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# THE ACQUISITION OF ASPECT AND MODALITY

## *The case of past reference in Turkish*

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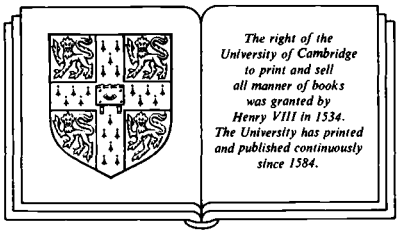


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To the memory of my father

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## Symbols and abbreviations

Turkish examples are given in normalized orthography.

Capital letters used in referring to individual morphemes in Turkish represent vowel or consonant alternations; for example, I stands for the alternation between i-ü-ı-u, A between e-a, D between d-t, and K between k-Ø

- is used to separate the morphemes in Turkish examples and the corresponding English glosses.

In segmenting the Turkish words into morphemes, the following abbreviations and symbols have been used.

| | | | |
|---|---|---|---|
| ABIL | abilitative | PERF | perfect |
| ACC | accusative | PL | plural |
| ADJ | adjective | POSS | possessive |
| COND | conditional | PRES | present |
| CS | causative | PROG | progressive |
| DAT | dative | PV | passive |
| DE | direct experience | QES | question |
| FUT | future | RC | reciprocal |
| GEN | genitive | RF | reflexive |
| IE | indirect experience | SG | singular |
| LOC | locative | 1 | first person |
| NEG | negative | 2 | second person |
| OPT | optative | 3 | third person |
| PA | past | | |

# PART I

# TENSE, ASPECT AND MODALITY IN ACQUISITION

## 1. Introduction

A brief look at the short history of developmental psycholinguistics reveals that the last two and a half decades have witnessed major developments in the field, mostly parallel to those in linguistic theory. The initial emphasis of the 1960s on the acquisition of the structural aspects of language shifted to issues of semantics and finally to the important contributions of pragmatics in the late 1970s. Today, it is well recognized that the problem of language acquisition can be approached only from a multidimensional perspective, considering the interplay of syntactic, semantic, pragmatic and cognitive factors that simultaneously bear upon the process. Such a multidimensional approach aims to delineate the interactive contributions of the different factors to the construction of the emergent systems of the child at different stages in development.

Stimulated by Chomsky's theory of Transformational-Generative Grammar (1957, 1965), and his hypothesis of innate linguistic structures, early investigations of child language were concerned with language as a formal system and focused on the acquisition of its structural aspects. The shift of emphasis from syntactic to semantic structures for an adequate characterization of the universals of language brought about by Generative Semantics and Case Grammar (Fillmore, 1968; Jackendoff, 1972; Lakoff, 1973; Parisi and Antinucci, 1976) was immediately reflected in acquisition studies and called attention to the role of cognitive developmental factors. The most comprehensive theoretical framework accounting for the development of the structures of intelligence in the child has been Piaget's. The acceptance of the Piagetian approach by many researchers stimulated a lot of work in various areas, particularly in the domain of semantics.

However, retrospectively, it appears that this has also led to a rather biased conceptualization of language simply as 'a medium for the representation of thought'. According to Piaget, the structures of thought are neither innate nor a copy of the physical or linguistic environment (Piaget, 1952, 1971a, 1977; Karmiloff-Smith, 1979a). Rather, they are the product of children's constructive activity proceeding from their interactions with their various environments. Language, on the other hand, is a symbolic system constituted of the structural

relations between 'signifiers' and 'signifieds'. Its developmental significance resides in the differentiation of the signifiers from the signified content, leading to flexibility in the representation of thought beyond the immediate spatio-temporal boundaries of sensori-motor action schemes. Both language and thought have their origins in sensori-motor action; linguistic universals are just a part of broader cognitive universals and facts of cognitive development are sufficient to explain facts of language acquisition. Language, then, is viewed by Piaget as a symbolic vehicle for the representation of the physical, social or logical knowledge constructed independently of it (Langer, 1969), at least until the periods of concrete and formal operations.

This view, emphasizing the representative function of language, had its effect on the studies of language acquisition which saw cognitive development as the pace setter of language development, unidirectionally determining this process in all its aspects. The extent to which such a position can be maintained today has been critically evaluated by Johnston (1985) in a review article.

The issue of cognitive prerequisites was first formulated by Slobin in a now classic article in 1973, where he set forth two sets of cognitive factors as bearing on the process of acquisition: conceptual factors in the sense proposed by Piagetian theory and processing factors specific to the manipulation of language as input and output. A third claim, put forward primarily by the Genevan school of psycholinguistics (e.g. Sinclair, 1969, 1973; Sinclair and Bronckart, 1972; also, Greenfield, Nelson and Saltzman, 1972), is related to the structural aspect of language.

The last of these hypotheses maintained that the structure of cognition sets the limits on the linguistic structures that can be mastered at different points in development. Accepting sensori-motor constructions as the foundation for linguistic structures, arguments for isomorphism between syntactic and logical structures were made. This view - that structurally similar thought processes are operative in certain linguistic and nonlinguistic domains - did not however find supportive evidence and was discarded early.

The second set of cognitive prerequisites which have been called 'operating principles' by Slobin, involves processing mechanisms that function in the analysis, abstraction and generalization of information from the object domain 'language'. It is evident that the child comes to the task of language acquisition with certain capacities. A set of these are part of general processing factors and involve biologically given principles of attention, memory and features of the sensory system geared to the processing of temporally fading auditory stimuli (Johnston, 1985). These are assumed to remain constant throughout development.

The discovery of the structural aspects of language, on the other hand, is

presumed to rest on the utilization of higher level mental structures of 'increasing complexity, flexibility, generality and coordination' (Johnston, 1985). Whether these structures are specific to the domain of language or are part of cognitive structures of broader scope has been subject to extensive debates between Chomsky and Piaget as well as students of other disciplines, but still remains an open question (see Piatelli-Palmarini, 1980a). Nevertheless it appears that linguistic structures develop as a function of the child's active interactions with the language object itself, and gain in further flexibility and complexity leading to the reorganizations and systematizations of linguistic knowledge (Karmiloff-Smith, 1979a). In fact, these processes have been a problem of research in the past decade and their validity and generality vs. language specificity is now being re-evaluated in the light of comprehensive cross-linguistic evidence (Slobin, 1985b).

Finally, the first type of cognitive prerequisites has found expression in the view that children can only talk about what they already understand. That is, conceptual knowledge, which is subject to change with the development of thought structures and experience, has a determining role on language acquisition. This claim has found support mainly in areas where conceptual knowledge feeds into language as content. In her critical assessment of the hypothesis of the primacy of cognition over language in the light of evidence from children learning English, Johnston (1985) cites evidence from a number of areas: nonlinguistic comprehension studies which show that children who have not yet mastered a given language pattern resort to nonverbal conceptual knowledge for interpreting utterances (e.g. studies on word-order; locative, temporal and causal terms; quantity and extent of objects); the expression of new intentions with old, ungrammatical or newly created forms; the simultaneous emergence of the same meanings across more than one language form; acquisition of forms of similar syntactic complexity with a time lag due to differences in conceptual complexity; and systematic changes in the meaning of a form over time (e.g. early use of tense forms with aspectual meaning). It is clear, then, that developing conceptual notions do set limits on the acquisition of syntactic-semantic structures. However, it has also been the case that resorting to cognitively based explanations has led to an underrating of more language internal explanations and thus of the interplay between language and thought.

This brief review of the impact of Piagetian assumptions on the study of language acquisition shows us that just as Chomsky's theory motivated a single focus on syntax and explanations based on structural complexity, Piaget's theory motivated a focus on semantics and explanations based on cognitive complexity. Furthermore, the fact that both Piaget and Chomsky maintain the primacy of

logic over language, i.e. the independence of thought structures from language (as opposed to the view of early logical positivists that the structure of thought is determined by the structure of language), led to the rather univocal acceptance of this assumption as given, as discussed above. Despite their controversial standing regarding the scope and ontological status of cognitive and linguistic structures, Piaget defending a constructivist and Chomsky an innatist position (Piatelli-Palmarini, 1980b), both Piaget and Chomsky have sought to construct an 'epistemic subject' focusing on the competence of an ideal speaker-hearer (Karmiloff-Smith, 1979a; Sampson, 1981) rather than on the performance of a 'speaking subject'. Consequently, the representative function of language has been emphasized at the expense of its equally important interpersonal or communicative function.

Just as language is the most distinctive characteristic of humans, so being human is an equally important feature of language. Recognition of this factor leads to a rather different conceptualization of language, best expressed by Benveniste in his statement

> it (language) is the point of interaction between the mental and the cultural life in man, and at the same time the instrument of that interaction. (1966, English trans. 1971, p.14)

In other words, language is both the product of the human mind and the means which simultaneously enables people to become the intelligent-knowing and the social-interacting subjects that they are. Again in Benveniste's words,

> reality is produced anew by means of language. ... the situation inherent in the practice of language, namely that of exchange and dialogue, confers a double function on the act of discourse; for the speaker it represents reality, for the hearer it recreates that reality. This makes language the very instrument of intersubjective communication. (Benveniste, 1971, p.22)

That is, language structures reality by virtue of its essential categorizations, emphases and structure.

This view thus emphasizes the meaning-constitutive function of language, and its important role as a mediating mechanism through which social interactive and internal mental processes are related and the individual becomes integrated into his or her culture. These ideas are also inherent in Vygotsky's thinking about language:

> The internalization of culturally produced sign systems brings about behavioral transformations and forms the bridge between early and later forms of individual development. (Vygotsky, 1978, p.7)

In contrast to Piaget's claims about the relationship between language and thought, Vygotsky (1962, 1978) emphasizes the independent roots of practical and

linguistic activity, while stressing the subsequent close developmental relation between the two processes. In his view, speech contributes to the 'development of a new structural organization of practical activity' and 'plays an essential role in the organization of higher psychological functions' (Vygotsky, 1978, pp.22-3). Thus, language plays a distinctive role in children's entry into the already constituted meaning systems of their community which refer both to the 'external-physical reality' and to the 'social reality'. Furthermore, it is again through language that children gain their individuality. The differentiation of the self from the other is grounded on the opposition of the 'I' to the 'you' as realized in discourse. That is, the process of objectification of the subjectivity of the self (both vis à vis the other and the subject) counts upon the interpersonal use of language. This interdependency between the individual, the society and language is summarized by Benveniste:

> The awakening of consciousness in the child always coincides with the learning of language, which gradually introduces him as an individual into society. (1971, p.23)[1]

Lastly, language is not only the means to knowledge of reality and determines the way in which individuals communicate, but it is also an aspect of that reality that has to be mastered in its own right. That is, language is an object domain in itself that is the subject of the child's cognitive attention (Karmiloff-Smith, 1979d).

These functions of language in contracting relations with different aspects of reality have been explicated by Habermas (1979) in his analysis of the infrastructure of speech situations as the foundation for 'Universal Pragmatics'. His analysis, which is based on linguistic theory and particularly the work of philosophers of language like Austin (1962) and Searle (1969), captures the multifaceted nature of language in a single statement. Habermas notes that every sentence, through its being uttered, is related to four domains of reality: (i) external reality, (ii) normative-social reality, (iii) inner reality and (iv) language. And in the use of language the subject is involved in a process of demarcation: (i) from the world of perceived and potentially manipulable objects that is objectified in the attitude of an observer; (ii) from the realm of socially recognized values, expectations and rules that the subject conforms to or deviates from in the attitude of a participant; (iii) from the arena of subjective intentions that are expressed or concealed in the first person attitude; and finally (iv) from the medium of language itself (Habermas, 1979, p.66, also in Held, 1980, pp.333-4). These domains appear simultaneously in every speech action although it is one or the other that is 'thematized' specifically. In the thematization of external reality, language is in its representative or cognitive-ideational function; in the

thematization of social reality, in its communicative or interpersonal function and in the thematization of inner reality, in its expressive function. As for the thematization of the fourth domain, this would concern the reflexivity of language or metalinguistic discourse.

A consideration of language, then, requires that its use in relation to various aspects of reality, i.e. its different functions, is taken into account. In other words, although necessary, it is not sufficient to conceptualize language as a system of signs built up on the two planes of 'signifiers' and 'signifieds', or as a structure constituted of the relations and oppositions of its elements to one another, which thus confer upon them their meaning. It is not sufficient because the structure of language also confers upon its parts their 'function' (Benveniste, 1971), and an understanding of linguistic forms cannot be achieved without a consideration of their function. The significance of this multifunctional nature of language for language development has been emphasized by Halliday (1975) in his conceptualization of language acquisition as 'learning how to mean'.

The recent functionalist approaches to the problem of acquisition recognize the communicative as well as the representative function of language and locate the problem of development of form and meaning in the context of use (Halliday, 1975; Bates, 1976; Karmiloff-Smith, 1979a; de Lemos, 1981a are just a few examples of this now widely accepted framework). As Karmiloff-Smith notes,

> language is more than a symbolic system for representing knowledge. It is also a system for communicating and sharing knowledge, involving complex dialogic constraints between speaker and hearer. (1979a, p.12)

The importance of interactive processes between socially constituted individuals is recognized as an inherent part of the developmental process, on the same lines as Vygotsky. Furthermore, attention to social interaction both in the pre-speech and later periods of development has highlighted the role of discourse as an 'operational space' (Karmiloff-Smith, 1979d) for the discovery of the systemic-relational character of language, i.e. for the child's construction of semantic, morphological, and syntactic relations. Basing herself on the view of language as the 'locus' of intersubjectivity, de Lemos (1981a) argues that children engage in the process of entering a two person structure with an interlocutor so as to build up a representation of themselves as an interlocutor, which eventually enables them to become a player of different 'language games'.

Research on prelinguistic communication has taken into account the importance of children's interactions with their social environment and the interpersonal function of language. The 1970s witnessed the accumulation of information on various aspects of speech, like the nature of input to the child (Snow, 1972; Newport, Gleitman and Gleitman, 1975; Snow and Ferguson, 1977), role-taking

and turn-taking, structuring of dialogue in adult-child interaction (Bruner, 1975, 1978; Bates, 1976; Bruner and Sherwood, 1976; Bernstein, 1981, de Lemos, 1981a) and use of intonational and indexical devices for the establishing of joint reference (Halliday, 1975; Ninio and Bruner, 1978).

All this body of research suggests that the child's interpersonal interactions, starting with the prespeech period, provide an important context for the discovery of both the content and structure of language as well as communication at large. Through participation in discourse with adults, children learn to manipulate linguistic devices to provide the appropriate contextualization and decontextualization for their utterances. Furthermore, in many cases, their interpretation of the events or construction or categorization of the nonlinguistic world is guided by the linguistic descriptions they hear in the context of such interaction. For example, the discovery of temporal notions (de Lemos and Bybee, 1981; Eisenberg, 1981; Sachs, 1983; Aksu-Koç, 1986b), quantitative concepts (Karmiloff-Smith, 1979a; Saxe, 1979) or norms of politeness and social status (Aksu-Koç and Slobin, 1985; Clancy, 1985) may depend on the acquisition of certain linguistic forms to some extent.

Thus, more recent studies investigating discourse processes and the relational rather than referential aspects of the linguistic system (e.g. systems of pronouns, determiners, or tense-aspect and modality) have led to a multicausal, interrelational view taking into account both form and function and the processes internal and specific to language itself.

In the present work, I investigate the acquisition of one part of the tense-aspect-modality system of Turkish. In particular, I focus on the development of the semantic structures underlying the use of appropriate verb forms for talking about past events and the individual's subjective relations to such events. The domain of temporal reference in language is one where all the factors discussed above are relevant to the issue of acquisition. The mastery of linguistic form appears primarily to count on developing conceptions of time in the case of tense, the discovery of appropriate semantic distinctions in the case of aspect, and the contribution of pragmatic factors grounded in discourse in the case of modality. I should again emphasize however, that I view form, meaning, function and thought as interactively contributing to the process of acquisition and to the construction of the resultant system. The characteristics of the tense-aspect-modality system of Turkish that is under investigation will be discussed in detail in the following chapter. At this point I would like to point out that Turkish grammaticalizes a category of mood - namely 'the evidential' - with a single morpheme that simultaneously has aspectual and tense functions. In this respect, it differs from the more often studied Indo-European languages which do not

provide grammatical marking for this distinction. Thus, a study of the acquisition of this system in Turkish presents an opportunity to 'find evidence for children's attention to functions that may not be clearly discernible in the development of other languages' (Slobin, 1985a) and even for the fact that such marking draws children's attention to the relevant semantic notions and pragmatic functions. Language acquisition strategies inferred from such a domain will, through cross-linguistic comparisons, reveal which strategies are specific to particular languages and which are of a more universal scope.

The theoretical framework for the treatment of the grammatical categories of tense, aspect and modality and a characterization of the linguistic system of Turkish to be studied, is presented in Chapter 2. Chapter 3 reviews the related research and theoretical positions in child language. Part II presents the empirical study. Chapter 4 states the problem and the hypotheses of the study and gives an overview of the general design. Chapters 5, 6, 7 and 8 present the methodology, results and discussion of the longitudinal and experimental data. Finally in Part III, Chapter 9 summarizes the findings and discusses their general implications for language acquisition, for the developmental relationship between language and thought and for the linguistic analysis of the tense-aspect-mood system of Turkish.

## 2. Tense, aspect and modality

**2.0.** The system of expression of temporal relations is one where languages differ in the particular semantic notions they choose to bundle together and mark in their grammatical structure. To the extent that time cannot be conceived of independent of its contents, namely events, the distinctions that are grammaticalized concern the different relations that one construes between events themselves or between events and the self. The former involve the location of events on the time line relative to one another. The latter, on the other hand, express either the subjective perspective taken with regard to the temporal constituency of the event, or the subjective attitude adopted towards the truth or normative value of the proposition referring to the event. The domain of grammatical systems which provide formal means for the expression of such diverse relations has come to be treated under the rubric of tense-aspect-modality systems in the study of languages.

### 2.1. Overview of theoretical treatments of tense, aspect and modality

In traditional grammar, TENSE refers to the relating of the time of the referent situation to either the time of utterance or to the time of some other situation. It is also recognized that the primary characteristic of tense is that it is a deictic category. Temporal reference in language requires that interlocutors be able to control and interrelate at least two different frames of reference: the deictic and the nondeictic. A widely accepted framework for the analysis of tense on these lines has been one proposed by Reichenbach (1947). He analyzes tense in terms of three temporal points: the speech point (S) which is always the deictic 'now'; the event point (E); and the reference point (R) which establishes a point of orientation with respect to which the event point is fixed. The distinctions of past, present and future result from the different ordering relations that hold between S and R. Distinctions such as anterior, simultaneous or posterior, on the other hand, derive from the ordering relation that holds between E and R. Reichenbach (1947) thus analyzes nondeictic temporal reference, or what has been commonly called 'secondary' or 'relative' tenses (e.g. Bull, 1963)

involving notions like anteriority, posteriority and simultaneity under the category tense.

Current linguistic theory however distinguishes between the deictic and non-deictic frames of reference and defines tense as

> part of the deictic frame of reference: it grammaticalizes the relationship which holds between the time of the situation being described and the temporal zero point or the deictic context. (Lyons, 1977, p.687)

Limiting the domain of reference of tense thus, recent approaches (Anderson, 1973; Lyons, 1977) now treat the other time related distinctions subsumed under 'relative' tenses in the domain of aspect. An exception is Comrie's (1985) work on tense which presents a framework more similar to that of Reichenbach (1947). Comrie also makes a distinction between absolute and relative tenses and points out that the deictic center with respect to which an event is located in time can be some point other than the present moment but so established relative to the present moment. That is, in line with the more traditional approaches, he treats relative tense constructions under tense rather than aspect. However, he is careful to note that most languages have aspectual as well as tense oppositions and the former have sometimes been misleadingly treated under the latter.

A further point to be noted in relation to tense revealed by more recent investigations (Ultan, 1972; Traugott, 1974, 1978; Lyons, 1977; Comrie, 1985) is that the basic tense distinction made by most languages is a two-way distinction between past and nonpast or, less commonly, between future and nonfuture rather than a three-way distinction between past, present and future.[1] What has been treated in most languages as the future tense is rather a modal category and so-called present tense markers have primarily aspectual functions, reducing the opposition to the binary one of past-nonpast.

ASPECT, on the other hand, in its most widely accepted treatments, gives information about the internal structure of events in terms of temporal characteristics such as duration, punctuality, completion, iteration, inception and the like. That is, aspectual markings impose a perspective on different portions of an event within its own temporal flow, by parcelling it up to beginnings or ends, presenting it as a point in time or in its ongoingness (Comrie, 1976). Such a characterization does not attribute to aspect the function of locating an event on the temporal dimension. However, as was pointed out above in discussing tense, some theoretical approaches, for example the localistic theory proposed by Anderson (1973; see also Lyons, 1977), make a claim in this direction. In this view, temporal notions like anteriority, simultaneity or posteriority which are involved in the relation of one event relative to another on the time line, are more appropriately analyzed as aspectual rather than as indicating secondary

tenses. For instance, Lyons (1977, p.689) notes that 'anteriority', as well as not being a deictic notion, is not always distinguishable from 'completion' or 'termination'. Thus the relationship between event point E and reference point R should be analyzed in terms of aspect whereas the relationship between reference point R and moment of speech S should be reserved to tense.

Similarly, analyses of aspect as a 'discourse-pragmatic' rather than 'a local-semantic' phenomenon, in Hopper's (1982) terms, argue that sequencing (i.e. presenting events in chronological order or not) is an important feature in the selection of aspect (see also Forsyth, 1970; Hopper and Thompson, 1980; Li, Thompson and Thompson, 1982; Rafferty, 1982; Timberlake, 1982). The following quotation from Anderson sums up this view:

> Aspect, I suggest, is concerned with the relation of an event or state to a particular reference point: it is located before (retrospective), after (prospective), around (progressive) or simply at (aorist) a particular point in time. (1973, p.5)

This conceptualization of aspect appears to provide a more adequate framework for the present purpose as will become evident in my characterization of the Turkish system. In fact, in her analysis of the meaning of tense and aspect markers, Yavaş (1980) pointed out the viability of such an approach for the language. TENSE, then, is taken as a grammatical category which functions to establish a primary temporal reference point with respect to utterance time. ASPECT, on the other hand, both informs about the internal temporal constituency of an event, and indicates its nondeictic relation to an already established reference point.

An analysis of aspect on similar lines is presented by Smith (1983) who makes a distinction between SITUATION-ASPECT and VIEWPOINT-ASPECT. Situation-aspect has to do with verb semantics and sentence constituents and thus concerns the internal temporal character of events, whereas viewpoint-aspect reflects the perspective taken on a situation type by relating the event to a nondeictic reference point. In talking about a situation speakers have a choice as to whether they encode one or both of these aspects.

At this point it will be useful to consider those treatments in linguistic theory which classify the elements of the category verb into two general types on the basis of their semantic nature (Vendler, 1967; Dowty, 1972; Antinucci and Gebert, 1976; Comrie, 1976; Lyons, 1977). These analyses are relevant to discussions of aspect since a given verb '(normally) denotes one kind of a situation rather than another' (e.g. a state vs. an event) or has an 'aspectual character' which interacts highly with aspect since 'they both rest ultimately upon the same ontological distinctions' (Lyons, 1977, p.706). The classification based on the

semantic character of verbs posits two basic types of situations denoted by the two major verb types: (1) STATES: qualities or states of affairs that do not undergo a change over time. Such situations have duration, and unless something happens to change the state, such as inception or termination, the situation continues (e.g. like, want, know). (2) NONSTATIVE SITUATIONS: situations which necessarily involve change and are further subclassified into events and processes: (a) EVENTS: nonextended, dynamic situations that occur momentarily in time, where a punctual transformation or change in state is involved. A subclass of this category are ACTS which refer to agent controlled events. (b) PROCESSES: extended dynamic situations that endure through time, where different phases of the situation may differ from one another. A subcategory of processes which are agent controlled are ACTIVITIES. Processes or activities can go on indefinitely or be broken off at any point (e.g. play, dance, work). A further distinction within these classes has been proposed by Vendler (1967). He has specified ACCOMPLISHMENTS as processes which take time and which have as their natural terminal point, an event (e.g. build a house, sing a song). Thus, the notion of completion is applicable to these situations. ACHIEVEMENTS, on the other hand, are punctual events, where the process and end point are intimately bound up. Once the event is under way, it cannot be prevented from happening and leads to a terminal point or event (e.g. break, tear, die, forget). Thus the difference lies in how closely the process and the terminal point are related.

Finally, MODALITY distinctions refer to the expression in language of the subjective attitudes of the speaker in relation to an event he or she is talking about (Bull, 1963; Lyons, 1968, 1977; Comrie, 1976; Palmer, 1986). Languages typically express modality through the lexical category of modal verbs (e.g. may, can, must, will) and the inflectional category of mood (imperative, subjunctive, conditional, optative, inferential/evidential and the like) (Bybee, 1985; Palmer, 1986; Stephany, 1986).[2] Although the modal system of most languages is formally associated with the verbal system, modality 'does not relate semantically to the verb alone or primarily, but to the whole sentence' (Palmer, 1986, p.2). While mood refers to a grammatical category that cannot be identified with modality or illocutionary force, modality cannot be 'properly analysed otherwise than in terms of the indexical and instrumental functions of language' (Lyons, 1977, p.849) i.e. pragmatics. As a semantic category, modality involves notions such as possibility, necessity, obligation, permission, intention, volition, potentiality and the like.

Typically, a distinction is made between at least two kinds of modality: (1) EPISTEMIC modality, which involves the qualification of propositions with respect to their validity, truth, or factuality (Lyons, 1977, p.797ff.) and

(2) DEONTIC modality, which involves the qualification of propositions in terms of indicating obligation and permission of 'acts performed by morally responsible agents' (Lyons, 1977, p.823) with reference to norms.[3] Lyons furthermore points to the distinction that should be observed, between OBJECTIVE vs. SUBJECTIVE epistemic and deontic modalities. While, for example, objective epistemic modality concerns itself with the notion of objective possibility bearing on the truth of a proposition, in normal everyday language use what is at issue is the speaker's opinion regarding the truth value distribution of his propositions. Thus, in semantics of modality, what is important is the subjective epistemic or deontic interpretations rather than the objective. Utterances where speakers express reservations about committing themselves to the factuality of the information they are giving are subjectively modalized epistemic statements (e.g. statements of opinion, or hearsay or tentative inference).

Another point to be made in this connection is that languages may realize the function of expressing epistemic and deontic modalities through the same formal means, since both categories involve the notions of 'necessity' and 'possibility' and thus are closely related (Parisi and Antinucci, 1976; Lyons, 1977; Bybee, 1985; Palmer, 1986; Stephany, 1986).

I will not be concerned with deontic modality any further but will now turn to a consideration of a special case of epistemic modality, the EVIDENTIAL, since it will be relevant in my further discussions. The evidential is a mood category not grammaticized in the well studied Indo-European languages, but is marked in Turkish, as well as in many other languages (Haarmann, 1971; Chafe and Nichols, 1986).

In his analysis of the 'epistemic space' in natural language in terms of relevance of evidentiality contrasts, Givón (1982) suggests that evidentiality is relevant in '"realis" assertions of medium certainty' and requires justification by evidence. This middle range of the continuum of epistemic space, Givón proposes, covers asserted new information that is not obviously true either because (a) it cannot be presupposed between the speaker and the hearer on the basis of mutually accepted discourse conventions, or because (b) it is not deictically obvious due to the fact that the speaker was not a participant and thus his or her report is not about directly witnessed events. The range of highest certainty thus covers deictically obvious or presupposed information, while the range of lowest certainty embraces information about hypothetical, future or uncertain projected events for which evidence cannot possibly be cited. Thus evidential modality includes assertions where truth is neither presupposed and thus beyond doubt, nor is it too hazy and dubitable to bother with (Givón, 1982).

Analyses of languages which mark evidentiality contrasts (e.g. American Indian

languages like Quechua: Weber, 1986; Maricopa: Gordon, 1986; Jaqi languages: Hardman, 1986; Makah: Jacobsen, 1986; Wintu: Schlichter, 1986; or languages like Sherpa: Givón, 1982; Woodbury, 1986; Tibetan: DeLancey, 1986; and Turkish: Aksu-Koç and Slobin, 1986) have shown that distinctions made by evidential markers rest on the axiom that 'one's own (direct) experience is reliable' (Weber, 1986). That is, a major component of evidentiality is the speaker's certainty about or commitment to the truth of his or her proposition, expressed by the 'validational' meaning of its markers. A corollary function of evidential forms is to indicate 'source of information', i.e. whether it has been obtained directly or indirectly through some kind of evidence. It appears that languages differ in terms of which one of these functions is more fundamental. Some languages (e.g. Wintu: Schlichter, 1968; Maricopa: Gordon, 1986; Akha: Thurgood, 1986; Tuyuca: Barnes, 1984 (in Palmer, 1986)) have a number of affixes which make finer distinctions to indicate the modality of sensory evidence (e.g. visual vs. nonvisual vs. hearsay) and therefore have primarily the function of indicating data sources. Others, on the other hand (Turkish: Aksu-Koç and Slobin, 1986; Quechua: Weber, 1986; Sherpa: Givón, 1982; Woodbury, 1986) have a single, nondifferentiated form and the opposition between direct vs. indirect experience markers is primarily validational.

A further function of evidential forms is closely related to both of these components. By marking the source of information, speakers exercise caution in the amount of responsibility they assume for the information they convey. Choice of direct experience markers allows speakers to assume responsibility, while choice of indirect experience markers, though not necessarily indicating uncertainty, allows them to attribute responsibility to someone else (Weber, 1986).

In summary, although neither tense, nor aspect, nor modality is strictly a category of the verb, they are most commonly realized in language in the morphological or syntactic variations of the verb. Observations from a variety of languages indicate that these distinctions are not totally differentiated and that a given syntactic means can serve more than one of these functions. The tense-aspect-mood system of Turkish is interesting both in its own right and in a comparative perspective, since the language differs from the more frequently studied Indo-European languages in the kind of semantic distinctions it makes. The present study investigates this network of relationships in the light of a single form which combines several different functions in itself. The form is the suffixed particle -mIş, which expresses past tense, perfect aspect, and evidential mood.

In the following section, the framework for the tense-aspect-modality system of Turkish is presented briefly. Then, the different meaning components constituting the semantics of the -mIş form are described, suggesting a sequence that

might represent their hierarchical organization.

### 2.2. Tense-aspect-mood system of Turkish

Structurally, Turkish is an agglutinative language with a number of small particles that serve for modulations of meaning when appended to nouns and verbs. The verb is made of an invariant root followed by a string of affixed particles, agreeing with the root in vowel harmony, and indicating voice (causative -tIr; reciprocal -Iş; reflexive -In; passive -Il/In), modality (necessitative, abilitative/ potential, conditional), negation (-mA), tense-aspect-mood and person/number.

(1) koş -uş -tur -ul -a -ma -dı
run RF CS PV ABIL NEG PA:DE

-ysa -lar
COND 3PL

'If (they) haven't been made available for our service.'

For our present purpose we shall just focus on the tense-aspect-mood markers. As indicated in the above example, person particles are suffixed to the tense-aspect-mood inflections (marking first and second persons singular and plural and third person plural) and the other particles (may) intervene between the verb stem and the tense-aspect-modality-person particles.

Different classifications have been offered by different grammarians for the tense-aspect-mood system of Turkish (Kononov, 1956; Lewis, 1967; Banguoğlu, 1974; Gencan, 1975; Underhill, 1976). These treatments have been classical in the sense that they have all adhered to a definition of tense which distinguishes between absolute tenses organized around the moment of speech, and relative tenses, which take as their reference time one different from the moment of speech. Here, temporal distinctions of the latter kind concerning the relations between events themselves will be treated under aspect. Furthermore, it has been claimed that Turkish has a tripartite tense division into past, present and future. However, as previously noted, future is not seen to be essential to the notion of tense, since it is never a purely temporal concept, but 'necessarily includes an element of prediction or some related modal notion' (Lyons, 1977, p.677). Comrie (1985), noting the controversy on this issue, concludes that while it is theoretically possible to make a three way distinction within absolute tense, many languages have a binary system. In line with these views, Yavaş (1980) proposes that the tense system of Turkish is best characterizable in terms of a past-non-past distinction.[4] In the following section we briefly describe the tense-aspect-mood system of Turkish in terms of its basic dimensions, following the more recent theoretical approaches.

The temporal distinctions that can be made from the deictic temporal zero point of the utterance involve reference to past, present or future.

(1) Past reference: For all instances of past reference there is an obligatory choice between the following two suffixes: (a) -DI indicates past of DIRECT EXPERIENCE (DE), i.e. it is used in statements expressing an event or situation that has been consciously experienced by the speaker. In addition to her claim that it is the only tense marker in the language, Yavaş (1980) has characterized -DI as the subjunctive mood marker, noting its use in counterfactual and non-factual statements and statements showing doubt and tentativeness. (b) -mIş indicates past of INDIRECT EXPERIENCE (IE), i.e. it is used for expressing information about events/processes not directly or consciously experienced by the speaker but obtained on the basis of some sort of evidence. As such, -mIş is the marker of the evidential mood and its primary function is to indicate lack of 100 percent commitment to the truth of what is being asserted. The two inflections, then, contrast explicitly in terms of modality but not of aspect (see further below when a more detailed analysis of the semantics of the particle -mIş is presented).

(2) Present reference: There is no aspectually unmarked present tense in Turkish. The particles typically associated with present reference, -Iyor and -Ar are primarily aspectual and/or modal in function: (a) -Iyor prototypically indicates progressive aspect, i.e. the ongoingness of the event referred to. It can also be used to indicate habitual activity or to make future reference, as in English. (b) -Ar (the aorist): the scope of reference of -Ar is typically said to be indefinite present, which derives from its function of denoting habitual aspect and its use in generic statements. The aorist, like -Iyor, also has modal functions, particularly those of indicating potentiality or intention, depending on context. It appears that the modal distinction between the two forms is that -Iyor is used in encoding future events which are almost factually known to hold, whereas -Ar is used in expressing those states of affairs that are more within the realm of the possible, the potential.

These considerations show that there is a formal asymmetry in Turkish in aspect marking in the past and nonpast. While there is no aspectually unmarked present, there is an unmarked simple past, as well as aspectually marked forms. Such asymmetry has been noted for a number of other languages (Comrie, 1976; Lyons, 1977) and has been claimed by Lyons to be related to the distinct functions of the 'historical' vs. the 'experiential' modes of expression. Regarding this distinction Benveniste notes for French that the historical utterance characterizes the narration of past events and defines historical narration as 'the mode of utterance that excludes every "autobiographical" linguistic form' (1971, p.206,

English translation). Given that the tone of narration is intended to be objective, it cannot allow for the entry of the subjectivity, or point of view of the speaker as represented by aspect. The present, on the other hand, is the experiential mode of discourse which is the arena of subjectivity. Although it is not in the scope of this discussion to present an analysis of the details of the Turkish tense-aspect system in terms of this contrast, the presence of an aspectually unmarked past form can be related to the fact that it is the tense for historical narration. In fact, in the historical mode, the Turkish past neutralizes the mood distinction with respect to direct vs. indirect experience, thus again blocking the intrusion of the subjectivity of the speaker into the narration. That is, historical events or past events which have gained the status of objective facts are reported in the past of direct experience, regardless of whether they have been witnessed or not (see section 2.3).

(3) Future reference: is realized by -(y)AcAk which is best 'analyzed as the marker of "presumptive" modality, the application of which to future events constitutes one of its many uses' (Yavaş, 1980, p.8). In its use for reference to future events -(y)AcAk expresses a strong degree of certainty regarding the taking place of the predicted event. As was discussed above, different degrees of certainty regarding future happenings can be expressed by the modal uses of -Ar or -Iyor.

The above are the distinctions made in the indicative mood. There are five additional mood classes that can be expressed in utterances made from this primary axis of orientation. Four of these are the optative (-sIn) indicating desire and intention, the necessitative (-mAlI) indicating obligation, the potential (-AbIl), indicating possibility or ability and the conditional (-sA) used in the expression of realizable, possible or remote conditions or wishes. The fifth, the imperative, used in the issuing of commands, orders, is expressed with the unmarked verb stem, as in most languages.

Talking about events from a point of reference shifted to another plane (retrospective or prospective) involves a range of temporal distinctions which lead to compound constructions with more than one tense-aspect-mood marker appended to the verb. These compound constructions indicate aspectual distinctions such as anteriority-posteriority, simultaneity-nonsimultaneity, or proximity-nonproximity of one situation relative to another (Lyons, 1977, p.683) as well as those of duration, completion, inception and the like. Thus they indicate how a given situation is related to the reference point already established. Furthermore, as in the case of the primary tense-aspect categories, any utterance marking these temporal distinctions can simultaneously have modal colorings, i.e. be in the indicative, subjunctive, evidential, or conditional moods, conveying the speaker's

subjective attitude.

I will not illustrate all the possible combinations of tense-aspect-mood particles here, but will limit the discussion to two classes relevant to past reference. The first category involves constructions formed by appending IdI, the past tense of the verb to be, to the nine different temporal-modal forms of the verb discussed above.[5] Some of these combinations allow for the explicit marking of aspect in the past, such as the past progressive (verb-Iyor-DI), the past habitual (verb-Ar-DI) and the past perfect (verb-mIş-DI), while others project certain contingent or conditional states of affairs to a past plane of reference such as the future in the past (verb-AcAk-DI), the past in the past (verb-DI-DI), potential in the past (verb-AbIl-DI), necessitative in the past (verb-mAlI-DI) or counterfactual conditional (verbs-sA-DI, verb-A-(y)-DI). In these latter contexts, Yavaş (1980) interprets the function of -DI to be that of marking the subjunctive mood.

The second category, on the other hand, is formed by appending ImIş, the evidential mood marker (or the so-called -mIş past of the verb to be) to the primary forms of the verb except for -DI past (past of DE), since something directly experienced cannot then be reported in the evidential mood. Some of the constructions of this category allow for the expression of temporality in terms of aspectual and mood distinctions, as in verb-Iyor-mIş, verb-Ar-mIş and verb-mIş-mIş, indicating, respectively, progressive, habitual and perfect aspect in the evidential mood. Others, on the other hand, function in making purely modal predications in the same mood.

A final point to be made regarding aspect in Turkish is that it is also marked with the nonfinite forms of the verb. Certain suffixes with no tense value are attached to the verb and an embedded adverbial clause so formed derives its deictic temporal specification from the tense of the main verb. Examples of such adverbials that occur in early child speech are verb-IncA and verb-Arken, which function in indicating the anteriority or simultaneity of the event referred to in relation to another reference point specified by the main verb, as well as giving information about the temporal contour of the event. For example verb-IncA marks the anteriority relation between two events by indicating completive aspect for the verb of the subordinate clause and inchoative aspect for the main verb. Verb-Arken indicates simultaneity of the two events and progressive aspect for the event expressed in the verb of the subordinate clause.[6] These and other adverbial constructions are handy devices for backgrounding in Turkish (Aksu-Koç, 1986a), as well as in some other languages such as those of the North Caucasus (Nichols, 1981), and serve the discourse pragmatic functions carried out by perfective vs. imperfective verbs in other languages (e.g. Forsyth, 1970 for Russian; Hopper, 1982 for Malay).

It is also worth noting the apparent parallel with what Benveniste (1971) calls 'forms of anteriority' in his analysis of the different functions of the French perfect. In its function of indicating anteriority, the perfect creates a logical and intralinguistic connection and does not reflect the chronological one that would be set up in objective reality. Similar to the Turkish constructions, the forms of anteriority are syntactically dependent and carry temporal value only through a syntagmatic relationship.

Since the scope of the present study is limited to the acquisition of that portion of the system that functions for past time reference, major focus will be on the use of the relevant tense-aspect-mood markers in this domain.

### 2.3. Semantics of the particle -mIş

It is probably due to its rather complex semantic and pragmatic functions that so many different terms have been used to denote the particle -mIş in the grammars of Turkish: 'indirect experience' (Haarmann, 1970; Banguoğlu, 1974), 'nonevident' (Kononov, 1956), 'inferential' (Lewis, 1967), 'presumptive' (Sebüktekin, 1971), 'nonpersonal' (Grunina, 1976) and others. Here, we will call it the 'evidential)'.

-MIş as the past of indirect experience and ImIş as the marker of the evidential mood have been treated as two distinct forms. However, an in-depth analysis suggests that the respective semantic-syntactic functions of the two forms can be derived from a common semantic origin via a set of complex interrelationships. The core meaning at the base of this semantic connection can be characterized as 'end state resultant from a process or event', and is expressed by the past participle derived with -mIş. Participles make the time related conception of the event/process denoted by the verb into an adjective and like all adjectives, they describe states. The -mIş particle can form a participial adjective freely only with achievement verbs, allowing for the presentation of the event in terms of the state achieved by the object undergoing change (e.g. öl-müş adam 'dead man', but not *öğren-miş adam 'learned man'). That is, the additional information conveyed by the participial adjective, in contrast to a regular adjective, is that the state has resulted from a preceding process. With other change of state verbs, formation of the participle is subject to constraints such as the following: if suffixed to change of location verbs, the source or goal location needs to be specified (e.g. New York'a git-miş adam 'a man who has gone (been) to New York', but not git-miş adam 'a man who has gone'); if suffixed to change of affective state verbs where change is due to a causal source, this source needs to be specified (e.g. köpekten kork-muş çocuklar 'children who have been frightened by/of dogs', but not *kork-muş çocuklar 'frightened children');

if the verb describes a change of state that cannot take place spontaneously (i.e. inherently causative verbs), the passive particle must be included because it is the resultant state of the patient which is being encoded (e.g. kır-ıl-mış bardak (broken glass', but not *kır-mış bardak (broke glass) (Slobin and Aksu, 1982). In more general terms, we can state that the participle is acceptable only if all of the semantic roles inherent in the case frame are specified in the clause in which it occurs (Fillmore, 1968).

The fact that the particle can form the participle freely only with achievement verbs that have establishment of an end state as an inherent part of their meaning indicates that it has a stativizing function. Stative participles thus derived, serve to 'indicate an attribute that has been actualized at a point in the past distant from the here-and-now' (Banguoğlu, 1974, p.272).[7] The aspectual function of the particle -mIş is thus related to the notion of 'resultant state', and the surface form -mIş encodes the category of the perfect in the language. In his analysis of aspectual systems, Friedrich (1974, p.36) has proposed the 'perfect' or 'stative' aspect to be as basic an aspectual category as the imperfective and the perfective.[8] Concerning the perfect, Jespersen (1924) claims that 'it represents the present state as the outcome of past events, and may therefore be called a variety of the present' (p.269). He further explains the historical tendency of the perfect to change either into a pure preterit or to a present in different languages by noting the difficulty in keeping 'the sharp distinction between the idea of the present result of past events and that of the past events themselves' (1924, p.270). Basing himself on Forsyth's analysis of Russian, Hopper reiterates this view and states that the resultant perfect may be semantically allied with a continuing state or a completed action according to whether the ongoing state or the antecedent action is viewed as fundamental (1982, p.12). The -mIş participle embraces both process and result in its scope and relates the result to the process. Furthermore, what seems to be viewed as fundamental is the enduring resultant state, rather than the antecedent process. I therefore choose to call it the RESULTATIVE PERFECT[9] and note that its primary function is to indicate STATIVITY. The past participle combines with other tense/mood markers to denote the past perfect (e.g. git-miş-ti '(he) had gone') and the future perfect (e.g. git-miş ol-acak '(he) will have gone').

