Robison, 1990, 1995; and chapters in this volume), there has been little research on the acquisition of aspect in non-Indo-European second languages (L2's), such as Mandarin, Japanese, and Korean, with a few notable exceptions (e.g., P. Li & Shirai, 2000; Shirai & Kurono, 1998). Yet the number of children and adults learning these languages has never been greater. In this chapter, we focus on the acquisition of Mandarin aspect by non-native speakers (NNSs) and then compare NNS and NS production. A comparison of English and Mandarin grammatical systems reveals that both have perfect/perfective and past semantics but that these are encoded differently. English has both past tense and perfect forms, whereas Mandarin only marks perfect/perfective forms grammatically and conveys past time with other devices, such as adverbials. Thus, questions facing SLA researchers examining Mandarin acquisition are as follows: How do NSs of English acquire the Mandarin temporal/aspectual system, which encodes only completion, plus boundedness, with the multifunctional particle LE, but does not encode past tense grammatically? What kinds of cross-linguistic transfer, if any, occur from English to Mandarin in the production of past narratives by learners at relatively low proficiency levels? What developmental trends emerge in learners' acquisition of Mandarin aspectual distinctions? How does performance vary according to the tasks and modality of tasks (oral/written) used to elicit language production? What types of verbs are marked with perfective LE (either correctly or incorrectly)? Are verbs marked with LE similar in type for both NNSs and NSs or are there lexical differences across L1 and L2 groups?

This paper attempts to address these questions by examining data from university-level students of L2 Mandarin, focusing specifically on the acquisition and use of perfective LE, and comparing their performance with that of Mandarin NSs. We focus on LE because of its pervasiveness in both NNS and NS discourse compared with other aspect markers, particularly in early L2 production; and also because we observed that many NSs of English had difficulty mastering the use of LE in Mandarin (Li & Duff 1998; Li 1998). It is beyond the scope of this chapter to consider interactions among LE and other aspectual markers, such as GUO and ZAI.

Aspect in Mandarin

The Mandarin aspectual system has been analyzed, and sometimes contrasted with the English system, by a number of linguists (e.g., Chang 1986; Christensen 1990, 1994; Comrie 1976; C. Li & Thompson 1981; P. Li 1990; Smith 1991). Aspect can be studied in terms of lexical aspect and grammatical aspect. The former refers to the inherent lexical (semantic) aspect or "Aksionsart" of verbs, such as *si* 'die', which indicates the termination of life and is therefore inherently bounded, completive, and thus perfective. Another typical example in Mandarin is Resultative Compounds (RCs; e.g., V-*jian*, V-*dao*, V-*wan*), which typically signal attainment of directional or resultative ends, by combining an action verb and a resultative verb complement (RC=V + RVC).[1] Action verbs (e.g., *xue* 'study') and RCs (e.g., *xue-hui* 'learn') are contrasted in the following pair of sentences (P. Li 1990, p. 28):

(1) Yuehan xue-le   zhongwen.
     John   study-LE Chinese
     'John studied Chinese.'

(2) Yuehan xue-hui-le   zhongwen.
     John   study-know-LE Chinese
     'John learned Chinese.'

Another RC that represents a durative process and an endpoint (typically classified as a telic or accomplishment verb)[2] is:

(3) Wo zuotian xie-wan-LE   neifeng xin
     I   yesterday write-finish-LE that   letter
     'Yesterday I wrote (finished writing) that letter'

Inherently perfective constructions in Mandarin also include delimitative reduplicated verbs (*kan yi kan* 'take a look') which fall under a broader category of verbs with quantified objects (V+QO), which tend to be accomplishments but can also be achievements, depending on the verb.

In addition to the semantic properties of Mandarin verbs and constructions that are aspectual, to be discussed further in the following section, several grammatical aspectual distinctions and markers exist in Mandarin (see Table 1). Perfective markers include LE (for bounded events); GUO (used to indicate that an action has been experienced or an event has happened), both of which are verb-final. Imperfective markers include the progressive pre-verbal marker ZAI, a less frequently occurring post-verbal durative marker ZHE, and a colloquial imperfective NE which also marks durativity or progression (Christensen 1990; P. Li & Bowerman 1998).[3]

Table 1. Grammatical aspect markers in Mandarin

PERFECTIVE	LE	Bounded, perfective	Ta kan-LE yi ge dianying he see-LE a movie 'He saw a movie'
	GUO	Experiential	Ta kan-GUO neige dianying he see-GUO that movie 'He has seen that movie'
IMPERFECTIVE	ZAI	Progressive (foregrounded)	Ta ZAI kan dianying he ZAI watch movie 'He is watching a movie'
	ZHE	Stative, durative (backgrounded); progressive situation (esp. in writing)	Ta kan-ZHE dianshi chi fan he watch-ZHE TV eat rice 'He ate while watching TV'
	NE	Progressive (in colloquial speech); durative	Wo (ZAI) chi fan-NE I (ZAI) eat rice-NE 'I'm eating'

The perfective aspect marker LE

Since our focus is perfective aspect marked by LE, we will discuss that particle in more detail in this section. Unlike English, Mandarin does not have grammaticalized past tense. LE marks completed or bounded events, which may or may not take place in the past. In Andersen and Shirai's (1994) model, the inherent lexical aspect of the prototypical past/perfective event has the features of being unitary, punctual, past, and resultative (see Figure 1). This is also the prototype for Mandarin verbs with perfective aspect to which LE is affixed.

The perfective LE represents a component of Mandarin grammar that poses many challenges for Mandarin L2 learners, language teachers, and linguists. Its complexity is not so much related to the form itself, which is extremely simple — a monosyllabic particle that occurs frequently in discourse and is also reasonably
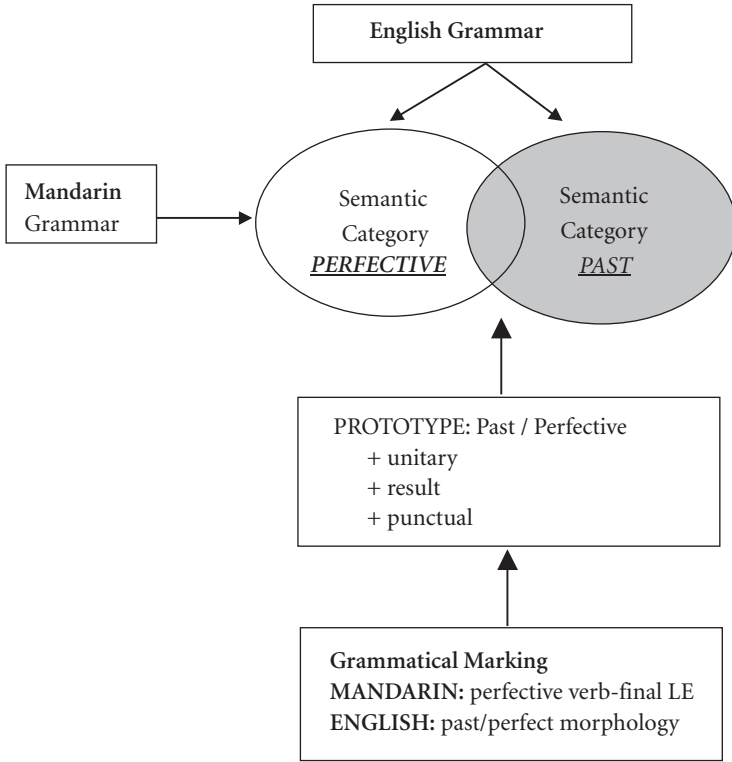
Figure 1. Comparison of Mandarin and English aspect marking

salient. Furthermore, there are grammatical rules governing its use, many of which are very clear-cut, if a little difficult for learners to grasp at the outset (see below). Rather, problems stem from the multifunctionality of LE, its interaction with the inherent lexical aspect of verbs, and the role played by the speaker's perception or viewpoint of the relative boundedness of an event, which affects whether an event should be encoded with the perfective marker or not.

The multiple functions or meanings of LE include: change of state; completedness or boundedness; current relevance; imminent action; anteriority; finality; and excessiveness (e.g., C. Li & Thompson 1981). Several of these functions are illustrated in the following examples. Example 4 represents a decontextualized utterance with the verb *lai* 'come,' followed by LE, and five possible interpretations.

(4)   Ta lai-LE (ambiguous)
      he come-LE
  a. 'He came'
  b. 'He has come'
  c. 'He is coming'
  d. 'There he comes'
  e. 'After he comes'

Given the many possible interpretations of this sentence, understanding the speaker's intended meaning requires contextual knowledge. For example, in sentences 5–9 below, the same construction, *ta lai*-LE (contained in the responses in B in each case), conveys different meanings depending on the discourse context created by the preceding question (A).

(5)   A: Zuotian ta lai-LE ma?
         yesterday he come-LE Q
         'Did he come yesterday?'
    B: Ta lai-LE.
         'He came' (Bounded; completed event)

(6)   A: Ta lai-LE ma? Zai nar?
         he come-LE Q LOC where
         'Has he come? Where is he?'
    B: Ta lai-LE. Jiu zai nar.
         he come-LE just LOC there
         'He has come. Right over there.' (Event with current relevance)

(7)   A: Ta zenme haimei lai?
         he why still NEG come
         'Why hasn't he come?'
    B: Ta lai-LE. (Ta) yijing zai lu shang-LE.
         he come-LE (he) already LOC road on-LE
         (Reassuringly): 'He is coming. He's already on his way.'
         (Imminent action)

(8)   A: Ta lai-LE ma?
         he come-LE Q
         'Has he come?'
    B: Ni kan! Ta lai-LE!
         you look he come-LE
         'Look! There he comes!' (Change of state)

(9)   A: Women shenme shihou kaishi?
           we what time start
           'When shall we start?'
      B: Ta lai-LE women jiu kaishi
           he come-LE we then start
           'After he comes, we'll start.' (Anteriority)

However, as suggested above, the use and interpretation of LE is not only deter-
mined by its discourse context, but also by the speaker's perception or construal of
events (cf. Chu 1996; Christensen 1994; Smith 1991). Chinese grammar is said to
have a rich "viewpoint" component; therefore, aspect marking is very much ori-
ented toward discourse/pragmatics and is in many cases syntactically optional
(Smith 1991).[4] For example, if a speaker views an event as bounded and complete,
and other rules permit the use of aspectual markers, then LE will likely be used.
However, if the speaker does not view the event as tightly bounded, LE may not be
used. Thus, this optionality allows native speakers to make grammatical choices
regarding LE use which are often highly dependent on both context and viewpoint.[5]
Furthermore, the lexical or inherent semantic aspect of verbs also plays an impor-
tant role in whether LE can be used or not. For this reason, Li and Bowerman
(1998) write: "variation [in the interpretation of LE] in specific contexts provides a
good example of how grammatical aspect interacts with the lexical aspect of verbs
to determine the final aspectual interpretation of a sentence" (p. 314).

     It is widely believed that there are two distinct LE's in Mandarin, although
fundamentally they may share the meaning of "contrast to previous state" (Li
1990). As Li (1990) explains, "[w]hether this new state comes about at the end or
the beginning of a situation is not conveyed in the aspectual meaning of -*le*; instead
this is determined by the kind of verb with which -*le* co-occurs" (p. 21). One LE is a
verb-final particle (or morpheme, Bybee 1985) and the other is a sentence-final
particle. Li (1990) provides the following contrast (p. 22):

(10)   Xiaoyazi you-le yong.
       duckling swim-LE stroke
       The duckling swam.

(11)   Xiaoyazi you-yong-le.
       duckling swim-stroke-LE
       The duckling started to swim.

The former is considered perfective, marking the end of a situation; the latter is
considered *inchoative* or *perfect* indicating the current relevance of an event, often
linked to a change of state or the inception of a new situation (Chao 1968; Chan
1980; C. Li & Thompson 1981). Sentence-final LE has also been treated as a

"mood marker" (C. Li & Thompson 1981) or "modal particle" (T'ung & Pollard 1982), reflecting the speaker's attitude, correcting a wrong assumption, indicating what happens next, closing a statement, or marking excessiveness. Whereas some other varieties of Chinese have different forms for the two LE's (e.g., Cantonese has perfective JO and inchoative LA), they are homophonous in Mandarin (Christensen 1990). The negative form for both LE's is MEI(YOU) which occurs preverbally with perfective verbs. Notwithstanding the ongoing debate about whether verb-final and sentence-final LE's have one or two fundamental meanings (Christensen 1990, 1994; P. Li 1990; C. Li et al. 1982), our primary focus is verb-final perfective LE. However, in our initial quantification of LE production by NSs and NNSs, we only excluded typical sentence-final LE such as Adjective+LE, but did not differentiate them in overlapping instances, such as when Verb-LE occurs at the end of the sentence. P. Li (1990) did not differentiate between the two LE's in his study of early L1 acquisition for the same reason.

Lexical aspect in Mandarin and inherent perfectivity

P. Li and Bowerman (1998) present six different categories of lexical aspect in Chinese: activities, accomplishments, achievements (especially RCs), states, semelfactives and mixed telic-stative verbs. They classified verbs produced by children learning L1 Mandarin according to five of these categories, the third and fourth of which below are most closely associated with perfective LE marking:

> (1) *activity* verbs that encode an action with no end point or end result, e.g., *hua-chuan* (row-boat), *youyong* (swim); (2) *semelfactive* verbs that encode a punctual but not resultative situation, e.g., *tiao* (jump), *zhayan* (blink); (3) *achievement* verbs that encode the end result of a punctual situation, e.g., *zhuang-dao* (hit-break), *diao* (drop); these were mostly resultative compounds; (4) *accomplishment* verbs that encode a durative process with a local endpoint, e.g., *pao jin xiao fangzi-li* (run into the little room), *shang louti* (go upstairs); and (5) *stative* verbs that encode the posture of the actor in a situation, e.g., *zuo zai yizi-shang* (sit in the chair), *zhan zai z[h]uozi-shang* (stand on the table) (p. 330).

The *semelfactive* category (from Smith 1991) is supplementary to the four categories used in most recent SLA studies,[6] including chapters in this volume.[7] Those four categories, from least to most inherently perfective, are *state* [-dynamic,-telic, -punctual], *activity* [+dynamic, −telic, −punctual], *accomplishment* [+dynamic, +telic, −punctual], and *achievement* [+dynamic, +telic, +punctual] (Andersen & Shirai 1994, p. 134; see Bardovi-Harlig 2000). The closer a verb is to the *achievement* end of this continuum (i.e., is punctual and resultative), the more perfective, and the more likely it is to be marked with LE in Mandarin.

Grammatical accounts of the perfective LE

In their comprehensive functional grammar of Mandarin, C. Li and Thompson (1981) emphasize that LE indicates boundedness not completion, and that it does not indicate past tense:

> -*le* expresses perfectivity, that is, it indicates that an event is being viewed in its entirety or as a whole. An event is viewed in its entirety if it is *bounded* temporally, spatially, or conceptually. There are essentially four ways in which an event can be bounded:
> A.   By being a quantified event
> B.   By being a definite or specific event
> C.   By being inherently bounded because of the meaning of the verb
> D.   By being the first event in a sequence (pp. 185–86)

The four sentences below illustrate A-D, respectively (C. Li & Thompson 1981, pp. 186–98; PFV=perfective LE).

(12)   Ta   shui-LE   san-ge   zhongtou
      3SG sleep-PFV   three-CL hour
      'She slept for three hours'

(13)   Wo xiang-chu-lai-LE   nei-ge zi
      I   think-exit-come-PFV-that-CL character
      'I remembered [or invented] that character'

(14)   Wo wang-LE   ta-de   dizhi
      I   forget-PFV 3SG-GEN   address
      'I forgot his/her address'

(15)   Wo chi-wan-LE   ni   chi
      I   eat-finish-PFV you   eat
      'After I have finished eating, then you eat'

Rules about the obligatory or ungrammatical use of LE also appear in some Chinese language teaching textbooks. T'ung and Pollard (1982), for example, specify that verb-suffix LE cannot be used with the following types of verbs; X highlights a position where LE is prohibited, and LE indicates correct suppliance (examples below are ours).

(16)   habitual (past) activities
      Qunian   wo changchang kan-X   dianying
      last year I   often   watch-X movie
      'Last year I often watched movies'

(17) pivotal constructions
      Zuotian   tamen qing-X wo chi-LE Zhongguo   fan
      yesterday they   invite-X me eat-LE Chinese   rice/food
      'Yesterday they invited me to eat Chinese food'

(18) first verbs in a sequence of related events
      (optional; LE emphasizes separate events)[8]
      Ta   qu-X cheng-li   mai-LE bu shao   dongxi
      s/he go-X town-center buy-LE not little   thing
      'S/he went downtown and bought many things'

(19) expressions of direct or indirect speech, referred to generically as "say"
      verbs
      Ta shuo-X ta mei qu-GUO Zhongguo
      he say-X   he NEG go-GUO China
      'He said he hadn't been to China'

(20) stative or "dispositional" verbs
      Zuotian   ta juede-X bu   tai   shufu
      yesterday he feel-X   NEG very comfortable
      'Yesterday he felt sick'

(21) verbs that take a verb construction as their object
      Zuotian   women jueding-X   qu kan neige   dianying
      yesterday we   decide-X   go see that   movie
      'Yesterday we decided to go see that movie.'

Several of these verb types are also precluded from perfective aspectual marking by other linguistic accounts specifying that habitual and stative verbs are not *normally* compatible with the semantics of perfectivity (e.g., Comrie 1976, except in "marked" cases, Smith 1991). As the examples above show, categories of verbs related to direct or indirect speech ("*say* verbs"), pivotal constructions, and first verbs in a series disallow LE. The first of two verbs in sequence may be marked with LE (as in sentence 12 above, Li & Thompson's fourth instance of boundedness) to emphasize the boundedness, anteriority, or necessary completion of the first event in relation to the second (the anteriority of the first event is also indicated by the resultative complement *wan* 'finish' attached to the first verb in sentence 12). Generally though, when two verbs co-occur as in sentence 18, marking the second verb with perfective LE indicates that the entire event sequence is viewed as bounded (e.g., completed); the first verb *qu* 'go (downtown)' is not considered bounded with respect to the second verb *mai* 'buy things;' rather it is the entire shopping excursion that is considered bounded when LE is affixed to *mai* (see endnote 9).

Previous research on the acquisition of aspect in Mandarin

The L1 acquisition studies of Mandarin conducted by Erbaugh (1992) and P. Li (1990) provide an important foundation for research on aspect in L2 Mandarin. Erbaugh studied four children 1–3 years of age in Taiwan. In audiotaped longitudinal data collected at children's homes, there were 2,300 tokens of LE in 64 hours of data, compared with 100 or fewer tokens of other aspectual forms. The majority of these (55%) referred to immediate past, highly transitive punctual verbs, such as *duan*-LE 'snapped' and *po*-LE 'broke', confirmation of the prototypicality of past/ perfective forms found in Figure 1; 85% of early LE marking was used with past events (especially when the children were agents), but only rarely were the events in the distant past. Children also used LE with nonpunctual process verbs and RC's (e.g., *he-wan*-LE; drink-finish-LE 'finished drinking'). They also used LE ungrammatically to call attention to a new topic, to announce achievement by affixing LE to a noun, and with negatives, imperatives, and unmarked future events. By about age 3 the children produced progressive ZAI, durative ZHE, and past experiential GUO aspect markers. Li's (1990) acquisition research included three separate experimental studies with up to 135 young children in Beijing, using comprehension, production, and imitation tasks. The studies focused on children's understanding and use of certain combinations of aspect markers and verbs (distinguished by their inherent semantics or aktionsart; see P. Li & Bowerman 1998, for a review of this research). For the production task, Li performed a quantitative and qualitative analysis of 1007 sentences produced by 99 children (2;9–6;1 years) describing events in picture stories. He reported that "resultative and telic verbs occur almost exclusively with the perfective -*le*" and that "[t]he occurrence of -*le* with process and punctual verbs dropped drastically at 6 years in favor of -*ne* and -*zai*…" (p. 107). Taken together, Erbaugh's and Li's studies reveal that LE is the most common aspect marker in children's early speech and that children strongly associate LE with resultative and telic verbs.

In addition to L1 studies, SLA studies of the acquisition and/or use of Mandarin aspect have been conducted by Sun (1993); Eccles (1991); Christensen (1997); Teng (1998); and Wen (1995, 1997). Christensen (1997), for example, examined the production of perfective LE and resultative verb compounds (RCs) in Pear Story narratives by 27 students in American university Chinese courses. He then compared NS and NNS production. The results showed that although 4th year students produced (slightly) longer narratives on average than NSs (625.6 vs. 590.5 characters), NSs produced nearly double the number of perfective LE's (11.9 vs. 5.5) and more RCs, with or without LE, as well (18.2 vs. 14.75). 2nd year students without experience living in a Chinese setting abroad produced considerably

shorter narratives than 4th year students (345.6 characters), fewer perfective LE markings (4.4) and far fewer RCs (8.1).

Wen (1995) analyzed LE use by 14 English-L1 American college students at beginner and advanced levels. Perfective LE was produced most often with the verbs *wang* 'forget', *chi* 'eat', *he* 'drink', and *mai* 'buy' (Wen 1995) and *qing* 'clear', *ting* 'stop,' *ying* 'win' and *shu* 'lose' (Wen 1997). LE was produced consistently with the resultative verb complement w*an* 'finished,' even when it was only optional; and in combination with the time adverbs *yihou* 'after' and *yiqian* 'formerly,' signalling the boundedness of events. Wen surmised that these adverbs and complements serve as semantic cues or frames for learners triggering verb-final LE-marking, sometimes incorrectly. Use of perfective-LE with past actions often followed a past time adverb such as *zuotian* 'yesterday,' which was attributed to L1 transfer (LE used as a past tense marker) because the NNSs were less likely to mark actions to be completed in the present or future with LE. Finally, Wen concluded that verb-final LE was acquired before sentence-final LE. However, Teng (1998) has reported just the opposite trend, based on his longitudinal study of English speakers' acquisition of Mandarin in Taiwan. He found that sentence-final LE is relatively uncomplicated and is "acquired by learners with certainty at a fairly early stage of acquisition," and verb-final LE "is then acquired with a persistent ratio of errors perhaps throughout a number of years of the learning career."[9]

In a pilot study, D. Li and Duff (1998) examined developmental trends in their form/function analysis of LE and past time/perfective aspect in oral narratives by adult English-speakers learning Mandarin, using longitudinal and cross-sectional data. The study coded for correct suppliance, zero suppliance (i.e., undersuppliance) and over-suppliance of LE in narratives in obligatory, optional or inappropriate (ungrammatical) contexts. Trends included subjects' non-suppliance of LE at early points of acquisition, then oversuppliance (attributed to overgeneralization and transfer of L1 tense-marking-sensitivity), resulting in the nontargetlike interlanguage use of LE with particular lexical items, such as 'say verbs' (with direct/indirect speech) and statives: *shuo*-LE 'said', *wen*-LE 'asked', *zhidao*-LE 'knew,' which disallow LE. Research participants' reasons for either using or not using LE were also analyzed. Beginner-level students who underproduced LE reported that spontaneous oral production tasks prevented them from monitoring their production effectively and from adding LE where needed; on the other hand, more proficient students revealed the confusion caused by such factors as grammatical explanations in classes or textbooks about the nature of tense/aspect in Mandarin, variable word order allowing LE to be placed in different positions relative to the verb, and also the existence of sentence-final LE, marking the current relevance of an event, which sometimes overlaps or co-occurs with verb-final LE.

The present study

Building on earlier studies, this study investigates the use of perfective LE in Mandarin. Our goal is to understand better the difficulties that NNSs have acquiring and expressing Mandarin perfective aspect and to consider possible explanations and implications of this research. The research questions are as follows: What differences are there between NSs' and NNSs' use of LE? What variability is there within NS and NNS groups? What variability is there across tasks? What is the interaction between the inherent lexical aspect in verbs and LE marking? What explanations can be provided for these results?

Participants

Eighteen people participated in this study: 9 NSs of English, most of whom were studying Mandarin at a Canadian university; and 9 NSs of Mandarin, most of whom were graduate students, who provided baseline data by performing the same tasks. Participants were recruited from across the campus to take part in a semi-structured oral interview containing several tasks in Mandarin. The research assistant was a NS of Mandarin with many years of experience teaching Chinese, who was completing her graduate studies in modern language education at the time.

Data collection

Data were collected individually in an audiotaped 30-minute session in the research assistant's office. After providing some personal background information, participants were asked to produce a narrative regarding their previous weekend's activities. They then performed the following tasks:

1. Task 1: an oral video-story retelling using the Pear Story video (Chafe 1980), which was shown in the office at that time;
2. Task 2: a personal narrative of vacation travel;
3. Task 3: a written editing task of a past narrative that contained no aspect marking on verbs. Participants were to supply missing LE markers where needed (see Appendix), after they had read through the passage for the first time; this task was accompanied by an audio-recorded "think-aloud" procedure (in either Mandarin or English) to capture their metalinguistic awareness of, and reasons for, supplying LE in particular contexts.

All tasks were performed in the same order with the same researcher. None of the participants knew the exact grammatical focus of the study until the end of the session when they were also asked to provide comments about LE use.

Data analysis

All data were transcribed, verified by an additional NS of Mandarin (one of the authors, D. Li, an experienced Mandarin teacher and applied linguist), who, together with the graduate research assistant, also coded the data. Both coders speak Standard Mandarin and come from Mainland China. Coding focused on suppliance of LE or 'zero' (0) suppliance in three contexts: obligatory, optional, and ungrammatical. MEI(YOU), the negative forms of perfective aspect-marker LE, was also coded although it is not central to our analysis. Before commencing coding, the two coders discussed verb contexts calling for obligatory, optional and zero marking with LE, reviewing the criteria provided by C. Li and Thompson (1981) and others regarding obligatory vs. ungrammatical contexts for LE. High levels of agreement (above 94%) were reached for the obligatory vs. zero-marking categories (i.e., grammatical/ungrammatical contexts for LE); however, "optional" cases posed some problems for the quantification of agreement, particularly with highly perfective RCs, for which one coder tended to omit LE, viewing it as optional, and one tended to supply it. With NS data, there was little disagreement in coding; however, with NNS data produced by speakers at low-proficiency levels, it was often unclear whether an aspectual marking represented a grammatical, lexical, or logical error. Disparities in ratings were discussed until consensus was reached about coding.[10]

Results: Differences between NSs' and NNSs' LE use on three tasks

First we will examine NS vs. NNS use of LE on three tasks by quantifying and comparing their LE use and then examining the verbs involved. Figures 2 and 3 show the production of LE by task, by NS vs. NNS, and by measure (correct use in obligatory and optional contexts, error of undersuppliance or oversuppliance). As the Figures show, NSs used LE far more frequently and correctly in both obligatory and optional contexts than NNSs did, with about four times more obligatory LE's produced than optional ones. Results for each task are presented, discussed, and compared in turn below.

The lengths of narratives by NSs and NNSs on Tasks 1 and 2 also differed (with Task 3 held constant), as is shown in Table 2. NSs produced Pear Stories almost twice as long as those produced by NNSs (median length of 520 vs. 300 characters each), and travel narratives nearly four times longer (600 vs. 150). NSs' travel narratives were also somewhat longer than their own Pear Stories, whereas NNSs' Pear Stories were nearly twice as long as their own travel narratives.
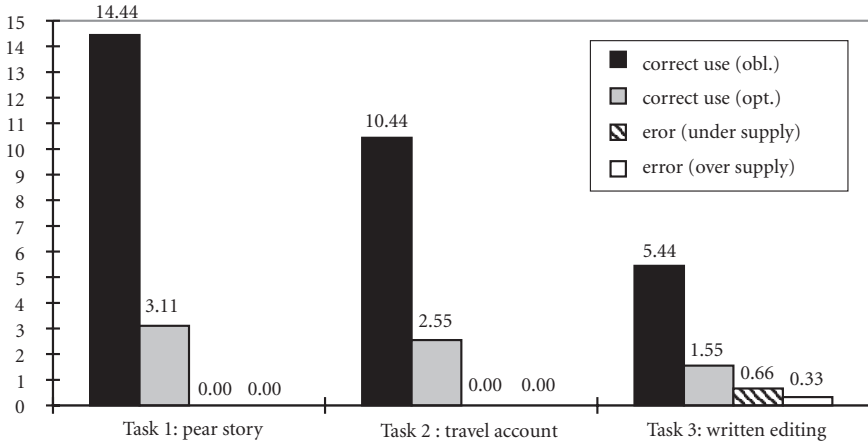
Figure 2. Use of LE by native speakers (NSs) of Mandarin

Average frequency of individual production, by task and accuracy of use
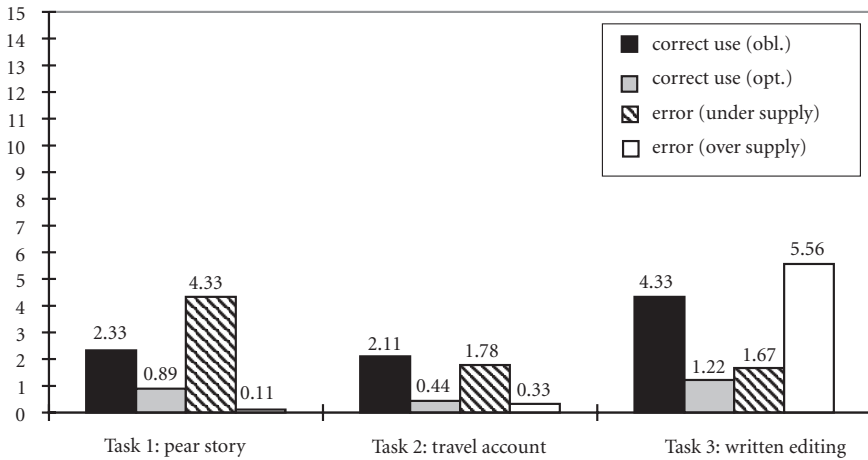
Figure 3. Use of LE by non-native speakers (NNSs) of Mandarin

Average frequency of individual production, by task and accuracy of use

Table 2. Narrative lengths (in characters) on tasks 1 and 2

Task	NS median length (range)	NNS median length (range)
1. Pear Story	520 (350–720)	300 (100–500)
2. Travel Narrative	660 (220–1340)	150 (50–420)

Task 1: Pear Story

On the oral Pear Story retelling narrative (Task 1), combining correct obligatory and optional uses, NSs on average produced 17.55 instances of LE, compared to NNSs' 3.21.[11] In addition to the sheer volume of perfective-LE marking by NSs, there were other lexical and task-based, discourse-level differences associated with their performance. First, the verbs used by the NSs, whose proficiency and thus lexical sophistication was greater than that of NNSs, were more precise and often more inherently resultative (e.g., RCs that indicate achievement or accomplishment) — and marked by LE — than NNSs' verbs, which were part of a more limited repertoire. The sentences below are illustrative of those produced by the NSs with a perfective verb marked with LE. Sentences 22–24 are classified as Verb + Quantified Object (VQO); the "quantification" is often realized as a number (typically *yi* 'one/a/an'), a measure word (e.g., *ge*) and a noun; the quantification may not be apparent in English translations, however. Sentence 25 is an RC, a common occurrence in this study as well as in Christensen's (1994) NS pear narratives. These verbs are all either accomplishments or achievements:

(22) Zhai-LE liang kuang li.
      pick-LE   two   basket pear
      'Picked two baskets of pears'

(23) Na-LE   yi   kuang li   jiu   pao-LE.
      grab-LE one basket pear then run-LE
      'Grabbed a basket of pears and ran off.'