The function of the form as a PAST tense marker is only a natural correlate of its aspectual meaning, since for an event or process to have resulted in an end state, it necessarily has to be located at a prior point on the time line. In other words -mIş acquires its temporal specification by default, due to its aspectual meaning, or its alliance with a completed action.[10] In this interactive function of tense and aspect, the -mIş particle gets an additional semantic

feature assigned to its meaning, definable as 'nonwitnessed process', through which it takes on a modal function. Here the term 'nonwitnessed process' indicates situations where the sensory evidence from which inference about an antecedent process is made clearly follows it in time, such that no phase of the process has been available to the speaker's consciousness. In other words, what qualifies as indirect information for the Turkish speaker are situations where the speaker has had 'no premonitory awareness of experiencing the event' (Slobin and Aksu, 1982, p.92). Thus, the choice of the -mIş inflection to indicate past conveys the information that the event/process referred to has not been consciously experienced or directly perceived as it was taking place. (Instead, it has either been inferred from some observable evidence or is based on hearsay.) It is not surprising that the function of indicating inference is acquired by the marker of the perfect aspect in the language since the presence of a resultant state, though it necessarily implies an antecedent process, does not imply that the speaker was a witness to that process (Slobin and Aksu, 1982).

The connection between states and inference has been best expressed by Sarauw:

> the perfect originally denoted the state ... The meaning of the perfect was gained by an inference: he who possesses has acquired; he who wears a garment has put it on. (Sarauw, 1912, p.60, quoted in Jespersen, 1924, p.269)

Comrie has also noted the semantic similarity between perfect and inferential forms and has suggested that it 'lies in the fact that both categories present an event not in itself but via its results' (1976, p.110). The perfect inferential connection has been observed to find formal expression in languages as diverse as Bulgarian, Georgian, Estonian (Comrie, 1976), Lhasa Tibetan (DeLancey, 1986) and Chinese Pidgin Russian (Nichols, 1986).

The -mIş form contrasts with the other past in Turkish, -DI, used when relating past events positively known to the speaker, i.e. events that have been directly and consciously experienced or perceived.

As noted earlier, grammars of Turkish have observed a distinction between the inferential -mIş and the so-called quotative -ImIş and treated them as connected only syntactically. Such a distinction is, however, unwarranted on semantic grounds since both functions of the particle can be accounted for by the meaning component 'nonwitnessed process'. In its QUOTATIVE function the particle predominantly conveys the information that the speaker's utterance is based on hearsay ('it is said that; someone told me', hence, 'I did not witness it').[11] The evidence for the nonwitnessed event is not observed end state anymore, but another party's speech act, where neither the process nor the resultant state have been available to the speaker's consciousness.

We have seen that in the inferential uses of the form, assertions can be made only about accomplished events, which are necessarily perfect in aspect and past in tense. However, the same limitation does not hold for reported events since any kind of event, regardless of its aspectual or temporal characteristics, can be reported by a third party. The hearsay use is thus purely modal; -mIş as a mood marker is not subject to any constraints governed by past vs. present time and stative vs. completive vs. continuous aspect.[12]

In the inferential and quotative uses of -mIş, then, the speaker's assertion represents an act of inference based on some sort of evidence, hence the general term EVIDENTIAL to cover the form's temporal/modal uses. However, there are some other uses of the -mIş particle which can be explained only on pragmatic grounds and which shed further light on its semantics.[13] These pragmatic extensions appear to have developed for special communicative purposes and to gain their force from the context of utterance. For example, the particle serves to give information about a speaker's presuppositions, as when it indicates surprise in face of information obtained directly, but which is contrary to one's expectations. This function of the particle has also been noted by Haarmann (1971, pp.94-5), who has carried out a detailed survey of indirect experience forms in many languages, including Turkic (1970). Haarmann regards this use to be functionally related to the resultative, in line with my own thinking. Another such extension is to express lack of conscious awareness, as when used in contexts where the speaker, though directly experiencing the event, becomes aware of it only after the fact, through reflection on or observation of consequent states (e.g. 'I must have slept' said upon awakening over a book). Similarly, it is used in relating dreams. One of the uses which has probably contributed to its being called 'the dubitative' (Redhouse, 1884; Underhill, 1976) is its ironical use for casting doubt on a proposition (e.g. 'She is reportedly dieting' predicated of a well-known diet-breaker). Further extensions of this use have led to the function of creating rhetorical effects when used in assertions about states of affairs which were strongly expected to hold true but were found not to in the real world (e.g. 'How well I know the words of this song!' said upon finding out that one does not remember more than two words). Its pragmatic extension to compliments can be explained on similar grounds. A positive assertion in -mIş in a context of direct experience is taken as a compliment because -mIş indicates the mismatch or the gap between the speaker's normal expectations and the high quality of his or her experience.[14]

In all these situations, although the speaker has been a conscious, direct experiencer, he or she has uttered sentences marked with -mIş. What seems to be at issue then, is not only the direct participation or conscious involvement of the

speaker in the event but rather the speaker's 'mental set at the moment' or the degree to which he or she had a 'prepared mind' to accommodate the new information. It is this notion of 'unprepared mind' that captures the essence of all uses of -mIş, which covers

> situations for which the speaker is not somehow prepared - situations on the fringe of consciousness, learned of indirectly or not immediately assimilable to mental sets of the moment. (Slobin and Aksu, 1982, p.195).

The fact that -mIş in the cases of inference of hearsay can be dropped after a passage of time and that the same information can be communicated with -DI, the past of direct experience, illustrates the above point further. The time at which one shifts from the use of -mIş to -DI depends on subjective factors regulated by how fast or easily, one can assimilate the indirect information regarding an event as one's own, i.e. on one's psychological distance to the event.

These considerations about the pragmatic extensions of -mIş, where its meaning is context dependent, bring us to a final issue that is also discourse based. This concerns the NARRATIVE function of the form. Claims that -mIş is the marker of the narrative mode (Banguoğlu, 1974; Underhill, 1976) have to be qualified however, because the form serves a specific narrative function limited to accounts of myths, folktales, fairytales, jokes, or pure fantasy, i.e. events which have no basis in reality and are far distant from normal experience. Historical accounts and realistic fiction which concern phenomenologically familiar events, on the other hand, are usually reported in -DI, the past of direct experience. Thus, -mIş provides a narrative frame for very special kinds of events which belong to the domain of the non-actual and for which one is always in an unprepared state of mind. It should also be noted that this is a special instance of the use of the Turkish evidential to indicate total lack of commitment to the factual status of what is being asserted.

There is another function of the particle -mIş in narrative. In its capacity of the perfect, -mIş plays an important role in discourse organization. Indicating anteriority and/or stativity in the various perfect constructions in which it figures, it serves an important function for backgrounding and does not carry inferential meaning. Its modal uses also render it appropriate for the same function since indirect or evidential information is more likely to be presented as background material (Aksu-Koç, 1986b). Similar discourse functions of evidential-aspectual particles have been reported for Sherpa (Givón, 1982) and languages of the North Caucasus (Nichols, 1981), to cite a few.

Having considered the pragmatic extensions of the -mIş particle as well as its prototypical functions of expressing inference and hearsay we can now define the broader semantic domain it covers as 'situation new for unprepared minds'.[15]

The interrelationships described above characterize the semantic domain governed by the particle -mIş. The fact that Turkish formally marks notions related to event structures, their location on the temporal dimension and subjective notions related to the certainty and source of information, by a simple grammatical particle provides an opportunity for studying how such conceptions come to be construed in relation to one another, through their development in the child.

## 3. Theoretical and empirical research on the development of temporal reference

**3.0.** Questions about the acquisition of linguistic knowledge and skills (both in relation to the formal structure of language, i.e. syntax, and in relation to its content, i.e. semantics) cannot of course be posed without taking into account the developing cognition of the child.

However, as pointed out earlier, aspects of the language system differ in the extent to which they are referential, on the one hand, or concern language-internal relations, on the other, and hence in the extent to which they depend on cognitive prerequisites. Although the child's full discovery of the system of temporal reference of his language presupposes correlated developments in his conceptual understanding of time relations, it may in fact not be a necessary prerequisite, particularly in the early periods of acquisition. Furthermore, it should be clear from the theoretical treatments of the system of temporal reference that a cognitive understanding of time is not sufficient either, for its objectification in language. For, the way language allows for the objectification of what is subjectively experienced is such that it again brings to the fore the subjectivity of the speaker.

In other words, language simultaneously accomplishes the tasks of objectification of what is known, felt or intended and the expression of subjective relations to that which is thus objectified. Needless to say, the differences between languages in the means they provide for the accomplishment of this dual function lies in their different semantic organizations. Semantic development thus involves the construction of meaning structures which partake both of conceptual knowledge that has to do with the referential domain and language-internal, relational knowledge that has to do with the syntactic-semantic organization of a particular language. Consequently, the nature of the relationship between cognition and language is not one of one-way determination (e.g. cognition determines language or vice versa) but one of two-way interaction. This interactive relationship presumably proceeds such that, at different phases of acquisition, sometimes conceptual factors lead to discovery of formal means and sometimes linguistic forms lead to the forming or crystallization of conceptual structures. Semantic develop-

ment can reflect itself either in an orderly sequence of emergence of certain formal means, or in the different meanings that a given form comes to signify, their differentiation and/or integration, and most likely, in both. Acquisition studies focusing on the expression of temporal notions support both kinds of development with their findings.

### 3.1. Emergence of formal structures for temporal reference

Regarding the sequence of development, the data reveal a consistent order of acquisition among children and even across languages. This section will survey the available data, focusing on the defining features of the stages they suggest.

Although the prelinguistic period of development will not be a focus of attention here, much recent research has been devoted to the antecedents of linguistic behavior in the late sensorimotor acts and accompanying vocables of the child (Dore, 1973; Carter, 1974, 1979; Bruner, 1975; Halliday, 1975; Greenfield and Smith, 1976; Ninio and Bruner, 1978; Ratner and Bruner, 1978; Bates, Benigni, Bretherton, Camaioni and Volterra, 1979; Bates, Camaioni and Volterra, 1979; de Lemos, 1981a). Despite their variations in specifics of interests and final classifications, these studies have revealed two broad types of communicative behavior, differentiated by gesture and sound. In general terms, these are instrumental (or requestive) acts, to get objects or services, and descriptive (or indicative) acts, to establish joint attention (Stephany, 1986), which can be seen as proto forms for modalized and nonmodalized utterances, respectively.

(i) The first stage of linguistic development, or the PRE-INFLECTIONAL period, is characterized by the lack of overt marking. That is, either bare verb forms or unanalyzed amalgams are used without any modulations, and gain their meaning from context. During this stage, children's utterances serve an instrumental-directive function (where the child names either the goal of his desire or the means leading to the goal), as well as a declarative function. Such functional differentiation has been observed over many languages. Depending on language type, children's first verbal forms are either imperatives (Russian: Gvozdev, 1949 (Slobin's summary, 1966), Bogoyavlenskiy, 1957 (1973); Finnish: Bowerman, 1973; Hebrew: Berman, 1985a,b) or infinitives (English: Brown, 1973; Halliday, 1975; Fletcher, 1979; Gopnik, 1982; German: Stern and Stern, 1928; Leopold, 1949; [both reported in Werner and Kaplan, 1963 and in Stephany, 1986]; French and other Romance languages: Guillaume, 1927 (1973); Clark, 1985).

Thus, children's utterances in this stage are differentiated in terms of modality, displaying a pragmatic distinction between requests, on the one hand, and statements used to 'contract subject-object relations' (Fletcher, 1979) on the other. As Stephany (1986) notes in her excellent summary of modality in child

language, children, from a very early stage have indicators of modality, in particular, of deontic modality, in their speech.

In the developmental progression they have sketched out on the basis of early diary studies, Werner and Kaplan (1963) see subjective temporality as being embedded in the immediacy of expressed needs and desires. They note that the utterances of the pre-inflectional stage, as well as being comments on the changes in the environment, are basically expressions of mood, in that,

> it depends on the way the child is affectively involved whether the accent is on the 'overness' with the implication of the past, the suddenness of change with its implication of the 'now' or the desire of reappearance with its implication of the future. (p.402)

Thus, the extension of time for the child is still confined to the here-and-now and to his feelings connected to his actions. Almost all the recent studies agree that the scope of temporal reference at this period is limited to the present moment. For instance, Weist (1986), analyzing the development of temporal reference systems in terms of Reichenbach's framework, has proposed that the event time (ET) and reference time (RT) are frozen at speech time (ST) during this stage.

In summary, although post sensori-motor representional capacities enable children to evoke objects in their absence and to reconstruct past events or actions from memory, it seems that this ability does not necessarily imply an organization of such mental representations in a way that makes them directly accessible for linguistic encoding.

(ii) The next developmental advance shows itself with the emergence of verb inflections within the second year. This stage, which can be called the period of INFLECTIONS is characterized by the overt marking of the semantic distinction between modalized and nonmodalized utterances.

I will first consider the formal means marking nonmodalized utterances. In English, the first inflections that emerged in Brown's (1973) longitudinal data of American English are the progressive -ing and the regular past inflection -ed as well as some irregular pasts. Other investigators such as Szagun (1977), Fletcher (1979), Bloom, Lifter and Hafitz (1980) and Sachs (1983), again analyzing data from American children, also report the simultaneous emergence of these inflections (-ing, present singular -s, irregular pasts). The appearance of first inflections in Romance languages like French, Italian, Spanish and Portuguese is reported by Clark (1985) to occur around the same age. In French, the passé composé is the first form to contrast with the present indicative, while in Italian (Antinucci and Miller, 1976) and Brazilian Portuguese (de Lemos, 1981a) children initially use past participial forms and then the simple past. In Peruvian Spanish,

Jacobsen (1981) found the progressive, the preterit, and the present perfect (which is the predominant past form in the adult system of the area) to be already present at age 2.3. The same general sequence was observed in a cross-sectional sample of Mexican-American subjects by Gonzales (1971; reported in Jacobsen, 1981). The first nonmodal verb forms that Stephany (1981a,b, 1986) observed in Greek child speech are the present indicative, the imperfective present, and perfective past, all showing a gradual increase in frequency of use in the ensuing months. Observations from these various languages have shown that use of the future is not common during this period of development.

As for the surface marking of modalized utterances, in addition to imperatives and infinitive forms, Brown (1973) reports the presence of quasi-modals like wanna, hafta for English. Fletcher (1979) also notes the occasional use of auxiliaries like won't, can't, will and can in very limited contexts. Greek children, in addition to some modal uses of the present indicative, use the subjunctive mood with high frequency (Stephany, 1986), while this is found to be a late acquisition in French (Clark, 1985). In languages such as English, French and German, a desiderative verb with meaning 'want' appears quite early (also Finnish: Bowerman, 1973; Polish: Smoczyńska, 1985). Similar notions of willingness as well as ability are also expressed inflectionally as with the early uses of the aorist in Turkish (Aksu, 1974). It is interesting to note with Stephany, that modal forms in this stage as well as the later acquired ones, predominantly express deontic meanings (e.g. action oriented possibility, deontic necessity) but not epistemic modality.[1]

A commonly shared observation regarding the developments of this period is that forms occur in rather restricted environments. For example, Fletcher (1979) notes that modal auxiliaries occur only in question-answer sequences. Similarly, inflections that indicate tense-aspect in adult systems are reported to occur only with certain types of verbs (for example Antinucci and Miller, 1976; Bloom, Lifter and Hafitz, 1980; Jacobsen, 1981; de Lemos, 1981a,b; Berman and Dromi, 1983; Stephany, 1986). These observations have led to different interpretations of the functions of early inflections for temporal reference. While the investigators cited above have refrained from attributing the function of tense and interpreted them as aspectual markers, others like Weist (1986) or Nicolopoulou (1979) have expressed disagreement, though each on different grounds. While Nicolopoulou's criticism rests on theoretical arguments regarding the nature of aspect as a linguistic category, Weist has characterized this period as the 'event time system' where children are able to represent ET prior to and subsequent to, as well as simultaneous with speech time. Although I reserve the discussion of this

controversy to a subsequent section, I would like to note here that I do not agree with Weist's view that children are using the inflections as tense markers, making deictic temporal reference, at this stage.

To summarize, the notable characteristic of the inflectional stage is that verb forms now divide into two classes: modal and nonmodal. Modality is carried primarily by imperative and/or infinitive forms used for instrumental action and occasionally with inflections or auxiliaries - depending on the language - for the expression of intention. Indicative forms, on the other hand, are used nonmodally, for descriptive functions (Stephany, 1986). The inflectional markings on the verb in the indicative, represent development with respect to the differentiation of aspects of activity rather than with respect to the temporal distinction between past and nonpast. In Werner and Kaplan's words 'these modulated forms still express temporality in terms of the present event' (1963, p.402).

(iii) The third stage of development, or the period of TEMPORAL REFERENCE, appears to proceed from the second half of the third year (c.2.6) onwards. For this period, developments in English child speech reported by Fletcher (1979) are the more variable use of the progressive and past forms, with an increase in the frequency of the weak and strong forms of the latter. Will and going to are used for future reference, together with adverbials, strongly suggesting that they now carry tense as well as modal value (Harner, 1975, 1976; Szagun, 1977; Gee and Savaşır, 1985).[2] Stephany (1981b, 1986) observed the same trend in Greek, where the present indicative and perfective past increase in frequency, showing that nonmodalized descriptive utterances gradually increase in importance in the children's speech. The future tense in Greek is a later development of this period, counting upon a differentiation from the early uses of the subjunctive mood. While the subjunctive appears to be a late development in French, future is marked first with the corresponding construction of going to and later with future tense inflection (Clark, 1985). The same strategy of using periphrastic constructions before inflections has also been observed in Spanish (Jacobsen, 1981). The late emergence of future markers appears to be also a typical phenomenon in languages other than English and Romance (e.g. German: Stern and Stern, 1928; Leopold, 1947; Hindi: Verma, 1979; all reported in Stephany (1986); Hebrew: Berman and Dromi, 1983; Berman, 1985a).

An important development in this stage is the entry and gradual increase in use of adverbials. Fletcher observed temporal adverbials and complement constructions with when in English around 2.6 years. He interestingly notes that for both future and past reference, the support of adverbials was felt necessary for definitizing tense. A feature of the temporal adverbials of this period worth noting is that they are deictic adverbs (such as today, tomorrow, yesterday)

which function in relating RT to ST. In an experimental study with English-speaking children, Harner (1975) found correct comprehension of these forms around age 3.0. Clark (1985) reports the use of deictic temporal adverbs to be around age 3.0 in Italian and somewhat earlier, around 2.6, in Spanish and French. Although Smoczyńska (1985) found temporal adverbs in her Polish data as early as 1.9, Weist et al. (1984) observed deictic adverbs in their data only around 2.6. In Mandarin child speech, the use of these forms was also noted to occur during the course of the third year (Erbaugh, 1986). Temporal complement constructions with forms like when for establishing reference time have been observed to appear roughly around 2.8 - 3.0 in languages like Polish (Weist, 1986), German, English, Italian and Turkish (Clancy, Jacobsen and Silva, 1976; Aksu, 1978a). In all these languages, the use of deictic temporal adverbs and when-constructions are reported to precede the use of before and after, nondeictic adverbs marking anteriority relations between ET and RT, both prepositionally and as subordinating conjunctions. Fletcher's (1979) proposal that there might be some connection between the differentiation of past and future tense forms and the development of temporal adverbials is quite significant in the light of these findings that the adverbials used in this period are deictic in function. This I take to be supportive of my view that the verb inflections acquire the function of tense, that is, of making deictic temporal reference, during this period of development rather than the previous one.

It appears that the major feature of the third stage is the further differentiations that take place within nonmodalized utterances as well as modalized ones. Nonmodalized utterances are marked for the past-nonpast distinction, with the further development of the future tense within the latter category. In other words, the deictic system of temporal reference with its past, present, and future tenses is established. I think this development corresponds to what Weist (1986) calls the 'event time system' which is characterized by the child's capacity to represent ET prior and subsequent to as well as simultaneous with ST. At this point, the RT is seen to remain frozen at speech time. Thus I reserve the attribution of the relational function of tense to verbal inflections to this stage, where their co-occurrence with or close follow-up by deictic adverbs renders such an interpretation more plausible.

As for children's modalized utterances, we see from Stephany's (1986) summary that two types of developments take place at ages corresponding to this period. First, children start marking different types of deontic modality. Basing on the findings of various studies in English, French, German, Russian, Greek, Finnish and Turkish, Stephany (1986) notes the use of a variety of modal auxiliaries, modal verbs, and/or mood inflections for the expression of deontic

notions like obligation, permission, ability-inability, and action oriented possibility.

The second important development concerns the emergence of epistemically modalized utterances. Expressions of epistemic possibility or necessity have been observed from the second half of the third year onwards in many of the languages considered. Examples for the early use of conditionals come from Finnish (Toivainen, 1980), Russian (reported by Slobin, 1966), Turkish (Aksu, 1974, 1981) and Polish (Smoczyńska, 1985). In Turkish, the aorist inflection is used in its epistemic as well as deontic meanings and the conditional inflection in reference to possible or hypothetical situations around the age of 2.8 - 3.0. Smoczyńska, however, found hypothetical reference as early as 1.9 in her data. In contrast, data from English suggests that epistemic modals occur occasionally at first, and increase in frequency only towards the middle of the fourth year (Stephany, 1986; Gee, 1985; Gee and Savaşır, 1985). The relatively late emergence in English child speech of reference to hypothetical situations, to possibility and to states of affairs that hold at all times, has been explained by Cromer (1974) by appeal to the cognitive complexity of the notions involved. However, we have seen above that in some structurally different languages these notions are expressed much earlier, which suggests that what is at issue in the case of English is the structural complexity of the language rather than cognitive complexity. Another point that needs to be clarified is what different authors are interpreting to be hypothetical or epistemically modalized statements.[3] Reference to some possible states of affairs involves less conceptual complexity than the simultaneous consideration of a nonfactual situation in relation to some other factual or nonfactual situation which hypothetical reference entails. The consistent finding, however, is that epistemic modal meanings, in general, develop later than deontic meanings, although both categories are expressed with similar and even with identical forms in most languages (Lyons, 1977; Stephany, 1986). This obviously has to be explained on cognitive grounds and we have seen that the early expressions of deontic modality are without exception very closely tied to children's own needs, wishes, abilities, and potentials for action, rather than those of other people or objectified events.

To summarize, by the end of the third year, children's utterances are formally marked (a) by modal verbs, auxiliaries or mood inflections indicating distinctions between deontically and epistemically modalized statements on the one hand, and (b) by different tense-aspect inflections or auxiliaries, indicating distinctions between the past, present, and future tenses, on the other.

(iv) The developments that characterize the fourth stage are the marking of more complex meaning relations and the use of more complex syntactic structures, thus qualifying this period, as that of COMPLEX TEMPORAL REFERENCE.

Children now seem to be occupied with the construction of the nondeictic system of temporal reference which involves relations of anteriority, posteriority, or simultaneity between event time, reference time, and speech time. To put this differently, children can establish a sequential relationship between two events at different time points and posit this to be either anterior, posterior, or simultaneous to the moment of speech, by means of complex tense-aspect marking (e.g. pluperfects, future perfects) and use of temporal adverbs prepositionally or for subordination.

The developments concerning tense-aspect-mood inflections and auxiliaries are, for English, the emergence of the full perfect, modals like may, must, ought to, used both epistemically and deontically (Cromer, 1974; Fletcher, 1979), past tenses of be forms, past tense of modals (like should, should have, might), and rare use of counterfactual conditionals. Developments observed in other languages at this stage are briefly, more complex tense markings, coordinations of two tenses, the present subjunctive and imperfective past in Spanish (Jacobsen, 1981), the compound tenses like the pluperfect, the conditional, and subjunctive moods in other Romance languages (Clark, 1985), imperfective forms in Brazilian Portuguese (de Lemos, 1981a), the imperfective past in Greek (Stephany, 1981a), and further developments within the category 'past' in Hebrew (Berman and Dromi, 1983), to cite a few.

The late emergence and much later mastery of the English perfect has been explained on both semantic and syntactic grounds. The perfect indicates that the activity of the verb begins earlier and continues right up to the present. Both Cromer and Fletcher have noted a further meaning of the form, that of 'current relevance', which indicates that the activity, while not necessarily extending over the period of time to the present, is nevertheless relevant to the speaker at the present time. Weist (1986) explicates this relation by stating that in the use of the present perfect the RT is independent from but simultaneous with ST, and ET is prior to both. Furthermore, ET must have current relevance to the present moment. Thus in addition to requiring the capacity to construct these relations between three time points, the difficulty seems to lie 'in defining the conditions under which this apparently subjective notion of relevance applies' (Fletcher, 1979, p.276). On the other hand, there is evidence from other languages like Mandarin (Erbaugh, 1982), which has a separate sentence final particle le for current relevance (indicative of other aspectual notions as well), that emerges at a much earlier age like 2.0 - 2.4. However, these precocious uses appear to be for the simpler function of directing the attention of the listener to a current state. Fletcher further points out that the perfect have has different realizations in various syntactic and phonological environments, a factor which probably

contributes to its late acquisition, in addition to the cognitive complexity of the notions involved, as suggested by Cromer.

As we have seen above, an important development in this period noted in all investigations is the use of nondeictic temporal adverbs like before and after. Studies in English (Clark, 1970, 1971; Amidon and Carey, 1972; Barrie-Blackley, 1973; Coker, 1975), though mostly focused on the use of the forms as subordinating conjunctions, have shown that prepositional use of before and after precede the acquisition of their subordinating function. Clancy et al. (1976), in their cross-linguistic study on German, Turkish, Italian and English, observed the use of these adverbs for subordination in the second half of the third year (also, see Flores d'Arcais, 1978 for Italian). The late, gradual and rather laborious acquisition of these temporal adverbs, particularly as conjunctions, has also been observed in French (Ferreiro and Sinclair, 1971) and in Spanish (Galvan, 1980, reported in Clark, 1985).

In their attempts to construct nondeictic relations of temporal reference, children have been observed to employ the following strategies in an ordered fashion: juxtaposition of two independent clauses which express events in their order of occurrence; sequentially relating two clauses with adverbials which preserve order of occurrence; and finally, free use of conjunctions or adverbials without any regard for correspondence between order of mention and order of occurrence. Studies revealing these developmental steps are quite numerous and draw on the acquisition of French (Ferreiro and Sinclair, 1971; Bronckart and Sinclair, 1973), Italian (Flores d'Arcais, 1978), other Romance languages (Clark, 1985) and German (Stern and Stern, 1928, reported in Werner and Kaplan, 1963), in addition to English (Cromer, 1971; Clark, 1973a; Keller-Cohen, 1974a).

I take these correlated developments of complex tense-aspect-mood marking and the use of nondeictic temporal adverbs as an important indication of the child's ability to relate the primary or deictic temporal reference system to a secondary or nondeictic one. It seems to me that the child's system can finally be called a 'free reference time system' (Weist, 1986). Furthermore, when children start making complex tense constructions to express anteriority/posteriority relations, current relevance of past states and the like, they are in fact marking aspectual distinctions. We can talk about the full expression of aspect as an indicator of 'subjective point of view', when these linguistic means are used to present events in an order independent of their order of occurrence in real time, that is, to indicate viewpoints from different perspectives.

Developments of this and the following periods thus involve the further differentiation of temporality from modality on the one hand, and aspect, on the other. In other words, the linguistic expression of temporal relations indicates a

progression from an initial cognition of time as

> completely embedded in the child's momentary action, attitudes or needs with respect to his immediate environment,

toward

> a comprehension of time qua an objective sequential framework, relatively independent of the person speaking or the particular action taking place. (Werner and Kaplan, 1963, pp.401-2)

### 3.2. The development of meaning structures relevant to temporal reference

In the above summary of the development of surface linguistic forms for the expression of temporality, it was observed that similar findings are open to different interpretations. Disagreements particularly center around the semantic/pragmatic functions that certain forms serve in the child's system at their initial time of acquisition and the changes during the ensuing periods.

In this section I will consider some of the interpretations which appear controversial. I will also be concerned with whether an orderly development can be posited for the emerging meaning structures, their differentiations and linkings into wider semantic networks. With these issues in mind, let us turn to a reconsideration of the developments of the second and third stages reviewed above; specifically, the stages of inflectional differentiation of utterances on the basis of modality (instrumental vs. descriptive) and on the basis of temporality (past vs. nonpast).

The most significant change that appears to occur in the child's system during these early periods of development is related to the functions of verb inflections or what are traditionally called 'tense' markers. As was mentioned earlier, the initial use of these morphological markers by children has been interpreted to be not for establishing deictic or nondeictic order relationships between events referred to and the moment of speech, but rather for commenting on the internal structure of events in terms of their temporal distribution. In other words, what children seem to be marking is an emphasis on certain characteristics of the event itself; i.e. on whether it is a state or a dynamic activity, whether it is sudden or ongoing in time, and whether it is completed or not. This function of the early modulations on the verb for commenting on aspects of the activity, or more formally, for marking aspectual distinctions, has been noted in early diary studies such as Stern and Stern's and Gregoire's (reported in Werner and Kaplan, 1963), as well as in later experimental and naturalistic investigations (Bronckart and Sinclair, 1973; Antinucci and Miller, 1976; Bloom, Lifter and Tanouye, 1977; Bloom, 1978; Stephany, 1978, 1981a,b; Bloom, Lifter and Hafitz, 1980; de Lemos, 1981a; Jacobsen, 1981; Berman and Dromi, 1983; Sachs, 1983).

Of the latter group, Bronckart and Sinclair's (1973) is the first experimental study investigating the developmental relation between tense and aspect. They presented 74 children between the ages of 3.0 and 9.0 with different situations varying in terms of aspectual values such as duration, presence or absence of a resultant state, repetitiveness, and continuous action. After each presentation the subjects were asked to describe the situation. Although the experimental set-up required the use of past tense forms, children used different inflections in describing different types of events. Nondurative perfective events where a resultant state was achieved were described in general in the passé composé, durative perfective events in the passé composé or présent. Imperfective events which did not lead to an end-state, were described mostly in the présent with imparfait increasing in frequency for older children. For nonperfective events, both passé composé and présent were used. Bronckart and Sinclair also report that those aspects of events which have primacy for children's attention change as the children develop. The 3.0 - 5.0 year-olds focused on the result or the goal of the action, whereas the 6.0 - 7.0 year-olds started by describing the action itself and then the result, thus following the sequence of events in real time. For the younger children, duration was the determining variable for choice of tense, nondurative resultative events invariably being encoded in past tense, with increased use of present and imperfect tenses for describing events with longer duration. These findings showing the use of different verb forms with different types of events led Bronckart and Sinclair to the claim that tense markers are used to describe different aspectual properties of events prior to marking tense relations. That is, children differentiate between events on the basis of properties related to their internal structure, and these regulate choices of tenses in their descriptions. This strategy, they propose, eventually provides a route for the discovery of the tense structure available in the language.

The authors offer a cognitively based explanation for this developmental shift around six years of age by noting that tense and aspect marking concern different referential domains, though both are related to temporality. Their argument rests upon the Piagetian distinction between logical and physical knowledge, that is, relational, generalizable knowledge vs. knowledge of particular properties of objects and events. Since an important feature of pre-operational cognition is attention to particulars rather than general relational characteristics, younger children are prone to mark aspectual distinctions concerning the properties of particular events rather than tense. The advent of operational cognition with its characteristic mode of relational thinking is presumably what leads to the use of different verb forms to indicate tense, which rests upon a relational construction between two frames of temporal reference. However, this claim does not

seem to be warranted in the light of the data reviewed above, which shows that tense is used long before the operational stage. Their results might at best indicate that in the less than ideal context of an experiment, attention to aspectual rather than tense distinctions gains primacy as a first interpretive strategy. Furthermore, Bronckart and Sinclair's arguments suggest that the semantics of tense-aspect is purely dependent on cognitive factors and leaves nothing to be explained in terms of the systemic relations that hold within language itself. There does not seem to be any grounds for us to assume that the relational constructions necessary for the linguistic expression of anteriority, posteriority, or simultaneity between events are of the same order as those involved in seriational structures of operational cognition.

Antinucci and Miller's (1976) study focuses on an earlier period of development in the speech of Italian children (seven subjects between 1.6 and 2.5 years). Their interesting observation is the marking of the past participles of transitive verbs for agreement in number and gender with their co-occurring objects, which however deviates from the conventions of the adult grammar. Transitive verbs thus marked were change of state verbs that describe a transformation and a consequent change in state of the object. The authors also note that verbs that describe an event without an end result, i.e. stative verbs and activity verbs, occur only in the present tense but never in the past, during this period of development. To support this observation, they found the same restricted use of the past tense in English, in the data of one of Brown's (1973) subjects. Antinucci and Miller's interpretation is as follows: past tense markers are first used as adjectives and serve to focus on the perceptible end-state of the object, particularly after a dynamic transformation. Only later does the child shift attention from current state to the preceding determining event and extend the use of the inflection to past time in general. The explanation they offer for this interpretation that tense markers first carry aspectual value is also in terms of certain cognitive constraints, though these are different from Bronckart and Sinclair's. The constraints involve children's limited capacity to represent past events that are at least partially present in the here-and-now, by virtue of their results. This capacity then gradually expands via different cognitive routes to cover all sorts of nonpresent events including those which occurred in the past. They propose some suggestive hypotheses in this regard which will be considered in detail in Chapter 4. At this point, it is sufficient to note that the developmental lag between aspectual and tense functions of inflections observed in these naturalistic data is not one of years, as in Bronckart and Sinclair's experimental study, but one which spans over a number of months.

Antinucci and Miller's model has been summarized by Gerhardt (1979, p.9)

as one of 'differentiation rather than as one of tense supplanting aspect'. A differentiation model is in fact more appropriate from the theoretical view points which subsume the marking of anteriority/posteriority relations under 'aspect', given the inherent relation between the completion/inception of one event relative to another and the order relations of anteriority/posteriority. The differentiation of the tense and aspectual functions of inflections then involves the schematization of events in terms of order relations on the one hand, and the differential conceptualization of events in terms of their internal temporal constituency, on the other.

Another detailed study of acquisition of verb inflections in English comes from Bloom and her co-workers (Bloom, Lifter and Tanouye, 1977; Bloom, 1978; Bloom, Lifter and Hafitz, 1980) who investigated the emergence of the verb system and inflections in a naturalistic study of four American children between the ages of 1.11 and 2.4. To briefly summarize their rather extensive analyses, Bloom et al. observed that when verbs are first marked, inflections occur selectively with different categories of action verbs: -ing with activity verbs; irregular pasts/-ed with achievement verbs; and -s with completive/durative verbs. Stative verbs are rarely marked inflectionally. Bloom et al. argue that what govern the use of inflections are primary aspectual contrasts along the lines proposed by Friedrich (1974), such as stative/nonstative (not inflected vs. inflected), durative/nondurative (-s/-ing vs. irregular pasts/-ed) and completive/noncompletive (-s/irregular/-ed vs. -ing), hence, they claim that aspect is marked prior to tense.

On the other hand, the authors also express the view that inflectional marking is redundant at this stage since the verb already encodes aspect. It seems that in this interpretation there is the confusion of 'aspectual character of verbs' which refers only to the verb's nature of denoting certain types of situations (e.g. states, activities, etc.) and 'aspect' which involves the expression of the particular perspective from which the speaker conceives of that situation (e.g. completed, repetitive, ongoing, etc.). Aspect and aspectual character of verbs are interdependent, as Lyons notes, since they 'both rest ultimately upon the same ontological distinctions' (1977, p.706). However, they are not identical, since a verb, just by virtue of being a specific type of verb, does not indicate aspect like morphological markers which signal a specific event perspective over and beyond that presented by the choice of a given lexical item.

At this point in development, it is difficult to make any assumptions about the semantic status of different verbs in the child's system. Furthermore, it is not clear what kind of a function inflections have if they mark neither tense nor aspect.[4] Finally, Bloom and her colleagues do not explain why aspect precedes tense as a developmental phenomenon, either on cognitive or on linguistic

grounds.

A naturalistic study which focuses on the very early phases of development and proposes explanations on linguistic grounds is by de Lemos, on Brazilian Portuguese (1981a). She reports observations from videotaped interaction in naturalistic settings of three Brazilian children between 1.0 and 2.5 years of age. Her observations concur very much with the previously reported studies, particularly those of Antinucci and Miller. De Lemos found the emergence of tense forms to be governed by very strict linguistic (semantic) and extralinguistic restrictions. The earliest occurrences of perfective tense forms were with accomplishment verbs, exclusively as markers of completion of the child's own actions, and with achievement verbs in contexts where the child was attending to the change of state resulting from unobserved processes. That is, the first references to immediate past always marked general completion and/or noncanonical states of objects. Progressive forms first occurred with activity verbs, to call attention to the activity the child was engaged in. Imperfective tense forms, on the other hand, emerged only during the first half of the third year, with state and activity verbs in imaginary contexts such as pretend play and story telling formats, an observation also reported by Antinucci and Miller (1976). De Lemos furthermore attempts to reconstruct the pragmatic routes of verbal inflections or aspectual markers in prelinguistic social interaction (between 1.0 and 1.6 years) and observes the emergence of 'proto-aspectual markers' in the children's speech in different types of 'interactional formats' with their mothers. She proposes that the use of aspectual markers by adults probably has the function of 'segmentation of events' in the world and the shaping of intentions. Thus, in contrast to the view of Bloom et al. that verbs represent events as they are, de Lemos underlines the role of language in determining how the child comes to cut up the flow of events into constituent parts. The explanation she offers for the development of tense-aspect markers is thus in terms of a discourse-pragmatic framework where 'interactional formats' are construed as an operational space for the construction of semantic, morphological and syntactic relations.

The importance of the role of discourse as constitutive of the context in which children discover the semantic/syntactic structure of their language continues in later developmental periods. In a further schematization of the development of past reference on the basis of the same data, de Lemos and Bybee (1981) show that the development of tense forms proceeds from being closely tied to the extralinguistic context, to getting elaborated within the linguistic context of discourse, to finally acquiring a totally context-independent status. I have made the same observations in an analysis of Turkish children's acquisition of causal connectives as well as of past reference (Aksu, 1978a; Aksu-Koç, 1986b).

Another study concerned with the acquisition of verbal inflections in a structurally different language is by Stephany (1981a). Stephany investigated the development of the verbal system in Greek, which makes obligatory distinctions of modality and aspect with any form of the verb (present verb stem indicates imperfective aspect while aorist stem indicates perfective aspect). In the speech of four children between 1.8 and 1.11 years, Stephany found that modality and aspect distinctions were marked as soon as verbs were used. Furthermore, modal vs. nonmodal distinctions were subsumed under aspect. Modalized utterances (in the subjunctive, which is not marked for tense) were mostly perfective while nonmodalized utterances (in the indicative) were perfective (present) and imperfective (aorist). Imperfective past however was never used during the early stages. The early opposition within the indicative mood, Stephany proposes, can be interpreted as aspectual, indicating the stative vs. dynamic contrast and developmentally precedes the temporal opposition of past vs. nonpast. The latter distinction waits upon the entry of the imperfective past into the child's language 'when tense has to be postulated on internal linguistic grounds as it is the only way to differentiate between two imperfective indicatives, one present, the other past' (1981b, p.4).

The importance of this study of Greek is that it provides us with clear evidence that children mark aspectual distinctions, as well as distinctions between aspectual character of verbs, before they mark tense, if their language provides the formal means. In this relation, Stephany observes that aspect marking is either to a high degree determined by the semantic character of verbs, or is linked with tense (present imperfective vs. past imperfective). Aspect marking in its full function of indicating a subjective point of view is a gradual development which, Stephany proposes, does not proceed before there is any reference to temporal relations in the child's language. It is clear that the author does not equate aspectual character of verbs with aspect, and her definition of the latter is not limited to verbal aspect but conforms to a sentence/discourse level analysis. Furthermore, I think she would agree with the view that the developmental relation between tense and aspect is one of differentiation through the construction of deictic and nondeictic temporal frames of reference. This view is more strongly suggested by data from languages where aspect is formally marked together with tense, where language-internal oppositions within a given category (e.g. perfective vs. imperfective past) eventually lead to the unravelling of the compactly related notions (perfectivity vs. earlierness/anteriority). It is not of course suggested that obligatory coding in the language means that children use the form in its full function, but that it may help the discovery of the relevant notions earlier.

The last study I will consider as providing supportive evidence for this view is on the acquisition of a language which allows for the analysis of tense independent of aspect in terms of surface grammatical marking. Berman and Dromi (1983) provide information about the general development of inflections in Hebrew, where verbs are inflected for tense and mood but not for aspect. The authors report a clear linear development only for past tense forms, suggesting that these have a special status different from present or future. Like the other researchers, they note that the use of the past tense depends on the aspectual character of the verb. The restriction on the use of the past with different types of verbs is lifted gradually, progressing from limited use with action type verbs around age 2.0, to more flexible use with all types of verbs including statives, around 4.0. Berman and Dromi conclude that a qualitative shift occurs at this age, shown by the interaction of verb tense forms with verb content and time adverbs. This shift, they claim, finally provides evidence for the expression of anteriority. Furthermore, the fact that verb semantics plays a clear role in the acquisition of the past tense and only that, in a language which makes no aspectual distinctions, is interpreted by the authors as lending partial support to the hypothesis that aspect precedes tense, or the related claim that the presence of surface forms can not in itself be taken as evidence of the child's ability to encode temporal notions.

At this point, I would like to consider a general criticism that has been directed at the majority of the studies reviewed here, specifically, those of Bronckart and Sinclair (1973), Antinucci and Miller (1976), Stephany (1978), Bloom, Lifter and Hafitz (1980) and the results of the present study. Nicolopoulou (1979) has pointed out that research on early acquisition of tense and aspect has not dealt with aspect as a category indicating a subjective non-deictic relation of events or points of view, but has interpreted it narrowly, merely in terms of aspectual character of verbs. Noting all the developments in recent linguistic theory, she has rightly observed that in most of these studies, the unit of analysis for aspect has been taken to be the verb, rather than the sentence (Lyons, 1977) or discourse (Hopper, 1979, 1982). I basically agree with her criticisms, but think that they do not really invalidate the interpretation of the function of the first uses of the tense-aspect inflections as indicating not tense but aspect - albeit of a limited kind, concerning the internal temporal constituency of events. Aspect as 'a subjective point of view' has in fact not been dealt with, but this, it seems to me, is a function of the nature of the data from early stages of acquisition. The more recent studies or interpretations of early inflectional development, which adopt the broader definition of aspect as a subjective viewpoint of the speaker (e.g. de Lemos, 1981a; Stephany, 1981a;

Berman and Dromi, 1983), have also revealed that aspectual marking is at first strongly conditioned by verb semantics and serves the function of focusing on the different temporal phases of events per se. Aspectual distinctions indicating one's subjective point of view regarding the temporal flow of an event or the relationship between events have not been observed to emerge during this early period of acquisition.[5]

I think the importance of the argument that verbal inflections are used to mark aspectual distinctions before they indicate deictic tense notions in early phases of language acquisition, is quite clear in the light of the evidence reviewed so far. Now I would like to evaluate the alternative view, that the first function of inflections in children's language is to mark tense.

Although he has not committed himself to a specific claim in either direction, I will first consider Brown's extensive discussion of the semantics of children's early use of verbal time markers in English, a language where aspect is not grammaticized in the simple past. Brown (1973) reports from his own data in English that past tense markers first appear in reference to immediately past events in contexts where an event has just been completed. In his words,

> the American child's use of the past inflection, though it is in principle applicable to past times of whatever remoteness, is in fact used by him at first exclusively for the immediate past (p.259).

Thus, Brown interprets the use of the past tense inflection as being to make reference to past events, which suggests that he might be attributing tense function to the surface form used by the child. This is also suggested by his response to the question he poses as: 'of the various meanings past forms can signal, what meanings are signalled by children? The meaning "earlierness" seems to be the only one intended' (p.333). On the other hand, in commenting on the belief of Soviet psycholinguists that order of acquisition of morphological classes is largely due to their relative semantic or conceptual difficulty, Brown expresses surprise to find that tenses are included into a form class based on 'relational semantics' considered to be more difficult than form classes based on 'concrete reference', given that these appeared to be very early acquisitions for Russian children.

Brown is probably not surprised at the treatment of tense as a relational notion, or at the proposal that acquisition of forms expressing relational notions should be considered more difficult, but rather at the fact that tense inflections are acquired early in Russian. If my reading of Brown is correct, he agrees with the relational function of tense as a form class, but is not treating English-speaking children's use of the past inflection with its meaning 'earlierness' as tense, indicating a relationship between time of utterance and some past event time. Although he does not explicitly state the formal function he attributes to

the inflections, he stresses the fact that these are used in reference to immediately completed actions within the temporal span of the moment of utterance. These lead me to the inference that he regards them as making concrete reference and might as well have called the early inflections 'aspect' markers. Such an interpretation would resolve the apparent conflict arising from findings of early emergence of tense marking, and tense being a relational form class, because in the function of making aspectual distinctions, verb inflections can be taken to be forms making concrete reference, focusing on the characteristics of the event itself. Furthermore, the notion of 'earlierness' so akin to 'anteriority' can be subsumed under aspect (Lyons, 1977), as was discussed above. Although aspect is also a relational category that involves a subjective way of relating situations from the speaker's particular perspective, a much more limited definition confined to aspectual character of verbs involves a concrete, referential domain which has to do with event structures from an objective standpoint. All the studies reviewed above on the early inflectional period suggest that aspect at first is a concrete referential rather than a relational category, in that it is the event structure and not the subjective perspective of the speaker which governs aspectual marking.

An explicit claim to the effect that children are marking deictic tense relations when they first start using inflections has been made by Weist (1986; Weist, Wysocka, Witkowska-Stadnik, Buczowska and Konieczna, 1984). Weist et al. criticize the arguments for the primacy of aspectual marking (e.g. the claim that the morphological contrasts between past and nonpast represents the distinction between resultative and continuative aspect) under the name 'defective-tense hypothesis', in which they also include the results of the study to be reported here. First, it should be noted that in coining this view as 'defective' on the basis of Antinucci and Miller's (1976) claims, Weist et al. make a strong interpretation of a more general position. In their view, the claim for aspect before tense is 'not a frequency argument' but states that 'certain things do not occur because they cannot occur (Weist et al., 1984, p.348). In a field like child language, where it is very difficult to make definite statements about the cognitive and linguistic capacities of the developing child, it seems unwarranted to make such strong interpretations of hypotheses generated by data. An interpretation of these claims as a frequency hypothesis, however, allows for the applicability of a differentiation model, as well as a re-evaluation of the seemingly contradictory findings in the light of the structures of the specific languages that have yielded them. The scientific value of a hypothesis of course lies in the fact that it can be disproved as well as confirmed. But before accepting the counter-examples as destroying the hypothesis and looking for an alternative explanation, it is useful

to consider whether we can account for them in terms of some auxiliary assumptions while modifying the original hypothesis.

Weist et al. (1984) analyze the 'defective-tense hypothesis' into a semantic, a syntactic, and a temporal component and give counter-examples for the claims related to each. Regarding the semantic component, they note from various studies that, contrary to what has been claimed, the past inflection is also used, though much less frequently, with activity verbs referring to events without any perceptible trace at the present moment. If the claim for the primacy of aspect over tense marking is not interpreted as an all-or-nothing view, but as one of frequency and predominant tendency, then the counter-evidence does not pose a real problem, since these authors also attest to the fact that past marking occurs with highest frequency with achievement and accomplishment verbs and very infrequently with activity verbs. Furthermore, in their analysis of Polish, Weist et al. classify their child data on the basis of a semantic categorization of verbs derived from adult grammar. However, such a procedure carried out in the name of objectivity cannot be justified, since we cannot assume that these categories correspond to semantic categories that exist in the child's system. When child utterances with activity verbs marked for past are evaluated in context, it becomes clear that children's use most often does not correspond to adult categories. For instance, in the present Turkish data, such examples occurred in the context of play, encoding activities which were acted out by children in an instant and most often led to a change in location of objects. Other infrequent examples of this kind made reference to ritualized activities and occurred in contexts of discourse with adults. Linguistic contexts constituted of adult questions or comments serve the function of scaffolding children's utterances and provide linguistic, instead of physically perceptible cues for them to utilize. By noting this function of adult-child interactive discourse, rather than trying to explain away some unexpected instances in the data as Weist et al. claimed, I aim to underline the developmental aspect of what appears to be a gradual process, as opposed to an all-or-none phenomenon emerging overnight in its full functioning form.

These considerations also relate to the 'temporal component' of the defective-tense hypothesis. Weist et al. note that occasional observations from almost every language (e.g. Szagun, 1979 for English and German; Toivainen, 1980 for Finnish; Weist et al., 1984 for Polish) provide evidence that it is conceptually possible for children to make moderately remote references to a prior situation without the necessary aid of a physically present resultant state. The opposite of this claim would admittedly be difficult to defend given the well recognized fact that children refer to people or objects in their absence, even before they start using

inflections. However, such reference with the past forms of the verb rests upon knowledge not at the conceptual but at the semantic level, the construction of which appears to take place in the context of linguistic interaction. It has been variously noted that references to moderately past situations first occur in the context of discourse with adults, where it is the linguistic rather than the physical context which might aid children in extending the scope of their temporal reference (de Lemos and Bybee, 1981; Sachs, 1983; Aksu-Koç, 1986b). Most of the contrary evidence of Weist et al. also consists of responses to adult questions utilizing the past forms that potentially serve as models for children. Another point is that the criteria for 'remote reference' vary from researcher to researcher. For Weist et al., an utterance making past reference after an interval of two turns in conversation qualifies as remote reference, while for others reference to events of the previous day do so. Again, what is important to note is that the first and dominant tendency of children is to use past marking in reference to immediately rather than remote past situations. In fact, Weist et al. themselves recognize the developmental nature of this process and state that

> During the period from about 1.6 - 2.6 children clearly improve their ability to represent prior and subsequent situations. (1984, p.363)

The criticism of Weist et al. related to the syntactic component involves the claim that first inflectional marking on verbs does not mark tense relations. The authors note the presence of scanty counter-examples in Polish, Russian, Serbo-Croatian, and Greek data. For example, in their data from Polish children, they find simultaneous emergence of tense and aspect contrasts, as exemplified in the use of imperfective vs. perfective past forms of some verbs, though all their examples are prompted by adults. Although the literature does not yet show any unequivocal examples of such spontaneous distinction of perfective/imperfective in the past,[6] the infrequent instances are significant to the extent that they underline the importance of language structure. Evidence from languages where both tense and aspect are clearly marked in verbal morphology (such as Slavic languages), suggests that the differentiation between these two temporal categories comes about earlier, and both functions can be observed simultaneously.

Having considered his criticisms, let us now turn to the positive claims of Weist (1986). The alternative hypothesis he proposes is that 'children can represent a deictic relationship between ET and ST when they can use the tense morphology of their language productively' (1986, p.359). As was discussed above, Weist attributes this function of tense marking to the period of the first emergence of inflections in child speech and calls it the 'event-time system'. He then

proposes a third stage as transitional to reference time systems, the 'restricted reference-time system', whereby the child's ability to relate RT to ST (where however ET is restricted to RT context) becomes manifest. Making this last qualification, Weist himself notes that both systems involve the relating of two points in time:

> When children progress from the ET system to the restricted RT system, they have demonstrated a measure of the capacity to decentre but they are still only relating two points in time. (1986, p.368, my emphasis)

If the 'restricted reference-time system' is in fact a new developmental phase, where ST is related to RT, then, rather than being transitional, it represents the first stage of tense marking, in line with the definition of tense adopted here as the relationship between a reference point and the moment of speech. And the difference between Weist's 'event-time' and 'restricted reference-time' systems lies in the fact that in the former period, children are not really marking deictic tense relations but are indicating aspect. Therefore, I would rather posit as transitional the stage of initial use of inflections (Weist's 'event-time system' or the 'period of inflections' discussed above), on the grounds that it involves the differentiation of the closely related notions of anteriority and completion, simultaneity and ongoingness and the like, that is, the differentiation of aspect and tense.

I claimed in the previous section that the function of tense marking can be safely attributed to children's use of inflections when they simultaneously use deictic temporal adverbs with inflected verbs. This view rests on certain additional interesting observations that occur during the same period of emergence of adverbs for temporal specification. In English child speech, these concern the over-marking of the past with the auxiliary did. For example Fletcher (1979) notes that his subject used did to mark 'positive past tense' first with irregular verbs which have Ø past marking, then with some regular verbs and finally with some strong verbs for over a period of six months, after which he went back to the more common strategy of overgeneralization that he used before. Brown (1973) similarly observed the signalling of earlierness twice, with the use of did, in the speech of two of his three longitudinal subjects. The same phenomenon was also observed by Fay (1978). Berman and Dromi (1983) report from their Hebrew data based on 102 children, that past time deictic adverbs occur for the first time with past tense verbs, showing a pattern of double marking the past which is ungrammatical in the adult language.

I suggest that such errors can be interpreted as attempts on the part of the child to get an external grip on a newly analyzed semantic function, as has been observed in other domains of language like causative verbs in English (Bowerman,

1982) or use of articles in French (Karmiloff-Smith, 1979a, 1979c). Such observations suggest that it is during this third period, 'the period of temporal reference', that the inflections used by the child have a tense function. The view that the first uses of verb tenses early in development are not really expressions of a relation between the speaker's act of speech and the referred event, is also consistent with the Piagetian contention regarding the young child's egocentricity (Piaget, 1951, 1971a,b). That is, at this point the child lacks the cognitive capacities that are presumed to underlie the construction of such a relation, such as some degree of decentration from the here-and-now, shifting of viewpoints in time, and coordinations between them.

In sum, these observations point to the occurrence of a shift in the semantic function of verbal time markers from aspect to tense in early linguistic development. Together with Stern and Stern and Gregoire, Werner and Kaplan note that:

> For him (the child), these 'tense' forms for a good many months or even years, still seem to refer to characteristic aspects of present action rather than indicate placement of action in a 'receptacle of time'. (1963, p.402)

It can be said that from around the age of 2.6 - 3.0 onwards (depending on the structural options available in a given language), verb inflections are no longer used to demarcate event boundaries but to mark both tense and aspect. That is, they function to relate two frames of temporal reference, the deictic and the nondeictic, in terms of which events can be ordered on the time line. Aspectual distinctions also come to be encoded adverbially or by periphrastic structures and allow for the expression of the subjective point of view of the speaker regarding the internal temporal constituency of events both in themselves and relative to one another, particularly when they start being used for discourse organizational purposes.

# PART II

## DEVELOPMENT OF PAST REFERENCE IN TURKISH: FROM 'PERFECT' ASPECT TO 'EVIDENTIAL' MODALITY

## 4. The empirical study: rationale and hypotheses

**4.0.** The present chapter will state the problem of the empirical study. First, a number of assumptions will be derived from the findings reviewed in the previous chapter. Then, specific hypotheses will be generated for the course of development in Turkish. Finally, a brief outline of the general design of the study will be presented, leaving the specifics to the relevant chapters that follow.

### 4.1. Some assumptions derived from the literature

The most explicit hypothesizing regarding the processes that might be involved in the course of the development of past time reference comes from Antinucci and Miller (1976). This section presents their arguments, incorporating them into certain assumptions that are suggested by the above developmental facts.[1,2]

Assumption 1: The first semantic distinction that children make is that between 'stative' and 'nonstative'. Depending on the available forms in their language, they use a surface marking for one or the other focus or both. The strategy exemplified in Italian- or French-speaking children's speech is the use of the past participle of transitive verbs adjectivally to comment on the present state of an object, as indicated in the following observation:

> the child begins to use the past participle to describe the state of an object, and therefore treats the past participle essentially as an adjective and makes it agree with the object. (Antinucci and Miller, 1976, p.183)

Marking the past participle for agreement with the object is erroneous in Italian past tense; instead the past participle should agree with the subject in such constructions. This error among Italian children constitutes strong evidence for the above claim.[3] Similar observations are provided by Gregoire, from French and German.

> Thus, at this stage past participles are descriptive words defining a present state as a consequence or termination of a preceding (past) action; e.g., soldat cassé (soldier broken); tombé papa! (I fell down papa); aneziet! (I am dressed up). (from Gregoire, 1937-47, II, p.129; in Werner and Kaplan, 1963, p.402)

On the other hand, a second strategy appears to underlie English-speaking children's choices, reflected by the emergence of the progressive aspect marker -ing - before other inflections - in the context of present nonstative events and signalling this initial stative vs. nonstative differentiation. Regarding the function of -ing, Brown (1973) similarly notes that it does not at first signify temporary duration because the children never made any reference to events other than with temporary duration to contrast with this use.[4]

Assumption 2: Most of the static configurations children comment on are states of objects that have come about by a transformation. That is, they are present states which have

> a specific characteristic in that they are linked to a preceding event of which they are the result. (Antinucci and Miller, 1976, p.183)

Therefore, Antinucci and Miller hypothesize, such states provide for children a perceptible link, and lead to the representation - presumably at some level accessible to linguistic encoding - of the preceding process involving the object. This claim is based on the observation that the first verbs that get marked as past by both Italian- and English-speaking children are change of state verbs which describe situations where a 'resultant state' is achieved by the object following a transformation.[5] Thus in these contexts, the present resultant state and the past process come to be related through a gradual process of coordination, and the past participle initially used to focus on the present state of the object comes to be used in reference to a past process. Antinucci and Miller maintain that this position is consistent with the Piagetian view that the construction of the temporal dimension has its roots in the presentational practical coordinations of sensori-motor intelligence (Piaget, 1971a,b). The authors note that

> the meaning of the child's past tense is at this point rather limited. He is able to encode a past event, but only if it results in a present state. Looking at this fact from a linguistic point of view, we could say that the past "tense" has more of an aspectual than a temporal value. (1976, p.183)

Thus, they are attributing the meaning 'past' as well as aspectual value, to the child's use of the form.

Assumption 3: An additional claim that Antinucci and Miller make is that another cognitive discovery takes place in the development of the past tense which, however, is independent of the first one that occurs through a practical coordination. The new cognitive advance is the distinction between the 'real' and the 'non-actual', as manifested in the context of pretence activity. In their Italian data, they observe that the imperfect past tense, which is used in the adult language to encode past states, is first used by children in inventive story telling,

where they are creatively generating from their minds different states of affairs that do not have any reality or factual basis. That is, for Italian children, 'the first uses of the imperfect form do not mark a past event at all', but 'mark linguistically the cognitive distinction of pretend world vs. real world' (p.186). Initial uses of the imperfect past in contexts of story telling have also been observed in other languages like Greek (Stephany, 1986) and Brazilian Portuguese (de Lemos, 1981b).

Assumption 4: After a brief period from its first emergence in story telling contexts, the child starts using the imperfect to talk about 'past' states and activities with no clear result. To explain how the imperfect tense comes to be used to encode such past situations, Antinucci and Miller (1976) refer to a long-standing tradition in linguistics (Twaddell, 1963; Joos, 1964; Bickerton, 1975) which assumes that the distinction between the real and non-actual is a broader one where past and future can be subsumed under the category non-actual. They argue that the past function of the imperfect is arrived at through its first being the marker of the non-actual. The fact that children treat activity verbs the same as statives and mark these past with the imperfect, contrasts with the adult system where the neutral past marking on activity verbs is the participial past when no special aspectual meaning is intended. This preference among children indicates that their choice of tenses is still primarily governed by aspectual variables, such as completion vs. duration.[6] Thus Italian children's resulting system is a limited approximation to the adults', where either kind of past tense can be used with any type of verb for different aspectual meanings.

On the other hand, what English-speaking children do, as a result of the development summarized in Assumption 4, is to generalize the -ed past marker - that they have already been using with change of state verbs - to refer to the newly available past processes and states, since the language does not obligatorily mark any aspectual distinctions in the past. Thus the English -ed or irregular past forms acquire the meaning 'past' for all events, regardless of their internal structural characteristics.

As reviewed above, according to Antinucci and Miller, the development of the past tense is not a homogeneous process. However, this position creates a logical inconsistency between some of their basic assumptions. If past is regarded as a subdomain of the non-actual, then it is necessary to assume that children have made this distinction when the function of past reference is attributed to their use of the participial past. In other words, the claim that the participial past comes to indicate past tense, but that the non-actual distinction which subsumes past comes developmentally later, is paradoxical.

This inconsistency can be avoided if it is assumed that the deictic tense func-

tion of past reference waits upon the real vs. non-actual distinction. In this view, the meaning 'past' would not be attributed to the use of the participial past in contexts of resultant states from past processes. An equally plausible function of the form, which is not contrary to Antinucci and Miller's thinking, would then be to indicate completive aspect, since at this point in development, the here-and-now time is bound with order of immediate actions, with rather limited extensions from the present moment backward or forward.

It should be noted that the change establishing the new state is almost instantaneous in time in these contexts, and children could as well be making the punctual vs. non-punctual distinction in regard to the nature of nonstative events, since this is a distinct characteristic of the referent situation. A comment from Brown illustrates this point clearly:

> 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. (1973, p.334, my emphasis)

And the verbs he cites are prototypical examples of Antinucci and Miller's change of state (achievement) verbs. It is not possible to say anything regarding this issue on the basis of the available data, except to suggest that the punctual vs. non-punctual distinction could eventually be made within the category completive.[7] Then, children's use of the past inflection in these contexts, for commenting on the establishment of a new state by a transformation, can be said to indicate the completive vs. durative aspectual opposition.

Finally, the development reflecting the distinction of the actual from the non-actual, with the use of the imperfective past first in storytelling context and later with activity and stative verbs, would lay the grounds for reference to 'past' time. Such use, where children are encoding in language those events that have already faded from the present moment and left no perceptible trace, can then be taken as sound evidence that they have drawn the 'past vs. nonpast' distinction relevant to a larger temporal scope beyond the immediate.

Thus, I disagree with Antinucci and Miller that the route to the discovery of past tense is not homogeneous. If past is a subdomain of the non-actual, then any other process that might be operative in development of past reference (such as present state-past process coordination) must either bring about or wait upon this distinction.

### 4.2. Hypotheses

The following section presents the hypotheses regarding the cognitive and semantic routes that might be adopted by Turkish children in their acquisition of the

past tense system. These have been derived from the developmental facts and assumptions discussed above. A brief recapitulation of the similarities and differences between the two past inflections in the language will be useful. With respect to the temporal dimension of past vs. nonpast, both forms mark past time. With respect to aspectual distinctions, both forms indicate that the event is regarded as completed. -mIş past has the further implication that consequent to the completion, a resultant state has come into being and thus marks perfect aspect. -DI past, on the other hand, focuses equally on the process and its completion. The two forms clearly differ on the basis of modality, or more specifically, on the basis of the variable witnessed vs. nonwitnessed process, in simple past uses. That is, -DI past expresses the informational perspective of a direct experiencer, whereas -mIş past indicates the informational perspective of an indirect experiencer. As such, -mIş expresses inference or hearsay.

The question of how children articulate this system and make the relevant tense-aspect-mood differentiations can be investigated by looking at whether there is a developmental priority in the acquisition of the two forms and what kinds of meaning features they progressively come to indicate. Given that both inflections seem to be equally accessible to children in terms of morphological complexity and acoustic salience, their order of emergence can be safely assumed to be governed by factors of semantic and/or pragmatic complexity. The following hypotheses propose a possible sequence in the differentiation of the syntactic semantic structures and pragmatic functions in this domain.

Phase 1. If the initial semantic distinction that children tend to make is between STATIVE and NONSTATIVE events, it could be expected that the -mIş particle would appear in children's speech before the -DI inflection, with the function of indicating stativity. From the theoretical point of view, two alternative routes seem possible for -mIş to emerge in the child's system with this function.

(i) For the first route, the hypothesis would rest on the argument that the young child's attention is focused on the resultant states of objects, and since -mIş is the 'resultative perfect' in the language, it is the appropriate form to describe such situations. Then the participle -mIş would be used with change of state verbs, either predicatively or adjectivally, for commenting on the present resultant states of objects.

If -mIş is used adjectivally at all, then the question arises of whether it contrasts with other adjectival forms. Turkish has another set of verbal adjectives derived from transitive verbs with the particle -IK, that also describe non-inherent properties of objects. However, these adjectives focus on the present state of the object with no regard for the past process, and thus indicate that the

state is viewed as a permanent characteristic (e.g. kırık tabak 'broken plate', kes-ik ağaç 'cut tree'). On the other hand, -mIş participial adjectives which are derived from intransitive or passivized transitive verbs (e.g. piş-miş elma 'cooked apple', kır-ıl-mış tabak 'broken plate', kes-il-miş ağaç 'cut tree') focus on the noncanonical state of the object as well as the past action/process that has brought it about. The semantic difference between the two types of adjectives can be explained in terms of the general function of the -mIş particle for indicating 'information new to consciousness'. When a speaker chooses the -mIş participial adjective he conveys his subjective assessment of the noncanonical state as 'contrary to expectation, therefore recently achieved', as opposed to 'long-established and known, therefore almost canonical and permanent'.

Another adjectival construction is the present participial adjective. These adjectives, derived with the particle -An from both intransitive and passivized transitive verbs, also describe an object in terms of its temporary characteristics, in this case, the present ongoing process it is participating in (e.g., koş-an çocuk 'running boy', kır-ıl-an tabak 'broken dish' (in recent past)). Furthermore, both the -mIş (past) and the -An (present) participles function in relative clause constructions.

Are children using adjectives derived with -mIş contrastively with the regular adjectives derived with -IK? If they use the participial adjectives to comment on the state that an object has recently or temporarily come to be in, while using the latter to describe an object that is seen to be in its canonical state, this would indicate that they encode resultant states differently from normal present states. During this initial phase such contrastive use is not expected. Children are likely to use only the past participle to comment on resultant states.

(ii) The alternative route whereby the -mIş particle acquires the function of indicating stativity in children's speech can be hypothesized on the basis of a significant feature of baby-talk in Turkish. Although it is not an independently established fact, it is a strongly shared observation that adults talk to to infants and young children in the evidential mood with -mIş. That is, they are likely to comment on existing states or on resultant states that have come about in the child's presence as well as otherwise, with the -mIş particle, seemingly violating their own rules. Here, the interesting question is what kind of attentional mechanism the adult is calling on or facilitating for the child. As was pointed out in the discussion of the semantics of -mIş, the uses of the particle in inference, hearsay, surprise or compliments are unified under a common meaning, 'situation new for unprepared minds'. This semantic component is presumably what makes the -mIş particle most appropriate for baby-talk in the language: adults who

regard young children's minds as unprepared for all sorts of situations talk to them about existing as well as evidential states in this modality. In line with de Lemos's analysis, I propose that the use of the particle in adult-child interactional sequences will have a determining role in the segmentation of events for semantic mapping on to forms. Since the first examples of adult use children hear are in reference to situations which are prototypically states, children will first construe STATIVITY as the meaning denoted by the particle -mIş.

Regardless of whether it is the first or the second route that is functional, the particle -mIş would serve to mark the initial dichotomy children presumably make:[8]

| | Stative | Nonstative |
|---|---|---|
| Nonmodal | -mIş | Ø |

Phase 2. As children take into account an immediately preceding process in connection with a present resultant state, they will make the COMPLETIVE vs. DURATIVE distinction within nonstative events. Then, the -DI inflection may emerge in their system to indicate completion, while -mIş still serves its function of commenting on states. Thus the first overt marking of present state-past process coordination is expected to be with the particle -DI, in contexts of changes resulting in immediately observable end states.

| | Stative | Nonstative | |
|---|---|---|---|
| Nonmodal | -mIş | Completive | -DI |
| | | Durative | Ø or -Iyor |

As such, the -DI particle would be indicating COMPLETIVE aspect. Since in the input language -DI is used to encode past events with or without a clear result, children's initial use in the contexts of change of state with result only, would be restricted to a small section of this domain. Furthermore, early acquisition data clearly reveals (e.g. Bloom, 1973; Brown, 1973; Gopnik, 1982; Stephany, 1986) that children, being centered on their own activities, tend to talk about events that they have directly brought about and experienced. In this regard, Stephany (1986) notes from a number of languages that early utterances mostly express action-related possibility or necessity and thus carry meanings of deontic modality. Gopnik (1981, 1982) similarly observes in early English child speech that non-nominal forms at first indicate 'aspects of plans', where children encode the aims of their actions, or abstract relationships between their actions, their

aims and the world. It is only later that they extend this use to events or relationships between events which they did not cause themselves. The choice of -DI to indicate past process-present state coordination would be predicted on these grounds too, since it is the appropriate form for describing direct experience (though not necessarily personal action) in the language. The completive vs. durative distinction within nonstative events could also be indicated with -Iyor, the present progressive inflection used in contexts of ongoing events, marking DURATIVE aspect.

Phase 3. The next development that has been assumed to occur is the cognitive distinction between the REAL and the NON-ACTUAL. Given the developmental facts, it is reasonable to expect that this more general distinction will be reflected in the acquisition of Turkish also in contexts of story telling, with the use of the -mIş inflection. This is predicted on the grounds that the particle carries the special narrative function for talking about fictive events and that all the stories children hear from adults (and recount themselves) will be framed in utterances marked by -mIş. To the extent that stories are constituted of events which do not have any factual or experiential basis, it is likely that children would discover the modal function of the particle indicating epistemic possibility which partakes of the non-actual, from its use in these contexts.

We can say that this distinction involves the differentiation of the two extreme poles of the continuum of epistemic space: 'knowledge taken for granted, with 100 per cent certainty and provable by deductive inference' on the one hand, and 'knowledge based on no facts at all, arrived at mysteriously and in no way provable/verifiable' (Givón, 1982), on the other. The first extreme corresponds to the aspectual use of -mIş in reference to states and the second to the modal use of -mIş in fictive narratives. The connection between the narrative function of the particle and its use as a stative marker can be further narrowed down in the light of Antinucci and Miller's (1976) conceptualization of the narrative as 'constituted from a succession of events with a durational-quality'. Thus, in both instances the inflection functions in presenting events conceived of in terms of stative qualities.

| | | Stative | Nonstative | |
|---|---|---|---|---|
| Nonmodal | +actual | -mIş | completive | -DI |
| | | | durative | Ø or -Iyor |
| Modal | -actual | -mIş | | |

If this route for the differentiation of not-now from the here-and-now, via the distinction of real vs. non-actual (possible), has psychological validity, and actually involves more complex cognitive and/or semantic processes than the ability to take account of a physical transformation, what might be observed in the case of Turkish children could be revealing. More specifically, if, as hypothesized, use of the -mIş particle in the context of 'commenting on a resultant state' occurs first, and the representation of the above distinction as manifested in story telling appears later in children's speech, any time lag between the use of the same surface form in the two contexts would provide support for Antinucci and Miller's position.

Phase 4. The development subsequent to the primary distinction between the actual and the non-actual has been said to be the ability to make reference to past states of affairs that do not have a clear end result but need to be reconstructed from memory. Thus the function of the two formal means in a child's repertoire will next be extended to encode the meaning past time. This development would count on a distinction between PAST and NONPAST and the differentiation of the past as a distinct subdomain of the non-actual. At this point, Turkish children would have to make a reorganization in their system such that the -DI and -mIş inflections are subsumed under the subdomain past within the category non-actual. This reorganization would be coupled by the further differentiation of epistemic from deontic modality which would result in the incorporation of the two inflections under EVIDENTIALITY, becoming part of an oppositional system.

We have seen above that children's early modalized utterances are all expressions of deontic necessity or action-oriented possibility which precede 'predictions of possible states of affairs' in the future. What is entailed in making predictions is the degree of certainty regarding the occurrence of the event. This variable has been found by Harner (1982) to play a role in young children's understanding of reference to future events of different degrees of immediacy. Stephany (1986) treats this finding of close relationship between future reference and 'degree of certainty of the speaker's statement being factual' as further evidence that epistemic modality develops from the prediction of events not controlled by a child's own action. The degree of certainty that the speaker's statement is factual will similarly have a bearing on references to past events on the basis of inference, since in these contexts what is involved is the 'postdiction' of nonwitnessed situations obviously not controlled by the child's own action.

It is therefore hypothesized that the acquisition by the particle -mIş of the function of inferential past marking will be a later development in Turkish

children's speech, waiting not on the distinction between the real and the non-actual but on the further differentiation of epistemic from deontic possibility, as a special case within the category of the non-actual. In other words, non-witnessed events/processes are a special type of past states of affairs that can be subsumed under the category of 'epistemic possibility'. Assertions about those past events which are known to have actually taken place (i.e. which have been directly experienced or which can be presupposed on the basis of shared knowledge) will belong to that end of epistemic space where truth can be held with 100 per cent certainty, and will be encoded with -DI past. On the other hand, assertions concerning those past events which fall under the realm of the possible, because knowledge about their factuality is based not on direct experience but on inference from an evidential state, will come to be encoded with -mIş past. Thus the -mIş particle will have acquired its past tense function in reference to a narrower semantic domain, definable as NONWITNESSED EVENT/PROCESS, which underlies its inferential uses. Put differently, the mid-range of the truth space where the reliability of the conclusions reached from evidence is below 100 per cent certainty, will have been discovered as the appropriate range for assertions that can be made with -mIş.

Further reorganizations within the category past will be motivated by this modal distinction. The nature of the resultant adult system suggests that the tendency to observe the distinction between direct and indirect experience overrides the tendency to observe the stative vs. nonstative distinction. If, as has been assumed, -DI past was initially assigned the function of marking completive aspect, this will have to be revised, resulting in the extension of its function to refer to all types of past events directly experienced. Similarly, -mIş will be generalized to encode past events inferred from present evidential states, regardless of the aspectual distinction of completive/durative, though it will still indicate stativity. With these reorganizations, the -mIş particle will have acquired its INFERENTIAL PAST meaning. Given the semantic organization of the language, the resulting system can be represented as

| | Nonpast | Past |
|---|---|---|
| Nonmodal | -mIş: perfect aspect | |
| Epistemically Modal | -mIş: fictive story | -mIş: inferential<br>-DI: direct experience |

If the type of error where children use -mIş past in reference to situations of perceived transformation should be observed (e.g. 'doll fall-mIş' instead of

'doll fall-DI', when the child sees it fall), this would indicate that they have not yet differentiated between the two forms on the basis of the variable witnessed vs. nonwitnessed process. When the two forms appear contrastively in a child's system in their differentiated functions to encode past events (i.e. -DI past: +process perceived, ±end state; -mIş past: -process perceived, +end state), this will provide definite evidence that the child is making an inference by taking into account the determining transformation, and not only commenting on a resultant state.

Such a progression in the differentiation of the semantic functions of the two forms appears to be reasonable also on cognitive grounds. It can be argued that it is cognitively more complex to make an inference about and reconstruct an unobserved event only from the observation of its results. If, as Antinucci and Miller (1976) claim, even the representation of a perceived past event needs some support from the perceptual data of the present moment, then inference about a nonperceived event would be more demanding, since although there exists a present state, the earlier phase of the whole event, i.e. the past process, is totally missing from the child's cognition. To the extent that 'to infer' refers to arriving at a conclusion by reasoning from evidence, it involves the understanding of causal relations. To the extent that causality is irreversible and unidirectional and the cause (what is inferred) precedes the effect (the evidence) in time, it requires an understanding of order relations, or anteriority. The use of -mIş as the inferential past thus requires the integration of causal and anteriority relations. In summary, the discovery and use of the inferential past will rest on (a) the cognitive capacity to construct necessary causal relations between a present state and an anterior process in a linguistically relevant way, and (b) using this necessary relation as the grounds for the assertion of the actuality of a past state of affairs.

Phase 5. All the preceding developments should allow for the discovery of the QUOTATIVE, or HEARSAY, function of the -mIş particle, thus completing its basic functions as the evidential mood marker. Given the assumption that the above hypothesized semantic differentiations have been made, the only additional ability required seems to be using another person's utterance, i.e. a linguistic entity as opposed to an observable physical state, as a piece of evidence on which to base one's assertion. The expectation that this should be the last function to be acquired follows from both the cognitively and the semantically based arguments presented above. The cognitive argument is based on the view that evidence that is obtained only through language is of a more abstract sort, since no phase of the situation referred to has been directly experienced. The only

sensory evidence is another person's assertion to the effect that the event/process has taken place. Such evidence is seen to be more difficult for children to operate with, since what has to be reconstructed from memory is a linguistic event. Conversely, it could be expected that the acquisition of this function should be simpler for this very reason, since the proposition to be reported has already been formulated by an adult and does not need to be constructed anew by the child. All that is required is to keep it in memory and to repeat it, transforming and/or adding the -mIş inflection. In this opposite view then, and given that attention to the grounds of interpersonal communication is salient, this function could precede the more physical inferential use.

However, I do not favour this alternative in the light of the semantic differences underlying the inferential and quotative functions, which concern the nature of presuppositions. In the case of inference, the speaker's assertion presupposes the event and the use of the -mIş particle indicates the grounds for the assertion. In the case of hearsay, the speaker's assertion presupposes the report of the event. The use of the -mIş particle indicates the grounds for the speech act, namely that the speaker is saying what he or she has heard. The presuppositional structure underlying the quotative function, then, is more complex, and can be expressed as: 'I assert that someone else asserted that the event happened'.

Another reason for this expectation is based on my empirical findings regarding a function of the -mIş particle which is related to the quotative function, to the extent that it also involves the creation of a reality purely through the medium of language. This is the use of -mIş in children's pretence play, particularly for setting the stage and assigning roles to participants. That is, those statements which must be made in order to create states which would not exist if they were not referred to, are marked with the evidential -mIş. In pretence play, the speaker's assertion expresses what should be presupposed rather than what is, and the use of the particle indicates the grounds for the assertion as a 'shared pretence world'.

In fact, children's ability to pretend and engage in symbolic play, emerging as early as the end of the sensori-motor period, has been seen to be the source of the development of the notion of possibility, albeit a nondifferentiated one (Piaget, 1951; Cromer, 1974; Bates, 1976). However, linguistic expressions accompanying early symbolic activity are still closely related to the immediate intentions and plans of activity and are thus probably deontically modal in meaning. Such expressions of action possibility are qualitatively different from the developmentally later use of language in pretence play for the purpose of providing the background material that is to be presupposed as 'factual' in the pretence mode.

This latter function has been observed to be realized by differential use of formal markers in child speech in many languages. Depending on the language, the conditional, the optative, the subjunctive or the evidential mood markers, modal verbs and the imperfective past used modally, serve to indicate pretend activity (e.g. Cromer, 1974; Antinucci and Miller, 1976; Bates, 1976; Stromquist, 1981; de Lemos, 1981b; Aksu-Koç, 1986b). In Turkish, while the optative -sIn is used in early symbolic play, the evidential -mIş, to signify 'let's pretend...' is not observed before the end of the third year. A representation of the semantic domain covered by the two inflections in this final phase would be

| | Nonpast | Past |
|---|---|---|
| Nonmodal | -mIş: perfect aspect | |
| Epistemically Modal | -mIş: fictive story<br>-mIş: pretend play<br>-mIş: hearsay | -mIş: indirect experience<br>-DI: direct experience |

### 4.3. Research questions and general design

In the light of these hypotheses, the study investigates the following questions:
(i) What is the order of acquisition of the two past tense forms in Turkish, the -DI and the -mIş pasts? If order of emergence is taken to be an index of psycholinguistic complexity, questions about which meaning structures are cognitively more basic or salient can be answered. If one of two syntactically equally complex devices is expressed earlier than the other, it is likely that the semantic functions involved in the acquisition of that form are more accessible to children at that point in development.
(ii) What is the differentiating semantic feature between the two formal means? In the developed system the feature for -mIş past in its basic inferential use is 'nonwitnessed process'. Is it the same in the children's system? That is, in what different situational contexts are the forms acquired? When in development does this meaning become the differentiating feature?
(iii) In what semantic functions does the -mIş form enter the children's system? For example, does its aspectual use for commenting on resultant states precede its use as the inferential past tense marker or its quotative function? The order in which children grasp the different uses of the same form yields information about how the underlying semantic organization of this part of the system gets to be structured.

In investigating these questions and testing the hypotheses stated above, two different but complementary methods were adopted. First, three children in the early period of inflectional development were studied longitudinally for a time

span of six months. The children overlapped with one another in age and language competence, and their data represent the developmental period between 1.9 and 2.6 years. Spontaneous speech data obtained in contexts of natural interaction were analyzed in relation to the hypotheses. This longitudinal study and its results are presented in Chapter 5. Second, an experimental study with older children between the ages of 3.0 and 6.4 was carried out to supplement the longitudinal findings and to answer further questions regarding the processes of differentiation of the semantic and pragmatic functions of the -DI and -mIş inflections.

The battery of experiments consisted of three production tasks designed to tap the variables that control the contrastive production of -DI and -mIş pasts; one task to assess the variables underlying the comprehension of the difference between the two forms; and one task to assess the variables governing the production and comprehension of the quotative function of the -mIş inflection. Chapter 6 which first presents the general design of the experimental study, focuses on the production experiments. Chapters 7 and 8 present, respectively, the comprehension and the hearsay experiments. The methodology specific to each task is presented in the relevant chapters.

## 5. Longitudinal study of early inflectional development

**5.0.** The present chapter presents findings from the longitudinal observation of three children. This part of the study addresses the questions of the order of acquisition of the -DI and -mIş inflections, the functions they serve in the child's speech, and the gradual structuration of the semantic domain governed by the -mIş form in particular. First, the procedures for the study are described, and then the results are presented. Finally, the findings are discussed in relation to the hypotheses.

### 5.1. Method

#### 5.1.1. Subjects

The sample consisted of three children, two girls and a boy, who were between the ages of 21 and 24 months at the beginning of the study. They came from middle-class families in Ankara with comparable socio-economic status, as judged from the occupations and income levels of their parents. The subjects were close in age but differed in terms of their level of language development. In this respect they fell on three different points on a developmental scale, as measured by Mean Length of Utterance (see section 5.1.2.). By the end of the study, the subjects overlapped both in terms of age and linguistic competence. Thus, the developmental period between 21 months (1.9 years) and 30 months (2.6 years) is represented in the data. The boy (YK) and the older girl (SÖ) were the only children of their families, whereas the youngest girl (ES) had an older sister two and a half years her senior. Table 5.1 presents the ages at time of visit with MLU measures for each subject. The youngest child, ES, had to be dropped from the sample before the study was completed, because she stopped being cooperative, having become aware of the investigator's interest in her speech.

#### 5.1.2. Procedure

As a measure of linguistic competence Mean Length of Utterance (MLU), which refers to the mean number of productive morphemes per utterance, was used.

MLU has proven to be a meaningful measure of linguistic development for English. It has also been applied to acquisition data from Turkish, in the Berkeley Cross-Lingustic Acquisition Project,[1] and found to be a good index for the early phases of acquisition, i.e. up to 2.6 - 3.0 years of age. At around 3 years, when MLU reaches a value between 4 and 5, it appears to loose its significance as a measure of development.

The advantage of the ratio of morphemes over, for example, the ratio of words per utterance, for Turkish, has to do with the agglutinating morphology of the language. The measurement of the mean number of words per sentence would definitely miss the increased complexity due to morphological development. One study comparing different measures for Turkish (Yaşin, 1981) suggests that the ratio of the number of syllables to the number of sentences is more meaningful than MLU. This might appear to be a reasonable measure, since each morpheme is syllabic and each additional syllable will increase the number of morphemes. The reverse, however, is not necessarily true, since an increased number of syllables can be due to the use of longer words made up of more syllables rather than to addition of meaning modulating morphemes. Therefore, the syllable as a unit of measurement is more accurately reflective of sentence length than of sentence complexity.

The fact that MLU loses its power as the child gets older seems to be related to which part of the system the child is acquiring at given points in development. During the 1.6 - 3.0 year age span, Turkish children are engaged in mastering the noun (case) and verb inflectional systems, where there is almost a one-to-one correspondence between every unit of form and every unit of meaning, and increased syntactic/semantic complexity gets reflected in an increase in the number of morphemes. Between 3.0 and 5.0, on the other hand, children are working on more complex sentence constructions that involve subordination, nominalization and relativization. In such syntactic forms, the suffixed tense, aspect, modality, and person/number inflections that yield a finite verb are replaced by one or two morphemes (such as the nominalizing particles -DIK, -mA, relativizing particles -An, -mIş, gerunds -IncA, -Arken, etc.) that yield a nonfinite verb. That is, increased syntactic complexity is not really reflected in increased number of morphemes. Therefore, once Turkish children start producing complex sentences, MLU seems to lose its value as a measure of linguistic development. Yet another but related aspect of development that decreases the utility of MLU is children's growing competence in using different cohesive mechanisms in discourse. Research (Aksu, 1978a; de Lemos and Bybee, 1981) has shown that children master these mechanisms in the course of dialogue with adults, where they can utilize prior adult turns to construct elliptical utterances for the

expression of their intentions. By the age of 3.0 - 3.6, however, with the more complex syntactic structures they control, children can create cohesion within their own utterances through ellipsis or anaphora. This development, resulting in intra-linguistic complexity, however, cannot be reflected in surface expression with an increase in the number of morphemes per utterance and cannot be captured by MLU.