(24) Chou-LE   ta   yi   yan.
      glance-LE her one look
      'Took a glance at her.'

(25) Peng-dao-LE   yi   kuai da shitou.
      bump-reach-LE   one CL   big stone.
      'Bumped into a big stone'

NNSs used some of the same verbs but without LE. In (26) and (27), for example, LE is not provided as required with the perfective verbs *na* 'take' and *peng* 'bump' which are accompanied by quantified objects (one basket; one stone, with the number + counter *yi ge* 'one' or 'a') and are therefore obligatory contexts for LE. Nor is LE used with the RC *diao-xia-qu* 'fell down'.

(26) *neige xiao nan-hai   na-(0)   yi   ge kuangzi hai you fang zai
      that   little male-child take-(0) one CL basket   and   put   on
      ta   de   zixingche de   qian   mian…
      he   GEN   bicycle   GEN front side
      'That little boy took a basket and put it on the front of his bicycle'

(27) *Ta meiyou zhuyi-dao —   mm peng-(0) yi   ge hen da
      He did not notice-reach — mm bump-(0) one CL very big
      de   shitou jiu   diao xia qu (0).
      GEN stone then fall down (0).
      'He didn't notice — mm so he bumped into a big stone and then fell
      down.'

See Tables 3 and 4 for a comparison of NNS and NS verb types for Task 1.[12] Table 3 shows the number and range of verbs produced by NSs and marked with LE across three structural categories commonly used in Mandarin pedagogical grammar: V (V), Verb with Quantified Objects (VQO), and RC. Table 4 presents NNSs' data, divided into columns showing verbs with which LE was used correctly as well as cases of ungrammatical undersuppliance (zero) in obligatory contexts and with rows distinguishing V, VQO and RC contexts. Within each column, the type of verb construction is indicated (V, VQO, RC). Note that in VQOs, LE must be attached to the verb (V-LE + QO), not to the end of the construction; in RCs, LE is attached to the complement in the compound which adds resultative meaning when combined with the (first) verb: V + RV-LE. Attaching perfective verb-final LE elsewhere is ungrammatical.

    As Tables 3 and 4 show, NSs produced many more verbs of all types with LE than the NNSs did, especially accomplishment and achievement verbs showing activity or actions taken toward a particular direction, location, goal, or result, with quantified or specified/definite objects and recipients. Here we will focus on RCs, VQOs and other types of verb phrases. RCs were especially plentiful in NSs' narratives (see Table 3). For example, whereas one relatively proficient NNS produced the RC *zhuang-dao* 'bump into' but failed to mark it with LE (see Table 4), NSs, on the other hand, produced many related achievement verbs with the same stem verb (*zhuang*) combined with various resultative verb complements, all marked with LE: *zhuang*-LE 'struck'; *zhuang-dao*-LE 'bumped into'; *zhuang-fan*-LE 'knocked over'. Similarly, some NNSs produced the verb *kan* 'see' together with resultative complements: e.g. *kan-jian* 'see/catch sight of,' *kan-dao* 'catch sight of.' However, NSs produced these and others more consistently with LE: e.g., *kan-zhao*-LE 'caught sight of,' and the more colloquial form, *chou*-LE *ta yi yan* 'cast a glance at her'. No NNSs produced any form of the verb *shuai* 'fall' with or without LE, but NSs produced it and related RCs with LE four times, in *shuai-dao*-LE 'fell down,' *shuai-po*-LE 'fell and broke,' *shuai-teng*-LE 'fell and hurt'.

Table 3. Verbs produced by NSs on Task 1, pear Story (with LE)

Verb-LE (n=32)	#	Verb-LE-Quantified Object (n=53)	#	RC-LE (n=54)	#
bujian-LE 'disappeared'	3	bang-LE yi ge… 'tied a…'	3	chuan-lai-LE 'sent over'	**1**
dao-LE 'arrived'	5	chuan-LE yi ge weidou 'wore an apron'	1	chui-pao/diao-LE 'blew away/off'	4
fan-LE 'turned'	1	chou-LE ta yi yan 'cast a glance at her'	1	die-dao-LE 'fell off'	1
fen-LE 'divided'	7	chui-LE yi sheng koushao 'blew a whistle' (whistled)	5	fan-diao-LE 'turned over'	2
huijia-LE 'went home'	1	diao-LE- yi ge li 'dropped a pear'	2	fang-dao-LE 'put on'	2
jian-LE 'picked up'	1	gei-LE tamen san ge li 'gave them 3 pears'	7	guo-lai-LE/qu-LE 'came/went over'	3
kan-LE 'looked at'	1	jiao-LE yi sheng 'bleated'	2	huan-gei-LE 'gave back'	1
lai-LE 'came'	2	jiaotan-LE yi zhen 'chatted a while'	1	kan-dao/jian/zhao-LE 'caught sight of/saw'	3
luguo-LE 'passed by'	1	kan-LE (yi) kan 'looked' (a look)	2	ke-shang-LE 'scraped'	1
pao-LE 'ran'	1	kan-LE yi xia/yan 'looked a little'	5	li-kai-LE 'left'	1
qi-LE 'rode'	1	lai-LE ge nuhai 'came a little girl'	1	lu-guo-LE 'passed by'	1
qu-LE 'went'	1	na-LE yi ge /yi kuang 'took a basket'	3	na-zou-LE 'took away'	1
shuai-LE 'fell'	1	sa-LE yi di 'spread/dropped all over the ground'	4	nong-man-LE 'filled'	1
tongyi-LE 'agreed'	1	shao-LE yi kuang 'missed/lost a basket'	5	peng-dao-LE 'bumped into'	1
tou-LE 'stole'	1	ti-LE yi kuang 'carried a basket'	1	qian-zou-LE 'led away'	1
xia-LE 'went down'	2	tuo-LE yi kuang 'dragged a basket'	1	qi-lai-LE 'got up'	2
zhuang-LE 'stroke'	1	zhai-LE 2 kuang/ yixie 'picked 2 baskets/ some'	8	qi-zou-LE 'rode away'	1
zou-LE 'left'	1	zhan-LE yi ge xiaoqiu 'stuck/glued a little ball'	1	shang-lai-LE 'ascended'	1
		zhuang-LE 2 kuang 'packed 2 baskets'	1	shuai-dao-LE 'fell down'	1
		zhuan-LE 2 quan 'turned 2 rounds'	1	shuai-po/teng-LE 'fell and broke/hurt'	2
		zou-LE yi duan 'walked a distance'	1	song-gei-LE 'gave'	1
				ting-dao-LE 'heard'	1
				ting-zhu-LE	1

Table 3. Continued

Verb-LE (n=32)	#	Verb-LE-Quantified Object (n=53)	#	RC-LE (n=54)	#
				'stopped'	
				wang-diao-LE	1
				'forgot'	
				xia-lai-LE	1
				'descended'	
				yun/zai–zou-LE	2
				'moved/carried away'	
				zhuang-dao-LE	1
				'bumped into'	
				zhuang-fan-LE	1
				'knocked over'	
				zhuang-man-LE	1
				'filled'	
				zhuan-xiang-LE	1
				'turned to'	
				zou-guoqu/dao-LE	3
				'walked over/to'	

Table 4. Verbs produced by NNSs on Task 1, Pear Story (with or without LE)

Verb-Type	Correctly Supplied LE (n=28)	#	Under-supplied LE (n=39)	#	Over-supplied LE (n=1)	#
V-LE	diao-LE 'dropped, fell'	2	diao-(0) 'dropped, fell'	3	shuo-LE 'said'	1
	lai-LE 'came'	1	gei-(0) 'gave'	2		
	na-LE 'took'	1	meiyou-(0) 'disappeared	2		
	peng-LE 'struck'	1	peng-(0) 'bumped'	1		
	qu-LE 'went'	1	tou-(0) 'stole	2		
	wangji-LE 'forgot'	1	zhuang-(0) 'pumped'	1		
	zou-LE 'left'	2	zou-(0) 'left'	3		
	*YOU-banzhu 'helped'	1				
	*YOU-kan 'saw'	1				

Table 4. Continued

Verb-Type	Correctly Supplied LE (n=28)	#	Under-supplied LE (n=39)	#	Over-supplied LE (n=1)	#
V+QO-LE	dailai-LE henduo 'brought many'	1	dai-(0) yi ge yang 'brough a goat'	2		
	guo-LE- yi huir 'after a while'	1	gei-(0) ji ge li 'gave several pears'	3		
	kan-LE-yi xia 'took a look'	1	gongzuo-(0) henjiu 'worked for a long time'	1		
	na-LE yi ge kuangzi 'took a basket	1	kanjian-(0) yi ge 'saw a...'	1		
	*YOU-na yi ge lizi 'took a pear'	1	lai-(0) yi ge ren 'someone came'	2		
			na-(0) hao ji ge li/yige kuang 'took several pears/a basket'	2		
			tou (0) ji ge shuiguo 'stole several fruit'	1		
RC-LE	dai-lai-LE 'brought'	1	diao-xia-qu-(0) 'fell down/off'	2		
	dai-qu-LE 'took'	1	die-xia-lai-(0) 'fell down/off'	1		
	die-dao-LE 'fell'	2	guolai/qu-(0) 'came over'	2		
	na-qi-LE 'picked up'	1	na-qilai-(0) 'picked up'	1		
	qi-zou-LE 'rode away'	1	shuai-dao-(0) 'fell'	2		
	shou-dao-LE 'received'	1	zhuang-dao-(0) 'bumped into'	1		
	zou-diao-LE 'walked away'	1	zou-kai-(0)	1		
	Negative		**Negative**		**Negative**	
	MEIYOU-zuo/jiao/ na/zhuyi 'didn't do/call/take/ notice'	4	*BU-kanjian/shuohua/ shuoshenme* 'didn't see/speak/ say anything	4		

NSs also produced many more VQOs than NNSs. These appear in the second column in Table 3: e.g., *jiao*-LE *yi sheng* 'crowed/bleated a sound' ('crowed' or 'bleated'). Other examples of this difference between NSs' and NNSs' lexical sophistication in perfective verbs and with perfective LE marking include the verb *chui* 'blow,' which no NNSs used but which NSs produced five times in VQOs: *chui*-LE *yi sheng koushao* 'blew a sound of whistle' (i.e. 'whistled') as well as in RCs. NSs produced 21 different verbs in VQOs, some with multiple tokens, totaling 53 occurrences. NNSs, on the other hand, produced a total of only two grammatical VQOs with LE, and then two ungrammatical VQOs (without LE). Finally, in addition to RCs and VQOs, a variety of perfective verbs in other constructions can be marked with LE. For example, NSs, with their superior proficiency and information processing capacity to produce more complex constructions, produced more verbs in a series of bounded events, as in sentence 28:

(28) Tamen lai-LE   yihou jiu bangzhu neige nan hai   ba
      They   come-LE after then help   that CL mal child BA
      dishang de   li   jian qilai.
      ground GEN   pear   pick up
      'After they came, they helped the boy to pick up the pears that were on the ground.'

Task 2: Travel narrative

On Task 2, the travel narrative, NSs produced 12.99 tokens of LE on average, compared to the NNSs' 2.55 (see Figure 2). We will discuss the qualitative and quantitative results for this task in terms of narrative structure (foregrounding vs. backgrounding) and the types of verb constructions produced by NSs and NNSs with LE. Overall, although this task generated considerable discourse from more proficient NNSs and from NSs, there were fewer contexts for perfective LE than the Pear Story (e.g., see the comparison of NS production on Task 1 vs. Task 2 in Figure 2, with 14.44 obligatory uses of LE for the former and 10.44 for the latter). The Pear Story telling involved a lengthy, just-viewed sequence of tightly bounded events (e.g., the boy picked pears, bumped into a rock, fell off a bike, rode away), which was described by participants in as much detail as their linguistic resources would allow. In the travel narrative, however, speakers exercised greater choice over foregrounded vs. backgrounded material and events than in their Pear narratives. Thus, their travel tales contained considerable description and explanation and much less foregrounding of events marked with LE.

For example, excerpts (29) and (30) are from the same NS whose narrative structure and perfective marking are strikingly different for the Pear Story and

Travel Narrative, in this case of a trip to Banff, Canada. Almost every sentence in (29) contains LE (e.g., with the verbs *guo-lai* 'come over,' *na* 'pick,' *kan* 'look, glance,' *qi-zou* 'ride away,' *diao* 'fell, bump', and *fan-diao* 'fell over'). However, the much longer passage in (30) contains only one LE in the final sentence (with *zou* 'go', here meaning 'drive'). Considerable background material is provided to contextualize the trip and to intersperse descriptive comments throughout the narrative that often appear in the present tense in the English translation. Instead of using LE, the perfective quality of events indicated in boldface is conveyed by other grammatical means: (1) adverbials such as *di yi tian* 'the first day,' *di er tian* 'the second day,' and *ranhou* 'then, afterward' which indicate temporal sequence; (2) nominalized phrases without LE that are marked by the nominalizer *de*, e.g., *wo di yi tian xian qu **de** zhe ge difang ne shi zai zhege …* 'the place I went the first day was…'; and (3) sequences of verbs (some of which are RCs), for which LE-marking is optional and required only if the speaker wants to draw attention to the bounded nature of each event in the sequence: *Di er tian **xia-qu-dao-(0)** Banff city, jiushi Banff cheng, **kan yi kan**, ranhou you **hui-dao-(0)** Luyisi Hu. Ranhou you beishang **dao-(0)** Jasper…. Ershi duo gongli wo **zou**-LE liangtian.* 'The next day I **went down** to Banff City to **look/walk around**, then **returned** to Lake Louise. Then I **went up** to the north, to Jasper… It took me two days to **drive** those 20 kilometers'. Only this final verb is marked with LE to show the completion of the two-day trip.

(29) Pear Story

Ranhou ne yige xiaohaiR qizhe zixingche **guo-lai**-LE. Guolai yihou ne dao da shu xia, **na**-LE yi kuang, **kan**-LE kan, ranhou **na**-LE yi kuang li fang zai chezi qianbianR de nage weizhi shang, ranhou jiu **qi-zou**-LE. Qizou de hua ne, bu yuan jiu yingmian guolai yige nu haizi, qizhe zixingche. Jiaocuo de shihou ta jiu huitou **kan**-LE yi-yan. Kan de shihou ne zhege maozi ye **diao**-LE. Maozi ye **diao**-LE ne, tongshi nage zixingche zhuangzai shitou shang, gei **fan-diao**-LE.