Since the present study concerns the early period of inflectional development before the age of 2.6, MLU was adopted as an index to assess the level of linguistic competence of the subjects. Mean Length of Utterance was computed on the basis of 100 utterances, from free speech samples gathered during the course of spontaneous interactions of the child with the investigator.[2]

The children were seen individually in their homes at intervals of two weeks to one month. Subject ES was seen for two months, YK for four months, and SÖ for six months. The intervals between visits had to vary to accommodate the summer schedules of the families. Since the focus of the study was on a limited part of the linguistic system and on semantic development, frequent visits were preferred when possible. This strategy was chosen because once children begin to tackle a given syntactic-semantic structure, they are presumably cognitively and/or linguistically ready to deal with the problems which that structure might present, and it can be expected that development regarding it will be fast.

Each subject was seen for approximately two hours during each visit. With the overlapping of the developmental periods represented by each subject, it can be said that the basic course of development was adequately sampled. The data obtained were reflective of the range and productivity of the past and other tense inflections that were present in the children's speech repertoire. In order to create some grounds for comparison between the samples collected from each child, and stimulate play, a number of toys were brought to the sessions by the investigator (e.g. a set of plastic nesting blocks, two rag dolls, small wooden people and animals about which the children were asked to tell a story, sticks and blocks for construction, story books with pictures, and crayons and colored paper). Subjects YK and SÖ were also presented with some of the experimental elicitation tasks used with older children in the cross-sectional part of the study.

Unfortunately, no adequate sampling of the mothers' speech to the children could be made. Recording of mother-child speech was seen to be necessary for the determination of the frequency and context of use of the forms by adults in their speech to children. Information about the uses of the -mIş particle in particular, would have been valuable since it is a feature of baby-talk. Owing to a variety of reasons such data could not be collected, and constitutes a

Table 5.1. Age and MLU at each sample for subjects ES, YK and SÖ[a]

| | ES | | YK | | SÖ | |
|---|---|---|---|---|---|---|
| Subject | Age | MLU | Age | MLU | Age | MLU |
| Sample 1 | 21,04 | 2.45 | 23,18 | 2.67 | 24,04 | 4.03 |
| Sample 2 | 21,15 | 1.87 | 23,29 | 2.73 | 24,15 | 4.04 |
| Sample 3 | 22,01 | 2.39 | 24,14 | 3.24 | 24,29 | 4.43 |
| Sample 4 | 22,16 | 2.08 | 24,28 | 3.48 | 25,13 | 4.48 |
| Sample 5 | 23,02 | 2.54 | 25,16 | 3.61 | 25,29 | 4.28 |
| Sample 6 | | | 25,29 | 3.75 | 26,17 | 4.62 |
| Sample 7 | | | | | 27,04 | 4.94 |
| Sample 8 | | | | | 29,21 | 4.70 |

a Ages are given in months and days.

missing aspect of the present speech samples. However, at the beginning of the study, each mother reported that her child was not using the -mIş form, and kept the investigator informed about any relevant developments that she noticed during the course of the study.

All interactions during a visit to each subject were audio-taped. A Superscope C-104 cassette tape recorder was used. The data base consists of transcriptions of tape-recorded spontaneous speech of the subjects, mostly in interaction with the investigator. The tapes were transcribed after each visit. The transcribed material was supported by natural observations and contextual notes made during the sessions. Admittedly, more precise interpretations would have been possible if the sessions and samples of mother-child interaction had been video-taped. Questions concerning the temporal, aspectual and modal functions of the various inflections could then be answered in the light of paralinguistic as well as linguistic information. Relevance of both vocal and nonvocal paralinguistic data to understanding the early modal and aspectual modulations of child utterances has been underlined in the analyses of some investigators such as Gee and Savaşır (1985) and de Lemos (1981a). Regrettably, at the time data was collected in Turkey, facilities with video equipment where subjects could be taken were not accessible to the investigator. Taking the equipment into the children's houses, on the other hand, would have raised other problems, both practical and social. Therefore, we had to contend with audio-taping and relying on detailed contextual notes.

**5.1.3.** Coding and analysis

The speech corpora from each subject were analyzed for the presence and/or emergence of the particular structures under study. The transcribed speech samples from each visit were coded in the following fashion. All spontaneous utterances and question responses which contained a verb or the copula (plus adjective, noun, or locative pronouns) were considered. Imitations of preceding adult utterances were taken into account but not included into frequency counts. The meaning of each utterance was interpreted on the basis of information from the nonlinguistic and linguistic contexts. For each utterance, note was made of the verb used, and of formal marking with a tense-aspect-modality inflection. The type of reference made was analyzed in terms of the following features: temporal immediacy of the event (present, immediate past, remote past, immediate intent); spatial-perceptual immediacy of the action or object; aspect (ongoing vs. completed, habitual vs. specific event) and modality (imperative, optative, evidential). This first level of coding was followed by a classification of the predicates into three broad verb-type categories of stative, change of state, and activity, on the basis of the nature of the event the utterance made reference to, as judged from context. To see if there was an underlying organization to the differential use of the inflections, the frequency of occurrence of each inflection within each verb-type category was obtained (see Tables 5.2, 5.3 and 5.4). Finally, only those utterances where the verb was inflected with the -DI or -mIş morphemes were considered. Each utterance was classified in terms of the following contexts of reference: immediate past, remote past, story telling, and picture description. The frequency distributions of the two inflections in terms of these contexts, for each subject are presented in Tables 5.5, 5.6 and 5.7.

## 5.2. Results

The analyses of the speech samples of the three subjects revealed that there is an ordered sequence in the acquisition of the -DI and -mIş past inflections, such that the emergence of -DI precedes that of -mIş. In fact, -DI, -Iyor and -sIn (expressing past of direct experience, present progressive and desire and intention for action, respectively, in the adult language) were already present in the speech of all three subjects when they were first seen. Not surprisingly, utterances in the imperative mode were the most dominant, given the simplicity of the underlying intention and zero inflectional marking on the surface. Spontaneous productions of the future inflection -AcAk was observed in the second sample of YK, when he was 24 months (MLU around 2.7), and was already being used by SÖ when she was first seen at 24 months (MLU around 4.0). SÖ, the linguistically most advanced subject, also acquired the aorist -Ar (habitual aspect marker)

during the period of observation, when she was 26 months (MLU around 4.3). These two children, YK and SÖ, acquired -mIş (inferential past/evidential mood marker) during the course of the study. The form was not observed in the speech of the youngest subject, ES, in the period of two months during which she was seen.

First, general trends observed in terms of inflectional development during this period between 21 and 30 months will be presented. Then the speech samples of each subject will be reviewed separately, with particular attention to the emergence and functions of the -mIş particle.

As can be seen from the summary Tables 5.2, 5.3 and 5.4, -DI, -Iyor and -sIn are the earliest acquired and most productive inflections for the subjects. In fact, these are the only forms that the linguistically least advanced subject ES uses, and they maintain their relatively high frequency both for YK and SÖ across all samples.

The present progressive inflection -Iyor was at first used in reference to ongoing activities in the immediate context, describing objective spatio-temporal events or make believe activities for different objects in play. It predominantly co-occurred with activity verbs, and to a lesser extent with stative verbs. It was used with change of state verbs, mainly in negative statements, in the context of a challenging activity, to indicate the resistance of an object to the agent's actions upon it (e.g. koy 'put', sok 'insert', çıkart 'take-out') and thus carried a modal value. These early uses lead to the interpretation that -Iyor is first associated with the meaning component 'ongoing' for the child, and thus indicates aspect.

The frequency of occurrence of -Iyor with change of state verbs increased in the speech of YK and SÖ, where it began to be used with a more general meaning, referring to habitual behavior of self, others and familiar objects. The function of marking event time contemporaneous with the moment of speech can be attributed to -Iyor when it contrasts with the use of -DI for indicating 'past' and of -AcAk for indicating 'future', as will be discussed later.

The optative mood marker -sIn was used by the children to express immediate intentions. These involved envisaged actions pertaining either to the self or to objects, to be carried out individually or with the co-participant. Its high proportion of use with change of state verbs in such contexts reflects the predominance of a focus on the goal of action. What the child is doing with utterances in this mood is planning immediate activity, a commonly observed use of language in child speech (Gopnik, 1982; also Vygotsky, 1978). These uses of -sIn with the flavor of imperatives to the self or others, exclude, however, its adult uses for granting permission. Nevertheless, -sIn is the first explicit mood marker

Table 5.2. Frequency of inflections for verb categories at each sample for the spontaneous utterances of ES.[a]

| | -DI | -mIş | -Iyor | -sIn | Total |
|---|---|---|---|---|---|
| Samples 1 and 2 | | | | | |
| Change of state | 29 | 0 | 1 | 4 | 34 |
| Activity | 2 | 0 | 13 | 0 | 15 |
| Stative | 4 | 0 | 7 | 0 | 11 |
| | 35 | 0 | 21 | 4 | 60 |
| Sample 3 | | | | | |
| Change of state | 29 | 0 | 0 | 0 | 29 |
| Activity | 11 | 0 | 15 | 3 | 29 |
| Stative | 1 | 0 | 3 | 0 | 4 |
| | 41 | 0 | 18 | 3 | 62 |
| Sample 4 | | | | | |
| Change of state | 4 | 0 | 0 | 0 | 4 |
| Activity | 0 | 0 | 0 | 2 | 2 |
| Stative | 0 | 0 | 0 | 0 | 0 |
| | 4 | 0 | 0 | 2 | 6 |
| Sample 5 | | | | | |
| Change of state | 33 | 0 | 0 | 0 | 33 |
| Activity | 3 | 0 | 7 | 9 | 19 |
| Stative | 3 | 0 | 6 | 0 | 9 |
| | 39 | 0 | 13 | 9 | 61 |

a Noninflected utterances (imperatives and nominals), as well as imitations are not included in the tables.

Table 5.3. Frequency of inflections for verb categories at each sample for the spontaneous utterances of YK

| | -DI | -mIş | -Iyor | -sIn | -AcAk | Total |
|---|---|---|---|---|---|---|
| Sample 1 | | | | | | |
| Change of state | 19 | 0 | 4 | 6 | 0 | 29 |
| Activity | 4 | 0 | 23 | 1 | 0 | 28 |
| Stative | 0 | 0 | 3 | 0 | 0 | 3 |
| | 23 | 0 | 30 | 7 | 0 | 60 |
| Sample 2 | | | | | | |
| Change of state | 29 | 0 | 6 | 20 | 1 | 56 |
| Activity | 13 | 0 | 8 | 0 | 3 | 24 |
| Stative | 2 | 0 | 0 | 4 | 0 | 6 |
| | 44 | 0 | 14 | 24 | 4 | 86 |
| Sample 3 | | | | | | |
| Change of state | 10 | 1 | 15 | 5 | 9 | 40 |
| Activity | 0 | 0 | 3 | 0 | 1 | 4 |
| Stative | 5 | 0 | 3 | 0 | 0 | 8 |
| | 15 | 1 | 21 | 5 | 10 | 52 |
| Sample 4 | | | | | | |
| Change of state | 41 | 0 | 11 | 17 | 18 | 87 |
| Activity | 9 | 0 | 8 | 0 | 7 | 24 |
| Stative | 2 | 0 | 2 | 0 | 0 | 4 |
| | 52 | 0 | 21 | 17 | 25 | 115 |
| Sample 5 | | | | | | |
| Change of state | 44 | 0 | 9 | 9 | 20 | 82 |
| Activity | 6 | 0 | 13 | 1 | 10 | 30 |
| Stative | 7 | 3 | 1 | 2 | 1 | 14 |
| | 57 | 3 | 23 | 12 | 31 | 126 |
| Sample 6 | | | | | | |
| Change of state | 20 | 3 | 7 | 24 | 26 | 80 |
| Activity | 4 | 1 | 20 | 1 | 10 | 36 |
| Stative | 0 | 2 | 0 | 0 | 0 | 2 |
| | 24 | 6 | 27 | 25 | 36 | 118 |

Table 5.4. Frequency of inflections for verb categories at each sample for the spontaneous utterances of SÖ

| | -DI | -mIş | -Iyor | -sIn | -AcAk | -Ar | Total |
|---|---|---|---|---|---|---|---|
| Sample 1 | | | | | | | |
| Change of state | 30 | 0 | 8 | 17 | 0 | 0 | 55 |
| Activity | 3 | 0 | 7 | 10 | 1 | 0 | 21 |
| Stative | 3 | 0 | 0 | 4 | 0 | 0 | 7 |
| | 36 | 0 | 15 | 31 | 1 | 0 | 83 |
| Sample 2 | | | | | | | |
| Change of state | 41 | 0 | 3 | 22 | 4 | 0 | 70 |
| Activity | 10 | 0 | 15 | 9 | 1 | 0 | 35 |
| Stative | 8 | 0 | 1 | 2 | 0 | 0 | 11 |
| | 59 | 0 | 19 | 33 | 5 | 0 | 116 |
| Sample 3 | | | | | | | |
| Change of state | 52 | 4 | 16 | 23 | 0 | 0 | 95 |
| Activity | 8 | 1 | 19 | 4 | 0 | 0 | 32 |
| Stative | 4 | 9 | 0 | 1 | 0 | 0 | 14 |
| | 64 | 14 | 35 | 28 | 0 | 0 | 141 |
| Sample 4 | | | | | | | |
| Change of state | 54 | 3 | 27 | 21 | 4 | 0 | 109 |
| Activity | 2 | 0 | 20 | 9 | 1 | 0 | 32 |
| Stative | 2 | 12 | 4 | 9 | 0 | 0 | 27 |
| | 58 | 15 | 51 | 39 | 5 | 0 | 168 |
| Sample 5 | | | | | | | |
| Change of state | 44 | 4 | 10 | 10 | 1 | 1 | 70 |
| Activity | 8 | 0 | 14 | 4 | 3 | 1 | 30 |
| Stative | 6 | 4 | 6 | 3 | 0 | 0 | 19 |
| | 58 | 8 | 30 | 17 | 4 | 2 | 119 |
| Sample 6 | | | | | | | |
| Change of state | 74 | 13 | 10 | 13 | 10 | 1 | 121 |
| Activity | 25 | 2 | 34 | 5 | 6 | 0 | 72 |
| Stative | 2 | 15 | 6 | 0 | 0 | 0 | 23 |
| | 101 | 30 | 50 | 18 | 16 | 1 | 216 |
| Sample 7 | | | | | | | |
| Change of state | 57 | 2 | 14 | 16 | 12 | 0 | 101 |
| Activity | 7 | 3 | 19 | 29 | 12 | 3 | 73 |
| Stative | 1 | 6 | 4 | 0 | 0 | 1 | 12 |
| | 65 | 11 | 37 | 45 | 24 | 4 | 186 |
| Sample 8 | | | | | | | |
| Change of state | 29 | 19 | 5 | 7 | 11 | 2 | 73 |
| Activity | 10 | 2 | 14 | 10 | 6 | 0 | 42 |
| Stative | 0 | 2 | 17 | 0 | 0 | 0 | 19 |
| | 39 | 23 | 36 | 17 | 17 | 2 | 134 |

that figures in Turkish children's speech to indicate a subdomain of deontic modality.

When the subjects acquired the future inflection -AcAk, they first used it to serve an old function, that of expressing immediate intention. The frequency of this type of reference was observed to increase around 25 months both for YK and SÖ. In SÖ's subsequent samples, the inflection was used in reference to events more distant in the future. The youngest subject, ES, did not use -AcAk spontaneously. In her occasional imitations of preceding adult utterances in the future tense, she sometimes inflected the verb, and sometimes just produced the root form.

The only subject who used the aorist inflection -Ar spontaneously was SÖ, and only in her later samples starting at 26 months.

Finally, as an inspection of Tables 5.2, 5.3 and 5.4 reveals, the past inflection -DI was predominantly used with change of state verbs, in contexts where a sudden change in state results in the completion of an event. The proportion of utterances where -DI occurred in reference to activities without a result, or to physical or internal states, was very low. This was particularly the case in the speech of ES and the first sample of YK. One context where -DI was used with activity verbs was that of play, where the child acted out an event that would have duration in real time, as having taken place in an instant. In such instances the child treated the imagined process as a totality, without any regard for its durational internal structure (e.g. child moves doll from one spot on the floor to another, saying bu git-ti 'this went'; takes toy pot to mouth of doll and back, saying bu ye-di 'this ate'). In fact such activities were represented by the speech act itself, rather than by the action pattern. A similar use of the -DI inflection in reference to activities without an end result was with the aspectual verb bit-mek 'to end, to finish', uttered after the completion of an activity with duration in the immediate context (e.g. after making several animals slide from an inclined plane; after playing a game of talking on the phone).[3] The notion encoded by the -DI inflection during these early samples (those of ES and the first of YK) thus appears to be 'completion' rather than the deictic tense relation of 'past'.

The frequency of use of -DI in reference to events outside of the immediate context (both with activity, and change of state verbs) increased in dialogues with adults, in the later samples. Such use consisted of responses to questions concerning the habitual behavior of persons and objects known to the child. The few examples observed in the early samples, particularly of ES, appeared to be comments about the existence/nonexistence of these entities rather than references to past processes. Such question-answer sequences were ritualized formats

between the child and the adult, or 'conversational-routines' as Sachs (1983) calls them, and are seen as the context in which the inflection gains its tense function of making reference to past time. The effect of dialogue with adults about non-immediate events - ranging from origin of objects to habitual and specific events - on the young child's ability to talk about the past has come to the fore in some recent work by different investigators (Stoel-Gammon and Scliar-Cabral, 1977; Sachs, 1983; Eisenberg, 1985; Aksu-Koç, 1986b).

This survey of the different uses of the verb inflections in the children's speech repertoire suggests that two qualitatively different phases can be identified for the period of development under study. The first is represented mainly by the data of ES and the first sample of YK at 23 1/2 months, where what children talk about concerns the objective spatio-temporal events of the immediate situation. The contexts of use of the productive verb inflections of this period, -Iyor, -sIn and -DI, reflect the restricted range of the temporal field to which they make reference. This field is practically the here-and-now. However, events that are part of this present are differentiated, with the use of -DI to indicate completion, -Iyor to indicate ongoingness, and -sIn, immediate intention. Stative relations, like predications of location or identity, are encoded with the adjectival form of the verb 'to be', var, functioning as the copula.

The second phase represented by the later samples of YK and the data of SÖ, where -AcAk (future), -Ar (aorist), and -mIş (inferential past) inflections were added to the children's speech, reflects a gradual extension of the boundaries of the here-and-now present. It is during this second period that the contrastive use of the -DI, -Iyor, and -AcAk inflections acquire the tense function of indicating past, present and future reference, respectively.

In the next sections, the data of each subject will be considered separately, with the double aim of illustrating the above observations and reconstructing the semantic routes followed in the acquisition of the -mIş particle. Although the youngest subject, ES, was dropped from the study before she acquired the form, her samples are also analyzed in order to demonstrate the organization of the semantic system prior to its emergence.

**5.2.1.** Data of ES

Subject ES was seen between the ages of 21 and 23 months, during which period she had an average MLU of 2.3. In all her samples she used -DI, -Iyor and -sIn productively. Almost all her utterances in -DI referred to events that took place in the immediate context and were punctual transformations yielding a change in state or location. These contrasted with utterances in -Iyor, said in contexts of ongoing activities or internal and physical states. The following examples

illustrate these contrasts.[4]

(21 months)

(1) /playing with dolls with adult/

Ah, nene yap - tı
Oh sleep make - PA:DE
Oh, it took a nap.

E: Nene mi yapıyorlar?
Hadi Ayşe de yapsın.
Are they sleeping? Let Ayşe do so too.

Ayşe yap - tı
Ayşe make - PA:DE
Ayşe did (took nap)/lies doll down/

E: Uyusunlar mı?
Should they sleep?

Yap - tı
make - PA:DE
(It) did (took nap)

Kalk - tı
get up - PA:DE
(It) got up/wakes doll up/

(2) /doll falls/

Bak düş - tü
look fall - PA:DE
Look (it) fell

(3) /re: doll that opens and closes its eyes/

Aç - ıyo(r)
open - PRES:PROG
It's opening

Kapat - tı
close - PA:DE
(It) closed

Aç - tı
open - PA:DE
(It) opened

E: Açıyor mu?
Is it opening?

(22 months)

(4) /at lunch, on seeing soup/

Çorba ist - iyor
soup want - PRES:PROG
(I) want soup

There were very few utterances in ES's speech that made reference to past events outside the immediate context (see Table 5.5 for the distribution of past utterances of ES). The first example from sample 2, at 21 months, 15 days, was in response to an adult question concerning an object present in the immediate context:

(5) /re: dress of doll she is playing with/

E: Kim dikti onu?
Who sewed that?

Anne
mother
Mother

E: Anne
Mother

Anne dik - ti
mother sew - PA:DE
Mother sewed (it)

The two examples of remote past reference, from sample 3, at 22 months, were ritualized expressions involving the location of a familiar person, produced in response to an adult question:

(6) /re: subject's older sister, who goes to kindergarten during the day, and often to her grandmother/

E: Eda hani?
Where is Eda?

Git - ti
go - PA:DE
(She) went

(7)

E: Nerede Eda?
Where is Eda?

Annane-ye git - ti Eda
grandma-DAT go - PA:DE
Eda went to grandma.

These responses appeared to be comments on the 'nonexistence' of the person in question rather than references to a past process. On the other hand, the child did not answer adult questions about specific events in the remote past, in the same interview.

(8)

E: Dün ne yaptınız?
Nerede oynadınız?
What did you do yesterday?
Where did you play?

No response

E: Sen dün nereye gittin?
Where did you go yesterday?

No response

E: Kimin evine gittin?
Whose house did you go to?

No response

It is possible that ES did not cooperate with her interlocutor in this instance because these events had not been talked about before, that is, had not become part of conversational routines.

As noted earlier, reference to the future was not observed in this child's speech except for a few imitations in the last sample. Immediate intentions were expressed with the optative -sIn and any adult question inflected with the future -AcAk was responded to with the optative, the progressive or left uninflected. Examples from 21 months, 15 days are:

(9) /re: toy animals she's playing with/

E: Bu da yiyecek mi?
Is this one going to eat too?

Bu da y - iyor
this too eat - PRES:PROG
This is eating too

(10) /while playing with sticks that go in holes/

E: Delikten sokucaksın değil mi?
You will insert through the hole won't you?

Bu - nu sok - uyum
this - ACC insert - OPT:1SG
Let me insert this

In her first two samples at 21 months, the child had two opportunities for producing the -mIş inflection by imitation. However she imitated or responded to the adult utterance by transforming -mIş to -DI.

(11) /in context of play, after having fed the dolls/

E: Karınları doymuş mu?
Did they get full?

Doy - du
satiate - PA:DE
(They) got full

In the third sample there were seven contexts where ES could have imitated the investigator's utterance with -mIş; however, she did not do so for any of them.

Table 5.5. Frequency of -DI and -mIs inflections for verb category and referential context at each sample for subject ES

| | -DI | | | | | -mIs | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | RP | IP | * | PD | N | P | * | Im | PD | N |
| Samples 1 and 2 | | | | | | | | | | |
| Change of state | 1 | 26 | 2 | - | - | - | - | - | - | - |
| Activity | - | 2 | - | - | - | - | - | - | - | - |
| Stative | - | 4 | - | - | - | - | - | - | - | - |
| Sample 3 | | | | | | | | | | |
| Change of state | 2 | 22 | 3 | 2 | - | - | - | - | - | - |
| Activity | - | 11 | - | - | - | - | - | - | - | - |
| Stative | - | 1 | - | - | - | - | - | - | - | - |
| Sample 4 | | | | | | | | | | |
| Change of state | 1 | 3 | - | - | - | - | - | - | - | - |
| Activity | - | - | - | - | - | - | - | - | - | - |
| Stative | - | - | - | - | - | - | - | - | - | - |
| Sample 5 | | | | | | | | | | |
| Change of state | 3 | 26 | 2 | 2 | - | - | - | - | - | - |
| Activity | - | 3 | - | - | - | - | - | - | - | - |
| Stative | - | 1 | 2 | - | - | - | - | - | - | - |

RP = Remote past
IP = Immediate past (includes instances of present state-past process coordination)
* = Incorrect use of inflection, context calls for the opposite past form.
PD = Picture description
N = Narrative
P = Past (includes instances of present state-past process coordination)
Im = Imitation

Three of these instances were obligatory contexts where she was presented with a broken toy stick and asked what had happened to it.

(12) E: Ne olmuş sopaya?
What happened to the stick?

Uf ol - du
hurt be - PA:DE
(It) got hurt

The child's response is more a comment on the present state of the object than on the past process that brought it about, which she has not even experienced.

The remaining four contexts were references to story-book pictures or pretence activities, where ES responded with -DI or -Iyor to a preceding adult utterance inflected in -mIş.

During the fourth visit, ES was presented with the items of the Statives task used in the experimental part of the study (see Chapter 6, section 6.3, for a description). Briefly, this task consists of pictures that represent objects in a state that is either resultant from a transformation (broken, cut, fallen, bitten, etc.) or is an instant of an ongoing process (sleeping, drinking, walking, etc.). The picture set contains eight items that are potentially describable with a past participial adjective derived with the -mIş particle, used attributively or predicatively. None of the pictures were so described by ES. In fact, she used no descriptive adjectives but just named the objects.

Her fifth sample at 23 months presents more varied and spontaneous examples of the -DI inflection, though still related to routinized events. Furthermore she now answers adult questions in future -AcAk, with utterances inflected similarly:

(13) /on hearing the apartment door close when her father leaves/

Baba git - ti
father go - PA:DE
Father went

(14) /she is putting small animals in a box/

E: Sen onları topluyormusun?
Are you putting them away?

Bu - nu kutu - ya koy - du -m
this - ACC box - DAT put - PA:DE -1SG
I put this in the box

(15) /in context of play/

E: Şimdi bu da yiyecek mi?
Is this going to eat too now?

Yiy - cek
eat - FUT
(It) will eat

Of her 39 -DI past utterances in this sample, three referred to non-immediate past events in context of conversational routines and 26 to completed events resulting from punctual transformations in the immediate context. Four constituted obligatory contexts for -mIş past, since they referred to past events with present resultant states where the child had not perceived the past process.

(16) /re: bottle of soap bubble liquid which E opens and finds empty/

E: Aa, akmış bu
Oh, this spilled (out)

Ak - tı
spill - PA:DE
(It) spilled

E: Bit miş mi?
(Is it) finished?

Bit - ti
finish - PA:DE
Finished

ES also did not imitate the investigator's -mIş past utterances that referred to pictures or pretense events:

(17) /re: doll/

E: Acıkmış mı?
Is it hungry?

Acık - tı
hungry - PA:DE
It is hungry

(18) /re: picture book/

E: Ağzını ne yapmış?
What has it done to its mouth?

Hu - hu yap - tı
boo make - PA:DE
(It) made boo

Thus, by the end of 23 months, this child was just beginning to acquire the future inflection -AcAk and her use of -DI was getting extended beyond the immediate present. She did not yet however produce the -mIş inflection or even indicate familiarity with it through imitation. No deictic adverbs were found in ES's speech except for one instance of şimdi 'now' in the last sample. In her previous samples, there were yine 'again' and daha 'more', both adverbs for

aspectual modification.

**5.2.2.** Data of YK

The second subject, YK, overlaps in development with ES in age and level of linguistic maturity. This child was also not using the -mIş particle when he was first seen. In his first two samples, collected between 23 and 24 months, when his average MLU was 2.70, no instance of the -mIş particle was observed except for one case of imitation (see Table 5.6. for the distribution of YK's past utterances). Of the 67 -DI past utterances that occurred across the two samples, seven referred to non-immediate past events as responses to adult questions in a ritualized fashion. They all involved habitual activities of the child himself or of familiar persons. Six made reference to non-immediate, past events with an end-state available in the present context. That is, they qualified as examples of present state-past process coordination, as in:

(24 months)

(19) /re: popped old balloon/

E: Patlak mı bu?
Is this popped?

Patlak
popped (ADJ)
Popped

E: Kim patlattı?
Who made it pop?

Yaman patla - t - tı
pop - CS - PA:DE
Yaman made it pop

E: Patlamış mı bu?
Was it popped?

Patla - dı
pop - PA:DE
(It) popped

Four of these constituted obligatory contexts for the use of -mIş past, since the child had not seen the process bringing about the state. The rest were instances of events which took place and reached completion in the present context. Thus, YK marked different types of past events with -DI past: those that referred to immediate, completed events; those expressing remote past events; and those which could be reconstructed or inferred from an available present state.

His use of the present progressive -Iyor also seemed to be more differen-

Table 5.6. Frequency of -DI and -mIş inflections for verb category and referential context at each sample for subject YK

| | -DI | | | | | -mIş | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | RP | IP | * | PD | N | P | * | Im | PD | N |
| Sample 1 | | | | | | | | | | |
| Change of state | 2 | 12 | 2 | 3 | – | – | – | 1 | – | – |
| Activity | – | 4 | – | – | – | – | – | – | – | – |
| Stative | – | – | – | – | – | – | – | – | – | – |
| Sample 2 | | | | | | | | | | |
| Change of state | 1 | 20 | 8 | – | – | – | – | – | – | – |
| Activity | 4 | 9 | – | – | – | – | – | – | – | – |
| Stative | – | 2 | – | – | – | – | – | – | – | – |
| Sample 3 | | | | | | | | | | |
| Change of state | – | 9 | 1 | – | – | – | 1 | 2 | – | – |
| Activity | – | – | – | – | – | – | – | – | – | – |
| Stative | – | 5 | – | – | – | – | – | – | – | – |
| Sample 4 | | | | | | | | | | |
| Change of state | 1 | 38 | 2 | – | – | – | – | 2 | – | – |
| Activity | 3 | 6 | – | – | – | – | – | – | – | – |
| Stative | – | 1 | 1 | – | – | – | – | 2 | – | – |
| Sample 5 | | | | | | | | | | |
| Change of state | 6 | 33 | 5 | 2 | 2 | – | – | – | – | – |
| Activity | 3 | 3 | – | – | – | – | – | – | – | – |
| Stative | – | 1 | – | – | 2 | 1 | – | 1 | 2 | – |

Table 5.6. (Continued)

| | -DI | | | | | -mIş | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | RP | IP | * | PD | N | P | * | Im | PD | N |
| Sample 6 | | | | | | | | | | |
| Change of state | 2 | 16 | 1 | 1 | - | 2 | - | 1 | - | 1 |
| Activity | 1 | 3 | - | - | - | 1 | - | - | - | - |
| Stative | - | - | - | - | - | 1 | - | - | - | 1 |

RP = Remote past
IP = Immediate past (includes instances of present state-past process coordination)
* = Incorrect use of inflection, context calls for the opposite past form
PD = Picture description
N = Narrative
P = Past (includes instances of present state-past process coordination)
Im = Imitation

tiated. In addition to making reference to ongoing activities in context, -Iyor occurred in statements asserting prevailing internal states or typical behavioral tendencies of objects or people, although as pair-parts to preceding adult questions.

(23 months, 18 days)

(20) /re: toy clown/

E: Ben bunu çok sevdim. Sen de seviyormusun bunu?
I liked this very much.
Do you also like it.

Sev - iyor - um
love - PRES:PROG - 1SG
I like (it)

E: Uzuyor mu bunun bacakları böyle?
Do its legs stretch like this?

Uz - uyor
stretch - PRES:PROG
(They) stretch

YK also had occasional spontaneous uses of the future -AcAk, expressing intention for immediate action.

(21) Ben şimdi kaka yap - ıca - m
I now poo-poo make - FUT - 1SG
I will make poo-poo now.

That is, the inflections in his system at about 24 months are beginning to take on a deictic as well as aspectual value, making reference to limited past and future events. In fact, beginning with this sample he starts using the deictic adverb şimdi 'now'.

YK, who did not use -mIş at this point, also could not utilize any of the adult utterances inflected with this form to produce a contingent response with inflectional agreement.

(22) /re: pacifier with broken tip/

E: Ucu ne olmuş
What happened to its tip?

Kop - uyor
break - PRES:PROG
(It) is breaking

(23) /re: picture of apple on the ground/

E: Ne yapmış elma?
What happened to the apple?

Düş - tü
fall - PA:DE
(It) fell

Examples (22) and (23) clearly constitute contexts where the -mIş form should have been used but was not, regardless of the adult model. In all, there were 13 such obligatory contexts across the two samples, but YK used -DI in 10 of them, -Iyor in one, uninflected stative predications in two and imitated -mIş in one of them.

Sample three of YK is from two weeks later (24 months, 14 days), with MLU of 3.24. During this visit his mother reports that he is using the -DI inflection with discernible 'past' connotation and provides the following example:

(24) /after coming out of his cot on his own in the morning, reports to mother/

anne ben in - dim
mother I descend - PA:DE
Mother, I got down

Similarly, he now uses the future -AcAk not only to express his own intentions but also what others will do.

(25) /while playing with investigator's toy cars/

kırmızı al - ıcak anne
red buy - FUT mother
Mother will buy red (one)

At this point in development the child starts to imitate -mIş when provided with a model, but does not produce the form spontaneously. His imitations reveal that he has no awareness of the nonwitnessed process component involved in the meaning of -mIş past, but is instead focusing on the present state of the object.

(26) /E shows broken stick: nonwitnessed transformation/

E: Bu ne olmuş, kırılmış mı?
What happened to this?
Did it get broken?

Kır - ıl - mış
break - PV - PA:IE
Got broken

/E breaks stick in front of him: witnessed transformation/

Kır - ıl - mış
break - PV - PA:IE
Got broken

YK was presented with the pictures from the Statives task. Like ES, he also did not spontaneously describe any of the objects in states resultant from transformations with the -mIş past participle. The following example is interesting since the child's response is contextually inappropriate. A characterization of the object in terms of the change it has undergone is only acceptable with the -mIş past participle (expected response: düşmüş 'fallen'), whereas the child's description is with -DI past.

(27) /re: picture of apple fallen from a tree/

E: Bu nasıl bir elma?
What kind of an apple is this?

In - di
descend - PA:DE
(It) came down

This error, similar to ones from the previous samples, supports the suggestion that, for the child, -DI past is at first associated with the meaning 'completion'. Sample 4, at 25 months and with MLU of 3.48, presents the same picture. There is imitation, but no spontaneous production of the form. In obligatory contexts, it is -DI past that is used. From these instances it is again evident that the child does not know that -DI is the form for talking about directly experienced events, and -mIş about indirect experiences. However, during this visit YK's mother reports that she has witnessed one spontaneous use, where the child, on seeing his ball under the bed, said 'Oradaymış' '(it) is there', and after picking it up, said 'Aldım' 'I took it'. In fact, all the imitations observed in the data in this sample are also in reference to such locative or physical states.

Sample five (25 months, 16 days, MLU = 3.61) contains the next spontaneous productions of the -mIş inflection. The few instances share the common property of occurring with stative verbs.

(28) /in context of play, re: doll/

E: O da yiyecek mi?
Is that going to eat too?

Acık - mış
hungry - PA:IE
(It) got hungry

(29) /looking at picture book/

E: Napıyor eşek?
What is the donkey doing?

O dur - muş ora - da
it stand - PA:IE there - LOC
It stood there

Adam vur - du eşeğ - i
man hit - PA:DE donkey - ACC
The man hit the donkey

Bak eşeğ - i ağzı - nı aç - tı
look donkey - ACC mouth - POSS:3SG open - PA:DE
Look the donkey opened its mouth

The contrast between the first and the next two comments of the child in example (29) shows that given the same context of talking about events encountered in a static framework, -mIş is used in reference to a state, such as being located at a place, whereas -DI is used in reference to a completed dynamic action (hitting) or a resultant state (opened mouth). Both of the latter uses are pragmatically inappropriate, since the modality for describing story-pictures is either the progressive or the inferential past, both of which have stative connotations. Unless the pictures are described as a series of events connected with a plot line, -DI past is awkward, at best. There are further examples for this observation. YK imitates the -mIş inflection from a model adult utterance when it occurs with a stative verb, but replaces it with the preferred -DI past when it occurs with change of state verbs (e.g. kır 'break', yırt 'tear', kopart 'take apart').

These observations strongly suggest that the -mIş particle first enters children's speech in the function of making reference to present states and is used with stative verbs. States that are conceived as closely connected with the action-process of which they are a product, and which are describable in dynamic terms, are referred to with -DI past. Thus the -mIş particle, which, when appended to a nonstative verb, adds the implication of an achieved state, is first used to comment on states that exist per se rather than to express a resultant state perspective.

The last sample of YK, at 26 months, with MLU of 3.75, also has a number of spontaneous productions of the -mIş inflection as well as an imitation. Additionally, he produces short nursery rhymes and story frames, which show that he encounters and uses the form in the narrative context too. The spontaneous instances all occur in reference to states, internal or physical.

(30) /re: pointing to scab on his leg/

Bu kana - mış bak
this bleed - PA:IE look
This bled look

(31) /sees empty toy bird-cage in which he knows there has been a bird/

E: Hani kuş?
Where is the bird

Yok
non-exist
Not here

Uç - muş
fly - PA:IE
It flew (flown away)

Example (31) is the first clear case that can be interpreted as having the inferential use of the form with reference to a past process. The child first comments on the state he observes (the nonexistence of the object that was supposed to be there) then refers to the same state in terms of the action that brought it about, i.e. with the inference that the bird has flown away. This example is also interesting as it shows that the child is giving all steps of his inferential reasoning linguistic expression, as if trying to have an external handle on each, in an instance where the investigator's question does not provide it. As has been suggested by Karmiloff-Smith, this may represent an interesting transition phase before making the inferential reasoning internally.[5] Example (32) is suggestive of the same process:

(32) /he has a fly killer in his hand and is hitting the window/

E: Onunla ne yapıyorsun sen?
What are you doing with that?

Öl - dür - üyor - um sineğ - i
die - CS - PRES:PROG - 1SG fly - ACC
I'm killing the fly

E: Var mı sinek?
Is there a fly?

Var
exist
There is

E: Hani?
Where

Nere - de?
where - LOC
Where?

At - tı mı o anneanne?
throw - PA:DE QES that grandma?
Did grandma throw it?

E: Ne?
What?

At - mış
throw - PA:DE
She threw (apparently)

E: Ne olmuş?
What happened?

At - mış
throw - PA:DE
She threw

If such a transitional phase is at issue, then language is functional in getting an external representation to work on inferential steps, which implies that it plays a more important role in general cognitive processing procedures.

During his last session, YK was presented once more with the Statives task. Again, he did not use the -mIş particle in describing resultant states encodable by change of state verbs. He was also presented with some items from the Inference production task used in the experimental study. This task consists of different events acted out with toys, presenting an initial and a final state, with screened transformations in between (discussed in detail in Chapter 6, section 6.4). The subject is asked to describe the final state that has resulted from the nonwitnessed transformation. YK did not use -mIş past in describing these situations. Instead, he used -DI past, which is incorrect on the basis of the nonwitnessed event criterion, but is consistent with the early strategy of commenting on resultant states from a past process with -DI past.

**5.2.3.** Data of SÖ

The third subject was the linguistically most advanced, with MLU of 4.03 when she was first seen. SÖ's use of the past, future and present progressive inflections reveals that they serve to mark deictic tense relations. So as not to belabor the point illustrated in the samples of ES and YK, examples of such uses will not be presented. Furthermore, this child, in addition to aspectual adverbs such as daha 'more' and yine 'again', uses şimdi 'now' for temporal modification. Despite this level of development, in her first two samples collected at 24 months and 24 1/2 months, no instance of the use of the -mIş particle was observed. She neither produced the form spontaneously nor imitated it after an adult model, although she was a strong imitator (see Table 5.7 for the distribution of SÖ's past utterances). Across the two samples, seven obligatory context were identified which called for the particle. In each instance, SÖ transformed the -mIş inflection of the adult model to -DI. The ungrammatical construction in example (33) illustrates the tendency to describe states resultant from a past process with -DI past.

Table 5.7. Frequency of -DI and -mIş inflections for verb category and referential context at each sample for subject SÖ

| | -DI | | | | | -mIş | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | RP | IP | * | PD | N | P | * | Im | PD | N |
| Sample 1 | | | | | | | | | | |
| Change of state | 4 | 22 | 3 | 1 | - | - | - | - | - | - |
| Activity | - | 3 | - | - | - | - | - | - | - | - |
| Stative | 1 | 2 | - | - | - | - | - | - | - | - |
| Sample 2 | | | | | | | | | | |
| Change of state | 6 | 21 | 4 | - | - | - | - | - | - | - |
| Activity | 3 | 7 | - | - | - | - | - | - | - | - |
| Stative | 1 | 6 | - | - | - | - | - | - | - | - |
| Sample 3 | | | | | | | | | | |
| Change of state | 12 | 32 | 1 | 5 | 2 | 2 | - | 1 | - | 2 |
| Activity | - | 7 | - | 1 | - | - | - | - | - | 1 |
| Stative | - | 2 | - | 2 | - | 6 | - | 3 | 3 | - |
| Sample 4 | | | | | | | | | | |
| Change of state | 5 | 49 | - | - | - | 1 | 1 | - | - | 1 |
| Activity | - | 2 | - | - | - | - | - | - | - | - |
| Stative | - | 2 | - | - | - | 10 | - | 2 | - | - |
| Sample 5 | | | | | | | | | | |
| Change of state | - | 44 | 1 | - | - | 4 | - | - | - | - |
| Activity | 2 | 6 | - | - | - | - | - | - | - | - |
| Stative | 1 | 5 | - | - | - | 4 | - | - | - | - |

Table 5.7. (Continued)

| | -DI | | | | | -mIş | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | RP | IP | * | PD | N | P | * | Im | PD | N |
| Sample 6 | | | | | | | | | | |
| Change of state | 8 | 66 | - | - | - | 6 | - | - | 3 | 4 |
| Activity | 5 | 20 | - | - | - | 1 | - | - | - | 1 |
| Stative | - | 2 | - | - | - | 8 | - | - | 5 | 2 |
| Sample 7 | | | | | | | | | | |
| Change of state | 7 | 45 | 5 | - | - | - | - | 1 | 4 | 1 |
| Activity | - | 7 | - | - | - | - | - | 3 | - | - |
| Stative | - | 1 | - | - | - | 1 | - | 1 | 5 | - |
| Sample 8 | | | | | | | | | | |
| Change of state | 4 | 24 | - | - | - | 6 | - | - | 13 | - |
| Activity | 7 | 3 | - | - | - | 1 | - | - | - | 1 |
| Stative | 1 | - | - | - | - | 1 | - | 3 | 1 | - |

RP = Remote past
IP = Immediate past (includes instances of present state–past process coordination)
* = Incorrect use of inflection, context calls for the opposite past form
PD = Picture description
N = Narrative
P = Past (includes instances of present state-past process coordination)
Im = Imitation

(33) /re: doll with broken legs/

A: Bu ne olmuş?
What happened to this

Kırık ol - du
broken be - PA:DE
Became broken

Of the 95 utterances with -DI past in her first two samples, 15 referred to non-immediate past events, all prompted by adult questions and related to her habitual activities as well as specific events in the past. Forty-eight referred to immediate past completed events while 13 made reference past events that could be reconstructed from their results available in the present context.