'Then a young boy **came over** on his bike. Afterwards he came to the big tree, **picked** up a basket, **looked around**, then **picked** a basket of pears and put it on the front of his bike. Then **rode away**. While he was riding, a girl riding a bike came toward him. When passing each other, he turned his head and **glanced** at her. When he was looking at the girl his hat **fell off**. His hat **fell off**, and at the same time his bike **bumped** into a stone and **fell over**.'

(30) Travel Narrative

Wo bu zhidao ni qu guo Banff meiyou? Ruguo ni meiyou qu guo de hua, ni keneng bijiao, ni meiyou nage picture, jiushi wo zhe luxian zenme zou de. **Zongzhi shi xian dao, wo di yi tian xian qu de zhe ge difang ne shi zai zhege** — ta zhe guojia gongyuan shi sige haishi wuge zai yiqi, liancheng yizu.

Danshi ta xingzhengshang huafen cheng hao jige guojia gongyuan. Shijishang shi, shenme fengjing dou shi liancheng yipian de. Jiu zhengge Luojishanmai zhe yitiao. Wo qu de zhege difang ne, dagai zhongjian zhe ge difang jiao Lake Louis. Luyisi Hu zhe hen youming. Ta zhenghao zai zhongjian zhege difang. **Di er tian xia-qu-dao-(0) Banff city**, jiushi Banff cheng, **kan yi kan**, **ranhou you hui-dao-(0)** Luyisi Hu. **Ranhou** you beishang **dao-(0)** Jasper. Jasper shi lingwai yige guojia gongyuan. Dan shijishang lian zai yiqi. Ta you yige Bingyuan gonglu, Ice field Highway, shi hen youming de. Ta shi yanzhe Luojishan zhe fenshuiling, yanzhe nage divide yizhi wang bei zou, zhe yi lu shang shi tebie de zhuangguan. Shi shijie shang bingchuan zui jizhong de difang, erqie shi zui rongyi kandao de difang. Feichang piaoliang. Yinwei ni mei guai yige wanR dou shi yige xin de difang. Genben zou bu dong. Ershi duo gongli wo **zou-LE** liangtian.

I don't know if you have been to Banff? If you haven't, it may be relatively (hard) for you to picture it, I mean the route I took during this trip. Anyway, **I first went, the place I went on the first day was in the**--this National Park is formed by four or five (scenic sites) which are linked together. The scenic spots are actually linked into one along the whole Rocky Mountains. The place I went was in the middle called Lake Louis, which is very famous. It's right in the middle. **The next day I went down to Banff City, looked/walked around, then returned to Lake Louise. Then I went up to the north, to Jasper.** Jasper is another national park, but is actually connected (to Lake Louise). There is an Ice Field Highway, which is very well known. It goes along the Rocky Mountain Divide all the way to the north. The scenery along this highway is extremely spectacular. It's the most concentrated place in the world to see glaciers, and it's easy to see them. Very beautiful. It's hard to drive fast along that road because every turn you take brings you to a new view. **It took me two days to drive those 20 kilometers.**

With respect to differences in NS vs. NNS suppliance of LE in foregrounded contexts, we will describe V-LE, VQO-LE, RC-LE constructions and then negative perfective constructions with MEIYOU (see Tables 5 and 6). First, in the Verb-LE category, NSs produced 38 LE's vs. NNSs 12. For example, NSs produced 9 tokens of *dao* 'arrive' with LE, a common achievement verb in descriptions of travel or movement; NNSs produced only two tokens of *dao:* one with and one without LE. In its place, NNSs produced the more generic verb *qu* 'go' (n=5) without the obligatory LE marking. Even the prototypically perfective verb *ting* 'stop' was produced without LE by one NNS. LE was also oversupplied with the stative verb *you-LE 'had'.

Table 5. Verbs produced by NSs on task 2, travel narrative (with LE)

Verb-LE (n=38)	#	Verb-LE-Quantified Object # (n=44)		RC-LE (n=21)	#
confirm-LE 'confirmed'	1	dai-LE ge xiaohai 'brought a child'	1	chu-qu-LE 'went out'	1
da-LE 'phoned'	2	dai-LE yi zhou/san tian 'stayed for # days'	4	da-cuo-LE 'typed wrong'	1
dao-LE 'arrived'	9	da-LE yi ge taxi 'called a taxi'	1	fen-ghao-LE 'sealed (well)'	1
huijia-LE 'went home'	2	da-LE yi xia dianhua 'made phone calls'	1	hui-dao-LE 'returned to'	1
jie-LE 'picked up'	1	dao-LE yi tang/xia 'went once'	2	hui-lai-LE 'came back'	4
jingxing-LE 'proceeded'	1	deng-LE yi ge zhongtou 'waited 1 hour'	2	hui-qu-LE 'went back'	1
kai-LE 'drove'	1	fan-LE yi ge cuowu 'made a mistake'	1	kan-dao-LE 'saw'	1
kai-LE 'bloomed'	2	guang-LE yi quan/yixia 'toured a little'	2	la-kai-LE 'pulled open'	1
lai-LE 'came'	1	hua-LE yi ge xingqi 'spent a week'	1	shang-qu-LE 'ascended'	2
mai-LE 'bought'	1	huan-LE yixie qian 'changed some money'	1	tongzhi-cuo-LE 'informed wrong'	1
qu-LE 'went'	4	kan-LE yi xia/kan 'took a look'	4	yang-cheng-LE 'formed'	1
quxiao-LE 'canceled'	1	luxing-LE yi ci 'traveled once'	1	yuyue-hao-LE 'reserved'	1
wang-LE 'forgot'	1	luying-LE yi wan 'camped one night'	1		
wanR-LE 'played'	1	mai-LE # dongxi 'bought # things'	5		
xia-LE 'got off'	2	qu-LE # difang 'went to # places'	3		
zou-LE 'left'	3	shouji-LE yixie 'collected some'	2		
zuo-LE 'took (a train)'	2	ting-LE # tian 'stayed # days'	2		
		wanR-LE wanR 'fooled around a littLE'	2		
		zhao-LE yi ge 'found a...'	1		
		zhu-LE liang ge xingqi 'stayed two weeks'	1		
		zou-LE henduo difang 'traveled a lot'	1		
		zou-LE # tian 'traveled # days'	2		

Table 5. Continued

Verb-LE (n=38)	#	Verb-LE-Quantified Object (n=44)	#	RC-LE (n=21)	#
		zu-LE liang che 'rented a car'	1		
		zuo-LE shi ge zhongtou 'sat for 10 hours'	1		
Negative	**#**	**Negative**	**#**	**Negative**	**#**
MEI-dai haizi 'didn't bring children'	1	MEI-dai duojiu 'didn't stay long'	1	MEI-huiqu 'didn't go back'	1
MEI-zhao 'didn't look for'	1			MEI-zuowan 'didn't finish doing'	1
MEIYOU-diu 'didn't lose'	1			MEI-dengdao 'didn't see (sb) after waiting for him/her'	1
				MEI-touzou 'wasn't stolen'	1
				MEIYOU-touzou 'wasn't stolen'	1

An interesting example of a construction produced by one NS on Task 2 in a serial-verb construction is shown in (31); in the second sentence, one LE follows each verb in *wang*-LE *confirm*-LE 'forgot to confirm,' even though the second verb is an English borrowing (marked with the inchoative LE). The other verbs marked with LE are RCs or VQOs.

(31)   Hanjia ting duan de. Zuihou jiu **hui-lai-LE**. Huilai de shihou wo **wang-LE confirm-LE**. Jipiao, feiji jicang gei ren **qu-xiao-LE**! Houlai mei banfa jiu, jiu **mai-LE** yi ge gongwu cang.
Winter vacation was pretty short. I **came back** at last. Before I came back, I **forgot to confirm**. The ticket, the seat was **canceled**! Later I had no way but **to buy** a business class ticket.

Second, NSs on Task 2 produced large numbers of VQOs with LE (n=44 tokens; 24 types), related to the duration of events, the number of places visited, the number of items involved (cars, purchases, taxis, children, tickets), most of which were accomplishments (activities with endpoints). In contrast, NNSs provided very few VQO's: 7 types (8 tokens total) of which only 3 were marked with LE. Third, NSs produced 21 RCs with LE, mostly of a directional nature consistent with a travel narrative: e.g., *hui-dao*-LE 'returned to;' *hui-lai*-LE 'came back;' *shang-qu*-LE 'ascended.' NNSs, on the other hand, produced only one grammatical RC: *kan-jian*-LE 'saw' and one ungrammatical one: *hui-dao-0* 'returned to'. Finally, NNSs and

Table 6. Verbs produced by NNSs on task 2, travel narrative (with or without LE)

Verb-Type	Correctly Supplied LE (n=)		#Under-supplied LE (n=)		#	Over-supplied LE (n=)	#
V-LE	dao-LE 'arrived'	1	dao-(0) 'arrive'	1		you-LE	1
	kan-LE 'saw'	1	kan-(0) 'saw'	1			
	lao-LE 'aged'	1	luxing-(0) 'traveled'	2			
	luxing-LE 'traveled'	2	luyou-(0) 'traveled'	1			
	pashan-LE 'hiked'	2	qu-(0) 'went'	5			
	qu-LE 'went'	2	ting-(0) 'stopped'	1			
	renshi-LE 'got to know'	1					
	si-LE 'died'	1					
	wang-LE 'forgot'	1					
	**YOU-dao 'arrived'	1					
	**YOU-shang 'took (class)'	1					
	**YOU-xue 'learned'	1					
V+QO-LE	guo-LE # ge yue 'stayed # months'	1	kan-(0) henduo 'saw a lot'	1		(meitian)qu-LE yixie '(everyday went to some)'	1
	qu-LE # tian 'went for # days'	1	xiayu-(0) yi tian 'rained a day' (wrong word-order)	1			
	xue-LE henduo 'learned a lot'	1	zhu-(0) # tian/xingqi 'stayed for # days/weeks'	2			
RC-LE	kanjian-LE 'saw'	1	huidao-(0) 'returned to'	1			
	Negative		**Negative**			**Negative**	
	MEIYOU-geiqian 'didn't pay'	1	BU-kanjian 'didn't see'	1		BU-kanjian-LE 'didn't see'	1
	MEIYOU-luxing 'didn't travel'	1					
	MEIYOU-qu 'didn't go'	1					
	MEIYOU-xue 'didn't study'	1					

NSs produced several instances of the negative perfective marker MEI(YOU), as in *MEIYOU-gei-qian* 'didn't pay'; *MEIYOU-luxing* 'didn't travel'; *MEIYOU-qu* 'didn't go'. NNSs also produced the affirmative form of MEIYOU, YOU, preverbally without verb-final LE, which is marked with two asterisks in Table 6 (column 1, row 1): **YOU-dao-0* 'arrived'; **YOU-shang-0* 'took (classes);' **YOU-xue-0* 'learned.' Although this construction is sometimes produced by low-level learners of Mandarin as an interlanguage form (either transfer of the perfect AUX 'have' in English, or overgeneralization of YOU from MEIYOU), it is also a grammatical form commonly used in Taiwan. In this case, it was produced by one of the most proficient NNSs who had lived in Taiwan. Thus, it is marked but grammatical, as indicated by the double asterisks.

Task 3: Written editing task and think-aloud verbal reports

For Task 3, the written past travel narrative titled "A Trip to Beijing," participants needed to supply LE in six obligatory contexts (plus some optional ones),[13] determined by the explicitly bounded (e.g., quantified or specified) nature of events: e.g., 'We stopped-LE at Tokyo [airport] for two hours;' 'arrived-LE in Beijing at nine o'clock the next morning;' 'We slept-LE for five hours on the plane;' 'We ate-LE three meals and also watched-LE two movies!' 'we all went [LE-here or at end of sentence] in my father's car and drove to the hotel [LE-here or after 'went'] (see Appendix). As both the NSs and NNSs completed the task, they were also asked to verbalize their thought processes regarding LE suppliance and the think-aloud protocols were tape recorded. We summarize the results for the production and introspection, in turn, below (see Table 7).

NSs on average produced LE 5.44 times correctly in obligatory contexts versus NNSs' 4.33. However, NNSs also oversupplied LE in ungrammatical contexts on average 5.56 times (compared to NSs' 0.33), often with past "say verbs," stative verbs (e.g., 'be happy/hungry'), or co-verbs/prepositions (e.g., *zai-**LE** 'at') . Thus, the relatively high accuracy rate for LE's supplied in obligatory contexts by NNSs was offset by their oversuppliance of LE in ungrammatical contexts.[14] This unusually high (over)suppliance of LE was a consequence of the metalinguistic task itself which explicitly induced LE suppliance. By focussing NNSs' attention on LE suppliance, greater transfer seemed to occur from English, with LE produced liberally as a marker of past situations and not just boundedness or perfectivity. For NSs, the tendency was rather the opposite: they were more terse and conservative in marking LE (e.g., in optional contexts) when doing the more metalinguistic editing task than in spontaneous oral production. Christensen (1994) reported similar differences in NSs' oral and written Pear narratives, as did Spanos (1979a, 1979b) using other elicitation materials.

Table 7. NNSs' suppliance of LE on task 3, written editing task (frequency data; total possible=9)

Correct Suppliance in Obligatory Contexts	Incorrect Suppliance (=oversuppliance)
shui-LE wu ge zhongtou 'slept for five hours' (n=7)	*shuo-LE 'said' (n=5)
chi-LE san dun fan 'ate three meals' (n=6)	*jueding-LE 'decided' (n=4)
hai kan-LE liang chang dianying 'watched two movies' (n=6)	*wen-LE 'asked' (n=3)
ting-LE liang ge zhongtou 'stopped for two hours' (n=6)	*pao-guo-LE 'ran over' (n=2) (serial verb)
qu-LE luguan [LE — one of two positions] 'went' — concluding clause (n=5)	*zuo-LE huoche qu 'went by train' (lit: sit-train-go) (n=4)/ "co-verb" or preposition
dao-LE Beijing 'arrived in Beijing' (n=2)	(zai chukou) *deng-LE 'waited' (n=1)
	*qu-LE 'went' (n=1)
	*gaoxing-LE 'was happy' (n=1)
	*lei-LE 'was tired' (n=1)
	*e'-LE 'was hungry' (n=1)
	*qu-LE nian 'last year' (n=1) (misreading of Chinese character for 'last' in 'last year' which also means 'go')

Most of the NNSs' correct suppliance (Table 7, left-hand column) of LE co-occurred with accomplishment/achievement verbs with quantified or specified objects; incorrect suppliance occurred with stative verbs, 'say' and 'think' verbs or verbs in nonperfective situations. NNSs were at different points in their study of Mandarin, some relative beginners and others quite proficient, with the majority at approximately a 2nd-year university level. Thus, the oversuppliance of LE with the stative verbs in Table 7 ('be happy, tired, hungry') came mostly from the least proficient student, who had no targetlike suppliance of LE on this task, but six nontargetlike LE's in addition to a LE at the end of every sentence. Intermediate students had a mixture of correct and incorrect LE's but even one of the most proficient and fluent NNSs, who had studied for four years in Taiwan, China, and Hong Kong as well as in Canada, overproduced LE with various stative and active verbs on this task. Hence, none of the NNSs completed the passage totally correctly.

The obligatory contexts in which they did supply LE (see Appendix) were typically inherently bounded VQOs requiring LE: e.g., 'stopped for two hours.' The other required occurrences, 'arrived in Beijing,' and 'went to the hotel,' indicate termination of the trip to Beijing and of the entire trip and thus narrative.

In their recorded think-aloud reports, NSs discussed the role of viewpoint and optionality in determining where LE should be supplied, factors which they said made both the editing and introspection required for Task 3 challenging. This stylistic variability may account for the small number of "errors" or marked production from over- or under-suppliance of LE in the NS data presented for Task 3 in Figure 2. One NS was responsible for five of the six cases of undersuppliance of LE in what were considered "obligatory" contexts; he explained his LE-marking as follows: "We can use a LE here, but we don't have to. I guess if it's written language, we don't need to use so many LE's. It would sound too verbose and repetitive. But in oral language, we tend to use more." According to Smith (1991), there are neutral and marked uses of perfective aspect marking, to achieve particular effects, such as emphasis, a lack of redundancy, or a sense of interruption vs. information flow. In oral production, for example, NSs might not attach LE to RCs, because it seems redundant and unnecessary, albeit grammatical. Thus, NSs of Mandarin have different personal stylistic preferences regarding the use of LE in different modalities and registers. One NS in our study, a journalist, said: "The difference among NSs in using LE exists mainly with optional usage because of their personal preference, style, and point of view." Another NS who works in academia reported:

> I personally don't use many LE's in my writing, perhaps fewer than most other people. I feel that if you use too many LE's, it sounds a little childish, not succinct. …Of course in speaking I can't control using it. But when I write, I tend not to use too many of them. My writing tends to be kind of strong and stiff. … However, I also adjust my writing to different journals. Some journals don't like too stiff stuff so I'll add some more LE's.

Summary and discussion

In this study, we found that NNSs — particularly those with low proficiency levels — tended to undersupply LE in their oral narratives, omitting it in certain obligatory contexts, and tended to oversupply it with certain stative and non-perfective activity verbs. NSs, in contrast, were more inclined to supply LE with VQOs and RCs. For NSs, undersuppliance was mainly associated with one person who had somewhat idiosyncratic preferences regarding LE use in writing. However, others also mentioned that in their own writing (especially academic or journalistic writing), they are inclined to use LE less than in speech. In their oral narratives, NSs

produced a wide range of perfective verbs to which LE was attached, mostly representing accomplishments and achievements. NNSs had a smaller repertoire of inherently perfective verbs (V, VQO or RC), thus they attached LE to more generic and less prototypically perfective verbs.

We believe a number of interrelated and interacting factors are responsible for the observed production (or omission) of the perfective verb-final LE in Mandarin:

1. L1 transfer from the English grammatical category 'past tense,' and thus sensitivity toward marking past events grammatically, and to using a verb-final morpheme like -*ed* that marks past events (and/or perfective aspect);
2. cognitive factors or operating principles related to the functional/multifunctional load of LE, with both perfective and perfect/inchoative meanings, given its relative frequency, perceptual saliency, and transparency; and the possible "priming" role of certain adverbials connected with LE use (cf. Andersen 1983; Slobin 1985);
3. input factors, including NS variability, resulting from viewpoint, stylistic preferences, register, and variation across dialects (e.g., Taiwanese vs. Standard Mainland Mandarin), as well as learners' frequency of exposure to forms/functions;
4. the relationship between LE acquisition and use and types of lexical items and constructions it typically co-occurs with, such as RCs with inherent perfectivity;
5. the discourse features of tasks, such as the Pear Story, which involves certain kinds of actions and events and temporal relations; and
6. the effect of instruction and textbook explanations on the acquisition of aspect (see Andersen 1983; Bardovi-Harlig, 2000; Duff 1993; and Odlin 1989, for examples of how these factors can interact in interlanguage.)

L1 transfer appears to be one important factor in the early L2 acquisition and production of LE by native English speakers. LE was adopted by several lower-proficiency NNSs as the equivalent of the English past tense morpheme (-*ed*), which was then applied to their descriptions of past situations in Mandarin, regardless of whether the verb representing the event was stative or active or was inherently bounded. Such transfer is understandable, considering the overlap between past and perfective events. Two NNSs reflected on their LE use, indicating the influence of English:

> I do associate, just naturally, LE with the past anyway, because it's like the most common way of expressing something that is completed. Anything completed in English is done in the past, so just like LE, cause it's always there, and I always think okay, do I use LE or do I — but I always want to. Yeah, I think of LE whenever I think of the past. I always want to say LE even though I know it is not past tense.

> I felt like I was using LE a lot cause I felt the need to provide something that's like the -*ed* in past tense English. Like I felt the need even though I knew the rule was you don't need to use it in the same way as past tense, I knew like mentally there is this aspect, however, so I think I probably didn't use it at all at first, then I over used it, and now I feel like I don't use it…much. But I also feel I don't use it when I should. So I know there is this fuzziness…

Transfer of the concept of 'past tense' in the form of LE can sometimes be helpful, since past tense and perfective share certain semantic features (Figure 1). But NNSs' performance is influenced and constrained by other factors in addition to — or in conjunction with — transfer, such as the verbs and constructions that are used and their complexity, the proficiency level of NNSs, and elicitation tasks.[15] For example, in many cases, Mandarin grammar requires reduced grammatical marking for past events compared with English (e.g., no LE marking on a past verb, even one that may be perfective), which is compatible with the pragmatic early SLA process of simplification, when adverbs can be used very effectively to indicate temporality, even in languages like English that require past tense marking. As Bardovi-Harlig (2000) points out, the usual progression in acquisition is pragmatic → lexical → morphological strategies and formal development. NNSs in this study had acquired many time adverbs, which often occur in clause-initial or clause-final position and are reasonably frequent and salient, and could convey temporal meanings in that way, often in a targetlike manner without LE marking. That pragmatic strategy of temporal adverb use (without LE), therefore, is often grammatical because in Mandarin some time adverbs are accompanied with LE-marked verbs and others without LE, depending on the lexical aspect of the verb and the relationship between one verb or event and others in a sequence. Similarly, some resultative verb complements, such as *wan* 'finish,' and adverbs frequently associated with LE use (*yihou* 'after,' *yiqian* 'formerly') may prime learners to both notice and produce LE (see Wen 1995, who also notes the co-occurrence of *yijing* 'already' and *tai* 'too' with sentence-final LE in her NNS data, marking perfective and inchoative aspect, respectively). However, the opposite effect may also hold: inherent perfective semantics of verbs (e.g., RCs) may make LE marking seem redundant.

Cross-linguistic influence from English can also be confounded by the multi-functionality of LE, which increases its frequency in the input but causes confusion because of its variable meanings and word order positions, in violation of ideal principles of one-to-one form-function mappings, for example (Andersen 1983). With respect to input frequency, Wen (1997) reported that her acquisition data reflected input patterns of the relative frequency of different aspectual particles available to learners (e.g., more LE and GUO than ZHE, thus the delayed acquisition of ZHE; see also Li 1990). However, while LE is frequent and salient in NS discourse, it is often used in combination with lexically or syntactically complex

items (especially RCs and VQOs) which lower-proficiency NNSs have not yet acquired and which may require the placement of LE within a complex VP structure, as in reduplicative verbs in VQOs: e.g., *kan*-LE *yi kan* 'took a look' or 'looked.' Thus, those constructions and the function of LE within them are less comprehensible to NNSs and less replicable in early stages, unless they are highly formulaic. The Pear Story narratives involved many highly perfective events for which lower-proficiency NNSs lacked the corresponding vocabulary (e.g., for 'glance,' 'whistle,' 'bump into a stone') and grammatical structures. Had the vocabulary and glosses been provided, they might have produced many more instances of LE. Thus elicitation tasks and discourse types also influence production. We illustrated this point with our comparison of the Pear Story and Travel Narrative, in terms of the relative amount of foregrounding and backgrounding, and the viewpoint of speakers regarding the sequences of events and their relative boundedness. In addition, our comparison of these more spontaneous oral production tasks and the metalinguistic written task showed how Task 3 induced an oversuppliance of LE by NNSs and less suppliance by NSs. As we explained, for the NSs, their production reflected stylistic preferences, whereas for the NNSs, it revealed incomplete knowledge about how and when to produce LE.

Finally, competent and clear instruction also appears to make a difference in learners' metalinguistic awareness and aspect marking in L2 Mandarin. Although NNSs produced less grammatical perfective marking than NSs, they nevertheless revealed better metalinguistic knowledge about LE, providing more grammatical and semantic features associated with it in debriefing sessions. Thus, textbook explanations about the use and meaning of perfective vs. perfect LE (e.g., explanations by Li & Thompson 1981 and T'ung & Pollard 1982, that we discussed in our review of Mandarin aspect-marking) can be highly effective in alerting NNSs to the differences between Mandarin and English, although it may take some time before they can operationalize this knowledge in their spontaneous oral and written production. All NSs agreed that using LE is "easy," but that it is hard to explain its functions. On the contrary, NNSs had more grammatical knowledge about the uses of LE, and that "completedness" or "current relevance" were features associated with LE; yet they still found it difficult to use LE in a targetlike way and remained confused about the two LE's. In addition, whereas all NSs regarded some LE use optional, and described their own preferences for it in speech or writing, none of the learners displayed such knowledge of stylistic variation. It is likely that uninstructed NNSs would have even more difficulty or would exhibit greater delays in acquiring LE, although that is a hypothesis that this study could not address.

In D. Li and Duff (1998) we found that initial instruction and awareness that Mandarin does not mark tense, combined with early interlanguage simplification, initially allowed NNSs to suppress all grammatical marking for past and/or perfec-

tive (or even imperfective) events, a finding that was replicated here. However, with initial instruction about LE, usually in the second semester of university study, and increased exposure to that form, students in both of our studies began to consciously produce — and even overproduce — it, with quantified and other specified objects (e.g., on Task 3). Although this study did not examine the role of instruction directly and we did not ask students about discourse-level features of LE, D. Li (1998) found that at higher levels of proficiency, students became more aware of the connection between LE use and discourse contexts, but without explicit instruction about viewpoint, they had difficulty understanding and mastering LE use in optional contexts. Thus, form-focused instruction related to the form, meaning, and use of LE within sentences and discourse as well as instruction regarding the inherent lexical aspect of verbs and composition of RCs and VQOs, appears to be very important for the successful acquisition of perfective aspect marking in Mandarin. In conclusion, this research provides ample evidence of the complexity of the acquisition and use of perfective LE in Mandarin and suggests that future research should consider questions regarding the learnability and teachability not only of perfective marking, but also of other aspectual forms and distinctions and interactions among them.

Notes

1. The term Resultative Compound (RC) comes from Tai (1984), who notes the prevalence of RCs in Chinese and their accomplishment/achievement function. Christensen (1994, p. 54) calls Resultative Verb Complements (RVCs) "perfectivizing agents." Some linguists distinguish between directional and resultative complements; others combine them under the category of RCs, as we do here.

2. There is some dispute as to whether Mandarin has telic verbs and, even if it does, whether RCs count as telic; e.g., Tai (1984) claims Mandarin does not have telic verbs, whereas P. Li (1990) claims it does.

3. For the negation of perfectives, the negative preverbal form MEI is used with the existential verb YOU, which in the affirmative is also sometimes used in Taiwanese Mandarin as a preverbal aspectual marker (Wang 1965).

4. Smith (1991) sees the absence of an aspect marker as "neutral aspect" which is the default or unmarked state. Christensen (1994) uses the term "zero aspect" to describe the situation where an aspect marker is omitted but the aspectual meaning is implied.

5. Grammatical aspect marking across languages (and not just in Mandarin) is in any case a reflection of a speaker's perspective or viewpoint of the relative boundedness of an event. However, Mandarin is considered heavily oriented toward viewpoint or discourse-pragmatics.

6. A reviewer points out that Robison (1995) also uses this category, which he refers to as *punctual activity*.

7. The existence of categories beyond those in much current SLA literature poses some difficulties for cross-linguistic comparisons, which may be inevitable when dealing with different grammatical systems and problems of translation (Smith 1991).

8. LE is "not necessary" where the boundedness of individual events is not important or the boundedness is indicated by the final event; "if [LE] is used, it breaks the sequence into separate steps" (T'ung & Pollard 1982, p. 144).

9. For that reason, he recommends that sentential-LE should be taught prior to verbal-LE — as early as possible — but verbal LE should be presented after learners have learned a number of action verbs and past-time expressions such as 'yesterday,' 'last week' and 'this morning.'

10. In independent codings of two NSs' production on Task 1, for example, 100% agreement was reached on the classification of 83 instances of LE as either OBL (OBL-OBL) or OPT (OPT-OPT). In 20 cases, however, one coded LE as OPT and the other coded it as OBL. In coding NNS data, disagreements were also typically related to the OBL vs. OPT classification, but this occurred relatively infrequently. Most disagreements stemmed from one coder having overlooked a LE or from not being able to decide because of an ungrammatical interlanguage construction or the use of LE with the wrong word order. On Task 3, there was 94% agreement (183/195) on OBL vs. zero (ungrammatical) use of LE; disparities stemmed mainly from failing to notice and code LE the first round.

11. Christensen's (1994) data from 10 NSs' oral Pear Story narratives revealed that NSs produced LE 11.9 times per narrative on average for perfective aspect marking and 2.4 times for inchoative marking, for a mean total of 14.3 instances of LE per person. He did not compare NSs and NNSs and used Pear Story retellings only, oral and written.

12. Although we had originally intended to classify all verbs as either activity, accomplishment or achievement, we had difficulty reaching high levels of interrater agreement on the classifications and were also unable to reconcile that classification system (4 types) with the one proposed by Li and Bowerman for Mandarin (6 types, including, e.g., 'semelfactive'). Other coding difficulties stem from interlanguage constructions representing events or activities with unspecified but implied endpoints (e.g., *go* vs. *go (home)*) or with ungrammatical RCs. Thus their assignment as activities or accomplishments requires some interpretation on the part of the analyst as to the intended endpoint or destination. Also, depending on the translation of a verb, its inherent boundedness may change. For example, the Mandarin verb *zou* can be translated as 'walk,' 'leave', or in the RCs *zou-kai* and *zou-dao*

as 'walk away' and 'arrive, reach', respectively. Therefore, classifying these verbs must be done with consideration of the original discourse context and syntactic context, especially with respect to the co-occurring (or implied) verb complements, compounds, objects, and temporal/spatial frames providing evidence of the boundedness of the event (C. Li & Thompson 1981).

13. Examples of optional LE use on Task 3 follow:

> *Wo xian cong Niuyue zuo huoche qu (LE) Luoshanji de jia, zai nali gen wo mama jian (LE) mian. Ranhou women yiqi cong Luoshanji zuo shang* LE *qu Beijing de feiji….*
>
> I first from NY ride train go (LE) Los Angeles GEN house, ZAI there with I mom meet (LE) face. Then we together from Los Angeles sit-on LE go Beijing GEN plane.
>
> 'I first went (LE) by train from New York to my home in Los Angeles, where I met (LE) my mom. Then we boarded LE a plane heading for Beijing from Los Angeles….'

Here each action can be viewed as an individual event or they can be viewed as a series of actions with the final one being the bounded event for the pre-trip activities.

14. See Larsen-Freeman and Long's (1991) discussion about problems determining obligatory contexts and also the benefits of examining target-like use, as we have done, to factor in oversuppliance and undersuppliance and not just suppliance in obligatory contexts (SOC analysis).