(34) /on seeing her own plastic bug with a broken ear/

Kulağ - ın - ı kır - dı - m o - nun
ear - POSS - ACC break - PA:DE - 1SG that - GEN
I broke its ear

At 25 months (Sample 3) SÖ had an MLU of 4.43 and there are a number of utterances with the -mIş particle in her speech. These are either imitations or spontaneous productions of stock-phrases. Some examples of imitative production occur in the context of story-book picture description.

(35) /looking at picture in book, of boy who has fallen into potful of cake batter/

E: Neyin içine düşmüş?
What did he fall into?

Öyle birşey - in içi - ne düş - müş
like that something - GEN in - DAT fall - PA:IE
He fell into something like that

(36) /picture of boy covered with cake batter/

E: Ne olmuş her taraf, pis mi olmuş?
What happened everywhere, did he get dirty?

Her taraf pis ol - muş
everywhere dirty be - PA:IE
Everywhere got dirty

Bak uçağ - a bin - di
look plane - DAT get on - PA:DE
Look he got on to the plane

Again, the child is using the particle -mIş in reference to a state but not for dynamic action. The spontaneous utterances of SÖ with the -mIş particle were of two types: (a) stock-phrases which could have a high frequency of occurrence in adult speech to children, and (b) story-telling formulas. The construction that

is a best exemplar of type (a) is Ne varmış? 'What is there?', i.e. a stative predication formed by the adjectival form of the verb to be (var - mIş) in the evidential mood.

(37) /E presents the child with one picture but she wants to look at another one/

E: Şu nasıl kuş?
What kind of bird is that?

Bak - ıyı - m şur - da ne var - mış?
look - OPT - 1SG there - LOC what exist - PA:IE
Let me see what is there

Ağaç var - mış
tree exist - PA:IE
There is tree

(38) /looking into box with toys/

Bak - ıyı - m içinde ne - ler var - mış
look - OPT - 1SG inside what - PL exist - PA:IE
Let me see what there is inside

Type (b) utterances exemplify the use of the -mIş particle in the narrative function. The child has acquired at least part of the routine for beginning stories (Bir varmış bir yokmuş 'Once upon a time'); and once she is within the story frame, she continues in this mood, with the use of -mIş. Example (39) presents such a sequence.

(39)

E: Senin kitabın var mı hiç?
Do you have any books?

/child starts story routine/

Bir var - mış bir yok - muş
one exist - PA:IE one nonexist - PA:IE
Once there was, once there wasn't

Mo: Bebek ne yapmış?
What did the baby do?

Bir bebek var - mış
one baby exist - PA:IE
There was a baby

Mo: Bebek nereye gitmiş?
Where did the baby go?

Okul - a git - miş
school - DAT go - PA:IE
(She) went to school

Thus the initial emergence of the -mIş particle in the speech of SÖ appears to be in the context of picture descriptions and narratives, and in expressions that

make stative reference. Her fourth speech sample, with MLU of 4.48, presents more or less the same characteristics, however with an additional function. She now uses -mIş, primarily with the predicative form of 'to be' ol, in reference to resultant as well as already established states.

(40) /re: tiny holes on leg of plastic doll she notices for the first time/

Bura - sı ne ol - muş?
here - POSS what be - PA:IE
What happened here?

(41) /shows her hand where she has made blue marks with a pen/

Bura - sı ne ol - muş?
here - POSS what be - PA:IE
What happened here?

E: Elin ne olmuş?
What happened to your hand?

Kara - dı - m (kara-la-dım) ben.
black - PA:DE - 1SG
I made it black

(42) /re: doll's eyes which she sees closed as E makes it lie down/

E: Uyuyunca kapatıyor gözünü
It closes its eyes when it sleeps

Böyle ol - muş
like this be - PA:IE
It became like this

E: Ne olmuş?
What happened?

Uf ol - muş
hurt be - PA:IE
It got hurt

E: Uf olmamış. Bak gözlerini açtı.
It didn't get hurt, look it opened its eyes.

Aç - m - ıyor göz - ün - ü
open - NEG - PRES:PROG eye - POSS - ACC
It doesn't open its eyes

Bu bak - mış
this look - PA:IE
This looked (this opened eyes)

(43) /E puts toy pot on mother doll's head like a hat/

E: Anne ne yapmış?
What did the mother do?

İşte şapka ol - muş
there hat be - PA:IE
There, it became a hat

(44) /E notices a sore in her open palm)

E: aa, nasıl oldu bu?
Oh, how did this happen?

Yan - mış
burn - PA:IE
(It) burned

E: Nasıl yaktın Sinem?
How did you burn it Sinem?

Anne sigara tut - tu - m, yan - dı - m
mother cigarette hold - PA:DE - 1SG burn - PA:DE - 1SG
I held mother's cigarette, I got burnt

In examples (41) to (44) the child's comments with the -mIş inflection are contextually inappropriate since they refer to situations where she was a direct experiencer, and either brought about (examples (41) and (44)) or observed (examples (42) and (43)) the process that produced the end-state. These examples, where reference to the end-state is made with -mIş while reference to the past process brought about by an agent is made with -DI, present clear evidence that the meaning 'inferential' and therefore 'past' cannot yet be attached to the child's use of the particle. Nevertheless, examples (41), (42) and (44), where the child first refers to the resultant state and then to the causal past process upon adult probing, can be seen to be the products of a transitional phase, similar to examples (31) and (32) from YK's speech. These can be regarded as exercises in inferential reasoning to the extent that they involve moving from the effect to the cause, albeit less sophisticated ones, since they are about past processes that are first-hand knowledge for the child.

At 26 months (Sample 5), an interesting example suggests that the child is discovering that the -mIş particle is functional in indicating 'new information'.

(45) /on hearing the door bell ring/

Şimdi bak - alı - m kim gel - miş
now look - OPT - 1SG who come - PA:IE
Now let us see who came

Baba gel - miş[6]
father come - PA:IE
Father came

Certain contexts like the above are quite frequent in adult speech to children and would lead to the inference of the function of the particle to indicate

'information new for unprepared minds'. Examples from the next sample, as well as (44) and (45) above, suggest that this notion underlies some of the child's uses during this period, though in a nondifferentiated form as to whose consciousness the information is new. In (44) the burnt state of her hand is new information for her interlocutor, while in (45) the identity of the person at the door will be so for both of them. Similarly, examples in the next sample (e.g. (46)) show that she is marking information that is new, either from her own or from her listener's perspective, with -mIş.

It is in Sample 6, at 26 1/2 months (MLU = 4.62), that the form can be regarded as productive and functionally differentiated. Of the 30 utterances that occur with the -mIş particle, 10 are contingent on the preceding adult utterance where the verb is inflected in -mIş. Nine instances refer to resultant states in the immediate context.

(46) /re: toy rocking chair that got broken on one side where her hand got caught/

Mo: Eline ne oldu?
What happened to your hand?

Salıncak çık - ıl-mış (çık-mış)
swing come-out - PV-PA:IE
Rocking chair came out

E: Ne olmuş?
What happened?

Salıncak çık - ıl-mış bak
swing come-out - PV-PA:IE look
Rocking chair came out, look

E: Ne oldu eline?
What happened to your hand?

Uf ol - du, sık - ış - tı
hurt be - PA:DE press - RC - PA:DE
(It) got hurt, got caught

In the above example, although she made the side of the chair come out herself, SÖ uses the -mIş form as if commenting on the present state of the object. This is also suggested by her erroneous passivization of an already intransitive verb. What she simultaneously seems to be achieving with her speech act is presenting the situation as new information.[7]

The remaining -mIş utterances are in context of picture descriptions, play, and narrative sequences. In fact, the story opening routine with the adjectival form of 'to be' var-mış appears to constitute story-telling for her, given that she cannot provide much of a content for the story. That is, the -mIş form is

strongly associated with the narrative function for SÖ at this point.

In Sample 7 (27 months, MLU = 4.94), SÖ was presented with the Inference task. None of the 13 items that consist of initial state - screened transformation - final state, were described with -mIş past, which was the required form. Her responses were either in -DI past, in the present progressive -Iyor, or were stative predications of existence. Her performance thus suggests that the 'non-witnessed process' meaning component is not yet associated with the -mIş particle in her system. The items of the Process-perceived task, where she witnessed all phases of the events, were correctly described in -DI or -Iyor. The pictures of the Statives task, depicting objects in different states, elicited only one spontaneous -mIş response from SÖ, with the verb ol 'to be'. Otherwise, she described the pictures in terms of the processes leading to the end-states, and encoded them with -DI past.

The subject's last sample was obtained two and a half months later, when she was 30 months old. During this visit SÖ's mother reported that she had started using the particle in its quotative function, though there was no evidence for it in the data. Out of 26 utterances with -mIş, 14 occurred in the context of describing pictures from a book, where she referred to both states and dynamic events with this form. A number of examples from this sample are interpreted to have an 'inferential' meaning. In addition to contextual evidence, the child's utterances indicate a shifting of focus from the state the object is in to the action conceived of as coming from an agent. The following examples illustrate this point.

(47) /re: toy cat with a broken leg/

Bu - nun ayağ - ı kırık
this - GEN foot - POSS broken (adj)
Its foot is broken

E: Değil mi, kırmışlar
Isn't it, they broke it

Bu - nun ayağ - ı - nı kır - mış
this - GEN foot - POSS - ACC break - PA:IE
(He) broke its foot

kır - mış
break - PA:IE
(He) broke

(48) /re: another animal shown by E, later/

E: Bunun ayakları nasıl?
How are the feet of this one?

Bu - nun ayak - lar - ı
this - GEN foot - PL - POSS
This one's feet

Kır - mış - lar
break - PA:IE - 3PL
They broke (it)

(49) /she turns around and sees the doll behind her fell down because she pushed it/

aa, bu düş - müş
oh, this fall - PA:IE
Oh, this fell

E: Kim düşürmüş?
Who made it fall?

Ben düş - ür - dü - m
I fall - CS - PA:DE - 1SG
I made it fall

Finally in this sample, at age 2.6, there are spontaneous utterances with the -DI inflection making reference to distant past events and even to intentions of a few moments prior to the time of speech:

(50) /notices that the scarf the doll had two months ago is missing/

Bu - nun mendil - i yok bu - nun
this - GEN scarf - POSS not exist this - GEN
This doesn't have a scarf, this

E: Mendili kimin var?
Who has a scarf?

Bu - nun mendil - i var - dı
this - GEN scarf - POSS exist - PA:DE
This one had a scarf

(51) /asking for pen the adult got back from her a few minutes ago/

Kalem - i nere - ye koy - du - n
pen - ACC where - DAT put - PA:DE - 2SG
Where did you put the pen?

Yaz - acak - tı - m
write - FUT - PA:DE - 1SG
I was going to write

Examples (50) and (51) both illustrate the increased capacity to use the inflectional system to express fine-grained temporal relations. However, there is yet no evidence for the use of the -mIş particle in complex constructions like the past perfect (verb-mIş-DI) or to mark the special mode of pretense.[8]

### 5.3. Discussion

The above survey of the spontaneous speech samples of three children between 21 and 30 months of age, presents evidence for a stable sequence for the acquisition of the two past inflections in Turkish, and for the construction of the semantic domain underlying the particle -mIş. Here, the observed sequence will be discussed in relation to the hypothesized one.

It should first be noted that the level of inflectional development captured in the present data corresponds to what has been posited for Phase 2, since the subjects were linguistically more advanced than hypothesized for Phase 1. Therefore, a definitive statement concerning the first phase cannot really be made. However, I will refer back to Phase 1 whenever evidence allows for inferences for indirect support or rejection of the hypotheses posited there.

As for Phase 2, it was proposed that children's use of inflections would reflect a differentiation between different types of dynamic events. The finding that -DI and -Iyor are initially used to comment on COMPLETED vs. ONGOING events within the boundaries of the immediate present, provides support for this prediction, and for the view that the first function of the inflections in the child's speech is to mark aspectual distinctions. Furthermore, the fact that stative events remain unmarked while different types of nonstative events receive differential marking, lends indirect support to the claim for Phase 1 that children's first linguistic distinction will be between STATIVE and NONSTATIVE. The hypothesis that -mIş will emerge as the first form to indicate this dichotomy, however, has to be rejected since it appears developmentally later than both the -Iyor and the -DI inflections. Whether the stative vs. nonstative distinction is initially made with the inflectional marking of ongoing events, or of completed events, or both, remains unanswerable on the basis of the present data.

The claim that the first function of -DI and -Iyor inflections was aspectual rather than deictic-temporal was based on the observation of their predominant contexts of reference (completed vs. ongoing events in the immediate present), types of verbs they occurred with (change of state vs. activity and stative), and on the absence of nonimmediate past reference except in conversational routines. An additional argument can be based on the lack of evidence for contrastive use of the different inflections for indicating tense relations. Since -Iyor is simultaneously the progressive aspect and present tense marker, its contrastive use with -DI does not constitute clear evidence for tense use. Therefore, one would require evidence for other oppositions, such as between present (-Iyor) and future (-AcAk), or between past (-DI) and future (-AcAk), or between present progressive (-Iyor) and past progressive (-Iyor-DI). During this first period of development under discussion, there were no such oppositions in the children's speech. Further-

more, the primacy of aspectual functions of verb inflections over tense functions is not counter-intuitive within a differentiation model, since anteriority is implied by completion, and co-temporality by ongoingness.

As has already been discussed, this view implying 'aspect before tense' has been criticized (Weist et al., 1984; Weist, 1986) in the light of data from children acquiring languages such as Polish, Russian and Greek, where both aspect and tense are distinctly marked in the verbal morphology. In this regard Weist (1986) notes the contrastive use of past perfective and past imperfective by Polish children as young as 1.9 years. Such examples do not invalidate the hypothesis of differentiation but bring to the fore the importance of the structure of the language being acquired as a determining variable. It can be argued that in languages where both tense and aspect are distinctly grammaticized, the differentiation of closely related semantic functions are realized earlier in the child's speech, 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. In fact, in languages like Polish, tense-aspect marking on the verb conforms with Slobin's operating principle which states that

> Underlying semantic relations should be marked overtly and clearly

and its corollary universal:

> A child will begin to mark a semantic notion earlier if its morphological realization is more salient perceptually (ceteris paribus). (1973, pp.202-3)

Put differently, one-to-one mapping between meaning and form in Polish may facilitate the differentiation of tense-aspect relations. In the absence of a completive-aspect marker as distinct from past-tense, and a present-tense marker as distinct from progressive-aspect in Turkish morphology, it is logical to assume that the -DI vs. -Iyor contrast first expresses one of these functions in a child's system. In other words, the contrastive use of the -DI and -Iyor inflections first serves for cutting up the flow of activity into discernible units, i.e. for event segmentation. This interpretation is consistent with the view that adult-child interaction in the context of which different linguistic forms are encountered, will first direct children's attention to event characteristics rather than to temporal ordering of events (Bruner, 1975; de Lemos, 1981a). Data shows that this latter function is promoted only subsequently in adult-child discourse, when adults ask children questions about non-immediate past events.

The extension of the scope of inflectional reference to past time was hypothesized to depend on the underlying semantic distinction between the REAL and the NON-ACTUAL. In fact, this was the development expected in the third phase, with the prediction that it would be reflected in the child's speech with

the use of -mIş in contexts of story-telling. This hypothesis was only partially borne out: the distinction between the real and the non-actual was the next developmental advance. However, it was reflected with the use of -DI in contexts of play, in reference to remote past events during discourse with adults, and subsequently in its contrastive use with -AcAk and -Iyor to mark tense relations, all prior to the acquisition of -mIş.

'Past' is considered to be a subdomain of the non-actual: in talking about the past, the speaker is not referring to an objective spatio-temporal event but to a representation of it as reconstructed from memory. To the extent that pretend activities and speech accompanying them serve to real-ize events which are not objectively present, but are intended to be real, language use during play involves reference to mental representations of intended spatio-temporal events. In this sense, play partakes of the realm of the non-actual as well as of the real, since part of what is intended is instituted objectively in action, and part subjectively, through speech. The close relationship between language use in play, and language use for talking about past events, lies in the fact that both involve reference to mental representations of space-time events, rather than to what is objectively present in the here-and-now. Use of the -DI inflection in contexts of play, to actualize intended events not totally represented in action, can therefore serve as a transitional step in the extension of the semantic scope of the form to cover the realm of the non-actual in general. Discourse about remote past events in conversational routines would reinforce this new function associated with -DI and result in the specification of a subdomain as PAST, yielding its tense function.

The next development observed in the data was the emergence of the -mIş inflection with the function of indicating STATIVITY. This was exemplified in two different but related contexts, lending support to predictions made both for Phase 1 and Phase 3. The hypotheses for Phase 1 had suggested two alternative routes. One proposed that -mIş would be first used in reference to states resulting from a preceding transformation, since it is the resultative perfect in the language. The second alternative stated that the form would first function to indicate already established, existing states, in congruence with adult usage to children. It was this second route that was supported by the data, reinforcing the view that adult-child interactional sequences serve as contexts where children discover the semantic specifications of different forms and the typical way of demarcating events in the language.

The next prediction concerning this form was that its use would be extended to contexts of story-telling, which would reflect the distinction between the real and the non-actual. The latter part of this proposition has to be rejected as

discussed above. The first part, on the other hand, was only partially borne out, since -mIş in episodes of story-telling occurred simultaneously with use for commenting on existing states in the immediate context, rather than with a developmental lag.

The majority of the story-telling contexts were instances of picture descriptions from books, that is, contexts where entities or events are represented from a static viewpoint. Other examples were the beginning of the story frame or nursery rhymes, both formulaic in nature, but not yet instances of spontaneously created episodes of fantasy effecting the constitution of a world of make-believe. Both contexts of existing states and picture descriptions in story-telling, then, share the feature of being highly stative in character. The initial function of this form for the child is thus also aspectual rather than temporal or modal.

What was observed next in the data was the use of the -mIş particle in reference to resultant states, products of both witnessed and nonwitnessed processes. Use of the form in such contexts clearly reflected a focus on the end-state as evidenced by contrastive uses with transitive forms of the verb in -DI past, expressing a focus on the past action/process coming from an agent. Furthermore, it was observed that such comments on present states were made as if with the aim of presenting new information. That is, after it assumes the function of marking PERFECT ASPECT, the particle acquires its general modal function of presenting 'information new for unprepared minds'. Such aspectual-modal uses lead to the change hypothesized for Phase 4, which predicted that -mIş would take on its INFERENTIAL PAST meaning. This development appears to take place by default, consequent to a further differentiation within the modal function. More specifically, any end-state which is new information to consciousness must have been the product of a process not directly experienced, and any end-state which exists in the present must have been caused by an already past process, hence the meaning inferential-past. It thus appears that after its entry into a child's system as an aspect marker, -mIş acquires its modal function, which in turn leads to its more specific tense function.

The presumed underlying process of differentiation concerns two separate dimensions. The one that involves deictic temporal relations should not pose a new demand at the semantic level since by this stage in development children are already making past reference with the -DI inflection. The differentiation with respect to the modal dimension, on the other hand, concerns the epistemically modal distinction with respect to different kinds of assertions that can be made in reference to past situations. Past events/processes that have been directly experienced fall into the domain of assertions that can be made with 100 per cent certainty. Past events/processes about which knowledge has been obtained

by inference from an evidential state, on the other hand, cannot be so asserted, and this will have to be indicated by the use of -mIş. The subsequent semantic reorganization of form-meaning relations in a child's system is then reflected in the differential use of the -DI and -mIş inflections in reference to witnessed and nonwitnessed past events respectively, in line with the predictions for Phase 4.

My observations from the present data end at just this point in development, where this functional differentiation has not yet been consolidated. Furthermore, I did not obtain any evidence - except for mothers' reports - for the hearsay function of the -mIş particle. The hypothesis concerning the adjectival use of the form, set forth in Phase 1, on the other hand, is supported since there were no examples of participial adjectives derived with the -mIş particle in this early period of development.

## 6. Experimental study of the production of the pasts of direct vs. indirect experience

**6.0.** The experimental study was designed to shed further light on the processes of differentiation of the tense-aspect-modality functions of the two past inflections. Experimentally controlled production and comprehension data were obtained from older children, assessing the role of aspectual and modal variables on the differential use of the two forms.

Experimental assessment of performance with given linguistic structures at a later development point than their time of acquisition, is grounded on the assumption that relative performance with respect to different forms within the same age range reflects relative acquisition time. Different problems inherent in the experimental paradigm generally lead to either an underestimation or an overestimation of the age of acquisition (Karmiloff-Smith, 1979a, 1981). Age-related findings in the context of the present experiments thus have to be evaluated accordingly. Furthermore, these are not designed to tap age of acquisition - which the longitudinal data has revealed to be quite early - but rather to find out more about the underlying processes in the structuring of a given semantic domain.

In the next section, the overall design of the experimental study will be presented. The remaining parts of the chapter will concentrate on the production experiments. Studies concerning the comprehension of the inferential-past and the production and comprehension of the quotative function are dealt with in Chapters 7 and 8, respectively.

### 6.1. Overall design of the experimental cross-sectional study

#### 6.1.1. Subjects

The subjects were sixty normal, monolingual children from middle-class backgrounds. They were chosen from and interviewed at three different kindergartens in Ankara. The age range covered in the sample was 3.0 - 6.4, divided into five levels with eight-month intervals (3.0 - 3.7, 3.8 - 4.3, 4.4 - 4.11, 5.0 - 5.7 and 5.8 - 6.4). Ages were calculated to the nearest 15 days and rounded off to the

month, and care was taken to have an equal distribution of subjects along the span of an age-interval. Each age-level was represented by 12 subjects, six male and six female. Subjects were randomly chosen from among those fitting the age and sex requirements.

### 6.1.2. Design

Each subject was given five tasks: three for production, one for comprehension, and one combined production-comprehension task for the quotative function.

The three production tasks, conceived of as a block, were always presented first. Of these, the Statives task was always administered first, given the nature of the research question it addressed. Also, it turned out to be the easiest task and thus functional in starting the interview. The next two tasks, Inference and Process-perceived, were presented in either order: in each age group, half the subjects were given one first, and half the other. Thus, Order I = Statives, Inference, Process-perceived; Order II = Statives, Process-perceived, Inference. Across the whole sample, half of the 30 female subjects and half of the 30 male subjects received Order I and half received Order II. In this way, an even distribution of the two orders across the total age range and the two sexes was achieved.

The next task presented to all subjects was Inference comprehension. The order of items within this task also had two variants, Form A and Form B, the nature of which are explained under the description of the task itself. These orders were also evenly distributed between ages and sexes. Also Orders I and II of the production tasks were combined equally with Forms A and B of the comprehension task. The last task for all the subjects was the Quotative production and comprehension (combined) task.

### 6.1.3. Procedure

Each subject was seen individually by the investigator (E). The child was asked by his class teacher if he would like to play some games. The room where the interview took place had a minimum of objects in it. The investigator and the subject were seated facing each other across a small child-size table. The entire interview was recorded on a Superscope Model C-104 casette recorder. An average interview lasted 40 to 45 minutes. All of the subjects completed all of the tasks within one session. Though it was recognized that a single session was too long for the three year-olds, this strategy was preferred to having two sessions in order to avoid possible subject loss.

### 6.2. The production tasks

Since aspectual as well as modal variables were hypothesized to govern the acquisition and use of the two past tense markers -DI and -mIš, three separate production tasks (Statives, Inference and Process-perceived) with a different combination of these variables built into them, were designed. When considered together, the three tasks incorporate three independent variables, two aspectual and one modal. The aspectual variables are (i) situation-aspect, defined as the prototypical event characteristics or internal temporal constitution of an event, and (ii) viewpoint-aspect, which refers to the perspective taken with regard to a situation-type as presented by the speaker in his utterance. The third, modal variable is that of witnessed vs. nonwitnessed process.

The three tasks are almost identical in terms of situation-aspect but differ with regard to the other two variables. Situation-aspect is operationalized in the items of each task, which consist of processes and events belonging to the same situation-type and are encodable by the same verbs. The situations were chosen to represent (a) changes of state with clear result and (b) ongoing activities with duration in time. Each production task represents one level of the variable viewpoint-aspect: the Statives task, a static perspective, the Inference task, a resultant state perspective and the Process-perceived task, a dynamic perspective. Table 6.1 gives a list of the items in terms of the predicates common to all three tasks, those common to only two and those represented in only one.

The tasks consist of presentations by the investigator of different situations, either through pictorial representations (Statives task), or as acted out with toys (Inference and Process-perceived tasks). The child is then asked to describe the situation he has observed.

I will first consider each production experiment separately and then present analyses concerning their interrelationships.

### 6.3. Statives task

This task was designed to determine the event characteristics that play a critical role in children's descriptions of entities encountered in a static framework.

The items of the task are composed of three types of stative situations, representing entities in (a) invariant states, (b) states resultant from a transformation, and (c) states constituting a given instant of an ongoing process. Situations (b) and (c) above represent two levels of situation-aspect and are typically encoded by change of state verbs and activity verbs, respectively. Items of type (a), representing invariant attributes describable only with nonderived adjectives were included to contrast with (b) and (c) and thus to avoid the formation of a response set. Pictorial representations are used in order to create a static frame-

Table 6.1. The production task predicates

| Situation-types | Statives task | Inference task | Process-perceived task |
|---|---|---|---|
| States | mavi 'blue' | | |
| | büyük-küçük 'big-small' | | |
| Changes of state | çıplak 'naked' | çıkart 'take off' | çıkart 'take off' |
| | kırık/kırılmış 'broken' | kır 'break' | kır 'break' |
| | ölü/ölmüş 'dead' | öldür 'kill' | öldür 'kill' |
| | düşmüş 'fallen' | düş 'fall' | düş 'fall' |
| | patlak/patlamış 'popped' | patla 'pop' | |
| | kirli/kirlenmiş 'dirty' | kirlet 'dirty' | |
| | kesik/kesilmiş 'cut' | | |
| | ısırılmış 'bitten' | | |
| | | yırt 'tear' | yırt 'tear' |
| | | çarp 'crash' | çarp 'crash' |
| | | dök 'spill' | dök 'spill' |
| | | yakala 'catch' | yakala 'catch' |
| Activities | uyuyan 'sleeping' | uyu/yat 'sleep-lie down' | uyu/yat 'sleep-lie down' |
| | içen 'drinking' | ye 'eat' | ye 'eat' |
| | uçan 'flying' | uç 'fly' | uç 'fly' |
| | yürüyen 'walking' | | yürü 'walk' |
| | koşan 'running' | | |
| | ağlayan 'crying' | | |
| | duran/konmuş 'staying' | | dur/kon 'stay, come down' |
| | | | dön 'spin' |
| | | büyü 'grow' | |

work, as a level of viewpoint-aspect. This task is neutral with respect to the modal distinction of witnessed vs. nonwitnessed process.

The responses the three situation types are expected to produce at the linguistic level are stative descriptions with: (A) attributive adjectives describing invariant properties, such as size, shape, color; (B) adjectives derived from change of state verbs with the -mIş particle, or with the -IK particle; (C) adjectives derived from activity verbs with the present participial particle -An, or the predications in the present progressive (-Iyor) of the verb. The contrasts built into the items of this task, were aimed at answering the following questions:

(1) Do states that are resultant from a change and are therefore different from the object's canonical state, elicit
   (a) past participial adjectives derived with -mIş, implying that the state has been effected by a preceding process; or,
   (b) regular adjectives derived with -IK, attributing a given property to the object, as noncanonical but permanent?
(2) Do states conceivable as a given instant of an ongoing process in the course of which an object is located, elicit
   (a) past participial adjectives derived with -mIş, indicating an event perspective focused on an accomplished state; or,
   (b) present participial adjectives derived with -An, indicating an event perspective focused on the durational, ongoing quality of the process?

The goal of these within-task comparisons is to see whether children's descriptive choices reflect any criterial role of the aspectual variables of 'duration' and 'resultant-state'. It is, therefore, hypothesized that there will be a specific pattern of relationship between different types of situations and morphological modifications of the verbs used to encode them.

### 6.3.1. Procedure

Picture representations of objects in one of the above three types of states were presented to the subjects. The pictures were drawn on 5 x 7 inch cards and presented to the child with the following question:

> Şimdi bana bu resimleri anlatmanı istiyorum. Bana bu resimlerde gördüklerinin nasıl olduğunu söyle. Bak, nasıl bir _____ bu?
> I want you to describe these pictures to me. I want you to tell me how they are. Look, what kind of a _____ (name of object represented) is this?

These items were presented in a constant order. If the children attended to some unexpected detail in the picture (e.g. fat tail of the cat, black seeds of the apple, etc.) they were probed with a question like:

> Başka, başka ne diyebilirsin? Nasıl bir _____ bu?
> What else, what other thing can you tell me about it?

Table 6.2 presents a description of the items of the Statives task.

### 6.3.2. Scoring

All responses, regardless of whether the target predicate was used or not, were coded, since considering only those responses where the target predicate was produced would have resulted in a major loss of data and interesting information. In this and the following production tasks, it was always the first response of the subject that was coded unless it was a comment on an irrelevant aspect of

Table 6.2. Item descriptions of statives task

| Situation-types | Pictorial representation | Target predicate | Expected response options |
|---|---|---|---|
| States | blue flower | mavi 'blue' | (Lexical adjectives.) |
| | one big one small fish | büyük-küçük 'big-small' | |
| | naked boy | çıplak 'naked' | |
| Changes of state | doll with broken arm | kır/kop 'break off' | (Adjectives derived with either -mIş or -IK particles.) |
| | boy with mud all over him | pis/kirli 'dirty' | |
| | popped balloon | patla 'pop' | |
| | apple with a portion bitten off | ısır/ye 'bite/eat' | |
| | apple on ground, below tree | düş 'fall' | |
| | apple cut in half | kes 'cut' | |
| | dead bird in front of cat | öl 'die' | |
| Activities | sleeping cat | uyu 'sleep' | (Adjectives derived with the particle -An; present progressive of the verb.) |
| | crying baby | ağla 'cry' | |
| | boy drinking milk | iç 'drink' | |
| | running boy | koş 'run' | |
| | walking cat | yürü 'walk' | |
| | flying bird | uç 'fly' | |
| | bird resting on branch | kon/dur 'stay/rest' | |

the situation. Each child's responses to the 17 Statives task items were assigned to one of seven response-type categories, on the basis of morphological criteria. (1) Stative responses - lexical adjectives or comments on the figural properties of the pictures; (2) -mIş responses - attributive or predicative use of the verb inflected with the -mIş particle;[1] (3) -Iyor progressive responses - predicative use of the verb in the present progressive; (4) -An responses - present participial adjective derived with the particle -An; (5) action-function responses - responses describing the objects in terms of the manner in which they can be acted upon, with nominal constructions derived with -mA or -mAK; (6) -DI past responses - predicative use of the verb in -DI past; (7) -IK responses - adjective derived with the -IK particle.

For the following statistical analyses, response-categories were pooled together with each situation-type as follows: correct responses for invariant state

items were designated as response-types (1) and (7) combined; for change of state items, as response-type (2), and response-types (1) and (7) combined; for activity items, as response-types (3) and (4).[2] Erroneous responses ((5) and (6)) excluded from this pooling formed the remaining category.

**6.3.3.** Results and discussion

The adjectival constructions derived with the -mIş, -IK and -An particles, their syntactic nature and semantic functions, were discussed under Phase 1 of the developmental sequence predicted in the hypothesis section (Chapter 4, section 2). The implication of this discussion was the hypothesis stated above, that the linguistic construction chosen to describe a state that an entity is in (response-type) will not be independent of the prototypical event characteristics being described (situation-type). In order to test this hypothesis a chi-square analysis was performed on the data.[3] The results of the analysis support the hypothesis that response-types are not independent of situation-types ($\chi^2$ = 26.45, df = 300, $p < .001$).

Table 6.3 presents the proportion of each response-type obtained for each situation-type, across all subjects. As can be observed, items designed to elicit stative descriptions on the basis of nontransient permanent characteristics of objects, were responded to predominantly with stative responses (54 per cent) giving adjectives of color, size, quantity, or designating category membership. The next two dominant response categories were adjectives derived with -IK (13.9 per cent) and -mIş predicative or attributive responses (12.2 per cent). Items designed to elicit change of state verbs, depicting objects in states resultant from a transformation, produced responses with the particle -mIş (47.4 per cent) used either adjectivally or predicatively. Next in frequency were adjectives derived with -IK (19 per cent) and attributions of quantity, color, or the presence/absence of a property with lexical adjectives or the adjectival use of the verb to be (18.6 per cent). The proportion of responses with the present progressive and present participial adjectivals to change of state items was negligible. Items designed to elicit activity verbs, which depict an object in an instant of an ongoing process, were described significantly more often with adjectives derived with the present participial particle -An (36.4 per cent) and with the verb in the present progressive (36.7 per cent). Items in this category elicited a very low proportion of -mIş responses (6.43 per cent), as was expected. Stative responses (17.6 per cent) were all figurative descriptions of objects in the pictures and did not use the verb in question. These results can be taken as indirect evidence for the validity of the classification of given predicates into given verb-type categories of change of state and activity on a priori grounds.

Table 6.3. Proportion of response categories for situation-types across subjects

| | Response-types | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Situation-types | Stative | -IK | -mIş | -Iyor | -An | -DI | Action-function | Total |
| Invariant state | 53.9 | 13.9 | 12.20 | 3.00 | 5.60 | 3.0 | 7.80 | 100 |
| Change of state | 18.6 | 19.0 | 47.40[a] | 2.62 | 5.24 | 2.38 | 4.76 | 100 |
| Activity | 17.62 | 0.0 | 6.43 | 36.70[a] | 36.40[a] | 1.19 | 1.67 | 100 |

a indicates the proportion of appropriate responses.

In order to determine whether the significant association between situation-types and response-types was related to age, a one-way multivariate analysis of variance was performed on the data. The independent variable was age with five levels, and the dependent variables were the proportion of correct responses for each situation-type, as defined in section 6.3.2.[4] The analysis revealed a significant linear trend for age ($F(5,51) = 8.08$, $p < .0001$), indicating that the strength of association between the different linguistic forms produced in response to different types of situations increases with age (see Tables A1 and A2, Appendix A).[5] Contrasts between the means for each age group against the average of the remaining four groups revealed significant effects of age for the youngest subjects within the age range 3.0 - 3.7 only ($T^2 = 34.13$, $p < .0002$), which means that the observed development starts after age 3.8 (see Table A3, Appendix A). Furthermore, when the results of the separate univariate analyses are considered, it is observed that age has a significant effect only on -An adjectival responses to activity items and -mIş particle responses to change of state items. Development shows a significant linear trend for both categories ($F(1,55) = 12.11$, $p < .001$ and $F(1,55) = 22.97$, $p < .0001$, for -An and -mIş, respectively) as well as a quadratic component for -mIş responses ($F(1,55) = 4.40$, $p < .04$). These findings indicate that there is a steady developmental change, reflected in an increase in the proportion of -An adjectival constructions to activities and -mIş responses to changes of state, starting around age 3.8 - 4.0.

Since adjectives derived with the -IK particle could not be entered as a separate category in the statistical analysis, it was not possible to obtain further information about morpho-syntactic development in relation to this form. Nevertheless, it can be noted that 75.4 per cent of all the -IK adjectives were produced in response to change of state items, while 24 per cent were in response to invariant state items. Furthermore, while the proportion of stative responses to change of state items show a steady decrease from the youngest to the oldest age group (from 46 per cent to 5 per cent), and -mIş responses show a steady increase in the same direction (from 29 per cent to 60-65 per cent), -IK adjectives present a varying trend by age, ranging from 24 per cent to 35 per cent, between the youngest and oldest age levels (see Table 6.4).

This varying trend, as well as observations from the longitudinal data, suggests that -IK adjectives are more readily available for young children than are -mIş or -An participial adjectives. On the basis of the above figures we can at best say that, with development, objects in noncanonical states are talked about preferably with the -mIş form which implies that the state has been affected by a past process. A consideration of those -mIş responses for which the attributive vs. predicative distinction can be made shows that past participial adjectivals

Table 6.4. Mean distribution of responses to change of state items by age

| Age | Stative (%) | -IK adjectives (%) | -mIş (%) |
|---|---|---|---|
| 3.0 - 3.7 | 46 | 24 | 29 |
| 3.8 - 4.3 | 38 | 9 | 52 |
| 4.4 - 4.11 | 14 | 22 | 63 |
| 5.0 - 5.7 | 13 | 18 | 68 |
| 5.8 - 6.4 | 5 | 35 | 60 |

(-mIş) increase by age parallel to the trend found for present participial adjectivals (-An) discussed above. The distribution of predicative vs. attributive -mIş responses, across all situation-types, by age, is presented in Table 6.5.

Table 6.5. Mean distribution of predicative vs. attributive -mIş responses across three situation-types by age

| Age | Predicative (%) | Attributive (%) |
|---|---|---|
| 3.0 - 3.7 | 72 | 27 |
| 3.8 - 4.3 | 82 | 18 |
| 4.4 - 4.11 | 64 | 36 |
| 5.0 - 5.7 | 66 | 34 |
| 5.8 - 6.4 | 56 | 44 |

This increase in attributive descriptions of entities encountered from a static framework indicates that children become more adept at attributing action properties to objects by age. Furthermore, such descriptions reflect both the objective characteristics of the situation (ongoing process or resultant state) and the static viewpoint of the speaker.

It is interesting that participial constructions qualifying an entity in terms of the temporal characteristics of the event it has or is participating in, are acquired later than verb inflectional morphology in Turkish. As was pointed out in Chapter 2, these participles also function in relative clause formation in the language. According to some syntactic analyses (Bolinger, 1967; Parisi and Antinucci, 1976), participial adjectives are considered to be derived from an underlying relative clause structure. In fact, relative clauses are an aspect of Turkish syntax which is acquired late (Aksu-Koç and Slobin, 1985; Slobin, 1986), whereas inflectional morphology is mastered between the second and third year.

In this regard Slobin (1986) proposes that relative clauses in Turkish pose heavier processing demands since they are condensed into deverbal particles (participles and nominals) where the verb is in nonfinite form. A Turkish relative clause, therefore, does not conform to the canonical form of a main clause in contrast to most of its Indo-European counterparts. Such nominal and participial forms furthermore involve a condensation of several elements of meaning into one synthetic form and express semantically complex notions (such as qualifying an entity in terms of the temporal-causal dimensions of the action/process it is participating in). These structures thus deviate from some of the basic universal acquisition strategies (Operating Principles) children presumably utilize in the task of language learning (Slobin, 1973, 1985b). According to Slobin (1986) the relevant operating principles are those concerning (i) Analytic Forms: which states that children prefer analytic over synthetic forms, and (ii) Canonical Forms: which states that children prefer canonical clause forms over deformed, reduced or rearranged ones.

Slobin provides evidence from comprehension experiments which indicate that participial or nominal structures in relative clauses are not even recognized as 'verbs' by Turkish children. He, however, sees the main burden to be on the speaker who must quickly choose the appropriate means to signal subject or non-subject relativization and other specificities with appropriate particles and case inflections. Similarly, the present data show that even in situations where they are required to give just a descriptive label but not a full sentence, children have difficulty in choosing the appropriate nonfinite form of the verb, producing such forms as *yat-arak kedi (sleep+gerund cat) instead of yat-an kedi (sleep+present participle cat) for 'sleeping cat', or *kes-en elma (cut+present participle apple) instead of kes-il-miş elma (cut+passive+past participle) for 'cut apple'.

Finally, Slobin substantiates his arguments with historical evidence and notes that throughout the history of Turkic languages,

> subordinating particles are repeatedly borrowed from neighboring models and verb forms constantly shift between participles and tense forms (1986, p.275)

indicating that the constructions where such participles figure constitute an unstable part of the system.

### 6.4. Inference task: nonwitnessed transformation

The second experiment aims to assess children's productive control of the inferential past function of the -mIş inflection. The task presents situations from a semi-stative, semi-transformational framework. It consists of the presentation of the initial state of an object or entity, an intervening transformation the child

is not allowed to observe, followed by the presentation of the final state the same object is in. Thus this experiment is designed so that the modal variable of nonwitnessed process is built into its structure. In terms of viewpoint-aspect, the task imposes a resultant-state perspective on events and its items represent two levels of situation-aspect, activities and changes of state.

**6.4.1.** Procedure

The presentations were made with toy configurations connected with a story-line, with screening between the initial and resultant phases. The task was presented in a manner similar to a puppet show. A box with a sliding panel across the front was used as the spatial context. The box was placed on the table between the investigator and the subject. The investigator opened the box and said:

> For this game we are going to use this box. Look, this is like a puppet box, Ok? Now I am going to start a story-game here with toys. I am going to make them do something. Then I am going to close the box like this (E closes box), and you will not see. Then I will open the box (E opens the box) and you will see and tell me the end of the story-game. Whatever you see here you will tell me, you will tell me the end of the story, you will finish it, Ok? I will tell you the beginning and you will tell me the end.

After the initial instruction, the child was given a boy and a girl doll and asked to give them names, since these figured in most of the items and also allowed the child to warm up. A sample item is presented below.

Example: target predicate: kır 'break'

> /Mother doll is holding plate, boy and girl dolls are sitting./
>
> Bak, anne şimdi çocuklara kek getirmek için mutfağa gidiyor.
>
> Look, mother is now going to the kitchen to bring some cake to the children.
>
> /E closes and opens the sliding door of the box: mother doll is standing and the plate is on the floor, broken./

After the presentation of each item the subject was asked in the imperative:

> Hadi, şimdi hikayenin sonunu sen anlat, sen bitir.
>
> Now you tell the end of the story, you finish up.

If the subject focused on an irrelevant aspect of the situation in the responses, he or she was probed with, questions like:

> Peki ya _____, o nasıl?
>
> Well, how about the _____, what is it like?

in order to direct his or her attention to the resultant state of the object. The task consisted of 14 items (predicates) represented by 13 episodes, presented in random order. The items consisted of situations describable by change of state

verbs that implied the achievement of a resultant state with or without duration in time, and situations describable by activity verbs, the occurrence of which could be inferred from a resultant state like the absence or presence of an object at a location. Table 6.6 presents a summary description of the episodes and the target predicates.

Table 6.6. Item descriptions for inference task

| Situation-types | Object configurations | | Target predicate (expected response for all items = verb + mIş) |
|---|---|---|---|
| | Initial phase | Resultant phase | |
| Changes of state | mother doll carrying plate | plate broken on floor | kır 'break' |
| | doll with white dress | doll with black spots on dress | pis/kirli 'dirty' |
| | boy playing with balloon | balloon popped | patla 'pop' |
| | boy climbs ladder | boy on ground, next to ladder | düş 'fall' |
| | wolf chases bear | bear on ground, wolf next to it | öl/öldür 'die/kill' |
| | boy about to read father's newspaper | boy sitting, newspaper is torn | yırt 'tear' |
| | girl with clothes, going to take bath | girl naked, clothes on floor | çıkart/soyun 'take off' |
| | truck carrying apples | truck turned over, apples on ground | çarp 'crash'<br>dök 'spill' |
| | cat chasing mouse | cat sitting on top of mouse's tail | yakala/tut 'catch' |
| Activities | baby playing by bed | baby in bed sleeping | uyu/yat 'sleep/lie down' |
| | boy brings in cookies, leaves, dog sitting | boy comes back, empty plate, dog sitting | ye 'eat' |
| | girl watering flower in pot | flowers in pot are taller | büyü 'grow' |
| | bird sitting in cage | empty cage | uç 'fly' |

**6.4.2.** Scoring

All responses, regardless of whether the target verb was used or not, were coded. Each child's responses to the 14 items of this task were assigned to one of the four response categories below:

(1) stative responses - nonderived adjectives (e.g. nice, good, dirty) and adjectives derived with the particle -IK, used in describing the state of the object or another participant;
(2) -mIş responses - descriptions with the predicative use of the verb in -mIş past, or with past participial adjectives derived with -mIş;
(3) -Iyor responses - predicative use of the verb in the present progressive of the verb;
(4) -DI responses - descriptions with the predicative use of the verb in -DI past.

The response type which is correct and required for this task, where the in-between process is not observed by the subject, is category (2), -mIş responses. However, category (1), stative responses, also constitutes a correct response to the extent that it does not violate the rules for the encoding of the results of a nonwitnessed event.

**6.4.3.** Results and discussion

For the following analysis, both -mIş responses and stative responses were counted as correct and combined together to constitute the dependent variable. This choice was governed by nonlinguistic (cognitive) criteria, since the independent variable defining this task was 'state resultant from nonwitnessed transformation'. Therefore, the first question was whether the children were observing the underlying rules for talking about nonwitnessed situations which allow for the use of either linguistic form.

An Order by Age by Situation-type (2 x 5 x 2) factorial analysis of variance with the last factor repeated, was performed on the number of correct responses from each subject. Activity items and change of state items constituted the two levels of the situation-type factor.[6] The three-way analysis of variance yielded a significant main effect for order of presentation ($F(1,50) = 4.75$, $p < .05$), with a higher proportion of correct responses produced under Order I than under Order II (see Tables A4 and A5, Appendix A). That is, subjects who received the Inference task first, gave significantly more -mIş past and stative responses than those who received it after the Process-perceived task. There was no significant effect of age or situation-type.

A central question of the present study concerns the acquisition of the -mIş particle in its function for marking inference from present evidential states. Therefore, an additional analysis with only the -mIş past responses as the dependent variable was carried out. This Order x Age x Situation-type (2 x 5 x 2) repeated factorial design revealed no significant effect of order, indicating that it was the stative but not the -mIş responses that were mostly affected by order of presentation. In fact, subjects who received the Inference after the Process-

perceived task produced higher proportions of -DI past instead of stative responses, which led to a decrease in the proportion of correct responses as defined in the first analysis. The present analysis, instead, yielded a significant effect of situation-type ($F(1,50) = 4.0$, $p < .05$) showing that -mIş past responses were favored in situations encodable by change of state verbs over those encodable by activity verbs. A significant Situation-type by Age interaction effect revealed a linear trend ($F(1,50) = 18.33$, $p < .001$) for activity items and a quadratic trend for change of state items ($F(1,50) = 14.00$, $p < .001$) (see Tables A6 and A7, Appendix A). Thus, situation-type turns out to be a critical factor that differentially influences children's encoding of resultant states from nonperceived changes, and the use of the correct linguistic form shows an increase with age. In other words, the role of situation-aspect in determining the choice of linguistic form appears to be stronger than the effect of the modal variable 'nonwitnessed process' for the younger subjects between 3.0 and 4.0 years of age.

Table 6.7 presents the mean proportion of responses for activity and change of state items, within each order, by age. Observation of the distinction between perceived and nonperceived transformations requires the evidential states represented in the task situation to be described in stative rather than active, processual terms. The options available for such descriptions are: (a) -mIş past indicating an inferred transformation, and (b) stative predications with lexical, or derived adjectives and adjectival forms of the verb to be. As can be observed, the proportion of -mIş responses by the 3.0 - 3.7 year-olds is particularly low to activity items (22.5 per cent), but around 50 per cent to change of state items, under either order. One possible explanation for this finding is that, in the context of change of state items, the presence of the object affected by the preceding process, in its transformed state, facilitates the inference of that past process and thus leads to a higher proportion of descriptions with the inferential past. In the case of activity items (particularly those designed to elicit the verbs ye 'eat' and uç 'fly away'), on the other hand, what is available in the present context is not the object affected by the past process, but the new state of its absence. In fact, 30 per cent of the responses of the youngest age group to these items consisted of descriptions of such states of nonexistence with stative predications. Thus, it appears that, for the young subjects who might be observing the distinction between witnessed and nonwitnessed processes, the -mIş inflection is more readily available in the case of transformations with a resultant state, where a present state - past process coordination is possible, than in the case of activities with no result. At this point, it is worth remembering that in the longitudinal data, first use of inferential -mIş occurred in contexts where an object in a resultant state was presently available.

Table 6.7. Mean percentages of response-types for situation-types within order by age

Order I

Activities

| Age | -Iyor | -DI | -mIş | Stative |
|---|---|---|---|---|
| 3.0 - 3.7 | 21.00 | 21.00 | 25.00 | 33.00 |
| 3.8 - 4.3 | 4.16 | 0.00 | 87.50 | 8.30 |
| 4.4 - 4.11 | 8.33 | 8.33 | 70.83 | 12.50 |
| 5.0 - 5.7 | 8.33 | 0.00 | 79.16 | 12.50 |
| 5.8 - 6.4 | 12.50 | 8.33 | 75.00 | 4.16 |

Changes of state

| Age | -Iyor | -DI | -mIş | Stative |
|---|---|---|---|---|
| 3.0 - 3.7 | 6.60 | 21.60 | 53.30 | 18.30 |
| 3.8 - 4.3 | 6.60 | 6.60 | 81.60 | 5.00 |
| 4.4 - 4.11 | 5.00 | 10.00 | 80.00 | 5.00 |
| 5.0 - 5.7 | 5.00 | 15.00 | 78.30 | 1.66 |
| 5.8 - 6.4 | 28.30 | 3.30 | 66.60 | 1.66 |

Order II

Activities

| Age | -Iyor | -DI | -mIş | Stative |
|---|---|---|---|---|
| 3.0 - 3.7 | 16.60 | 37.50 | 20.80 | 25.00 |
| 3.8 - 4.3 | 16.60 | 12.50 | 58.30 | 12.50 |
| 4.4 - 4.11 | 0.00 | 20.00 | 70.80 | 8.30 |
| 5.0 - 5.7 | 12.50 | 16.60 | 70.80 | 0.00 |
| 5.8 - 6.4 | 12.50 | 16.60 | 62.50 | 8.30 |

Changes of state

| Age | -Iyor | -DI | -mIş | Stative |
|---|---|---|---|---|
| 3.0 - 3.7 | 3.33 | 38.30 | 50.00 | 8.30 |
| 3.8 - 4.3 | 5.00 | 53.30 | 40.00 | 1.60 |
| 4.4 - 4.11 | 0.00 | 26.60 | 73.30 | 0.00 |
| 5.0 - 5.7 | 23.30 | 18.30 | 58.30 | 0.00 |
| 5.8 - 6.4 | 13.30 | 38.30 | 48.30 | 0.00 |

A second related observation from Table 6.7 is that the proportion of error responses in -DI past is higher to change of state items than to activity items at all age levels (not surprisingly, a pattern more magnified under Order II). Thus, while stative predications constitute the major error response for activity items, -DI past is the dominant error category for change of state items. The explanation that can be offered is again based on findings from the longitudinal study, where it was found that the initial function of the -DI inflection was to mark 'completion' in the context of events with a present resultant state. In fact, the items that received the highest proportion of -DI past responses in both orders of the present task were düş 'fall', çarp 'crash' and dök 'spill', which represent punctual transformations that reach completion in a resultant state. It thus appears that -DI past responses are motivated on aspectual grounds, at the expense of violating the modal criterion of 'nonwitnessed process'.

Finally, it is observed that the proportion of present progressive responses is higher on average to activity items than to change of state items, except in the older age groups. The differential occurrence of the -Iyor and -DI past inflections as error responses can be explained in the following terms: -DI past constitutes an error response with respect to the modal but not aspectual criteria, and therefore occurs with change of state verbs more freely. The progressive inflection, on the other hand, violates both the modality variable of nonwitnessed process and the aspectual criterion of stativity, and thus occurs much less frequently.

The distribution of -mIş past responses by age reveals a steady increase in correct performance, until 5.8 years. This increase is however less pronounced in Order II, suggesting that the use of this form on the basis of the modal distinction 'nonwitnessed process' is not yet very stable for the whole group, being easily affected by order of presentation of tasks. The relative drops in the proportion of -mIş past responses for the oldest age group, together with the increase in the proportion of progressive responses, suggests that some other factors are influencing the performance of these subjects. This point will be discussed later in section 6.6.2.

In summary, these findings point to the strength of situation-aspect in governing the use of verb inflections until age 3.8 to 4.0. The modality variable of witnessed vs. nonwitnessed process appears to become a differentiating feature after this age, at least, under experimental conditions.

### 6.5. Process-perceived task: witnessed transformation

The third production experiment was designed to provide comparative data obtained in response to a stimulus situation almost identical to that of the Infer-

ence task, with one exception: the child witnessed all phases of the situation. That is, a total event - either an ongoing process or a transformation terminating in a resultant state - was performed in front of the child. The items portrayed situations that can be described by change of state verbs or by activity verbs. The variables built into this task structure were thus witnessed process (modality), dynamic framework (viewpoint-aspect) and again changes of state vs. ongoing activities (situation-aspect).

### 6.5.1. Procedure

The task consisted of 14 items (predicates) represented by 11 episodes acted out with toys by the investigator. The subject was asked to describe each situation after its completion. The task was introduced in the following way:

> Now I am going to make a little story with the toys here. I am going to make them do some things; you are going to watch it; and when I am finished, you are going to tell me the story; Ok? When I am finished, you are going to tell me what you have seen.

Example: target predicate: kır 'break'

> /E puts father doll on toy table./
>
> Bak, baba lambayı tamir edecek. 'Şu masaya çıkıp lambayı tamir edeyim' diyor.
>
> Look, father is going to fix the lamp. He says 'let me get on this table and fix the lamp'.
>
> /E makes the doll fall on the floor, and one leg of the table breaks./

After the presentation of each item the subject was asked:

> Hadi, şimdi hikayenin sonunu sen anlat. Neler gördüğünü anlat.
>
> Now, tell me the end of the story. Tell me what you have seen.

If necessary, the subject was probed with questions like:

> Daha önce? Sonra?
> And before that? And then?

Identical or similar toys were used to those in the Inference task. The items were presented in random order. Table 6.8 offers a summary description of the episodes and target predicates.

### 6.5.2. Scoring

All responses, regardless of whether the target verb was used or not, were coded. Each subject's responses to the 14 items were assigned to one of the following four response categories:

(1) stative responses - descriptions with lexical adjectives or adjectives derived with the -IK particle;

Table 6.8. Item descriptions for the process-perceived task

| Situation-types | Object configurations | Target predicate (expected response = verb + DI past) |
|---|---|---|
| Changes of state | father doll gets on table to fix lamp, falls, breaks leg of table | düş 'fall'<br>kır 'break' |
| | one cowboy kills another cowboy | öldür 'kill' |
| | boy and girl fight over painting book and tear it apart | yırt 'tear' |
| | mother undresses baby and puts her to bed | çıkart/soy 'undress, take off' |
| | a truck carrying apples and an empty truck crash, and apples spill on ground | çarp 'crash'<br>dök 'spill' |
| | fox chases squirrel and catches it | yakala/tut 'catch' |
| | | (expected response = verb + DI past, or verb + Iyor present progressive) |
| Activities | mother puts baby to bed and baby is sleeping (2nd part of above item with 'take off') | uyu/yat 'sleep/lie down' |
| | boy and girl eat with spoons from a bowl | ye 'eat' |
| | dog walks when wound up | yürü 'walk' |
| | spinning-top spins | dön 'spin' |
| | bird sitting on top of ladder flies down | uç 'fly'<br>kon 'come down, rest' |

(2) -mIş responses - descriptions with the predicative use of the verb in -mIş past and past participial adjectives derived with -mIş;

(3) -Iyor responses - predicative use of the verb in the present progressive;

(4) -DI past responses - descriptions with the predicative use of the verb in -DI past.

Since the items of the task are directly perceived dynamic situations, the correct response types for this task are (3) and (4).

**6.5.3.** Results and discussion

In the following analysis, -DI past and -Iyor present progressive responses were treated as the dependent variable. An Order x Age x Situation-type factorial design with the last factor repeated, was performed on the data. Orders I and II constituted the levels of the first factor, five age groups the levels of the

second factor, and activity and change of state items the levels of the third factor.[7]

The analysis revealed a significant main effect of order of presentation ($F(1,50) = 4.4$, $p < .05$) (see Tables A8 and A9, Appendix A). That is, higher proportions of responses with -DI and -Iyor, the correct forms for describing fully witnessed processes, were produced when the Process-perceived task was done first (Order II), than when it was done after the Inference task (Order I). There were no significant effects for age or for situation-type.

Table 6.9 presents the mean percentage distribution of different response-types to the two situation-types for each age group within each Order. First, it is observed that the proportion of stative descriptions is very low, a pattern consistent with the nature of the task which presents ongoing activities or punctual transformations rather than states. The proportion of -mIş responses is higher for change of state items than for activity items under both orders, though, not surprisingly, more pronounced for subjects who did the Inference task first. This, when considered together with the fact that the proportion of stative responses is zero under Order I, suggests that in addition to the effect of order of tasks, descriptions with the -mIş inflection serve to express a stative aspect, particularly for the younger subjects.

An inspection of the means for the distribution of -Iyor and -DI responses reveals that activity items elicited higher proportions of descriptions in the present progressive as compared to change of state items. The reverse pattern holds true for change of state items which received higher proportions of descriptions in -DI past. These patterns are in line with what would be expected on the basis of the findings from the longitudinal data, that children use the -Iyor and -DI inflections in an aspectually differentiated fashion, i.e. in reference to events with different internal structural characteristics.

To summarize, the findings from the Process-perceived task indicate that children use the -DI and -Iyor inflections for describing directly perceived events of a dynamic nature. The lack of any age-related effect shows that these inflections - in fact the earliest acquired - are well controlled by the age of three in terms of their basic tense-aspect functions. The significant effect of order of presentation as well as the less than perfect performance of the subjects even on this task, however, suggests that the modal distinction between witnessed and nonwitnessed process might yet be an unstable criterion in reporting directly vs. indirectly experienced events, reinforcing the findings obtained in the Inference task.

Finally, the responses which are considered inappropriate in the context of each production task - at least from the point of view of the adult system -

Table 6.9. Mean percentages of response-types for situation-types within order by age

Order I

Activities

| Age | -Iyor | -DI | -mIş | Stative |
|---|---|---|---|---|
| 3.0 - 3.7 | 27.77 | 44.44 | 27.77 | 0.00 |
| 3.8 - 4.3 | 13.88 | 61.11 | 25.00 | 0.00 |
| 4.4 - 4.11 | 11.11 | 63.88 | 25.00 | 0.00 |
| 5.0 - 5.7 | 33.33 | 52.77 | 13.88 | 0.00 |
| 5.8 - 6.4 | 25.00 | 61.11 | 13.88 | 0.00 |

Changes of state

| Age | -Iyor | -DI | -mIş | Stative |
|---|---|---|---|---|
| 3.0 - 3.7 | 4.16 | 62.50 | 33.33 | 0.00 |
| 3.8 - 4.3 | 0.00 | 62.50 | 37.50 | 0.00 |
| 4.4 - 4.11 | 0.00 | 70.83 | 29.16 | 0.00 |
| 5.0 - 5.7 | 2.08 | 83.33 | 14.58 | 0.00 |
| 5.8 - 6.4 | 22.91 | 43.75 | 33.33 | 0.00 |

Order II

Activities

| Age | -Iyor | -DI | -mIş | Stative |
|---|---|---|---|---|
| 3.0 - 3.7 | 36.00 | 50.00 | 11.00 | 2.70 |
| 3.8 - 4.3 | 30.50 | 66.60 | 0.00 | 2.70 |
| 4.4 - 4.11 | 19.40 | 66.60 | 11.00 | 2.70 |
| 5.0 - 5.7 | 19.40 | 63.80 | 16.60 | 0.00 |
| 5.8 - 6.4 | 13.80 | 83.30 | 2.70 | 0.00 |

Changes of state

| Age | -Iyor | -DI | -mIş | Stative |
|---|---|---|---|---|
| 3.0 - 3.7 | 2.08 | 85.41 | 10.41 | 2.08 |
| 3.8 - 4.3 | 4.16 | 79.16 | 14.60 | 2.08 |
| 4.4 - 4.11 | 0.00 | 89.58 | 8.33 | 2.08 |
| 5.0 - 5.7 | 14.58 | 70.83 | 14.58 | 0.00 |
| 5.8 - 6.4 | 8.33 | 75.00 | 16.66 | 0.00 |

can be explained by invoking the general psycholinguistic principle of 'competition'. As put succinctly by Bowerman, competition refers to

> a process that takes place at the moment of speech, when the speaker's intention to express a certain meaning activates more than one device associated with this meaning. The conflict is usually resolved by pre-speech editing, but when it is not, errors occur. (1985, p.1273)

The above analyses which yielded information about the grammatical means that compete with one another provide some clues as to how meaning comes to be structured in the domain of temporality, during the 3.0 to 6.0 years developmental period. The following analyses aim to shed further light on this process.

### 6.6. Cross-task analyses of the production tasks

This section presents the analyses of children's performance across the three task situations of Statives, Inference and Process-perceived, which combine aspectual and modal variables in different ways. To recapitulate, Statives and Inference tasks both present events from a static framework, but differ in terms of modality, since the latter presents nonwitnessed transformations with observable resultant states. The Statives and the Process-perceived tasks, on the other hand, contrast mainly because the former presents events from a static and the latter from a dynamic perspective. The two tasks considered together, can be regarded as neutral regarding modality. Finally, while the Inference task portrays nonwitnessed processes, the Process-perceived task presents events from the point of view of a direct experiencer. In terms of viewpoint-aspect, the Process-perceived task represents events dynamically while in the Inference task the dynamic component is only implied by the presence of the initial and final states. All three tasks incorporate the two types of situations represented by the change of state and the activity items. The different frameworks of presentation which are thus built into the experimental paradigm, modify the conditions for the production of different aspectual modulations that are called for by situation-aspect.

The major questions addressed by the cross-task comparisons are:

(1) Do children use the -DI, -mIş and -Iyor inflections differently in describing events that vary in terms of their internal structural characteristics (punctual transformation vs. continuous process; with resultant state vs. without resultant state) across the different viewpoints of regard as represented by each task? To answer this question the Statives task is compared to the Inference and Process-perceived tasks.

(2) Do children use the two past inflections, -DI and -mIş, differently in the Inference and Process-perceived task situations that differ along the modality dimension of witnessed vs. nonwitnessed process? Such differentiation requires

that situations in the Inference task be described by the -mIş past inflection, and events in the Process-perceived task be described by the -DI past or progressive inflections, regardless of situation-aspect.

**6.6.1.** Comparison of the Inference and Process-perceived transformational tasks with the Statives task

In the following analyses, the Statives task, which is neutral with respect to the modality dimension of witnessed vs. nonwitnessed process, but presents events from a static perspective, is used as a baseline condition. Since the Inference task produces the -mIş inflection both because of the effects of stativity due to viewpoint-aspect and because of the modal variable of nonwitnessed process, this task is compared with the Statives task in order to distinguish the two effects. The aim of the comparison between the Statives and the Process-perceived tasks, on the other hand, is to see whether there are major effects of the framework in which the event is encountered (static vs. dynamic), over and above that of event structure (change of state vs. activity), on the production of the different tense-aspect-modality inflections.

All of the following cross-task analyses were conducted regardless of the order of presentation, since in the separate within task analyses it was observed that although this factor had a major effect, it was similar for the two tasks. Also, all of the analyses were performed individually for the two situation-type categories (change of state and activity) and their results are presented in separate tables, though they will be discussed together.[8]

First, the proportion of responses with each of the three inflections was compared across (1) Statives and Inference tasks, and (2) Statives and Process-perceived tasks. For this purpose, the mean proportion of each response type produced in the Statives task was subtracted from the corresponding mean proportions in the Inference task and Process-perceived task. Six difference scores were thus obtained, which constituted the dependent variables for each of the following analyses (three difference scores between Inference and Statives tasks, one for each of the three inflections; three difference scores between Process-perceived and Statives tasks, one for each of the three inflections). The multivariate test of differences between means revealed significant results, both for change of state items ($T^2$ = 733.24, $p < .0001$), and for activity items ($T^2$ = 1505.08, $p < .0001$). That is, across all the subjects, -mIş past, -DI past, and -Iyor progressive inflections were produced in significantly different proportions under the three task conditions for each situation-type (see Tables 6.10 and 6.11).

A one-way multivariate analysis of variance with age as the independent variable was performed on the six mean difference scores for each situation-type.

Table 6.10. Transformed mean differences of response-types for change of state items

| | Inference - Statives | | | Process perceived - Statives | | |
|---|---|---|---|---|---|---|
| Age | -mIş | -Iyor | -DI | -mIş | -Iyor | -DI |
| 3.0 - 3.7 | 50.86 | 4.62 | 35.72 | 13.09 | -1.02 | 91.33 |
| 3.8 - 4.3 | 34.62 | 7.19 | 49.00 | -12.74 | 0.00 | 110.09 |
| 4.4 - 4.11 | 33.95 | -3.52 | 34.09 | -53.46 | -9.28 | 125.26 |
| 5.0 - 5.7 | 18.22 | 19.81 | 28.94 | -61.72 | 9.80 | 120.50 |
| 5.8 - 6.4 | 10.20 | 32.45 | 33.62 | -39.16 | 25.03 | 95.36 |

Table 6.11. Transformed mean differences of response-types for activity items

| | Inference - Statives | | | Process perceived - Statives | | |
|---|---|---|---|---|---|---|
| Age | -mIş | -Iyor | -DI | -mIş | -Iyor | -DI |
| 3.0 - 3.7 | 30.95 | -32.79 | 41.39 | 21.72 | -15.09 | 76.28 |
| 3.8 - 4.3 | 77.26 | -23.78 | 21.51 | -5.74 | -2.41 | 98.23 |
| 4.4 - 4.11 | 90.80 | -65.42 | 25.64 | 12.67 | -44.46 | 98.47 |
| 5.0 - 5.7 | 107.55 | -45.32 | 13.25 | 17.68 | -25.12 | 87.88 |
| 5.8 - 6.4 | 98.42 | -35.64 | 21.51 | 7.57 | -26.22 | 113.00 |

There was a significant linear trend for age both for change of state ($F(6,50) = 3.84$, $p < .003$) and for activity items ($F(6,50) = 3.60$, $p < .004$). For change of state items, the quadratic trend also reached significance ($F(6,50) = 2.54$, $p < .03$) (see Tables A10 and A11, Appendix A). That is, for both types of events, the difference between the proportion of -mIş, -DI and progressive responses produced to the Inference vs. Statives tasks and the Process-perceived vs. Statives tasks increases with age, reflecting that sensitivity to evidential modality and to viewpoint-aspect are developmental phenomena. The results of the univariate analyses for the mean differences between the Inference and Statives tasks revealed that this linear trend is significant for -Iyor and -mIş past responses to change of state items ($F(1,55) = 5.87$, $p < .01$ and $F(1,55) = 4.89$, $p < .03$, respectively) and for -mIş past responses to activity items ($F(1,55) = 10.48$, $p < .002$) (see Tables A10 and A11, Appendix A). An inspection of the mean differences reveals that the proportion of progressive responses to change of state items increases significantly in the Inference task as compared to the Statives task, after 5.0 years.

Before this age, progressive responses to these items in either task is minimal, due to the effect of situation-aspect over viewpoint-aspect.

The difference between the two tasks in the proportion of -mIş responses to change of state items decreases with age. The difference is always in favor of the Inference task but decreases partly because of the relative increase of -mIş participial adjectivals in the Statives task, and partly because of the decrease of -mIş responses to the Inference task, which were replaced by progressive responses in older groups. The difference between -mIş responses to activity items, on the other hand, increases steadily with age, to the advantage of the Inference task. This difference was much more pronounced since activity items of the statives task could not be described with past participial adjectives derived with the -mIş particle. Both task situations favor the occurrence of -mIş responses on the basis of aspectual criteria (situation-type and framework of presentation), but the Inference task has in addition the modality condition of 'nonwitnessed event' which, in fact, necessarily requires the use of this form.

As for the difference between Process-perceived and Statives tasks, the univariate analyses indicated a significant linear trend for -Iyor progressive responses to change of state items ($F(1,55) = 7.19$, $p < .009$) as well as a quadratic component ($F(1,55) = 4.31$, $p < .04$). This difference was due to a sudden increase in the proportion of descriptions in the progressive in the Process-perceived task, also after age 5.0. Thus, transformational events with a resultant state both in the Inference and Process-perceived tasks produced from the older subjects higher proportions of progressive responses than those encountered from a stative framework, a finding which suggests the acquisition of a new function by the form -Iyor. This function is seen to be one related to sequencing of events in discourse, and is discussed later. When activity items are considered, on the other hand, it is observed that progressive responses always occur more to the Statives than to the Process-perceived or Inference tasks. In other words, children at all ages produced higher proportions of descriptions in the present progressive when they encountered activities with duration from a static framework, as compared to situations where a preceding transformation was implied, or where they observed a dynamic ongoing process which reached completion.

The Process-perceived and Statives tasks differed significantly in terms of the -mIş responses given to change of state items (linear trend $F(1,55) = 8.65$, $p < .004$, and quadratic trend $F(1,55) = 4.38$, $p < .04$, respectively). An inspection of the mean differences shows that except for the 3.0 - 3.7 year-olds, the difference is always in favor of the Statives task for which the proportion of -mIş responses increases with age, with the contribution of past participial adjectives, as was noted above.

Lastly, the univariate analysis of the difference between the Process and Statives tasks for -DI past responses revealed a significant linear trend in the case of activity items ($F(1,55) = 3.76$, $p < .05$) and a quadratic component in the case of change of state items ($F(1,55) = 4.40$, $p < .04$). The difference in -DI past responses which increased with age was always in favour of the Process-perceived task and much more pronounced for change of state items. In fact, a comparison of the mean differences in -DI past across tasks shows that it is always used more for the transformational task situations than for the statives task, since it is not an appropriate form for describing events from a static framework.

In summary, these results reveal the importance of situation-aspect in determining children's use of inflections to describe events viewed from different perspectives. Major effects were due to event characteristics. Change of state verbs which encode transformational events with resultant states, call for the use of the -mIş particle that indicates resultative aspect with particular emphasis on the establishment of an end-state. The preferred use of -DI inflection with the same verbs reinforces the view that for children, this inflection is also at first aspectually marked, indicating completion. On the other hand, activity verbs encoding events with duration in time elicited the progressive which indicates durative aspect (see also Harner, 1981 for similar findings in English).

Effects of the framework of presentation or viewpoint-aspect, increased by age especially in those situations where the response-type elicited by the event characteristics was incongruent with the response-type required on the basis of this variable. This was most significantly the case in the descriptions of processes with duration. Ongoing activities encountered dynamically were increasingly encoded with the progressive aspect marker, while those encountered from a static framework were increasingly described by present participial adjectivals with -An. Similarly, -DI past occurred only in response to the transformational tasks depicting events from a dynamic framework and not in the Statives task. Situations presented from a static perspective (both states per se, and resultant states), on the other hand, constituted the most favorable context for the production of the -mIş inflection.

**6.6.2.** Comparison of the Inference task with the Process-perceived task

The final analysis was directed at the question of whether the two past inflections, -mIş and -DI, were differentiated with respect to the modality dimension of witnessed vs. nonwitnessed process. For this purpose, the mean proportion of the three response categories produced to the Inference and Process-perceived tasks were compared. The multivariate test of differences between means revealed significant differences ($T^2 = 134.72$, $p < .0001$ for change of state items

and $T^2$ = 270.50, $p < .0001$ for activity items), indicating that the three tense-aspect-mood inflections occurred under the two task conditions in different proportions. From Table 6.12, which presents the mean differences between the two tasks for each inflection, it can be observed that higher proportions of -mIş past responses were produced to the Inference task, while higher proportions of -DI past responses were given to the Process-perceived task, for both types of situations. Responses with the progressive inflection were given more frequently to the activity items of the Process-perceived task. In the case of change of state items, however, this response type was relatively more frequent in the Inference task, contrary to expectations.

These findings indicate that the modal distinction of witnessed vs. nonwitnessed process had a significant effect on children's responses in the expected direction. In other words, evidential states resultant from nonwitnessed transformations represented in the items of the Inference task were described predominantly with the inferential past (-mIş) while dynamic events of the Process-perceived task were described with the past of direct experience (-DI) or the present progressive inflection (-Iyor).

Table 6.12. Transformed mean differences of response-types between inference and process-perceived tasks for change of state and activity items

| Situation-types | Age | Diff. for -mIş Inference-Process | Diff. for -Iyor Inference-Process | Diff. for -DI Inference-Process |
|---|---|---|---|---|
| Changes of state | 3.0 - 3.7 | 37.77 | 5.65 | -55.61 |
| | 3.8 - 4.3 | 47.37 | 7.19 | -61.09 |
| | 4.4 - 4.11 | 87.41 | 5.75 | -91.17 |
| | 5.0 - 5.7 | 79.95 | 10.00 | -91.56 |
| | 5.8 - 6.4 | 49.37 | 7.42 | -61.74 |
| | Age | Diff. for -mIş Inference-Process | Diff. for -Iyor Inference-Process | Diff. for -DI Inference-Process |
| Activities | 3.0 - 3.7 | 9.23 | -17.70 | -34.89 |
| | 3.8 - 4.3 | 83.00 | -21.36 | -76.72 |
| | 4.4 - 4.11 | 78.13 | -20.95 | -72.83 |
| | 5.0 - 5.7 | 89.87 | -20.20 | -74.62 |
| | 5.8 - 6.4 | 90.85 | -9.43 | -91.49 |

A one-way multivariate analysis of variance for the effects of age revealed that the difference between the two tasks fits significantly the linear trend for activity items ($F(3,53) = 6.26$, $p < .001$), and the quadratic trend for change of state items ($F(3,53) = 2.77$, $p < .05$) (see Tables A12 and A13, Appendix A). That is, the proportion of differential responses to the two tasks shows a general increase with age. The results of the univariate analyses indicate that the differential production of -mIş past responses to change of state items fits the quadratic trend significantly ($F(1,55) = 6.02$, $p < .01$), while for -DI past responses this trend is not really significant ($p < .06$). An inspection of the means for change of state items (see Table 6.12) shows that -mIş responses to the Inference task increase up to age 5.8, after which there is a drop. There is a corresponding fall in the production of -DI past responses to the Process-perceived task at the same age. In the case of activity items, the difference between the two tasks in the proportion of both -DI past and -mIş past responses reaches significance for the linear trend ($F(1,55) = 9.62$, $p < .003$, and $F(1,55) = 11.65$, $p < .001$, respectively). The quadratic trend is also significant for -mIş past responses ($F(1,55) = 4.78$, $p < .03$). The results of the analysis show a steady increase in the proportion of -mIş past responses to the Inference task and -DI responses to the Process-perceived task, as expected.

In order to determine at what point within this age range the observed developmental changes took place, a one-way multivariate analysis of variance was conducted for each group separately. For change of state items, the effect of task structure was found to be significant for the age group 4.4 - 4.11 ($F(3,53) = 3.14$, $p < .03$), while for activity items, the corresponding age level was 3.0 - 3.7 ($F(3,53) = 7.16$, $p < .0004$) (see Table A14, Appendix A). That is, linguistic differentiation between the Inference and Process-perceived tasks which represent oppositions both in terms of evidential modality and viewpoint-aspect, became apparent at different age levels for the two situation-types. It can be concluded that the modal distinction of nonwitnessed process becomes a criterion for children's contextually appropriate use of the two past inflections only around age 4.0. What appears to be a determining factor before this age is situation-aspect, leading to the use of either -mIş past to mark resultant states, or -DI past to mark completed actions/processes, depending on the child's focus.

One unexpected pattern observed in the above results was the increase in the use of the progressive inflection around the age of 5.8, in response to both the Inference and Process-perceived tasks. This finding suggests that around the age of five to six, children's responses are motivated by some other factor that overrides both the aspectual and the witnessed vs. nonwitnessed process variables. It was suggested earlier that this might be a discourse strategy related to

narration of events. A shared characteristic of these two tasks is that they present a short sequence of events that are connected with a story line. An examination of the transcripts reveals that the structure of children's descriptions is different at different age levels. Almost all 3.0 - 5.0 year-olds describe only the final phase of the event. On the other hand, some 4.0 year-olds and almost all 5.0 - 6.0 year-olds talk about all phases of the event, using a sequence of predicates where the inflections mark the order relations between events. Before the age of 5.8, the preferred strategy for sequencing of events was the use of either of the two past tense inflections. After this age, the use of the present progressive for the same purpose appears as a new strategy in the descriptions of some of the subjects. As has been mentioned, the present progressive inflection -Iyor is one of the forms for narration in Turkish. It is used by adults for recounting films, novels, football games, in short, situations which the speaker has directly experienced but just as an observer, not a participant.[9] As such, the form can be called the 'narrative present' in the language. It appears that this is the new function that is discovered by some of the 5.0 - 6.0 year olds. Like adults, they choose to describe past events that they have been objective observers of with the present progressive. However, unlike adults, they seem to overgeneralize this use to the description of situations about which they have only inferred knowledge.

### 6.7. General discussion

The results of the production experiments provide some further support for the claims based on the longitudinal data, regarding the developmental differentiation and organization of the semantic field expressed by the -DI, -mIş and -Iyor inflections.

First, the findings reinforce the view which emerged in the longitudinal study that the acquisition and early use of these inflections is governed by event characteristics. Subjects in the youngest age group, in particular, gave descriptions where the major function of the inflections appeared to be to mark SITUATION-ASPECT rather than to indicate viewpoint-aspect or evidentiality contrasts. This was evidenced in the data, for example, with the unstable use of the -mIş and -DI inflections before the age of about four, leading to failure to observe the grammatical distinction between direct and indirect experience. The two inflections were deployed in contexts of RESULTANT STATES or COMPLETED events, with little regard for whether all phases of the event were observed or not.

As the results of the cross-task analyses revealed, use of the different inflections for indicating VIEWPOINT-ASPECT and DEGREE OF COMMITMENT TO TRUTH increased with age. Such development appears to be a function of either

the acquisition of new grammatical structures, or the discovery of new functions for old forms. The findings from the Statives task, for instance, show that the coordination of situation-aspect (e.g. ongoing activity) with viewpoint-aspect (static) becomes possible when children can use a linguistically more complex construction such as -An adjectivals, which simultaneously characterize an entity in terms of the process it is participating in and express the speaker's perspective regarding it. Another example is the older children's use of the -mIş form multifunctionally, making reference to event characteristics as well as expressing the speaker's informational perspective in one and the same utterance. In other words, older children, who have more options available, choose from among them that inflection which allows them simultaneously to express their subjective relation to the event (modal or aspectual perspective) and to make reference to its objective characteristics.

Thus, given that the three verbal inflections are present in the children's repertoire by age 3.0, what changes with age is their appropriate use in context, or the underlying criterial variables that govern the choice of a given form in a given context. In particular, the differentiation between the two past inflections on the basis of the critical modality variable of WITNESSED vs. NONWITNESSED PROCESS, indicating EVIDENTIALITY contrasts, appears to be a gradual development, reflecting itself between the ages of 3.6 and 4.6.

Finally, we should note that the present production tasks have their share of the problems inherent in the experimental approach in developmental psycholinguistics. Although the nonlinguistic context of the experiments provides enough clues for the production of contextually appropriate linguistic forms, the major semantic contrast between the pasts of direct and indirect experience, i.e. 'situation new for unprepared minds', had to be defined rather narrowly as 'nonwitnessed process'. This variable was operationalized in the Process-perceived task by having the subject watch all phases of the event, and in the Inference task by screening the transformational part of the event from his or her perception. Since the Inference task presented an initial state prior to the final state, and since everything took place within the short time-span of the experimental interview, it cannot be safely assumed that the subjects were totally 'mentally unprepared' for the coming about of the resultant state though they were not prepared, of course, for its exact nature. In other words, the parameter of 'psychological distance' was less than perfectly integrated into the experimental tasks, or rather, was reduced to just 'nonwitnessed process', since the presentation of the initial state makes the event accessible to consciousness in general. Thus, my experimental procedure had to bank on one primary defining feature at the expense of secondary or supplementary ones which give the grammatical forms

their full meaning and functional contrasts. It should therefore be borne in mind that age-related findings obtained under the present experimental conditions are likely to be overestimations of what would be obtained under naturalistic observation.

## 7. Experimental study of the comprehension and metalinguistic awareness of the pasts of direct vs. indirect experience

**7.0.** Children's knowledge of the modal distinction between the inferential past and the past of direct experience was also studied from the point of view of comprehension. An experimental study was carried out to find out whether young children understand that a speaker who refers to a situation in -mIş past has not witnessed the event itself but is making an inference from its observable results, while one who refers to a situation in -DI past has experienced it directly. It was also of primary interest to uncover the underlying procedures that are at work in achieving such comprehension. Based on the assumption that these covert processes can be inferred from the justifications children give for their performance on the task, an additional analysis was performed on the data. This analysis, then, also reflects the metalinguistic awareness gained by the subjects during the course of the experiment.

### 7.1. Procedure

The subjects were presented with eight short story-like events each represented by a sequence of four pictures. All the story items involved the same characters and were introduced as the adventures of three friends, two boys and a girl (Ali, Ahmet and Fatoş). The subjects were told that this was a game called 'Find out who said it'. At the end of each story, the investigator produced an utterance making a statement about the event in the story, and asked the child to identify its speaker in the last picture of the sequence.

Each story depicted a situation that could be described either with -DI past or with -mIş past, depending on which of the characters was the speaker. In the final picture, where the child was asked to identify the speaker, there were only two characters present: one who had witnessed the event and one who had just come in and could only comment on the existing situation by making an inference from an observable end-state.

Two forms of the task were prepared, such that in Form A, half of the stories were coupled with an utterance inflected in -mIş and half with -DI; in Form B, the stories which had been coupled with an utterance with -mIş inflec-

tion were coupled with -DI, and vice versa. The order of items for both forms was determined through a process of randomization. Thus, in both forms the order of stories was the same, though the order of inflections as presented in test utterances was different.

Instructions in the administration of the task were:

> Now we have a game with stories. I have some picture stories here. (E has the story pictures in her hand; E puts first picture which shows all three characters in front of the child.) We'll look at the pictures and at the end of each story there is a puzzle: one of these children is going to say something and you are going to find out which one said it, ok? This is a game of 'find out who said it' ok? Now, this is Ahmet, this is Ali, and this is Fatoş (E points to each character.) Now, repeat their names with me. (S and E repeat the names.)

Then E told the story, putting the pictures successively in front of S. The following is a sample story:

Picture 1
Bak burda Ahmetle Fatoş gezmeye çıkmışlar. Fatoşun elinde de bir kırmızı balon var.
Look, here Ahmet and Fatoş are taking a walk, and Fatoş has a red balloon in her hand.

Picture 2
A, burda ne oluyor, kuş napıyor? Balonu gagalayıp patlatıyor değil mi?
Oh, what's happening here, what's the bird doing? It is pecking and popping the red balloon, isn't it?

Picture 3
Burda da, kuş kaçıp, uçup gidiyor. Aa, bak Ahmet de Fatoşu yalnız bırakıp gidiyor.
And here, it is flying away. And what, Ahmet is leaving Fatoş alone, he is going away too.

Picture 4
Bak, burda kim var, Ali gelmiş Fatoşun yanına. Şimdi bu çocuklardan bir tanesi diyor ki
(a) 'Kırmızı balon patladı.' (-DI past item: Form A)
Sence bunu hangi çocuk söylüyor? Bil bakalım kim söylüyor?
(b) 'Kırmızı balon patlamış.' (-mIş past item: Form B)
Sence bunu hangi çocuk söylüyor? Bil bakalım kim söylüyor?
Let's see who is here. Ali is here, he has come and joined Fatoş. Now, one of these children says:
(i) 'The red balloon (must have) popped' (-mIş past item)
Who do you think is saying this? Find which one of the children is saying it.
(ii) 'The red balloon popped' (-DI past item)
Who do you think is saying it? Find which one of the children is saying it.

In relation to picture (4), each subject was presented with either (i) or (ii) for a given item.

The presence of only two characters in the final picture where the subject was to identify the speaker presented a problem of having a correct response by chance 50 per cent of the time. This, however, had to be accepted in the light of the further complications that arose if all three characters were present, as

was demonstrated in a pilot study.[1] One improvement would have been to increase the number of items, but this would have put an additional demand on the young subjects' attentional capacity. The problem was therefore handled by asking a set of detailed probe questions eliciting justifications for the choice of correct speaker. In order to get clear and scorable justifications, care was taken to: (a) make sure that S understood the story, by having him or her participate in the telling, with the investigator pointing out who was present initially and who entered the frame after the event had taken place; (b) keep all four pictures in the immediate visual field with the last frame directly in front of S, so that he or she could retrace the story and see which characters were present or absent when the event took place; (c) have S repeat the utterance in order to make sure that he or she had processed the utterance in its given form. If the child's imitation was different from the original, E said, 'No, listen well, he said "_ __", now repeat'; (d) ask S, 'Who do you think said it?'; (e) after S had made his or her choice, ask: 'Why do you think that it is that one who said it?', 'Why do you think it is Ali who said it?', or 'How did you know?', 'How did you understand that?'; (f) depending on the child's answer, the character that was not chosen and who could have said the utterance in the alternative form ('opposite character' from here onwards) was pointed at and S was asked, 'How would this child have said the same thing?'; 'If this one was the one who spoke, how would he have said it?'; 'How would he have told about the popping of the balloon?', etc.; (g) if S attended to body characteristics of the characters, he or she was told that those properties were irrelevant, that both of the characters had their mouths open, etc., and that he or she had to think hard in order to find the right answer to the puzzle.[2] All the stories were found to be easily comprehensible by the subjects.

### 7.2. Results

The two different analyses carried out on the data were aimed at (a) assessing children's knowledge of the difference between -DI and -mIs inflections at the level of comprehension, and (b) evaluating their metalinguistic awareness of the rules governing the use of these two forms, thereby discovering the processes that underlie comprehension. The next section will present the analysis for comprehension and the following, the analysis for metalinguistic awareness. The findings will then be discussed in general.