15. Duff (1993) has argued that the same factors obtain in English speakers' acquisition of the Mandarin verb *you* 'have,' which marks both existence and possession, whereas English marks these two functions with separate forms *(have, there-be)*; conversely, lower proficiency Mandarin learners of English are inclined to oversupply the verb *have* in L2 English, in both possessive and existential constructions, until they acquire *there-be*.

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Appendix: Task 3, written editing task ("A trip to Beijing")

Originally in Chinese characters and pinyin; tones are not included in version below.

(Symbols in the text in the Appendix indicate obligatory vs. ungrammatical contexts for LE. Plus signs [+] indicate the six obligatory contexts for suppliance of grammatically correct LE, and the number of participants who produced LE in that context. Asterisks [*] indicate ungrammatical suppliance and the number of asterisks indicates the number of NNSs who produced LE in this position. Missed (undersupplied) LE's are not shown but can be estimated by subtracting the number of produced LE's (shown with +) from the total number of NNSs (n=9); see Table 7.)

Add "LE" *to the following passage wherever you think is necessary.*
Qu[*]nian wo baba zai Zhongguo gongzuo, suoyi wo gen wo mama jueding [4 *] qu Zhongguo luxing, zheyang keyi qu kankan [*] baba, ye keyi kankan [*] Zhongguo ren pingchang de shenghuo qingxing. Wo xian cong Niuyue zuo [4 *] huoche qu Luoshanji (Los Angeles) de jia, zai nali gen wo mama jianmian, ranhou women yiqi cong Luoshanji zuo[*]shang qu Beijing de feiji. Women zai Dongjing (Tokyo) ting [6 +] liang ge zhongtou, di er tian zaoshang jiudian women dao [2 +] Beijing. Yi chu jichang, women jiu kanjian baba zai chukou chu deng [*] women. Wo hen gaoxing [*], gankuai paoguo [2 *] qu wen baba hao [*]. Baba wen [2 *] women, "Nimen lei bu lei [*]? E bu e [*]?" Wo shuo [4 *], "Bu lei ye bu e [*]! Women zai feiji shang shui [7 +] wu ge zhongtou de jiao, chi [6 +] san dun fan, hai kan [6 +] liang chang dianying! Xianzai jiu xiang kan Beijing!" Baba shuo [*],"Na hao, women jiu zou [*] ba!" Women jiu yiqi zuo baba de che qu [here or at end of sentence] luguan [5 +].

English Translation (not supplied in original)

Last[*] year my father worked in China, so my mother and I decided [4 *] to go travelling there. We thought in this way we could see [*] my father and also see [*] Chinese people's daily life. I first went [4 *] by train from New York to my home in Los Angeles, where I met my mother. Then we went [*] from L. A. to Beijing by plane. We stopped [6 +] at Tokyo for two hours, and arrived [2 +] in Beijing at nine o'clock the next morning. As soon as we walked out of the airport, we saw my father waiting [*] at the exit. I was very happy [*] so I ran over [2 *] to ask [*] him how he was immediately. My father asked [2 *] us, "Are you tired [*]? Hungry [*]?". I said [4 *], "No, we aren't tired or hungry [*]! We slept [7 +] for five hours on the plane! We ate [6 +] three meals and also watched [6 +] two movies! What we want now is to see Beijing!". My father said [*], "Okay, then let's go [*]!" So we all went [here or at end of sentence] in my father's car and drove to the hotel [5 +].

The prototype hypothesis of tense-aspect acquisition in second language*

Yasuhiro Shirai

Introduction

It has been observed that there is a strong association between the inherent aspect of verbs and the acquisition of tense-aspect morphology by L2 learners. However, learners also tend to associate habituality with non-progressive marking (Bardovi-Harlig & Reynolds 1995). This study investigates how the feature of habituality interacts with lexical aspect, by analyzing conversational data from 3 Chinese learners acquiring Japanese. The results indicate that learners are sensitive to the feature of habituality, suggesting that inherent aspect is not the sole predictor of tense-aspect acquisition. A prototype model of tense-aspect acquisition is discussed in relation to the spreading activation model of language production to account for the findings.

It has consistently been observed that the inherent (lexical) aspect of verbs has a strong influence on L2 acquisition of tense-aspect morphology. By inherent aspect, I mean semantic categories of verbs such as achievement, accomplishment, activity and state as discussed by Vendler and others. First, I will briefly summarize the inherent aspectual classes, originally proposed by Vendler (1957). Vendler's semantic categories of verb (phrase) are state, activity, accomplishment and achievement. These are schematically represented below (Andersen 1990a):

State	————————	love, contain, know
Activity	∼∼∼∼∼∼	run, walk, play
Accomplishment	∼∼∼∼∼∼x	make a chair, walk to school
Achievement	x	die, drop, win the race

State terms (e.g., *love*) describe a situation that is viewed to continue to exist unless some outside situation forces it to change. Activity terms (e.g., *run*) describe a dynamic and durative situation that has an arbitrary endpoint, i.e. it can be terminated at any time. In contrast, accomplishment terms (e.g., *make a chair*) describe a

situation that is dynamic and durative, but has a natural endpoint after which the particular action cannot continue. Finally, achievement terms describe a situation that can be reduced to a point on a time axis, i.e., instantaneous and punctual. In the above schematization, the solid line is used to represent state, which is to last timelessly, without beginning point or endpoint in its focus. The wavy lines for activity and accomplishment indicate dynamic duration of an action, while x for accomplishment and achievement represents a punctual point of change of state, signaling telicity. States are [–dynamic], [–telic], and [–punctual]; activities are [+dynamic], [–telic], and [–punctual]; accomplishments are [+dynamic], [+telic], and [–punctual]; Achievements are [+dynamic], [+telic], and [+punctual] (see Figure 1 for a schematic summary).

	states	activities	accomplishments	achievements
punctual	−	−	−	+
telic	−	−	+	+
dynamic	−	+	+	+

Figure 1. Semantic features for the four categories of inherent lexical aspect (Andersen, 1989, 1991)

In previous research on the acquisition of L2 tense-aspect morphology, the following acquisitional patterns have been observed:

1. Learners initially use (perfective) past marking on achievement and accomplishment verbs, eventually extending use to activity and state verbs.
2. In languages that encode the perfective/imperfective distinction morphologically, imperfective past appears later than perfective past, and imperfective past marking begins with stative and activity (i.e. atelic) verbs, then extends to accomplishment and achievement (i.e. telic) verbs.
3. In languages that have progressive aspect, progressive marking begins with activity verbs, then extends to accomplishment and achievement verbs.

This tendency has been observed first in the L1 acquisition of various languages, and then was applied to second language acquisition by Andersen (1986). Since then it has been tested in the SLA of various languages, including English, Spanish, French, Italian, Dutch, and Japanese (see, for example, Andersen & Shirai 1996 for a review). The observed tendency has been referred to as the Defective Tense Hypothesis, the Primacy of Aspect Hypothesis, and the Aspect Hypothesis. In this paper I use the term the Aspect Hypothesis, following Andersen and Shirai (1994).[1]

Although previous research has established a solid empirical basis with respect to the strong influence of inherent aspect on the second language acquisition of tense-aspect morphology, the explanation for this tendency is still an open issue.

Andersen and Shirai (1994), for example, proposed several principles to account for the form-meaning association in the learners' language, but the account is still quite general, and we still do not know how these various principles interact with each other. The empirical validity of these principles has not been specifically tested yet, either. This paper is a small attempt in that direction. Thus, to more specifically characterize the mechanism underlying the patterns of acquisition, we analyze data on the acquisition of Japanese as a second language.

The prototype hypothesis of tense-aspect acquisition

Andersen (1991), Shirai (1991), Andersen and Shirai (1994), Shirai and Andersen (1995) have used the notion of "prototype" as a characterization of early tense aspect morphology. This notion, which is primarily derived from the work of cognitive psychologist Eleanor Rosch (e.g., Rosch 1973), has been applied to both L1 and L2 acquisition of lexical items (Bowerman 1978; Kellerman 1978; Tanaka & Abe 1985) and grammatical morphology (Slobin 1981; Gass & Ard 1984). Briefly, this approach assumes an internal structure within a category, with some members of the category being more basic, or more prototypical, than others. The idea was originally proposed regarding natural categories such as 'bird', for which prototypical members are 'robin', 'sparrow', etc., and peripheral members include 'penguin'. This idea was applied to linguistic categories by cognitively-oriented linguists (e.g., Taylor 1989). In SLA, Kellerman (1978) first applied this notion to the acquisition of the polysemous verb *break*, in which physical destruction (e.g., *break a vase*) is more prototypical than metaphorical destruction (e.g., *break one's heart)*. The notion can be applied to acquisition in a straightforward manner — prototypical members of a category are acquired earlier than less prototypical members.

In the acquisition of tense-aspect morphology, Shirai (1991), Andersen and Shirai (1994), and Shirai and Andersen (1995) proposed that the association observed between inherent aspect and verb morphology in L1 and L2 acquisition can be attributed to the acquisitional sequence from the prototype to peripheral members of the linguistic categories 'past tense' and 'progressive aspect'. For example, the prototypical past describes a situation which is [+punctual], [+telic], and [+result], i.e., it tends to describe an instantaneous event that results in some observable result. This then is the real reason why there is a strong correlation between past tense morphology and achievement verbs.

In the same vein, the prototypical progressive that is first acquired by learners is 'action-in-progress'. This action-in-progress meaning is obtained when the progressive marker is attached to activity verbs and accomplishment verbs. Progressive meaning with accomplishment verbs, however, is slower in development at least in

L1 acquisition of English (Shirai 1991), but this can be attributed to the fact that it is [+telic], which is associated more with past tense morphology in English. Thus, for learners, the representation of the prototype progressive is not only 'action in progress', but more specifically [+dynamic, –telic], which includes activities, as well as punctual activity verbs such as *jump, bang, kick*, which yield iterative action in progress if progressive morphology is applied.

This account nicely explains the observation in L1 acquisition of English where children's earliest progressive is limited to action-in-progress meaning (see Shirai 1991 and Shirai & Andersen 1995 for more details). However, an obvious problem is when the factor of habituality is involved. If habituality is not involved, activity verbs result in action-in-progress meaning, but when repetition over several occasions is involved, they do not.[2]

(1)   I am walking.   (action in progress)
(2)   I am walking to school these days.   (habitual action)

Similarly, past tense can be freed from 'punctual, change of state' meaning when habituality is involved.

(3)   The baby fell so many times when he was one year old.

These do not necessarily correspond to the prototypical past and progressive meanings characterized above.

Andersen (1990b, 1994) and Andersen and Shirai (1994) suggest that the difference between the novice (i.e., learners) and the expert (proficient speakers) is that the former cannot free themselves from the prototypical use of a given tense-aspect marker, but the latter can, to impose a speaker's perspective. In other words, the learner's use of morphology tends to be restricted to the basic, prototypical use, whereas proficient speakers can manipulate the full-potential of the grammatical morphology. The use of morphology involving habituality is a case of a less prototypical use, and Shirai (1991: 43) and Andersen and Shirai (1996) specifically predict that habitual use of past and progressive are acquired later than more prototypical cases with non-habitual reference.

The issue of habituality as a factor in the acquisition of tense-aspect has not been investigated extensively. Shirai (1991) coded the verbal predicates for this feature in the data of child L1 acquisition of English, and the results indicated that habitual reference is very rare for both past and progressive, which is consistent with the prototype hypothesis. In L2 acquisition, on the other hand, Bardovi-Harlig and Reynolds (1995) point out that habituality encoded by adverbs of frequency influence learners to use simple present tense rather than past in obligatory past context. This suggests that learners disassociate habituality from past tense, and may support the prototype hypothesis for the past tense category.

An important study on the habituality issue is Huang (1993, 1999). She systematically analyzed the interlanguage of five Mandarin speakers learning English and comparable data from three native speakers of English. She found that native speakers use habitual reference of progressive and past tense morphology[3] much more frequently than non-native speakers. That is, for habitual situations, learners used past tense with achievement verbs only 21% of the time, whereas NSs used it 28%. For progressive, the difference was more dramatic; learners used activity verbs with progressive only 27% in habitual contexts, while NSs used it 66% of the time. It is also interesting that NSs used progressive with activities more for habitual reference than for non-habitual action-in-progress meaning. Huang (1993: 26) cites the following example:

(4)   and I get the Culver City paper,
      and, ah, they're always *talking* about crimes

In other words, whereas native speakers use past and progressive morphology more freely, learners' use was much more restricted, especially in the case of progressive morphology.

An important implication of these studies is that they show learners are not just learning verbs purely based on the frequency of the form in the input. Klein et al. (1995: 271) suggest that "this hypothesis [=the Aspect Hypothesis] represents one of the many ways of mimicking the input…", emphasizing the role of data-driven, rote learning as an explanation for the Aspect Hypothesis. There is certainly an important role played by rote learning, but the Aspect Hypothesis is not purely dependent on mimicking. Learners clearly create a semantic representation that is more restricted than native speakers, as is evidenced by Huang's study, in particular regarding the progressive marking. If the learners are simply mimicking what is frequent in the input, there should not be a discrepancy between habitual reference and non-habitual reference in the use of morphology.

The present study further expands the data-base to L2 acquisition of Japanese, using data comparable to those analyzed by Huang, to address the issue of the relative importance of rote learning and semantic development in tense-aspect acquisition. The research questions addressed are:

a.   What is the relationship between habituality and the tense-aspect markers in Japanese L2?
b.   What is the interaction pattern between habituality and inherent aspect?
c.   How do the results of the Japanese data compare with those of the English data?

The Japanese tense/aspect system

Here, we briefly describe the tense-aspect system in Japanese. It will be compared to that of English, with which many readers are familiar. The Japanese tense-aspect system is similar to that of English. All finite indicative predicates are marked for tense (past vs. non-past) as in English. In both languages, the past tense marker can be attached to any verb without any systematic restriction. A major difference between the two languages is that the Japanese past tense marker is often considered to have the sense of 'perfect' or 'perfective' because it is still in the process of grammaticizing from a perfect marker into a perfective aspect marker and then into a simple past tense marker (Horie 1997) along the path of grammaticization proposed by Bybee, Perkins and Pagliuca (1994). The nonpast form *-(r)u* normally refers to present state with stative verbs, and to future action or habitual action with dynamic verbs.

With regard to aspect, Japanese has an obligatory durative imperfective aspect marker *-te i-* which must be used in referring to action in progress at the reference time. However, the semantic scope of this marker is different from that of the English progressive aspect. Although it shows an interaction with lexical aspect similar to that of the English progressive, it exhibits an important difference concerning achievements. Some examples of the use of *-te i-* are given below in sentences with the four lexical aspect types:

Activity: Action in progress
(5) Ken-ga   utat-te i-ru.
Ken-NOM sing-ASP-NPAST[4]
'Ken is singing.'

Accomplishment: Action in progress
(6) Ken-wa   isu-o   tukut-te i-ru
Ken-TOP   chair-ACC make-ASP-NPAST
'Ken is making a chair.'

Achievement: (a) Resultative state
(7) Booru-ga oti-te i-ru.
ball-NOM   fall-ASP-NPAST
'The ball has fallen (and it is there).'

(b) Iterative action-in-progress
(8) Ken-wa   doa-o   tatai-te i-ru.
Ken-TOP   door-ACC bang-ASP-NPAST
'Ken is banging on the door.'