#### 7.2.1. Analysis for comprehension

The subjects' first responses indicating the speaker of a test utterance were considered for this analysis. The following scores, expressed in percentages, were

computed for each child: (1) total number of correct responses; (2) number of correct -mIş responses/number of -mIş items presented; (3) number of correct -DI responses/number of -DI items presented. The last two categories of scores were computed because subjects who were given Form A received five -DI past and three -mIş past items, and those given Form B received three -DI past and five -mIş past items. This inequality in the number of items with each past inflection resulted from the elimination of one story from the original nine item task, as it proved to be difficult to understand for most of the children. However, since Forms A and B were given to equal numbers of subjects in each age group, each age group received an equal number of -DI and -mIş items. In the case of some three-year-olds, not all the stories could be given because they could not cooperate, either due to limitations of their attention span or to the complexity of the task. In this and the following scoring procedures, these subjects received no points for such items.

In order to evaluate the children's level of comprehension of the differential functions of -DI and -mIş past inflections, the scores were analyzed for the effects of age and inflection-type. A two-way repeated measures analysis of variance, Age x Inflection-type (5x2) was conducted. The levels of the repeated second factor were (1) stories presented with an utterance in -DI past (speaker is the direct perceiver of the event), and (2) stories presented with an utterance in -mIş past (speaker infers the event from observed evidence). The dependent variable consisted of the percentage of correct responses for -mIş items and correct responses for -DI items. The results of the analysis showed no significant main effect of age, while the effect of inflection-type was significant ($F(1.55) = 5.33$, $p < .05$). There was no interaction effect. (See Table 7.1. for a summary of the analysis, and Table 7.2. for the means of the analysis.) A comparison of the mean totals for all age groups for -DI past and -mIş past items shows that the children gave significantly more correct responses when they were asked to identify the speaker of an utterance given in -DI past ($\bar{X} = 60.20$) than when they were asked to identify the speaker of an utterance in -mIş past ($\bar{X} = 44.65$). (For a graphic representation of mean correct performance at each age group see Figure 1.)

On purely linguistic grounds it could be argued that the first or dominant strategy used by children is processing any speech event in terms of -DI past, the form which develops earlier. This would lead to an interpretation of a given utterance as something that can be said by a direct experiencer. Such a strategy would result in being correct almost all the time on -DI past items. For -mIş past items, however, it would lead to a high proportion of incorrect responses. But the finding of almost equal means for the two types of items in the 3.0 - 3.7

Table 7.1. Summary table of analysis of variance for age x inflection-type for correct speaker identification responses

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Age (A) | 5357.72 | 4 | 1339.43 | 1.90 | .25 |
| S / A | 38719.87 | 55 | 703.99 | | |
| Inflection-type (B) | 7255.63 | 1 | 7255.63 | 5.33 | .05 |
| A x B | 3669.29 | 4 | 992.32 | 0.70 | |
| B x S / A | 74893.80 | 55 | 1361.70 | | |
| Total | 129896.31 | 119 | | | |

Table 7.2. Means for correct speaker identification responses for inflection-types for age levels

| Age | -mIs items | -DI items |
|---|---|---|
| 3.0 - 3.7 | 43.87 | 47.20 |
| 3.8 - 4.3 | 36.10 | 54.97 |
| 4.4 - 4.11 | 34.43 | 69.98 |
| 5.0 - 5.7 | 52.75 | 58.31 |
| 5.8 - 6.4 | 56.09 | 70.54 |
| Average | 44.65 | 60.20 |

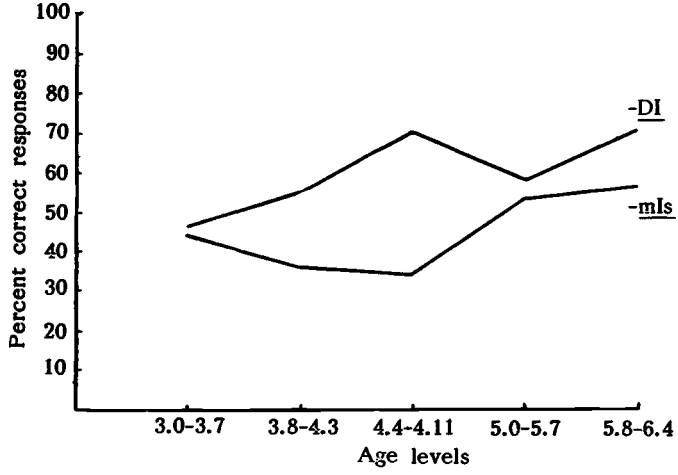


Figure 1. Percentage of correct speaker identification responses for -mIs and -DI items for age levels.

age group ($\bar{X}$ = 44 per cent for -mIṣ past and $\bar{X}$ = 47 per cent for -DI past) does not support this view. In fact, since both means in this age group are around 45-50 per cent, performance for subjects below 3.8 may be random. Such performance could stem from either the 3 1/2 year-olds' inability to understand the modal distinction (different information perspectives) signalled by the two past inflections, or from their inability to cope with the demands of the task itself. Though it is difficult to make a conclusive statement in this regard, the latter alternative is more probable and it appears questionable whether these subjects were paying attention to the linguistic cues present in the utterances.

In the next two age groups, correct mean performance falls to an average of 35 per cent on -mIṣ past items ($\bar{X}$ = 36 per cent for 3.8 - 4.3 years and $\bar{X}$ = 34 per cent for 4.4 - 4.11 years) but rises steadily on -DI past items to 55 per cent and 70 per cent for 3.8 - 4.3 and 4.4 - 4.11 age groups, respectively. This difference in rate of development is represented in Figure 1, where the curves for the two item types present mirror images of one another for the age range 3.8 - 4.11. The earlier increase in the proportion of correct responses for -DI past items supports the view suggested above that this inflection is the more readily available interpretive strategy. The same trend was observed in production tasks where the use of -DI past had primacy over -mIṣ, for younger children. Such a strategy would mean that the children in this age range (up to 5 years) are not really paying attention to the inflections as local cues but are responding at a more global level. In other words, they seem to be reacting to the fact that the speech act occurs within the context of story telling, and interpreting it as an act appropriate for the character who has directly perceived the event.

At the next age level, 5.0 - 5.7 years, while mean performance rises to 53 per cent for -mIṣ past items, it falls to 58 per cent for -DI past items, suggesting a change in the child's system (see Table 7.2 and Figure 1). When the means for the two item types are compared, it is observed that the difference is always positive for -DI, for subjects both below and above the 5.0 - 5.7 age range, but that it reaches the lowest point for this group.

One possible interpretation of these figures is that the -DI past strategy is abandoned at this age. Instead, the inflections in the test-utterances become functional as local cues, and guide the children in differentiating information perspectives represented in the nonlinguistic context of the story pictures, as will be discussed shortly in the analyses of metalinguistic judgements. Thus, I am suggesting that the close to random correct performance of these older subjects is motivated by different underlying procedures than the random performance of those in the 3.0 - 3.7 age group. From 5.8 onwards, a steady improvement in performance is observed. It is of interest that correct performance reaches only

a mean of 56 per cent on -mIş past items and 71 per cent on -DI past items for the 5.8 - 6.4 year-olds, the oldest subjects in the present sample.

These experimental findings suggest that a reorganization takes place in the semantic domain that falls under the scope of the two past inflections around the age of 5.0. Such a reorganization would involve changes on at least two planes. At the cognitive level, a child has to recognize that an event can be talked about from different informational perspectives, either of the direct or of the indirect experiencer's. At the linguistic level on the other hand, he or she needs to systematize the semantic functions of the two inflections in terms of the modal distinctions they carry. As has already been discussed at length, the -mIş inflection, in particular, is a form with several functions (aspectual, temporal, modal and pragmatic) interrelated through a variety of semantic pathways. What may be at issue after age five could be a sorting out and reorganization of the various functions of the -DI and -mIş inflections - which are defined, in fact, by virtue of their systemic relations - into a single coherent semantic domain. Such a reorganization process may in fact lead to the application of conflicting strategies. As Karmiloff-Smith notes in relation to the acquisition of complex linguistic structures after the age of five, 'when two conflicting interpretations arise, the child may pass through a period of compromise between the two interpretations before adopting the more elaborate one' (1979b, p.311).

No further insight can be gained about the nature of this underlying restructuring process on the basis of the present analysis. This will be the task of the following evaluation of the data. There is, however, another important point that needs to be considered in relation to the age at which reorganization processes in a given semantic domain may occur. In this connection, Bowerman (1982) notes that different methods of data collection may result in different estimates of the age at which semantic integration begins to take place. Therefore, the nature of the present task has to be taken into account. In a natural comprehension situation where he or she is a direct participant as a listener, the child will know who the speaker is, and comprehension will count upon decoding a linguistic cue as indicating a given type of information perspective. In the experimental context, however, when asked to identify the speaker, the child was required to enter the story frames as an outsider, process and maintain the perspective that was indicated by the -DI or -mIş particles in the utterance, analyze the final picture in the sequence in terms of the two opposing information perspectives of the characters present, and match the two together in order to make a correct choice. That is, the task posed some cognitive demands that are not related to the child's linguistic capacity, such as shifting perspectives, which might have pushed the age for correct performance to a spuriously high level.

The fact that children's performance in language assessment tasks is affected by the nature of the stimulus materials has been variously noted (Cocking and McHale, 1977; Karmiloff-Smith, 1979a; Warden, 1981). For instance, Cocking and McHale (1977) tested comprehension and production of various linguistic structures both with pictures and objects. Their findings indicate that four and five-year-olds show overall superior performance on object-assessment tasks as opposed to picture-assessment tasks, particularly in the case of production. However, they found no significant difference in comprehension when pictures or objects were used. Furthermore, comprehension with pictures as assessment materials was still superior to production with objects.

Given these findings on methodology, it can be said that the overall design of the present study does not pose a real problem, since productive competence was assessed with objects and comprehensive competence with pictures. Furthermore, the story-pictures of the present task contained the nonlinguistic cues supplying appropriate contextual information which were well emphasized by the experimenter while telling the stories. Therefore, if the subjects paid attention to the local linguistic cues and knew the distinction between the functions of the two forms, then they could have correctly matched the speakers and utterances. This line of thinking would allow us to take the present results as a relatively accurate reflection of performance on the receptive side. The implications of this view would be to regard the -DI and -mIş inflections with different modal colorings as a complex part of the Turkish verbal system, one which requires some years of development (though less than five years), before it is mastered and organized into an adult-type system.

In order to reach a more conclusive position and, in particular, to understand the dynamics of this restructuring process, I looked at the justifications and responses by the subjects to questions. As mentioned earlier, I regard these as reflecting the underlying procedures children use in judging a test utterance as an appropriate speech act for a given speaker. The results of the analysis of this metalinguistic data are presented next.

**7.2.2.** Analysis for metalinguistic awareness

For this level of analysis, the total responses of the subjects were considered. A coding scheme was devised with special attention to the following issues: (a) whether S was aware that one of the characters did not witness the event as it was taking place, and could identify this character; (b) the kind of justification S gave for his or her choice of speaker; (c) S's ability to provide a transformation of the test utterance that could be said in the same context by the character not chosen ('opposite character'); (d) whether S was operating on the

basis of an implicit or explicit rule in choosing the speaker; and (e) whether such a rule reflected awareness of the linguistic cues (-DI vs. -mIş inflections), or was based on some independent, task-related strategy. Each subject's full response to each story-item was thus coded and then scored in the following manner:

(1) identification: correct choice of speaker for the test utterance: 1 point;
(2) information: justifications that appeal to chosen character's informational status about the event (e.g. 'he saw it, he knows, he didn't see it happen'): 1 point;
(3) information and end-state: justifications that explicitly and correctly state each character's informational perspective and the importance of the end-state for making the inference: 2 points (inclusive of the point for the second condition);
(4) opposite character: correct transformation of the test utterance such that it could be said by the character that was not chosen as the speaker (i.e. -mIş to -DI, and vice versa): 1 point.

The highest score that could be obtained for each item on the basis of this weighting was 4. This scoring scheme was applied to correct responses only. If the subject's initial choice of speaker was incorrect he or she received a zero score for that item.

Again, the following scores expressed in percentages were computed for each subject:

(1) total number of correct responses;
(2) number of correct -mIş past responses/number of -mIş past items presented;
(3) number of correct -DI past responses/number of -DI past items presented.

**7.2.2.1.** Quantitative analysis

With these composite scores as the dependent variable, an Age by Inflection-type (5x2) analysis of variance with repeated measures on the second factor was performed on the data. The results of this analysis revealed a significant effect of age ($F(4,55) = 7.04$, $p < .001$). There was no significant main effect of inflection-type or any significant interaction effect. A trend analysis carried out on the age factor revealed a significant linear component ($F(1,55) = 27.52$, $p < .001$) indicating an increase with age in the proportion of correct judgements (see Table 7.3. for a summary of the analyses and Table 7.4. for means). This linear trend is represented graphically in Figure 2 for both -mIş past and -DI past.

The results of this analysis present a slightly different picture from the previous one. First, performance on -DI and -mIş past items proceeds in a comparable steady rate across age groups. The extremely low means for the 3.0 - 3.7

Table 7.3. Summary table of analysis of variance for age x inflection-types for correct responses with justifications

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Age (A)[a] | 17591.23 | 4 | 4397.81 | 7.04 | .001 |
| S / A | 34353.69 | 55 | 624.61 | | |
| Inflection-type (B) | 1584.86 | 1 | 1584.86 | 3.11 | .100 |
| A x B | 1328.93 | 4 | 332.23 | 0.65 | |
| B x S / A | 28060.99 | 55 | 510.19 | | |
| Total | 82919.70 | 119 | | | |

[a] The significant part of the age effect is due to the linear component: SS = 17187.33, df = 1, MS = 17187.33, F = 27.52, $p < .001$.

Table 7.4. Means for correct responses with justifications for inflection-types for age levels

| Age | -mIs items | -DI items |
|---|---|---|
| 3.0 - 3.7 | 13.05 | 14.98 |
| 3.8 - 4.3 | 13.18 | 21.50 |
| 4.4 - 4.11 | 19.85 | 39.56 |
| 5.0 - 5.7 | 34.02 | 38.59 |
| 5.8 - 6.4 | 45.95 | 47.76 |
| Average | 25.21 | 32.48 |

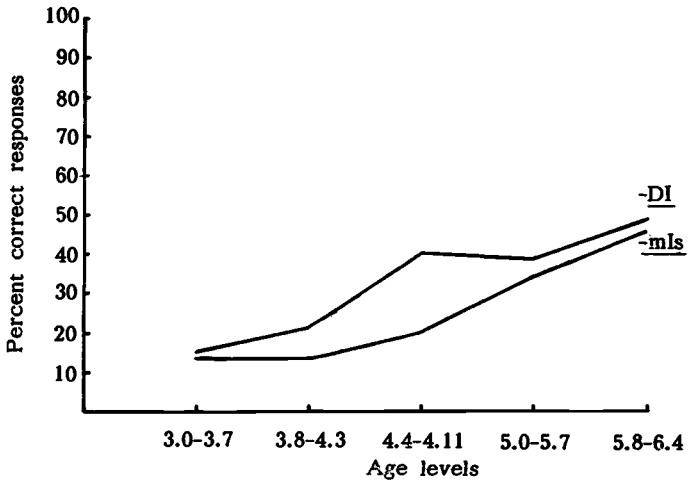


Figure 2. Percentage of correct responses with justifications for inflection-types for age levels.

year-olds ($\bar{X}$ = 13 per cent for -mIş and $\bar{X}$ = 15 per cent for -DI items) reveals that these subjects have almost no awareness of the grounds for their choice of speaker. This, I take as supporting my view that their close to 50 per cent correct first response rate is random. Correct performance starts to increase around age 4.4 for -DI and around 5.0 for -mIş past and reaches about 50 per cent for both types of items by age 6.4.

The absence of any effects due to inflection-type is not surprising in the light of the criteria employed in scoring for the present analysis. Subjects were given additional points when there was evidence for the awareness of the determining role of informational perspective for matching a given utterance with a given speaker. Nevertheless, all through the observed period, particularly between 3.8 and 5.0, -DI past items were in advantage relative to -mIş past items. This finding is in line with the view that the -DI inflection is more readily available as a first interpretive strategy and suggests that the identification of the informational perspective of the direct experiencer has primacy over the identification of the perspective of the indirect experiencer.

The data subjected to this level of analysis consists of children's judgements of appropriateness of a given linguistic act for a given context and their conscious reflections on the reasons for appropriateness. A child's intuitive knowledge can lead him or her to a correct identification of a speaker. Justifying this judgement or choice, however, calls for a different ability and represents a different level of functioning. For this reason, I carried out a qualitative analysis to reveal the underlying strategies the children employed in making their judgements.

**7.2.2.2.** Qualitative analysis

The main aim of this analysis, then, is to find out whether the children were operating on the basis of any implicit or explicit rules in identifying the speaker, and whether such a rule reflects awareness of the modal functions of the linguistic cues. In other words, it is intended to obtain a schematization of the two types of linguistic and contextual information perspectives through which comprehension can be presumed to be achieved.

The qualitative analysis revealed four distinct developmental levels (with two sublevels within the first and the third). Table 7.5 presents the distribution of subjects in each age group across the four levels. Stage assignments were made on the basis of children's correct judgements of appropriateness, coupled with their justifications, with particular attention to the points summarized earlier.

Table 7.5. Qualitative analysis: distribution of subjects in each age group across developmental levels

| | Age groups | | | | |
|---|---|---|---|---|---|
| Levels | 3.0 - 3.7 | 3.8 - 4.3 | 4.4 - 4.11 | 5.0 - 5.7 | 5.8 - 6.4 |
| 1a | 8 | 2 | | | |
| 1b | 3 | 5 | 4 | | 1 |
| 2 | 1 | 4 | 3 | 3 | |
| 3a | | 1 | 2 | 2 | 4 |
| 3b | | | 2 | 4 | 4 |
| 4 | | | | 4 | 3 |

Level I (mean age 3.7)

Children classified as Level I were those who either could not give any justification as to why they chose a given character as the speaker, or who gave tautological explanations. There was no evidence for recognition of the informational perspective of the speaker chosen as a criterial factor.

At Sublevel I-a, the subjects either gave no justification or referred to irrelevant aspects of the story pictures (e.g. 'this is the house', 'these are the clouds', Example (1) below). They could not provide an utterance for the opposite character, and the question about which character had witnessed the event and which had not was either not understood or answered incorrectly. In short, these children could not really grasp the task, which turned out to be too complex for them.

Subjects at Sublevel I-b justified their choices either by appeal to cues that could be associated with a speaker (e.g. 'because his hand is extended', 'because his mouth is open', see Example (2)), or by presenting tautological explanations which justified not the choice of speaker but why the statement in the test utterance was made in the first place (e.g. repeating the statement as if to confirm that the event took place, as in 'because the milk got spilled', see Example (3)). The responses to the question about who saw the event were inconsistent across items.

These children tried to give an utterance for the opposite character, but made either irrelevant comments (e.g. 'because he is sad'; 'he gets angry at the cat') or imitated the original utterance. The few alternative utterances that were produced were all in -DI past, regardless of the inflection of the test utterance. The underlying principle that can be inferred from the performance of these subjects who were correct only on -DI but not on -mIş past items is 'the speaker is the one who saw the event happen'. Some examples from Level I are presented below:[3]

Ex. (1)

(BC (3.0)): item 2: Eşek kaçmış. 'The donkey (must have) run away' (-mIş)
Speaker choice: correct

Nereden anladın konuşanın Fatoş olduğunu? Fatoş yediricek köpeği. Köpek yok ki burada. Evet gitmiş uzaklara.

How did you know that it was Fatoş who spoke? Fatoş is going to feed the dog. But there isn't any dog here. Yes, it went far away. (-mIş)

Ex. (2)

(PO (4.10)): item 6: Süt dökülmüş. 'The milk (must have) got spilled' (-mIş)
Speaker choice: incorrect

Neden sence Ahmet söylüyor? Ben elinden anlıyorum. Eline bakmadan, düşünerek söyle. Böyle yapıyor. Peki, Ali nasıl söyler? Döküldü süt.

Why do you think Ahmet is saying it? I understand from his hands. Tell me without looking at his hand, think and tell me. He is doing like this (points to hand gesture of character). Ok, how would Ali say it? The milk spilled (-DI).

Ex. (3)

(BK (4.0)): item 6: Süt dökülmüş. 'The milk (must have) got spilled' (-mIş)
Speaker choice: incorrect.

Neden Ahmet söyliyebilir? Süt döküldüğü için. Başka bir sebep söyle, Fatoş diyebilir mi aynı şeyi? NR. Süt dökülmüş diyebilir mi? Kedi döktü. Bak bu dışardan geldi baktı yerler süt olmuş, ne diyecek? Süt döküldü. Fatoş diyebilir mi süt döküldü? Kedi de kaçtı.

Why do you think Ahmet says it? Because of the milk's getting spilled. Find another reason, could Fatoş say the same thing? NR. Can she say the milk must have got spilled? The cat spilled it (-DI). Look she came from outside, saw the floor covered in milk, what is she going to say? The milk spilled (-DI). Can Fatoş say the milk spilled? And the cat ran away (-DI).

Overall, the explanations of Level I subjects were not yet independent of the contextual stimuli. They were tied either to the figural properties of the objects represented in the pictures or to the narrated events. As such, their responses showed reflective awareness of neither the linguistic nor the nonlinguistic aspects of the problem.

Level II (mean age 4.6)

The subjects at this level also did not pay attention to the linguistic distinctions contained in the test utterances (i.e. -DI vs. -mIş inflections). However, they based their choices on nonlinguistic contextual information and their justifications

always explicitly appealed to the information perspective of the story characters. From this stage onwards, subjects almost always correctly identified those characters who had witnessed the event and those who had not.

The character chosen as the speaker was always the one whom the child claimed had seen or carried out the event, i.e. the direct experiencer. For the opposite character, these children claimed that 'he cannot say anything because he has not seen the event take place'. If they provided an alternative utterance at all, this was always in -DI past, but never in -mIş past. These observations suggest that the subjects at this level based their judgements on the belief that 'in order to talk about an event, one has to have direct experience of it', representing a unidirectional information perspective-speaker relationship.[4] In fact, these children either negate the possibility of a nonwitnessing character talking, or they negate the event itself if they make him talk. Some typical examples are:

Ex. (4)

(AA (4.4)): item 8: Vazo kırıldı. 'The vase got broken' (-DI)
Speaker choice: correct

Neden Ahmet? Bu görmedi. Peki, Fatoş geldi, yerde kırıkları gördü, o zaman nasıl söyler vazonun kırıldığını? Söyliyemez ki!

Why is it Ahmet? He did not see (-DI) (correctly points to other character). Ok, Fatoş came and saw the broken pieces on the floor, what is she going to say then? But she can't say!

Ex. (5)

(OO (5.7)): item 2: Eşek kaçmış. 'The donkey (must have) run away' (-mIş)
Speaker choice: incorrect

Neden Ali konuşan? Çünkü o baktı. Ali gördü, Fatoş gördü mü? NR. Fatoş sonradan geldi değil mi? ... Nasıl söylerdi Fatoş? Eşek kaçmamış.

Why is Ali the one who spoke? Because he looked (-DI). Ali saw, did Fatoş see? NR. Fatoş came afterwards, yes? ... How would Fatoş have said it? The donkey didn't run away (-mIş).

Ex. (6)

(IA (4.7)): item 4: Kayık batmış. 'The boat (must have) sunk' (-mIş)
Speaker chosen: incorrect

Neden sence Ahmet? Çünkü kayığın battığını gördü. Peki, Ali geldi baktı ki kayık böyle, batmış, Ali nasıl söyliyecek? Söylemiyecek ki. Geldi baktı, aaa ... ne diyecek? Kayık mı battı? Peki, Ahmet batarken görünce nasıl diyor? Kayık battı.

> Why do you think it is Ahmet? Because he saw the boat sinking. Ok, Ali came and saw the boat like this, sunk, how is he going to say it? He is not going to say. What is he going to say, ooo ...? Is it the boat that sank? (-DI) Ok, how is Ahmet saying it as he saw it sinking? The boat sank (-DI).

Thus, operating on the implicit principle of 'the speaker is the one who saw', children of this level did not make any allowances for inferences that could be made from the observation of resultant states. When it was pointed out that the non-witnessing character could observe the resultant state, only some of the subjects agreed to provide an alternative utterance. Not surprisingly, there was no evidence of awareness that information thus obtained can be encoded by the use of a special linguistic form. From the metalinguistic point of view, although there was no evidence for differentiation of linguistic form and conceptual content, the children seemed to be aware of the determining role of the informational perspective of the speaker.

Level III (mean age 5.3)

Speaker choice for these subjects at first also appears to be regulated by the principle 'the one who saw the event is the one who can speak'. However, a significant advance observed at this stage is that these children begin to take into account the resultant state as a legitimate source of information and accept that the nonwitnessing character can talk about the event on the basis of such information. Although for some of the subjects this capacity developed during the course of the task, prompted by the experimenter's questions, there is finally evidence for differentiation between two types of access to information (direct and indirect) at the nonlinguistic level. In other words, the subjects of Level III begin to construct a multi-directional information perspective-speaker relationship, and operate with the rule 'both the one who saw the event and the one who observed only its results, can talk about it'.

Two developmentally ordered sublevels were identified on the basis of the responses given for the opposite character. Sublevel III-a subjects considered statements about an event with a declarative sentence to be appropriate speech acts for direct experiencers. For the character whose knowledge was based on inference, they produced either a sentence in the interrogative or a stative construction with a qualifier, but not one inflected with -mIş past. Put differently, they gave semantically appropriate sentences which conveyed both the presupposition that the event had taken place and that the information about it was gained through newly encountered evidence. These statements were thus periphrastic expressions of inference normally marked by the -mIş inflection. The

following examples illustrate this strategy:

Ex. (7)

(TG (4.6)): item 4: Kayık batmış. 'The boat (must have) sunk' (-mIş)
Speaker choice: incorrect

Nereden bildin Ahmet olduğunu? Çünkü görmüş Ahmet. Ahmet gemiyi batarken gördü, nasıl söyler bunu Ahmet? Gördüğü için söyler. Ne der, nasıl, söylet sen. NR. Peki, Ali geldi baktı, gemi batmış, o nasıl söyler? Gemi battı, gemi demek battı diye söyler.

How did you know it was Ahmet? Because Ahmet saw (-mIş) (correct). Ahmet saw the boat sinking, how would he say it? He'd say it because he saw. How would he say it, how, you make him say it. NR. Ok, Ali came and saw that the boat has sunk, how would he say it? He'd say, the boat sank (-DI) and so, the boat sank (-DI).

Ex. (8)

(CY (5.8)): item 2: Eşek kaçmış. 'The donkey (must have) run away' (-mIş)
Speaker choice: incorrect

... Peki, Fatoş nasıl söylerdi? Fatoş gördü mü eşek kaçarken? Hayır. Fatoş geldi, eşek yok, ne diyecek? Nerde benim eşeğim?

... Ok, how would Fatoş have said it? Did Fatoş see the donkey running away? No. Fatoş came and the donkey is not there, how would she say it? Where is my donkey?

Ex. (9)

(AB (6.3)): item 6: Süt dökülmüş. 'The milk (must have) got spilled' (-mIş)
Speaker choice: incorrect

Neden sence konuşan Ahmet? Çünkü süt dökülmüş. Kim gördü sütü dökülürken? Ahmet. Ahmet gördüğüne göre nasıl söyler? Süt döküldü der. Fatoş gördü mü? Görmedi. Gelip baktı, neyi gördü? Sütü gördü. Yerde gördü değil mi, nasıl söyliyecek? Sütü kim döktü der.

Why do you think the one who spoke is Ahmet? Because the milk got spilled (-mIş). Who saw it when it was getting spilled? Ahmet (correct). How would Ahmet say it since he saw it? He would say the milk got spilled (-DI) (correct). Did Fatoş see? She didn't (-DI). She came and saw, what did she see? She saw the milk (-DI). She saw it on the floor, didn't she, how is she going to say it? She'd say who spilled the milk (-DI).

Sublevel III-b subjects also allowed the nonwitnessing character to talk about the event upon seeing its results. However, in contrast to Sublevel III-a subjects, they produced assertions for these characters with declarative sentences, inflected sometimes in -DI past and sometimes in -mIş past. Although the use of the inflections was not consistently correct, it is suggestive of an increased awareness

of the differential functions of the two linguistic forms, which is the reason why Level III-b is seen to be developmentally more advanced than Level III-a. Examples (10) and (11) show this difference:

Ex. 10

(SK (4.2)): item 8: Vazo kırılmış. 'The vase (must have) got broken' (-mIş)
Speaker choice: incorrect.

Neden sence o konuşan? Çünkü bu gördü. Fatoş? Görmedi. Gelip neyi gördü? Kırıkları. O zaman nasıl söyliyecek? Vazo kırıldı.

Why do you think it's him who spoke? Because he saw it (-DI) (correct). How about Fatoş? She didn't see (-DI). What did she come and see? Broken pieces. How is she going to say it then? The vase got broken (-DI) (incorrect).

Ex. 11

(TD (5.7)): item 7: Balon patladı. 'The balloon popped' (-DI)
Speaker choice: correct

Çünkü o gördü. Evet, Ali geldi en son dakikada, bunları gördü, o nasıl söyliyecek aynı şeyi? Balon patlamış. Evet, çok güzel.

Because he saw (-DI). Yes, Ali came at the last minute and saw these (points to pieces of the balloon), how is he going to say the same thing? The balloon must have popped (-mIş). Yes, very good.

The following examples illustrate the explicit use of temporal terms which allude to the order of perception of events by the different characters, and provide evidence for the growing awareness of different information perspectives.

Ex. (12)

(CA (5.3)): item 9: Yumurtadan civciv çıkmış. 'The chick (must have) come out of the egg' (-mIş)
Speaker choice: correct

Nereden anladın? O orada duruyordu. Nerede? Burda. Evet, kim söyledi yumurtadan civciv çıkmış diye? (points to Ali.) Peki neden Ali söyledi sence, ne anladın? Bu burada duruyordu önceden gelip, tavuk ta yumurtlamış. Evet? Gitti. Evet, o gördü yani.

How did you know? He was standing there (-DI). Where? Here. Ok. who said the chick must have come out of the egg? (points to Ali, incorrect.) Why did Ali say it? How did you understand? This one was standing here, having come beforehand, and the chicken made an egg (-mIş). Yes? He went (-DI). Yes, you mean he saw.

Ex. (13)

(TK (5.9)): item 9: Yumurtadan civciv çıkmış. 'The chick (must have) come out of the egg' (-mIş)
Speaker choice: correct

Neden Ahmet söylüyor? Çünkü o daha yeni geldi. Neyi görmedi? Civciv çıkarken görmedi, çıkınca gördü. Kim gördü çıkarken? Fatoşla Ali gördü. Onlar konuşsa nasıl söylerlerdi? Civciv çıktı.

Why is Ahmet saying it? Because he just came recently (-DI). What did he not see? He did not see the chick while coming out, he saw it when it came out (-DI). Who saw it while coming out? Fatoş and Ali saw (-DI). How would they have said it? The chick came out (-DI).

In summary, the defining characteristics of Level III are: (a) accepting that both the direct perception and the observation of the resultant state of an event constitute legitimate sources of information for making an assertion about it, and (b) lack of clear differentiation of the semantic functions of the -DI and -mIş inflections in terms of encoding these two types of information perspectives.

Level IV (mean age 5.5)

Subjects at this developmentally most advanced stage explicitly formulated their justifications in terms of the information perspectives of the speakers. Their responses reflected the consistent use of the following two rules in correct association with the two inflections: (i) an utterance in -DI past is spoken by the character who has seen the event take place, (ii) an utterance in -mIş past is spoken by the character who has not witnessed the event, but has inferred it afterwards, from its results. In fact, these subjects appealed explicitly both to direct experience and resultant state in their justifications for speaker choice. Furthermore, they talked about 'ways of talking' using verbs of 'saying'. For the opposite character, subjects provided sentences inflected correctly either with -mIş or -DI past. Some examples from these subjects are:

Ex. (14)

(AU (5.7)): item 2: Eşek kaçmış. 'The donkey (must have) run away' (-mIş)
Speaker choice: correct

Neden öyle düşünüyorsun? Çünkü Ahmet onun kaçtığını biliyor, ondan söyledi. Fatoş söylese nasıl söylerdi? Aaa, eşek kaçmış derdi.

Why do you think so? Because Ahmet knows it ran away, that's why he said it (-DI). How would Fatoş have said it? Ooo, the donkey must have run away (-mIş).

Ex. (15)

(SH (6.1)): item 6: Süt dökülmüş. 'The milk (must have) got spilled' (-mIş)
Speaker choice: correct

Neden öyle düşünüyorsun? Süt dökülmüş diye o diyebilir. Evet, niçin? Çünkü o görmedi, o diyebilir. Peki, bu nasıl der aynı şeyi? Evet döküldü der. Çünkü, o? Gördü.

Why do you think so? It is her who can say the milk must have spilled (-mIş). Yes, why? She can say because she didn't see (-DI). Ok, how would this one (perceiver) say the same thing? He would say, yes it got spilled (-DI). Because, he? Saw.

Ex. (16)

(AE (5.10)): item 4: Kayık battı. 'The boat sank' (-DI)
Speaker choice: correct

Çünkü o gördü, bu görmemiş, bu söyleseydi kayık batmış derdi.

Because this one saw (-DI) (correct), this one has not seen (-mIş) (correct), if this one said it, he would have said the boat must have sunk (-mIş).

The distinct characteristic of the performance of the subjects at Level IV is that they attended to the linguistic cues contained in the test utterances and related them to the informational perspective of the characters in the pictures. That is, there was correct coupling of linguistic form with conceptual content, reflecting differentiation between the forms and their appropriate contexts of use. Thus, some of the 5 - 6 1/2 year-olds of the present sample gave clear evidence of awareness of the rules governing the use of the two past inflections.

### 7.3. Discussion

Investigations of the child's conception of language generally focus on two types of awareness, functional and reflective. Functional awareness covers metalinguistic phenomena 'at the border of awareness', and reflective awareness is clearly 'the result of explicit reflection on language' (Levelt, Sinclair and Jarvella, 1978, p.2). Examples for the first are self corrections that occur during ongoing speech, or adjusting one's speech to the age of the listener, and examples for the latter are judgements of grammaticality or appropriateness of sentences, obtained through direct questioning. Linguistic behavior reflecting functional awareness occurs automatically or with little conscious attention and is observed as early as the age of 2.0. Reflective awareness which involves the 'drawing of explicit distinctions between the form and meaning of a word or utterance' (Levelt, Sinclair and Jarvella, 1978, p.4), on the other hand, lags behind speech and comprehension in developmental appearance, and has been observed in relation to a

variety of language issues around the ages of five or six (Berthoud-Papandropoulou, 1978; Clark, 1978; Hirsh-Pasek, Gleitman and Gleitman, 1978).

The present data which consist of children's linguistic judgements involves reflective awareness, that is, 'implicit knowledge that has become explicit', and constitutes 'a form of behavior which should be explained in its own right just like any other form of linguistic behavior'. Furthermore, the relationship between explicit knowledge and underlying competence is 'at most a highly indirect and involved relation' (Levelt et al., 1978, pp.5-6). Thus, inferences that can be drawn from judgemental behavior to underlying procedures can be speculative but not conclusive. With this reservation in mind, the following discussion is intended to give a theoretical account of the growth of metalinguistic awareness, while at the same time explaining the development of underlying competence in comprehension.

The developmental progression observed in the present data can be explained within Piaget's theoretical framework emphasizing the functional aspects of development (1977). In this view, development is seen as a process of changing equilibrations between assimilations and accommodations, resulting in the successive construction of new cognitive structures. Disequilibrium in the system arises due to either external causes (interactions with objects and conceptions not readily assimilable into the existing schemes), or internal causes (interactions between schemes that can not be integrated at a higher level because they present contradictions). Such conflicts eventually get resolved through the development of compensatory schemes that lead to progress to a new level of equilibration. Compensations are functionally accomplished by accommodations that result in differentiations of the existing schemes of the child, which are in turn integrated into a higher level structure that unites them into a total system. Such periods of disequilibrium, Piaget proposes (1976), are special moments for the growth of consciousness. That is, a child becomes aware when he is in disequilibrium, because the automatic regulations in performing intentional acts are no longer sufficient to attain a goal. Although Piaget has applied this perspective only to various aspects of cognitive development, it also provides an equally valid account when the object of a child's cognitive activity is language.

As has already been pointed out, awareness of the underlying rules governing the use of the pasts of direct vs. indirect experience in Turkish requires taking into account the information perspective of the speaker. Developmentally, any belief about this factor appears to involve two dimensions: (i) knowledge about the mode of acquisition of information about an event (i.e. direct experience vs. inference) and, (ii) assumptions about what type of information is a legitimate basis for talking about an event. Furthermore, these two dimensions need to be

coordinated with one another.

Knowledge about the mode of acquisition of information about a past event requires the construction of certain anteriority relations between the point in time at which an event takes place and the point in time at which the speaker obtains information about it. For statements made from the perspective of a direct experiencer (in -DI past), these two temporal points are one and the same. On the other hand, from the viewpoint of an indirect experiencer (statements in -mIş past), event time is necessarily prior to the time at which the speaker obtains information about it through inference from its results. Implicit in such an inference is a causal relation between the resultant state and the past process that has brought it about.

In the experimental context of the story-pictures, the spatio-temporal points that need to be put in an ordered relation to make a correct choice of speaker are:

(A) time at which the event takes place,

(A') time at which the direct experiencer acquires information about the event (for -DI past items),

(B) time at which the nonwitnessing character acquires information about the event from its results (for -mIş past items),

(C) time at which a given character makes a statement about the event, i.e. the time of speech.[5]

Since points (A) and (A') are identical in the case of -DI past items, the construction of an anteriority relation with respect to point (C) involves the coordination of two points within the spatio-temporal framework of the story-pictures. For -mIş past items, the points (A) and (B) are not the same, however, and need to be put in a temporal-causal relationship, which has to be further related to (C). This requires, then, the coordination of three spatio-temporal points. Thus, determining the information status of a speaker who has inferred knowledge about an event entails the construction of both anteriority and causal relations.

We have seen that at Level I, the informational perspective of the speaker is not even recognized as the critical factor. Since these subjects have not explicitly formulated the principle 'the one who talks is the one who saw', the question about how the nonwitnessing character can talk about the same event does not constitute a contradictory suggestion for them. As such, it is totally disregarded.

At Level II, children do take into account the information perspective of the speaker as a critical factor for judgements of appropriateness. However, they consider only the perspective of the direct experiencer as valid and ignore the fact that knowledge can also be based on inference from observed results. The

two dimensions relating to (i) perception of an event, and (ii) talking about an event, have been coordinated for only one type of information-speaker relationship in the claim: 'the character who can talk is the one who saw the event happen'. Since only the character who is claimed to have perceived the event and his speech act are considered, an order relation between only two temporal points (A and A') and (C) must have been constructed. The possibility that an indirect experiencer can make a statement about the event appears contradictory to the existing beliefs of children at this stage and is denied with the claim: 'he can't say anything because he did not see the event happen'.

Disequilibrium caused by such contradiction can be assumed to underlie the progress to Level III, where children allow for the nonwitnessing character to talk on the basis of indirect information. Two separate beliefs - 'one can talk because he saw' and 'one can talk although he did not see' - exist simultaneously for these subjects. Thus the question of how the nonwitnessing character can say the same thing does not constitute a contradiction, but instead has been integrated into the system of judgements as a different type of information-speaker relation. The compensatory factor that brings about such modification is taking into account the end-state as a legitimate source of information. The underlying rule 'although the event was not witnessed, the end-result was observed, therefore one can talk about it' reflects the coordination of what were previously inconsistent schemes of thought.

The cognitive constructions of this level are of two sorts. On the one hand, an order relation through the coordination of three temporal points (A), (B), and (C) has been established. On the other hand, a causal relation has been constructed by accepting the resultant state as a source of information for the nonwitnessing character. The more complex temporal-causal relations that underlie the comprehension of the -mIş past can be regarded as one factor which accounts for the later and slower development observed in relation to this form. This view finds indirect support from other studies based on Indo-European languages. Specifically, the type of anteriority relation which requires the coordination of three points in time is also necessary for the construction of the relation of 'relevance' expressed by the perfect tense in these languages. The relation of relevance indicates that 'the speaker is noting the importance of an event to the time indicated by his utterance' (Cromer, 1974, p.221). As has been noted in Chapter 2, the semantic relation between the inferential and the perfect tense resides in the fact that both categories present an event via its results. With the perfect, a past event is presented because of its relation to a present state, and with the inferential 'the past event is again not presented simply per se, rather it is inferred from some less direct result of the action' (Comrie, 1976, p.110). Devel-

opmentally, the present perfect expressing the notion of 'present-relevance' has consistently been found to be a later acquisition than the present, immediate past and immediate future tenses (Cromer, 1971, 1974; Szagun, 1977; Slobin, 1987a) similar to the Turkish inferential.

Modifications in schemes of thought concerning the necessary conditions for someone to talk about an event, as observed in Level III, presumably lay the grounds for the differentiation of the linguistic and nonlinguistic variables in relation to one another and for the increased awareness of the semantic functions of the two forms. These two developments characterize Level IV, where the justifications represent an integration of two types of information perspective, perceived and inferred, with two types of speakers, direct experiencer and indirect experiencer. Thus, conceptual and linguistic knowledge has been integrated and a consistent system of information perspective-speaker relations has been constructed.

In conclusion, it can be said that the comprehension of the inferential past requires the recognition of the evidential status of resultant states as relevant to speech acts of speakers and thus the construction of integrated anteriority and causal relations at a level accessible to linguistic representation. Reflective awareness of the rules specifying the use of the two past tense forms appears to involve a more gradual development, proceeding through successive differentiations and integrations.

Finally, it should be noted that this analysis of comprehension and metalinguistic data has focused only on how children differentiate between the two past forms as markers of different information perspectives. The implications of the findings for their understanding of how these forms serve as indicators of different degrees of commitment to the truth of what is asserted, will be discussed in Chapter 9.

## 8. Production and comprehension of the quotative function

**8.0.** The quotative or hearsay use, it was hypothesized, would be the last grammatical function of the -mIş particle to be discovered by children. In this purely modal function -mIş indicates that the propositional content of the speaker's utterance is not derived from direct experience but from the 'spoken word'. In other words, the quotative use of the -mIş particle involves referring to aspects of discourse itself.

My prediction that the quotative function of -mIş would be more complex was grounded on both cognitive and semantic considerations. Cognitively, this use would depend on children's ability to talk about events not personally experienced, i.e. on their ability to reconstruct from memory information obtained solely through the medium of language. Since no phase of the event is directly experienced, there will be no cues available from the nonlinguistic context at the time of encoding. Mental representation of such information can be assumed to be more complex just on the basis of processing factors. Furthermore it has been variously noted that young children show reluctance in talking about events not related to the present context, and in particular, about experiences not shared with their interlocutor (Sachs, 1979; de Lemos and Bybee, 1981). These findings suggest that it would be even more difficult for children to report experiences that they have not experienced themselves.