State: Vividness; temporariness

(9)   Huzisan-ga   mie-te i-ru
      Mt. Fuji-NOM   be:visible-ASP-NPAST
      'We can see Mt. Fuji (at this moment).'

cf.(10) *Okane-ga   it-te i-ru
      Money-NOM   be:necessary-ASP-NPAST
      (intended meaning 'Money is being needed.')

An important difference between English and Japanese is that the Japanese imperfective *-te i-* combined with achievements can refer to a resultative state, but not to 'a preliminary stage of an event' as does the English progressive combined with achievements. In imposing an internal view of imperfective aspect, English can focus on the process leading up to the punctual point of achievement (e.g., *The horse is winning the race*), whereas Japanese cannot; instead, Japanese focuses on the duration of the resultant state that obtains as a result of the punctual action. Thus, the morphological equivalent of *Ken is dying* in Japanese *(Ken-wa sin-de i-ru)*[5] means 'Ken is dead.'

Some achievement verbs that are anomalous with progressive marking in English (e.g., *notice*, *find*) are compatible with *-te i-* in Japanese because their combinations refer to resultative states. For example, the direct translation of *Ken is noticing the picture* (*Ken-wa sono e-ni kizui-te i-ru*) is OK in Japanese, and means that he has already noticed (the existence of) the picture.

Habituality, which is the focus of this paper, is possible with both past tense and progressive/durative marking in English and Japanese. The following Japanese examples and their English translations exemplify this point:

(11)   Ken-wa   mainiti   hasit-ta.
       Ken-TOP   every:day   run-PAST
       'Ken ran every day'

(12)   Ken-wa   saikin   hasit-te i-ru.
       Ken-TOP   these:days   run-ASP-NPAST
       'Ken is running these days.'

Regarding the interaction between habituality and inherent aspect, there is no absolute restriction; that is, no class of verbs are incompatible with habitual interpretation including state verbs as in (13).

(13)   Koko-kara   tokidoki   Huzisan-ga   mie-ru.
       Here-from   sometimes   Mt. Fuji-NOM   be:visible-NONPAST
       'From here, we sometimes see Mt. Fuji.'

The study

The data

The data used here were collected for a previous study (Shirai 1995; Shirai & Kurono 1998). The data were collected in a recording studio of a university in Japan using a regular audio-cassette tape recorder. Each interview was about 60 minutes in length. The interview was conducted by a native speaker of Japanese with experience in teaching Japanese as a second language. The topics ranged from their daily activities, their past experience in China and Japan, to their future plans. The choice of the topic was controlled by the interviewer in order to include topics about the present, past and future, although care was taken so that the conversation would flow as naturally as possible.

The informants for the study were three Chinese learners of Japanese as a second language. Their length of stay in Japan was approximately eight months at the time of the interview for all three learners, during which time they were studying Japanese as a second language in an intensive program at a Japanese university, in a course designed to prepare overseas students to be enrolled in the regular academic program after one year of study in Japanese as a second language. (All three students were later accepted, one by a graduate school, two by an undergraduate program of the university.) Prior exposure to Japanese was minimal at the time of their arrival in Japan, but they had improved considerably during the eight months of their stay. All three were female, in their twenties (for further information, see Shirai 1995). The data were transcribed in the mini-JCHAT format (Oshima-Takane & MacWhinney 1995).

Analysis and results

Analysis

All the finite verb forms with past tense -ta and durative -te i- were coded for two semantic features (1) inherent aspect (state, activity, accomplishment, achievement), and (2) habituality (i.e. habitual or not). The data coding was done on computer files, and then quantitatively analyzed using the CLAN program (MacWhinney 1995). First, I will briefly summarize the general findings regarding the correlation between inherent aspect and verb morphology, which have already been reported elsewhere (Shirai 1995). Second, I will discuss the results of the habituality analysis. Finally, I will compare these results with Huang's study on L2 English. The verb classification system used in the present study is based on Shirai's (1991) tests for English, which have been adapted to Japanese (Shirai 1993). This

makes the present study comparable to Huang's since she used Shirai's (1991) linguistic tests. There were five Chinese learners of English in Huang's study, who were all residing in the US at the time of the interview, and had had instruction in English as a second/foreign language. Therefore, the two studies are also comparable in that they both involve instructed Chinese learners of an L2 in second language (as opposed to foreign language) situations. They are also comparable in data collection method — both studies used conversational interview to elicit learner speech. The limitation of the data in terms of comparability is the native speech. The native speech analyzed for the current study is only of the interviewer's speech in the same conversation, whereas Huang's is three separate interviews with native speakers of American English.[6]

Overall trend

Table 1 shows the relationship between the inherent aspect and verb morphology for the three Chinese learners of Japanese. The results reveal a strong correlation between past tense *-ta* and achievement, and durative aspect *-te i-* and activities, supporting the Aspect Hypothesis (see Shirai 1995 and Shirai & Kurono 1998 for further discussion.) NS (native speaker) here refers to the interviewer. In this table and others, the cells for which the Aspect Hypothesis predicts a higher frequency are underlined and boldfaced.

Table 1. Distribution of inherent aspect of verbs with past marking (*-ta*) and durative marking (*-te i-*) in the learner's speech (raw token frequency in parentheses)

	State	Activity	Accomplishment	Achievement
Learner C				
-ta	2% (1)	6% (3)	0% (0)	**92%** (47)
-te i-	0% (0)	**62%** (13)	10% (2)	29% (6)
Learner T				
-ta	3% (1)	19% (6)	6% (2)	**72%** (23)
-te i-	0% (0)	**46%** (13)	7% (2)	46% (13)
Learner K				
-ta	24% (10)	7% (3)	0% (0)	**69%** (29)
-te i-	7% (4)	**58%** (35)	0% (0)	35% (21)
Average (NNS)				
-ta	10%	11%	2%	**78%**
-te i-	2%	**55%**	6%	37%
NS				
-ta	33%	11%	2%	**54%**
-te i-	3%	**37%**	0%	59%

Table 2. Distribution of inherent aspect of verbs with past marking (*-ta*) used for habitual reference in the learners' speech and native speech (raw token frequency in parentheses)

	State	Activity	Accomplishment	Achievement
Learner C	0% (0)	20% (1)	0% (0)	**80%** (4)
Learner T	0% (0)	30% (3)	0% (0)	**70%** (7)
Learner K	0% (0)	40% (4)	0% (0)	**60%** (6)
Average				
NNS	0%	30%	0%	**70%**
NS	0% (0)	54%(7)	8% (1)	**38%** (5)

Habitual reference

Let us look at the distribution of these morphemes with respect to habitual reference. First we look at past marker *-ta*.

As can be seen, the distribution for the learners' speech is quite similar to the overall trend seen in Table 1. One major difference is the non-existence of stative verbs with *-ta,* but this is because of the general incompatibility of states with habitual situation, and is thus not surprising. In fact, NS data also show 0% statives for habitual reference. Partly because of this, the ratio of activities is slightly higher in habitual reference than the general trend in Table 1. Also noteworthy is the native speaker's frequent use of past tense *-ta* with activity verbs to refer to habitual contexts (54%), which clearly outnumbers achievement (38%). This is in contrast to both NNS's use of the habitual and also to the NS's general trend (see Table 1), where *-ta* concentrates more highly on achievements.

Let us now turn to the distribution of durative marker *-te i-* with habitual reference (see Table 3). For this analysis, I have separated *-te i-ru* (non-past durative) and *-te i-ta* (past durative). What we see here is an interesting trend. First, the learners' use of durative marking in habitual situations is very much in line with the Aspect Hypothesis, 74% being attached to activity verbs. This is much more so than for the general trend reported in Table 1, where 55% of *-te i-* used by learners was used with activity verbs. However, this is in fact a reflection of the distribution in native speech as well. The general trend for native speech shows that *-te i-* is used with activity only 37% of the time, whereas for habitual reference the association is 66%. Here's the comparison:

(14)

	NNS	NS
Overall trend	55%	37%
Habitual reference	74%	66%

Table 3. Distribution of inherent aspect of verbs with durative marking (-*te i-*) used for habitual reference in the learners' speech and native speech (raw token frequency in parentheses)

	State	Activity	Accomplishment	Achievement
<Learner C >				
nonpast (-teiru)	0% (0)	__63%__ (5)	13% (1)	25% (2)
past (-teita)	0% (0)	__100%__ (4)	0% (0)	0% (0)
<Learner T>				
nonpast (-teiru)	0% (0)	__80%__ (4)	20% (1)	0% (0)
past (-teita)	0% (0)	__86%__ (6)	14% (1)	0% (0)
<Learner K>				
nonpast (-teiru)	0% (0)	__56%__ (9)	0% (0)	44% (7)
past (-teita)	0% (0)	__100%__ (6)	0% (0)	0% (0)
Average <NNS>				
nonpast (-teiru)	0%	__66%__	11%	24%
past (-teita)	0%	__95%__	5%	0%
Total(-te i-)	0% (0)	__74%__ (34)	7% (3)	20% (9)
Average <NS>				
nonpast (-teiru)	0% (0)	__71%__ (15)	0% (0)	29% (6)
past (-teita)	0% (0)	__50%__ (4)	0% (0)	50% (4)
Total (-te i-)	0% (0)	__66%__ (19)	0% (0)	34% (10)

This shows that, in Japanese discourse, durative marker -*te i-* used with habitual reference is comparatively more associated with activity verbs than when it is used with non-habitual reference, and the learners' use reflects this fact in Japanese. At the same time, the learners' use is quantitatively more congruent with the prediction of the Aspect Hypothesis than the native speaker's.

Another interesting observation is that the learners show a much stronger association between activity and -*te i-* for past habitual (95%) than for present habitual use of -*te i-* (66%), and this correlation is also much higher than that seen in the native speaker's use of past habitual (50%). It appears that learners have more difficulty in freeing the -*te i-* form from its prototypical association with activities when dealing with past habitual contexts as opposed to present habitual contexts.

Comparison with English data

Finally, I discuss the comparison of the Japanese data with English data from Huang (1993). Huang's analysis concerning habituality only reports the most prototypical cases, i.e., achievement verbs with past tense marking, and activity verbs with progressive marking; therefore, my comparison will focus on these.

Table 4. Distribution of achievement verbs with past marking (*-ta)* in the learners'
speech and native speech (raw token frequency in parentheses)

	Non-habitual	Habitual
Non-native:		
C	91.5% (43)	8.5% (4)
T	69.6% (16)	30.4% (7)
K	79.3% (23)	20.7% (6)
Average	80.1%	19.9%
Native:		
with C	100.0% (29)	0.0% (0)
with T	89.7% (26)	10.3% (3)
with K	92.9% (26)	7.1% (2)
Average	94.2%	5.8%

First, the results for the past tense marking present a puzzling picture. As is clear
from Table 4, in the Japanese data, past tense marking with habitual reference
occurs much less frequently in native speech than in learners' speech. This goes
squarely against the finding by Huang, in which learners showed a lower ratio of
achievement verbs with past marking for habitual events (21%) than native speak-
ers (28%), having more difficulty with habitual reference. The ratio of habitual use
of past marking in two languages is as follows:

(15)

	NNS	NS
English (Huang 1993)	21%	28%
Japanese (present study)	20%	6%

The Japanese data apparently go against the Prototype Hypothesis, since it predicts
that learners' use of past marking should be restricted to the prototypical past,
which Andersen and Shirai (1994) claim denotes non-habitual rather than habitual
events.

The results from durative marking in L2 Japanese (see Table 5) also show a
different trend from the L2 English data. In the Japanese data, both the learners and
the native speaker exhibit a similar tendency — about 60% of *-te i-* with activity
verbs were for habitual reference. In the English data, however, the native speaker
showed a much higher percentage of progressive for habitual reference, indicating a
more flexible use of the morphology by NSs than NNSs. The percentages are:

(16)

	NNS	NS
English (Huang 1993)	27%	66%
Japanese (present study)	63%	59%

Table 5. Distribution of achievement verbs with durative marking (*-te i-*) in the learners' speech and native speech (raw token frequency in parentheses)

	Non-habitual	Habitual
Non-native:		
C	30.8% (4)	69.2% (9)
T	23.1% (3)	76.9% (10)
K	57.1% (20)	42.8% (15)
Average	37.0%	63.0%
Native:		
with C	36.4% (4)	63.6% (7)
with T	42.9% (3)	57.1% (4)
with K	42.9% (6)	57.1% (8)
Average	40.7%	59.3%

Also evident were the conspicuous individual differences among NNSs. Learner K followed the pattern found by Huang for English interlanguage — higher use of progressive/durative marking with activity for non-habitual events. Only 31% was for habitual reference, which is roughly comparable to Huang's NNS data (27%). Thus, a comparison of Japanese and English L2 data with regard to the factor of habituality presents a puzzling picture.

Discussion

First, it was found that the NNSs' use of the past tense marker *-ta* does not change in terms of its association with achievement whether in habitual or non-habitual reference (70% for habitual reference only; see Table 2, and 78% for both habitual and non-habitual combined, see Table 1). This was in contrast to NS speech which showed a much higher percentage for achievement verbs in habitual context than otherwise (38% for habitual, 54% for total). This can be interpreted as follows: Learners associate past tense *-ta* with achievement verbs even with habitual reference in comparison to native speakers for whom this association is weaker for habitual reference. It may follow, then, that learners' use of the past tense marker is purely based on mimicking — i.e. they are using forms that are frequent in the input, and therefore their pattern of use is the same whether the semantic feature of habituality is involved or not. This interpretation, however, is not tenable because the NSs' general distribution is quite different from learners:

(17)		State	Activity	Accomplishment	Achievement
	NNS (habitual *-ta*)	0%	30%	0%	**70%**
	NS (*-ta* in general)	33%	11%	2%	**54%**

Thus, it seems reasonable to assume that there is an interaction of lexical learning and semantic learning.

The data for *-te i-* with habitual reference also show a similar difference between NS and NNS use: learner data show a higher association of *-te i-* with activity than native data (73% vs. 66%). This is congruent with the prototype hypothesis, which predicts that other things being equal, activities get more durative marking than other verb classes. Particularly interesting is the difference between NS and NNS use with respect to the past durative *-te i-ta*. The learners' use of past durative in habitual context is almost exclusively with activity verbs (only 1 accomplishment; the remaining 16 are activities). It has been suggested that past durative develops later than present durative in L1 acquisition of Japanese (Shirai 1993, 1998a). Shirai and Kurono (1998) and Koyama (1998) further show that past durative is more difficult than non-past durative in L2 acquisition of Japanese. Bardovi-Harlig (1992) likewise reports similar results regarding the acquisition of past progressive in English L2.[7] Thus, it appears that in the context of past habitual, the learners' use of *-te i-* is still limited to the prototypical one — activity verb. This discrepancy between non-past durative and past durative clearly shows that the learners' use is not only governed by frequency, but also by semantic development of the tense-aspect morphology. Furthermore, the NS uses only 37% of *-te i-* with activity verbs overall (i.e. including non-habitual reference), and therefore if the learners are only relying on lexical imitation, its difference from habitual, in particular past habitual reference cannot be explained.

The results concerning the English-Japanese comparison have to be accounted for. They are somewhat puzzling, in that learners use habitual past with achievement more often than natives. Therefore, all past habitual tokens by NNSs were checked using CLAN. It turned out this is partly because of the overuse of the achievement verb + *-ta* form. The following segment of transcription illustrates this point. (*SHI is the interviewer, and *CUI is the learner.)

(18)   *SHI: nanka anoo omo oboeteru koto arimasu ka, bareebooru.
       *CUI: bareebooru o yatte ??? toki wa tanosiidesu yo.
       *CUI: demo tyotto *tukaremasita.*
       *SHI: aa.
       *CUI: mainiti mainiti zyugyoo *owatta.*
       *SHI: n.
       *CUI: nn unteesyu issyo ni.
       *SHI: n.
       *CUI: rensyuusiteimasita.

(Translation)

> *SHI: Well, is there anything you think — remember (about) volleyball?
> *CUI: When (we were) playing volleyball, (we) are happy.
> *CUI: But (we) *got* a little *tired*.
> *SHI: Hm.
> *CUI: every day, every day, class *ended*.
> *SHI: yeah.
> *CUI: um. together with the driver(?)
> *SHI: Hm-hm.
> *CUI: (We) were practicing.

The italicized verbs were achievements with past tense marker *-ta*. Both these forms are not quite appropriate since they trigger a non-habitual perfective meaning, even though the intended meaning is a habitual/generic statement. There were several other inappropriate uses of achievement verbs with *-ta*. This overuse is presumably because of the high frequency of these forms — i.e., these forms are frequent and are readily available for them to produce, they are uttered even in incorrect contexts. This in turn probably explains the higher frequency of achievement with *-ta* in appropriate habitual contexts as well. The learners are used to these forms, and therefore even if these are non-prototypical past (i.e. past habitual) they can easily produce it, although this sometimes results in incorrect overuse.

Why, then, in English does this not occur? It is an interesting observation and needs further exploration, but one interpretation is that Japanese does not have a base form and the inflected verb form is memorized as a chunk whereas in English there is a base form and learners cannot readily access the past form without extra effort (see Clancy 1985; Shirai 1998a, for further discussion of this typological difference). Note that all of Huang's learners are not quite advanced in terms of past tense marking; their suppliance of past irregular forms in obligatory contexts range from 22% to 43%, and presumably they were still using many uninflected base forms. These factors combined may explain the discrepancy between the English and Japanese data. Of course, L2 learners of English also show overuse of past tense as shown by Robison (1995), but the claim here is that this tendency may be much higher for L2 Japanese acquisition.

Another puzzling finding was the difference regarding imperfective marking on activity verbs in the two languages. First, let us discuss the difference between learner K and the two other learners, C and T. All the tokens of *-te i-* used with activity verbs by K was analyzed, which yielded an interesting pattern. Many of the non-habitual tokens by K are in fact used to refer to a situation that spans a long period of time. There are 12 of these tokens, including *tutomeru* 'work (for a company)', *tyoosain-o suru* 'work as an investigator', *sensee-o suru* (work as a teacher) *arubaito-o suru* 'have a part time job'. These are categorized as non-

habitual because they do not involve repetition of a single action referred to by the verb; rather, these verbs refer to habitual actions over multiple occasions as a single span of time. This shows that learner K is not very different from the other two learners in that they predominantly use activity verbs to refer to extended situations that span a long period. Thus we may conclude the learners can use *-te i-* with habitual activities very well, to the same extent that native speakers can, despite the apparent difference between K and the two other learners.

Based on these results, we can conclude that the learners' use of *-te i-* for habitual reference is not restricted as long as it is attached to activity verbs. Furthermore, as noted above, the learners can freely use *-te i-* with habitual reference with non-activity verbs as well, i.e., to the extent NSs can. In the case of non-past habitual with *-te i-*, NNSs' use of *-te i-* with activity is 66% as compared to 71% by the native speaker. This indicates that the association of *-te i-* with activity is about the same for NS and NNS in this regard. However, when it is used in the context of past durative (*-te i-ta*), NNSs are still limited to activities (95% for NNS vs. 50% for NS), which is also in contrast to the English L2 data, where NSs show a much higher use of habitual reference with progressive morphology than NNSs in comparable contexts. How can we account for the difference between the English data and the Japanese data? This is probably because of the difference between the English progressive and the Japanese durative aspect marker *-te i-* as a marker of habitual aspect. Both these markers are imperfective aspect, which includes the function of marking habituality that is not permanent (Shirai 1998b). However, it appears that Japanese *-te i-* is more likely to be obligatory than the English progressive in referring to habitual actions that has some temporary quality.[8] The following sentence illustrates this point:

(19)   Watasi-wa   nihongo-no   benkyoo-o   ?si/si-te i-masu.
       Watasi-ᴛᴏᴘ   Japanese-ɢᴇɴ study-ᴀᴄᴄ   do/do-ᴀsᴘ ɴᴘᴀsᴛ:ᴘᴏʟ
       'I study/am studying Japanese.'

In English it is OK to use either progressive or simple present to refer to habitual contexts but in Japanese, because of the perfective nature of the simple nonpast form, if *suru* (nonpast form) is used in (6), it tends to denote future meaning, and is awkward when used to refer to habitual action. Since in Japanese the use of *-te i-* is required in habitual contexts involving temporariness, the Japanese learners probably picked up this semantic feature associated with *-te i-*, and this may have resulted in the higher use of *-te i-* with habitual reference much earlier than in the case of English speakers. Another possibility, which is not mutually exclusive, is simply that the L2 Japanese learners are more advanced than the L2 English learners studied by Huang.

A model of tense-aspect acquisition

Finally I would like to discuss a possible mechanism behind these observed patterns. The picture that emerges from all these studies suggest that various factors contribute to the pattern of use of tense-aspect morphology produced by the learners. Among them are lexical frequency, the inherent semantics of the verbs, habituality, and temporal reference (i.e. past vs. nonpast).[9] These factors are highly related to each other, but I will try to delineate the effect of each. To explain the observed phenomena, I posit the following mechanisms:

–   form-form association
–   form-meaning association
–   L1 transfer
–   universal prototype

The first two contributing factors — lexical frequency and inherent aspect — both concern the prototypical association created by learners, in particular between past marker *-ta* and achievements in this study. This association is quite frequent in NS speech, and more so in NNS speech (the Distributional Bias Hypothesis, Andersen 1993; Andersen & Shirai 1994, 1996). Lexical frequency contributes to this association as pure frequency of forms, e.g., *otita* 'drop:PAST' is much more frequent than *otiru* 'drop:NONPAST', and this contributes to the early acquisition of past with achievements. This is a form-form association; that is, the form *oti-* is strongly associated with *-ta.*

At the same time, at a more abstract level, *-ta* is associated with verbs that have the inherent semantic feature of [+telic, +punctual] since this combination is frequent in the input. This is a form-meaning association involving the association of the form *-ta* with the inherent semantic feature of the verb. At another level, the learner will associate the *-ta* form with the situation/meaning it denotes, i.e., *-ta* is associated with situations that are completed in the past. This is also a form-meaning association (or form-function mapping; Bates & MacWhinney, 1987). The factor of habituality also primarily concerns a form-meaning association. The learner associates one form with several semantic features, among which is habituality. In the interlanguage of Huang's L2 English learners, the relationship of this semantic feature (i.e. habituality) with past and progressive forms was weak, whereas in the present study, L2 Japanese learners have a linguistic representation in which there is a reasonably strong association between the *-ta/-te i-* form with habituality.

What about the contribution of temporal reference with respect to the use of *-te i-* in habitual contexts? The fact that learners restrict the use of past durative *-te i-ta* to activity verbs shows that the form-meaning relationship between *-te i-ta* and habituality was not strong enough yet for the learners of Japanese. This is why the

use of -te i- in past habitual situations only are practically restricted to activity verbs, which already have a high association with -te i-. The past tense presumably has a weaker association with -te i- both at the form-form association level and at the form-meaning level because -te i- is not used with past reference as frequently as with present reference. For example, among 50 randomly sampled tokens of -te i- in a conversational corpus of a housewife (Ide et al. 1984), only 26% of -te i- were in past tense (-te i-ta).

Note that both the form-form and form-meaning associations discussed so far work on the principle of distributional, data-driven learning. However, a purely distributional learning mechanism cannot explain the Japanese data. In Japanese native speech, -te i- is not attached to activity verbs as frequently as to achievement verbs, as Table 1 shows. Despite this, the learners' use of -te i- shows a higher association with activity verbs (see Shirai & Kurono 1998 for further discussion). Therefore, some factors other than distributional learning must be at work. Two major candidates are (1) L1 transfer, and (2) universal predisposition.

The effects of L1 transfer is quite straightforward as far as the present study is concerned, since Chinese has progressive marker *zai*, which can easily be associated with progressive meaning. This helps learners create a form-meaning association between -te i- and the progressive meaning. However, Japanese -te i- is also used to denote resultative state combined with achievement, and -te i- also has perfect meaning. These meanings are not associated with Chinese progressive *zai*, and therefore are difficult for Chinese learners.

On the other hand, there may be a universal predisposition for humans to give grammatical marking to certain notions. For example, Bickerton (1981) and Slobin (1985) suggest that children tend to give grammatical marking to notions such as 'ongoing/incomplete' and 'punctual/completed', etc. In the case of Japanese, since -ta already marks the notion of 'punctual/completed', another aspectual marker should be used to mark the notion of 'ongoing/incomplete'. In other words, these notions are universally grammaticizable, and that may play a role in contributing to the observed phenomena in acquisition.

At this point, I am more in favor of the transfer explanation, since the data on L1 acquisition of Japanese do not show a clear preference for -te i- used for progressive meaning (Shirai 1998a). The real test of the L1 transfer hypothesis should come from the acquisition of Japanese by learners whose L1 does not have progressive marking (e.g., German).[10] Note also that these factors (universal and transfer) may both be at work, collaboratively contributing to learners' preference for the combination of activity and -te i-.

If input frequency is not the answer, how do we account for the high percentage of activity verbs with habitual reference in past form used by L2 Japanese learners. This is where the prototype account is useful. Learners initially cannot

handle all the multiple meanings that a given morpheme has, and therefore their representation is limited in the beginning (One-to-One Principle, Andersen 1984). Either because of L1 transfer or a universal factor, L2 learners start out with the progressive meaning of -te i- as the prototype. This is clearly shown in Shirai and Kurono (1998), where the data indicate that learners have much difficulty acquiring the resultative meaning of -te i-. Once the progressive meaning becomes the prototype, learners go on to use this meaning more often, which further results in the strengthening of not only the form-meaning association but also the form-form association. This contributes to the frequent use of habitual -te i- with activity.

As noted above, for past habitual, non-activity verbs tend not to be accessed by learners. The mechanism that explains this phenomenon is the production model called the 'spreading-activation model' a type of connectionist model (Stemberger 1985; Dell 1986; MacKay 1987; Gasser 1988). In this model, in order for a particular form to be produced, it has to receive enough activation, often from various sources. In the case of -te i-, it is not strongly associated with past tense. Therefore, in past tense contexts, there is not enough activation *unless* the verb is activity. With non-activity verbs, the activation level often does not reach the threshold level that results in the production of -te i-.

This kind of model is quite different from the models that have been discussed in previous SLA research (but see Shirai 1992). SLA research has emphasized the systematic nature of interlanguage (see Ellis 1994, Ch. 2 and 3). However, as the work by variationist models (Tarone 1988) show, the learner's behavior is highly probabilistic (Harrington 1997), which results from the mechanism described above. Now what does this all have to do with the prototype hypothesis? The bottom line is that prototypes of particular linguistic forms have very strong connection with the forms (in this case past and imperfective markers), and can easily receive enough activation and be produced. The past tense form, for example, has a very strong connection with achievement verbs, completion, punctuality, and so forth. If these features are involved, the past tense form easily gets enough activation and are more frequently produced in learners' speech. Non-prototypical members do not have as strong connections, and therefore are less likely to be produced and/or tend to be acquired later than prototypical members.

Another interesting finding is that the L2 learners of Japanese in this study appear to have a stronger association of activity with imperfective marking, and of achievement with past marking than the L2 learners of English. One possible account proposed above is the higher reliance by learners of Japanese on lexical learning than semantic learning. It appears that the typological facts of the target language can influence the relative importance of different learning strategies. In this case, L2 learners of Japanese rely more on form-form association than L2 learners of English. This hypothesis should be explored in future research.

In this paper, I have attempted to identify different factors involved in tense-aspect acquisition and use in second language by analyzing the feature of habituality to investigate the contribution of such factors, and argued that various factors — both language specific and universal — are at work. This research is still limited in its generalizability due to lack of control in learner proficiency in the comparison of two groups of Chinese learners, and to the small size of habitual verb tokens in the Japanese study. Needless to say, further studies are needed to specify the relative contribution of various factors to precisely characterize the mechanism of L2 acquisition and use of tense-aspect morphology.

Notes

* An earlier, shorter version of this paper was presented at the 3rd Pacific Second Language Research Forum held at Aoyama Gakuin Univeristy in Tokyo in March 1998, and appeared in the conference proceedings. I thank Kevin Gregg and the reviewers for this volume for their helpful comments on an earlier version of this paper. Usual disclaimers apply.

1. See Salaberry (1999) and Wiberg (1996) for data that do not fit this pattern.

2. There are other cases of non-prototypical use of progressive, such as stative progressive (*I'm liking it more and more!*) or futurate (*We're eating out tonight*), but these are beyond the scope of the present paper (See Shirai 1994 for extensive treatement of the former in L1 acquisition. I know of no study that investigated the acquisition of the latter.)

3. Huang (1993) only analyzed irregular past forms because of the general difficulty of accurately transcribing regular past endings. This certainly is a limitation of her study and the comparison with the Japanese data in this paper, and therefore needs further replication.

4. The abbreviations used in this chapter are: ACC = accusative case marker; ASP = aspect marker; GEN = genitive marker; NOM = nominative case marker; NPAST = nonpast tense marker; POL = polite form; TOP = topic marker.

5. *-de i-* is a phonologically conditioned allomorph of *-te i-*.

6. Shirai (1995) also reported an analysis of native Japanese speech, which consists of transcribed daily conversation of a housewife recorded during one week. The analysis reveals that the distribution of inherent aspect in relation to the use of *-ta* and *-te i-* were very similar to the interviewer's speech. Although no analysis was done regarding the habitual reference, we may assume some level of generalizability for the current findings concering native Japanese speech.

7. Bailey (1989) shows that past progressive is more difficult than simple past in English. L1 and L2 acquisition studies from various languages likewise show that imperfective past is acquired later than perfective past (see Andersen & Shirai 1996 for a review). It appears that imperfective past is developmentally late in general presumably because the prototypical past is unitary, punctual events (see Andersen & Shirai 1994 for further discussion).

8. The exception involves generic, gnomic situations, where use of *-te i-* is not possible for habitual reference (see Shirai 1998b).

    (i)   Taiyoo-wa higasi-kara nobo-ru/?nobot-te i-ru.
           Sun-TOP   east-from   rise-NPST/rise-ASP-NPST
           'The sun rises/?is rising in the east.'

9. Although this is beyond the scope of this paper, the discourse notion of foreground and background is a type of form-meaning association, and this will surely contribute to the use of tense-aspect marking, as shown by Bardovi-Harlig (1995).

10. A recent stuyd by Sugaya (2001) addressed this issue by comparing the acquisition of *-te i-* by two Russain learners ([–progressive] L1) and two Indian learners ([+progressive] L1s, Teugu and Marathi). However, the results were not conclusive because two Russain learners showed slightly different patterns. But it is noteworthy that one Russain learner did not show any preference for progressive meaning (see Shirai, in press for further discussion).

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