Semantically, I argue that the purely modal use of -mIş rests on a more complex presuppositional structure which is represented at the performative level. The performative is that part of an utterance which tells us what type of speech act the speaker is carrying out in using a given sentence (Parisi and Antinucci, 1976). And every performative carries with it certain presuppositions that regulate its use in normal circumstances.

Furthermore, Parisi and Antinucci propose that a performative, like a proposition, has both a nuclear structure and optional modifying structures (like adverbials). While adverbials which modify the nucleus of the proposition provide the motive for the event that is asserted, adverbials which modify the nucleus

of the performative provide the motive for the speaker's assertion. At issue here are what Keenan (1971) has called 'pragmatic presuppositions' that are defined according to the relation between utterances and their contexts. In an 'assertive performative', the speaker uses language in order that the listener should assume X (propositional content). This in turn presupposes that the speaker himself assumes X (Parisi and Antinucci, 1976). In quoted speech, the difference lies in the fact that the speaker's assertion presupposes not that the speaker himself assumes X but that he assumes 'the report that X'. In other words, what is presupposed is the report of the event rather than the event itself.

In line with Parisi and Antinucci's analysis, I suggest that in the hearsay use of -mIş, increased semantic complexity derives from the modification of the performative in terms of its presuppositional structure. The -mIş particle behaves like a performative adverbial (e.g. like 'probably') and has as its scope of modification, the entire sentence. The presence of the particle, in utterances so modalized, indicates that the basis for the speech act is another person's assertion, which in turn presupposes the event that is asserted. In other words, Turkish grammaticizes this additional presuppositional structure with the -mIş particle.

Another reason why I assume the quotative function to be more complex follows from the above claim concerning the performative structure of purely modal -mIş utterances, and relates to my analysis of the evidential mood as a special case of epistemic possibility. Utterances marked with -mIş make assertions about events (past or nonpast) which are not certain but possible, since knowledge regarding their factuality is not based on direct experience. In quotative -mIş utterances, the presuppositional structure added to the performative level, by virtue of indicating the grounds for the speaker's assertion to be another party's speech act, qualifies or weakens his commitment to the truth of the proposition expressed by the sentence he utters.[1] Put differently, the particle expresses the speaker's reservations about investing a categorical commitment to the factuality of the assertion he makes. Such notions of epistemic possibility, as we saw, are rather late to emerge in young children's speech. It is possible that this validational component of the semantics of -mIş will be discovered after children capitalize on the fact that the particle marks the deferral of responsibility to a prime speaker other than the self given the pragmatic salience such a function would have for the young child.

The following experimental study does not aim to capture and analyze the differentiation and/or integration of all these finely grained semantic and pragmatic factors that come into play in the acquisition of the quotative function of the -mIş particle. Rather, it attempts to measure the children's ability to comprehend and to produce utterances with -mIş, signifying information obtained

through language. In addition, it aims to assess their level of awareness of the presuppositional structure underlying quotative utterances, based on their judgements of appropriateness of use. This study is, therefore, also an assesment of metalinguistic development.

### 8.1. Procedure

The task was designed to assess children's comprehension and production of the -mIş form in its quotative function. Three cloth dolls - a girl, a boy and a bigger 'teacher doll' - were used. The boy and the girl dolls were introduced as two friends who met in school every morning and told each other about their adventures of the previous day. The school setting was appropriate for all subjects because they themselves were attending school. The child was asked to name the dolls and to hold one of them. It was explained to him or her that he or she was to make the doll act, while the investigator (E) was going to act for the other. Then it was explained that each doll would take its turn in telling his/her story. It was always E's doll who first told an event and the subject (S) was asked to make his or her doll (referred to as 'reporting doll' from here on) go and report this event to the teacher doll. E's doll told her event-story in -DI past, indicating direct experience. The expected correct performance was the child's transformation of the given utterance into quoted speech by marking it with the -mIş inflection instead of the -DI. This constituted the production part of each item. Then E made the teacher doll ask S's doll how this event had come about. At this point E presented an utterance to S, saying 'Your doll says "_____", and asked him or her to imitate it in response to the teacher doll. The utterance provided by E and imitated by S was in the -mIş form, implying that the event had not been perceived by the reporting doll, but was based on his/her friend's report. To find out whether the child understood this presupposition the reporting doll was asked by the teacher doll how he/she had obtained the information about the event. This probe question, together with the preceding imitation part, constituted the comprehension part of each item. Then the teacher doll asked the reporting doll whether he/she had seen the initial event mentioned in the production item as it was taking place. This question was a check for the production part (see Table 8.1 for the format of a sample item).

The task consisted of five items. Four of the items referred to past events conveyed linguistically and required the child to make the -mIş transformation in the production part of the task (referred to as '-mIş quotative items' in the following discussion). One item referred to a perceived event which took place in context (one doll showing the other how to do a somersault) and did not

Table 8.1. The format of a sample item of the Quotative task

Item 1: -mIş quotative item

Production:

E: /ilk konuşan bebek/: Biliyormusun benim kedim dün evde lambayı kırdı.
/primary speaker doll/: 'You know, yesterday our cat broke (-DI) the lamp at home.'

E: Senin bebeğin öğretmene nasıl söyleyecek bunu, haydi, koşsun da anlatsın.
'Now, how is your doll going to tell this to the teacher, come on, make her tell it to the teacher.'

S: /anlatan bebek/ (beklenen yanıt): Öğretmenim, dün Ayşe'lerin kedisi lambayı kırmış.
/reporting doll/ (expected response): transformation of primary speaker doll's sentence into -mIş past.

Comprehension:

E: /öğretmen bebek/: Aa, nasıl olmuş bu? Nasıl kırmış kedi lambayı?
/teacher doll/: 'Oh, how did this happen? How did the cat break the lamp?'

E: Bak şimdi senin bebeğin diyecek ki 'Masanın üzerine atlamış', haydi söylet ona.
'Look, now your doll is going to say "It jumped (-mIş) on the table", come on make him say it.'

S: /anlatan bebek/ (beklenen yanıt): Masanın üzerine atlamış.
/reporting doll/ (expected response): Imitation of the sentence.

E: /öğretmen bebek/: Ya, sen oradamıydın, gördün mü kediyi kırarken?
/teacher doll/: 'Oh, were you there, did you see the cat breaking it?'

S: /anlatan bebek/ (beklenen yanıt): Hayır, görmedim.
/reporting doll/ (expected response): 'No, I did not see it.'

E: /öğretmen bebek/: Peki, nereden biliyorsun? Öyle olduğunu sen nereden anladın?
/teacher doll/: 'Ok, how do you know this? How did you find out about this?'

S: /anlatan bebek/ (beklenen yanıt): Ayşe söyledi bana.
/reporting doll/ (expected response): 'Ayşe (primary speaker doll) told me.'

require the -mIş transformation (referred to as '-DI direct experience item' in the following discussion). This item, included in the task in order to avoid the formation of a response set with -mIş, was presented third in the series. I had to contend with unequal numbers of -mIş reportative items and -DI direct experience items, since the inclusion of further -DI items would have resulted in lengthening an interview which was already too demanding. A second drawback of the task was that it depended on the children's ability to take the role of the puppets and follow rather complex instructions, which turned out to be somewhat difficult for the younger subjects.

Another aspect of the procedure which might at first appear to be problematic is that the information asked in the probe questions was implicit in the design of the task. That is, the children could answer the probe questions correctly without attending to the linguistic cue given by the -mIş or -DI particles contained in the items. Furthermore, the task situation was introduced with the premise that the dolls were going to 'tell' each other what had happened, which could be regarded as suggesting that the addressee was not a witness to the event being reported. Given that the events described were not taking place in the here-and-now of the task situation, the judgement that the speaker did not see the event could be inferred from context, rather than being based on any inference made from purely linguistic cues. The exception to this was the -DI direct experience item. These features of the task situation, however, represent exactly the characteristics of the contexts where the -mIş particle is used in its quotative function. Therefore, the task can be said to approximate closely to the natural context appropriate for utterances of this linguistic category. On the other hand, the inclusion in the task of the nonlinguistic and pragmatic cues available in context and discourse may, as Karmiloff-Smith (1979a, 1981) has noted, make it impossible to decide which of these factors children of different ages are using. In the present experiment this drawback was counteracted with the probe questions aimed at exposing the variables that play a critical role in performance.

### 8.2. Scoring

First, separate scoring procedures for the production and the comprehension parts of the task were employed on the data. Then it was decided that the two parts should be combined for the final scoring since the information obtained by either probe question could be seen as equally applicable to competence in production as in comprehension. For example, the response 'because she told him' is viable in reference to both of the situations because what was in fact happening in the task situation was telling activity. Therefore, it would be misleading to

credit one type of performance with a (+) score while not doing so for the other, and thus the comprehension and production parts of each item were treated together as a unit. Then, a qualitative analysis which focused on the underlying strategies used in arriving at judgements about the appropriate context for use of the linguistic forms was conducted.

The children were classified into four different developmental levels on the basis of their performance on the task. The criteria used were: (1) whether S could transform the -DI direct experience utterance presented by E's doll into a quotative (-mIş) utterance when reporting it to the teacher doll; (2) whether S could identify the source of information as the speech act of the primary speaker doll ('the speaker doll said it'); and (3) whether S could correctly judge if his or her reporting doll had witnessed the event as it was taking place or not (he saw vs. he did not see). The distribution of subjects into the developmental levels is presented in Table 8.2.

Table 8.2. Distribution of subjects to levels of performance on the quotative task by age

| Developmental levels | Age groups | | | | | Total |
|---|---|---|---|---|---|---|
| | 3.0 - 3.7 | 3.8 - 4.3 | 4.4-4.11 | 5.0 - 5.7 | 5.8 - 6.4 | |
| Ia | 4 | 1 | | | | 9 |
| Ib | 3 | 1 | | | | |
| IIa | 2 | 5 | | | 1 | 13 |
| IIb | 1 | 4 | | | | |
| III | 2 | 1 | 10 | 10 | 5 | 28 |
| IV | | | 2 | 2 | 6 | 10 |
| | | | | | | 60 |

## 8.3. Results

Level I (mean age 3.3)

Children at Level I were those who found the task too complex. For these subjects, the ability to take roles and make the dolls talk was very limited. The probe questions regarding the source of information were either not answered or received irrelevant responses. Two sublevels were identified.

Subjects at Sublevel I-a clearly could not complete the task because they did not understand what was required of them. They either did not participate at all or proceeded to play with the dolls on their own. The requirement that they

should take the role of the reporting doll and perform in line with a predetermined procedure blocked performance for these subjects.

Sublevel I-b children could carry on with the task and take roles for the dolls. However, they were unable to make the required transformations from -DI direct experience into -mIş quotative in the production part of the task. Instead, they imitated these in the presented -DI forms. They imitated the comprehension items presented in -mIş correctly only part of the time. The question about how the reporting doll knew about the event received irrelevant responses. These subjects appeared to approach the task with no obvious overt or covert strategy. Thus, even though there were nonlinguistic and pragmatic cues available in the context as discussed above, the 3.0 year-olds could not make use of these in their responses. This, together with their low level of performance, suggests that they were not sensitive to the quotative use of -mIş in this experimental context.

Level II (mean age 4.0)

A general characterization of Level II children is that they could take roles for the dolls and make them talk. They correctly imitated the comprehension utterances that were presented in -mIş and responded to the question about whether the reporting doll had witnessed the event, in the affirmative. Two sublevels were differentiated.

At Sublevel II-a, the children were inconsistent in that they sometimes performed the -mIş transformation and sometimes did not. In response to the question about how the reporting doll knew about the event, they did not appeal to the speech act of the primary speaker as a source of information. At best, they pointed to the speaker doll and said 'from that one', but still did not use this fact in their justifications. Thus the underlying argument was 'the reporting speaker saw the event happen, therefore he/she can talk'. The covert rule governing the responses of these subjects can be formulated as: 'in order to talk about an event one must have seen it'.

Children at Sublevel II-b differed from their counterparts at Sublevel II-a in that on the production part of the task they correctly transformed the -DI direct experience utterances into -mIş quotative. Also, they explicitly appealed to the utterance of the primary speaker as the source of information (e.g. 'because he said it', 'he told her'). However, like the II-a subjects, these children also claimed that the reporting doll had seen the event take place.

Thus, it appears that for all Level II children, things that one can talk about are things that one must have perceived. This is despite the fact that they correctly locate the source of information in the utterance of the speaker doll which first introduces the event. These two arguments however, remain as

unrelated, independent judgements throughout this level. On the one hand, there is the claim that the reporting doll has directly witnessed the event and on the other the claim that she/he has obtained the information about it through language. To the extent that these claims are contradictory, they could not have been coordinated into a unified judgement. What is interesting is that these children could not recognize the contradiction, presumably because they could not focus on the two claims simultaneously.

These observations lead to the inference that the children are operating with a nonlinguistic and a noncontextual strategy which is based on their beliefs about the necessary conditions regarding the informational status of a potential speaker. To the extent that young children's experience as speakers lies in talking about events that they have directly perceived or acted out, this appears to be the primary available strategy.

Level III (mean age 5.0)

The majority of the subjects were identified as Level III. The defining characteristics of this level are: correct transformation into -mIş quotative, the claim that the reporting doll has not seen the event happen, and the claim that he/she has obtained this information from the utterance of the primary speaker. Thus the responses regarding the source of information are consistent with the responses regarding the perception of the event. The underlying rule then, seems to be 'the reporting speaker knows it because the speaker told her; the reporting speaker did not see it happen'. This rule can be stated differently as: 'in order to be told about an event, one must not have seen it happen'. The difference between Levels II and III is thus the addition of a new perspective, that of a person who has not directly perceived an event and therefore needs to be informed about it.

Level III responses also did not provide any evidence that the children were making their judgement on the basis of linguistic cues since they applied the same strategies indiscriminately to the -DI direct experience item as well as to the -mIş quotative items. However, this finding cannot be interpreted as evidence for lack of differentiation between the two linguistic forms, since there was only one -DI direct experience item in the task. Nevertheless, there is an important difference between Level II and Level III strategies: although it does not reflect differentiated knowledge of the quotative function of the -mIş particle on the linguistic plane, Level III strategy is appropriate to the task situation since it is based on a principle that can be correctly derived from the nonlinguistic context.

Level IV (mean age 5.6)

Very few subjects qualified for this level. The difference in the performance of these children from those of the previous levels was that they gave correct responses to the single -DI past item. Such discriminating responses can be taken as evidence for the awareness of the different presuppositional structures underlying the functions of the linguistic forms.

### 8.4. Discussion

The developmental sequence observed in the underlying rule systems governing the children's performance on this task can similarly be characterized in terms of the processes of progressive differentiation and integration as reflected in their successive judgements.

Briefly, this progression involved the following stages. The basic characteristic of Level I is the lack of awareness of a critical variable and therefore the lack of a consistent strategy. At Level II, the responses consist of two positive arguments maintained separately, one affirming the perception of the event by the reporting speaker, and the other affirming the reception of information from the primary speaker's linguistic act. However, there is no evidence of sensitivity to the contradiction that being told about an event implies not having seen it. Though not logically necessary, this implication rests on the pragmatic presupposition of felicitous conversation or the Gricean maxim of Quantity, that 'one does not inform one's listener of what he already knows'. Even the contextual cue that one of the interlocutors was consistently being told about what had happened did not lead to the inference that he/she must not have been a direct experiencer. Thus, although the speech act of the prime speaker was recognized as a relevant aspect of the situation, it was not yet given its full importance. The arguments of Level III on the other hand, reflected the differentiation that can be presumed to be brought about by the awareness of this contradiction. Such awareness can present an internal conflict if the above mentioned pragmatic presupposition is maintained, and can be resolved by recognizing that one's being told about an event is evidence for one not having seen it happen. The result is a modification in the subjects' judgements, to constitute a single proposition, 'he is told about the event because he did not see it happen'. Such integration, however, appeared to be limited only to the nonlinguistic level for these children. Further differentiations of the sort 'if one indicates that one was told about an event, then one must not have seen it' vs. 'if one does not indicate that one was told about an event, one must have seen it', presumably follow. Unfortunately, our task was not fine enough to elicit such justifications from the subjects. Arguments of this kind would constitute evidence for the fact that a

differentiation and an integration has taken place in the children's linguistic system regarding the use of the -mIş particle in its quotative function. This level of development was attributed to the few subjects at Level IV of the current sample, where there was explicit evidence for the child's awareness of the specific convention of the language for marking different kinds of pragmatic presupposition underlying each utterance, and thus different degrees of commitment to what is being asserted.

The developmental sequence observed in the context of this task is parallel to that observed for the Comprehension task. When the cognitive processes characterizing the stages observed in the two experiments are considered, the correspondence between them is in terms of the four major levels. The sublevels within some of the levels capture behavioral differences which are specific to the nature of each task. The four developmental levels identified for each task can be summarized in terms of the following common features which relate primarily to the development of metalinguistic awareness. Level I represents the lack of recognition of the critical role of the informational perspective of a speaker; Level II represents the recognition and taking into account of this factor, but only with respect to direct experience; Level III reveals the taking into account of information obtained indirectly as evidence for one's knowledge about an event and assertion of it; and Level IV represents the translation of such knowledge about the informational perspectives of potential speakers and hearers into differentiated linguistic expression.

The correlation between performance on each task, as indicated by the level of subjects, and age, is r = .76 for the Quotative task, and r = .61 for the Comprehension task. The correlation of performance on the two tasks, with the effects of age partialled out, is r = .51. This positive relation supports the view that similar underlying semantic distinctions are relevant to the differentiation of the two informational perspectives. The finding that more children reached Level III at an earlier age (around 4.6 - 5.0) on the present task than on the Comprehension task can in part be explained by the fact that the correct responses to the probe questions in the former were easily deducible from the nonlinguistic context. Furthermore, the Quotative task always followed the Comprehension task, which might have contributed to the heightening of metalinguistic awareness during the first (i.e. Quotative) task.

In the light of these findings, evidence for the initial hypothesis that the quotative is the most complex function served by the -mIş particle is inconclusive. The hypothesis cannot be rejected, both due to the above considerations and due to the observation in the longitudinal data that this is the last function to emerge in a very young child's speech. This hypothesis was based on the

presumed complexity of the act of reporting about a nonwitnessed event. This function requires the discovery that there are different kinds of knowledge, direct and indirect. Second, it requires the discovery that there is something functioning as evidence for the acquisition of indirect information. That is, the ability to assign different status to different sources of information - direct, observed result, and other's report - is called for. Finally, the speaker has to mark in each utterance, which type of information he is basing his assertion on, thereby qualifying it in terms of its degree of validity.

# PART III

# CONCLUSIONS AND GENERAL IMPLICATIONS

## 9. Conclusion

**9.0.** One major aim of developmental research is to trace the successive phases of acquisition of knowledge in a given domain with particular attention to whether, and to what extent, the behavioral patterns in question are innate or learned. Study of language from the developmental perspective similarly raises these issues. However, as was pointed out at the outset, research in the field has clearly revealed that a one-sided approach to the question, such as the proposal for an innately structured LAD in the earlier Chomskyan tradition, or the view of purely associative learning in the classical behavioristic school, has to be abandoned in favor of a more interactionistic position which takes into account both innate-structural and environmental-learning factors. The necessity for such an interactionist perspective is particularly apparent if it is recognized that language, the object domain under study, is an intersubjectively constituted product of the human mind. Furthermore, for an adequate account of language structure and its acquisition, the functions which such structures realize in context at different points in development have to be delineated. In other words, an understanding of the discovery procedures utilized by a child can be achieved if they are viewed in the social interactional context of discourse. The theoretical grounds for such an approach are best provided by the Piagetian and the Vygotskyan perspectives. These theories emphasize, respectively, children's constructive activity in the course of acquisition of knowledge, and the primacy of social interaction as a general context for development.

The present study investigated the acquisition of a limited domain of the linguistic system in Turkish, grounding itself in the constructivist, interactionist frameworks mentioned above. It aimed at understanding certain structural characteristics of the language, how these are acquired by children, and what might emerge as language universals as opposed to language specifics on the one hand, and as cognitive universals as opposed to cognitive specifics on the other. The domain under study concerned a subset of the closely related notions of temporality embodied in language typically expressed through tense, aspect and modality distinctions. This part of the linguistic system is particularly interesting

from a developmental perspective since it is one where developing cognitions and linguistic means are intricately related.

Tense, a deictic category, is the grammaticized expression of location in time and involves the indication of the time of a situation with respect to the moment of speech. Aspect, on the other hand, is nondeictic and concerns the internal temporal constituency of a situation as well as indicating its relation to an already established reference point. Finally, modality brings forth the subjectivity of the speaker, indicating his or her opinion or attitude with respect to the proposition expressed. Most languages mark these distinctions in the verb system inflectionally, with auxiliaries, or adverbially, and differ in the extent to which each category is distinctly grammaticized (Comrie, 1976, 1985; Lyons, 1977; Bybee, 1985; Palmer, 1986). Furthermore, languages differ in terms of how finely they articulate the distinctions within each category in their grammatical systems and which subset of nuances they mark. While Slavic languages have well differentiated aspectual systems, for example, languages like English and Hebrew do not; or while languages such as Turkish and most American Indian languages have distinct mood classes for evidentiality, most Indo-European languages do not.

Turkish presents an interesting case in this regard since, with its evidential mood distinction, it grammaticizes the opposition between information based on direct and that based on indirect evidence. Furthermore, the morpheme that indicates indirect evidence also marks the aspectual category of the perfect and by virtue of its modal and aspectual functions, it indicates past tense. A study of the acquisition of this system in Turkish is particularly informative since it differs from the more widely studied Indo-European languages which do not mark evidentiality constrasts. It therefore provides an opportunity to understand how children discover certain semantic distinctions and pragmatic functions that may not be clearly observable in the development of other languages. Acquisition strategies operative in this domain can be revealing about language specific vs. language universal procedures if comparisons with findings from other languages can be made. At a more general level, Turkish presents a natural context for asking whether it is cognitive intentions that lead to the discovery of certain language forms or the presence of the linguistic means that motivates the discovery of the relevant conceptual distinctions and the foundation of communicative intentions.

The present investigation also hopes to contribute to the body of research on the acquisition of specific characteristics of Turkish given the scarcity of such studies as compared, for example, to English or other Indo-European languages. The work available to date on Turkish has focused on the more general patterns of development and has revealed, for example, that the verb and noun inflec-

tional systems are acquired very early and in a relatively error free fashion, due to the regularity of these features of the language. However, a more detailed analysis of the acquisition processes in any of these areas, as in the present study, may reveal that what appears to be well mastered by the age of two and a half, actually proceeds to develop further into more complexly organized syntactic/semantic or pragmatic systems during the following years. That is, at the time of first acquisition a given linguistic structure may enter a child's system to serve only one of its several functions and assume its multifunctional status only later.

In addition to these more general goals, the study had some specific questions to address. At the time the research was carried out there were claims in the literature that children's first use of inflections serves to indicate the aspectual characteristics of the situations referred to rather than marking deictic tense relations (Bronckart and Sinclair, 1973; Antinucci and Miller, 1976). These findings came from acquisition data of Italian and French, Romance languages which have relatively differentiated systems of aspect and tense. Turkish, on the other hand, does not have an aspectually unmarked present (the progressive and the aorist), but poses a mood distinction based on evidentiality contrasts in the past, instead. It allows for the expression of aspect with more complex constructions formed by combining either past form with the progressive or the aorist, as well as the perfect. Such a structural difference provides a test case for the hypothesis that marking aspectual distinctions prior to tense is a cognitively governed universal acquisition strategy, as is implied by the above cited observations. Furthermore, study of this part of the Turkish verb inflectional system allows for an analysis of how mood interacts with tense and aspect in acquisition. Since evidentiality is a subdomain of epistemic modality, Turkish also constitutes a clear situation where the route to acquisition of specific epistemic notions can be traced in the light of a particular form that marks it. However, since all these notions, deictic temporal, aspectual and modal are expressed through the opposition of two simple verbal inflections with numerous functions, their mastery cannot be achieved through one-to-one mappings. That is, if we assume a model where several functions are competing to be taken on by a single form, the first function to appear and the subsequent functions to differentiate out should give significant information about the child's preferred acquisition strategies given the specific structure of the input language.

A second hypothesis that was also included under the scope of the study was the claim for heterogeneous routes to the discovery of past tense, put forth by Antinucci and Miller (1976). This claim proposes that the first route proceeds through a 'past process-present state coordination' realized in the context of

present states resultant from past processes, and the second, through the differentiation of the 'real' from the 'non-actual', operating in the context of purely fantasized activities such as story-telling. The authors base their argument on the developmental lag observed in the acquisition of the two past tense forms of Italian, participial and imperfective pasts, in the two separate contexts, respectively. In view of the theoretical claim that 'past' is a subdomain of the category 'non-actual', the argument that children discover the past tense before they make the distinction between the real and the non-actual, seems untenable. And since the -mIş particle in Turkish which indicates inferential past is similarly specialized for the telling of fictive events like stories or marking the pretense mode, the timing of its acquisition with respect to -DI past, or the sequence of differentiation of its various functions, provides a context for testing Antinucci and Miller's hypothesis.

In summary, the present study aimed to contribute to research in semantic development, in the particular domain of tense-aspect-modality. For this purpose, the acquisition of the two past forms which fall within the boundaries of epistemic modality, not yet developmentally studied, was investigated with the secondary goal of helping describe the specifics of the adult system as well. Within the scope of these goals certain prevalent hypotheses were tested, the progressive structuration of the underlying domain was analyzed and the discovery procedures governing acquisition were focused on in the contexts of productive, comprehensive and metalinguistic performance.

In order to realize these goals two different methodological routes were adopted. The early phases of acquisition of the two past morphemes and the general characteristics of children's inflectional repertoire were investigated in a longitudinal study of three children at different points within the 19-30 months age range. The order of acquisition of the different forms and the emergence of their various functions were traced in natural speech corpora collected at bi-monthly or monthly intervals. Evidence related to the two major hypotheses discussed above was sought in this data base. The second part of the investigation consisted of a cross-sectional experimental study carried out with 60 children between 3.0 and 6.4 years of age. Here, the aim was to have controlled production and comprehension data that would reveal the phases of differentiation of the modal functions of the pasts of direct and indirect experience and the routes through which the different functions of the -mIş particle (perfect aspect, inferential past and quotative) are acquired. The production tasks were designed to incorporate two levels of aspect (situation and viewpoint) as well as the modal contrast of evidentiality, in order to delineate the effects of these variables on the use of the two past forms at different points in development. The metalin-

guistic judgements of appropriateness of use elicited in the contexts of the comprehension and quotative tasks were used to reconstruct the procedures whereby children arrive at the modal distinction between the two inflections.

In the following sections of this discussion I will first summarize the findings of the longitudinal study. Then I will discuss the two hypotheses in the light of the findings and the existing claims in the literature. This will be followed by a consideration of the role of social interaction as a general context for discovery. Next, I will summarize the results from the experimental data which reflect the processes of modal differentiation of the two forms and the construction of the semantic domain governed by the -mIş particle. I will then discuss the relations between cognitive and linguistic functioning as implied by these findings. Finally, I will speculate on the implications of the findings for the linguistic analysis of the Turkish tense-aspect-mood system.

### 9.1. Summary and discussion of longitudinal findings

Of the primary tense-aspect-mood inflections in Turkish, the past of direct evidence (-DI), the progressive (-Iyor), and the optative indicating desire and intention (-sIn) were the first forms to be acquired. While -sIn had purely modal uses, -DI and -Iyor were used in non-modalized utterances. -Iyor, the progressive marker which combines with either past or present but not with future in the adult language, never occurred with -DI or -mIş and was used only in the non-past in the children's system. Therefore, it was concluded that the contrast between -DI and -Iyor expressed the aspectual distinction between COMPLETION and DURATION within nonstative events. The -mIş inflection which marks perfect aspect, inferential past and evidential mood in the adult language, was acquired after a few months' developmental lag and with the initial function of making reference to STATES. These observations from the earlier phase of development captured in the data led to the conclusion that the initial uses of these inflections in nonmodalized utterances are aspectual rather than time-referring, as will be discussed in the following section.

The next function to be acquired by the -DI and -Iyor and subsequently the -mIş inflections was tense marking, for making deictic temporal reference. This development appeared to involve the gradual differentiation of aspectual and temporal notions, anteriority from completion, and co-temporality from ongoingness, with -DI indicating PAST and -Iyor indicating PRESENT tense, respectively. The picture was slightly more complicated in the case of -mIş. The use of this form soon got extended to resultant states, thus marking PERFECT aspect. Thereby, it became a marker of new information gatherable from such states and thus modally colored. Its modal and tense functions of indicating INFERENCE

and, by default, PAST time, branched out of its primary aspectual function.

The interpretation that these inflections at first do not mark tense but aspect is based on several types of evidence. The first, which rests on semantic grounds, is the observation of a discernible distributional regularity of each inflection with a given class of verbs, as interpreted from use in context: -DI with change of state verbs in contexts where an action or event reaches completion, -Iyor with activity verbs in reference to ongoing processes in time, and -mIş with stative verbs in reference to existing states or in narrative frames. The second type of evidence which relates to the temporal scope of children's utterances, is the observation that almost all these early uses are limited to the 'here-and-now' present of the discourse context. Expression of intentions orientated to the immediate future are realized in the optative mood (-sIn), while there is no reference to past events beyond those of the immediate context. The third point concerns syntax and rests on the observation of the absence of certain tense-aspect oppositions. In other words, the lack of contrastive uses of present vs. future, or present progressive vs. past progressive, or present habitual vs. past habitual,[1] constitutes negative evidence which does not allow for the attribution of both temporal and aspectual value to children's early use of these forms that are fused in function in Turkish.

Yet, there were occasional exceptions to the first two generalizations related to the semantic and temporal components of this argument. The exception to the first generalization consists of the infrequent examples of the use of -DI with activity verbs which do not imply the immediate completion of the situation referred to but have duration in time. These examples, however, all occur in contexts of play where children act out in an instant, a process which would normally have duration in time, and thus linguistically present the event as having taken place. In play, the -DI inflection, rather than indicating the 'pastness' of the event referred to with respect to the moment of speech, serves to actualize what is imagined as an objectified part of the present context. The exception to the second generalization that all utterances refer to the here-and-now consists of occasional references to non-immediate past situations with the use of a verb inflected with -DI. All instances of such use are, however, parts of conversational routines carried out by mother-child dyads. I take both of these exceptions to be supportive evidence for the corollary view that the deictic tense function of the inflections is differentiated from the aspectual. In other words, children first start engaging in 'displaced' speech either in the context of play or in the context of discourse with adults whereby they arrive at the more general distinction between the real and the non-actual on the linguistic plane.

In the following sections I will first elaborate on the three types of evidence

related to the semantic, syntactic and temporal components of the aspect before tense view. I will take up the semantic argument in detail but treat the other two components rather briefly, since they will be at issue again later in subsequent sections concerning the role of social interaction in acquisition and the relationship between cognitive and linguistic development. The grounds for the differentiation model will be explained in the course of these discussions.

**9.1.1.** Use of inflections for aspect before tense marking

The view that the verb inflections that mark the location of events on the time line in adult systems, is used instead to indicate aspectual distinctions in children's early language, has been advocated by some authors previous to the present study (Bronckart and Sinclair, 1973; Antinucci and Miller, 1976; Bloom, Lifter and Hafitz, 1980; de Lemos, 1981a,b; Stephany, 1981a, 1986; Berman and Dromi, 1983), while it has been criticized by others (Weist, Wysocka, Witkowska-Stadnik, Buczowska and Konieczna, 1984; Weist, 1986). Here, I will explain the semantically based argument favouring this view, but will first present a theoretical framework that in a sense makes this interpretation necessary.

In an article concerning aspectual choice, Smith (1983) defines 'aspect' as a semantic property of sentences whereby the situation talked about is presented in a certain perspective or focus. She distinguishes between 'situation' and 'viewpoint' aspect and notes that for a given language, types of situations are associated with particular aspects such that different situations are typically talked about from certain perspectives. These typical perspectives are expressed by different verbs. The choice of a lexical item in talking about a given situation reflects aspect to the extent that it presents a situation as an event, a state, or a habitual act. In other words, inherent semantics of verbs represent 'situation aspect'. Speakers of a language also have the option of talking about events from untypical perspectives, as in presenting an event as a state, or a state as an event. Such non-standard choices express 'viewpoint aspect' which is interpreted according to the relevant properties of situation types, i.e. in relation to situation aspect (Smith, 1983, p.492). Depending on the language, aspectual morphemes may signal either situation or viewpoint aspect.

Another distinction that Smith makes is particularly important from the developmental point of view. She proposes that the properties of an actual situation should not be confused with its presentation in a given sentence, since speakers are not assigning temporal or other properties directly to actual situations in the world, but to idealized representations associated with them in their minds. 'Idealized situation types', in Smith's terms, are 'intended to represent classifications of actual situations that people make on the basis of their

perceptual and cognitive make up' (1983, p.494) and do not vary for the speakers of different languages. What vary are the properties of situations focused on by particular languages. That is, situation types are associated with different aspectual forms and meanings in different languages. Speakers of a given language relate an actual situation to an idealized situation type by using the linguistic forms, or, aspect markers associated with that situation-type in their language, and thereby present it as a particular instance of it.

Within such a theoretical framework, the task for a child is to construct idealized situation types, i.e. a classification of actual situations which share certain properties, on the one hand, and to learn which linguistic forms are indicators of which type, on the other. I suggest that in this process a child is going to be best guided by input, in particular by the inflections or other forms indicating aspect, but not the verb itself. It seems logical to assume that for a child, at first, the verb has the status of a name or label that occurs in the context of specific actual situations. The classification of such actual situations as examplars of a more general class with shared properties, however, will depend on the typical tense-aspect marker that it occurs with in the adult language. In other words, the verb inflection will serve as an indicator of the prototypical characteristics that are shared across different situations with different names. For instance, in reference to different actual exemplars of a given situation type, a child will hear different verbs naming those events, but predominantly the same inflection (e.g. -ed for changes of state like break, fall, tear, or -ing for activities with duration, like sleep, walk). If it is assumed that a major cognitive strategy that children employ is regularity seeking (Karmiloff-Smith, 1979a), they will be abstracting the standard inflection as the linguistic marker on the plane of language, while noticing the common temporal-structural characteristics of situations across different exemplars (e.g. completion, duration, repetition), on the cognitive plane. That is, they will be building up mental representations of idealized situation types by abstracting the shared properties which relate to the phase of an event across different situations with different names. During this gradual process of construction of idealized representations of a class of situations (e.g. events or activities), different verbs which serve as labels for specific situations will be associated with different situation types and will thus come to indicate 'situation aspect'.

In a detailed investigation of symbolic activity, communicative intentions, and the acquisition of conventional means for their expression, Bates, Benigni, Bretherton, Camaioni and Volterra (1979) similarly note that situations which are transparent from the adult point of view are quite opaque and arbitrary from a child's perspective, since he or she is in the course of learning them as well.

They propose that the acquisition of sign-referent relationships can be accounted for by the basic psychological processes of 'perception of similarity' and 'perception of contiguity'. Perception of similarity which presupposes analysis into features and the selection of particular ones for comparison, is a critical process 'in the formation of natural categories uniting more than one object' (Bates et al., 1979, p.51), or in the formation of idealized situation types uniting more than one situation. Perception of contiguity which involves the awareness of and memory for the fact that two phenomena are always found together or in sequence, on the other hand, underlies the acquisition of linguistic forms in association with their referent objects or situations, or, in the present case, the acquisition of aspectual forms as markers of idealized situation types.

If the literature on the nature of first words is considered, it is observed that proposals to explain the internal structure of natural categories are either in terms of criterial attributes (Bloom, 1973; Clark, 1973b; Nelson, 1973, 1977), or in terms of prototypical members (Rosch, 1973, 1974). Whichever approach is adopted, it is apparent that the process of categorization of everyday objects or situations requires the recognition of similarities on the basis of which generalizations can be made. Approaching the issue more from a functional-pragmatic perspective where forms gain their meaning through use in different contexts, Bates et al. treat 'naming' as a 'procedure' for anticipating, recognizing, identifying, or remembering a class of objects or events. In this view, both substantive and function words are thus procedures which have the same cognitive status. In their words,

> the stuff of which categories are made is use, or rules of use. What changes from 9-13 months is that the 'center' or prototypic definitions of words change from a single, tightly defined use, to several interrelated rules specifying a variety of situations in which that word best applies. (1979, p.180)

Similarly, as the rules for use of the forms in different contexts change, the definitions of verbs will change from a relatively restricted interpretation towards a more abstract one, which can be summarized in terms of 'idealized situation types'.

An analysis of the acquisition of aspectual forms that is in accordance with both Smith's theory of aspect and Bates et al.'s functional perspective, as well as in line with the present view, is by de Lemos (1981a). Her work, already discussed in Chapter 3, concerns the very early phases of acquisition which have not been covered in the present study. De Lemos focuses on the relationship between the processes whereby a child acquires the semantics and morphosyntactic systems of a language, and the early mastery of social interaction which proceeds in terms of recognizable behavior patterns between adult and child.

The author finds that the marking of segments of action by the adult occurs in games that are characteristic of prelinguistic interaction and that tend to be important contexts for the presentation of events and event structures to infants (see also Bruner, 1975). She proposes that the linguistic marking of preparatory, progressive and completive phases of the adult's actions as well as those of the reciprocal action of the child, can be interpreted as a segmentation device or a display of the event structure. Tracing the development of perfective aspect markers in Brazilian children's speech, de Lemos observes that at the beginning of the second year (1.0 - 1.3) the use of completion markers by adults serves to impose a structure on children's behavior such that it can be assigned goals or terminal points. In the next few months (1.3 - 1.6) these markers appear in the same segments and intonational matrices of children's speech, to mark completion of their own actions. During the second phase of de Lemos's analysis, which roughly corresponds to the earliest period of the present study (between 1.6 and 2.2), the perfective marker is singled out and used as a more generalized completion marker to indicate the same functions as in adult speech, such as completion of action and change of state or location. At the end of this period these routines develop into 'telling' formats, where adults set up the linguistic grounds for children to report shared past experiences. Finally, between 2.2 and 2.5, perfective tense forms gradually replace the general completion marker and gain a wider scope of application extending beyond established formats. De Lemos interprets this phase as one where a transition to 'displaced speech' is realized. The procedures whereby children learn about event structures and the semantic mapping of their different phases onto linguistic forms are thus seen to be realized through the interactive games located in the operational space of discourse, rather than in an independent mastery of grammatical rules.

A similar account for the same phenomenon is provided by Slobin (1985b) in terms of operating principles. He also underlines the importance, in early child grammar, of prototypical situations or 'scenes' which refer to the 'complex of perception, action, and interaction that constitutes the meaning of linguistic forms' (p.1175). Slobin proposes that, with the operating principle related to functors, acoustically salient, uninterpreted speech segments will be mapped onto scenes or onto focused elements in them. These scenes will then be gradually analyzed into more specific notions in accordance with the grammatical structure of the input and additional operating principles will help build up word classes and paradigms.

In line with these views, I am suggesting that it is the special tense-aspect markers that function in the construction of knowledge regarding event structures in the context of discourse with adults. During the course of this interactive

process, with consistent pairing with given inflections, the verb progresses from being a mere label for particular actual situations to acquiring specific semantic content, and becomes associated with representations of subclasses of situations, or 'idealized situation types'. The inflections are then freed for the various functions of indicating tense or viewpoint aspect, depending on the form, while situation aspect comes to be indicated with the choice of a specific verb.

As underlined by Weist (1986), the semantic argument in favor of the claim that aspect marking precedes tense marking has been based on the observed distributional regularity of the inflections on the basis of the inherent semantics of verbs (e.g. in English, -ed with change of state verbs, -ing with activity verbs). This finding is shared by almost all the supporters of this view cited earlier. Occasional exceptions to such co-occurrence restrictions have also been noted and variously explained. Bloom et al. (1980), who have systematically documented this regularity for English, have, however, interpreted it as an instance of 'redundancy'. These authors argue that the verb, given its inherent semantics, already indicates aspect by specifying the situation as a given type in terms of internal temporal characteristics, and therefore, the inflections can not be said to add any further meaning modulating information. That is, the inflections which are used in accordance with aspectual properties of situations are in fact redundant as to function. I disagree with this interpretation, partly for similar reasons as does Weist (1986). First, I agree with Weist that children cannot be assumed to have the same types of semantic categories as do adults. In fact, I have argued above that such a system comes to be built gradually, through a process which proceeds in the opposite direction to that presupposed by Bloom et al. (1980). Rather than the inherent semantics of verbs determining the use of inflections in reference to given types of situations, it is the occurrence of specific inflections in association with actual situations with common temporal properties that guides children in learning the specific semantic characteristics of different verbs. In other words, what children first abstract from the input in association with inflections is the temporal properties characteristic of a class of actual situations, based on which they form idealized representations, or broad semantic categories. The first use of inflections is therefore not redundant because they mark situation aspect, while for Weist, they are not redundant because they mark tense, since the verb already indicates aspect. It is interesting that Weist, though he criticizes Bloom et al. (1980) for attributing adult-like categories to children, does not mind assuming that verbs incorporate aspectual distinctions in their meaning, and therefore represent verb classes, at the very early point in development that his data covers.

In relation to the general argument of redundancy in child language,

Karmiloff-Smith (1979a) notes that children at first expect language to be non-redundant. In her data on the acquisition of determiners in French, she observes that if the referent is clearly identifiable from nonlinguistic context, then a child seeks other functions for determiners. She also refers to the aspect before tense thesis in the context of Bronckart and Sinclair's (1973) experiment and suggests that the children might have assigned temporal value to adverbs like yesterday and tomorrow, and aspectual function to inflections, given their hypotheses favouring non-redundancy. I cannot agree with her speculations on the tense-aspect issue, since the present data as well as others (see Chapter 3) from earlier points in development than Bronckart and Sinclair's, show that inflections are used to make time-reference before or at the same time as temporal adverbs. I agree, however, with Karmiloff-Smith's view that children add redundant markers to indicate dual functions only later in development. In this early period, the occurrence of certain inflections with certain classes of verbs in children's speech is not redundant because verbs, as yet, do not have aspectual connotations for children, being just the names of specific situations. The present data strongly suggest this interpretation and the view that inflections enter a child's system at first with a single function and gradually acquire a multifunctional status. Once situation aspect is discovered and consolidated in standard ways with choice of appropriate lexical items, the inflections gain deictic temporal function. With subsequent development, when children make non-standard choices of linguistic forms in talking about given situation types, the same forms come to express different perspectives, presenting an event as a state or vice versa.

This issue of a shift from unifunctional to multifunctional use of certain linguistic forms during acquisition brings us to the claims that are syntactically grounded. Unlike languages like Polish, Russian or Greek, in its primary tense system Turkish has synthetic expression of aspect and tense as well as mood, with no separate present tense marker devoid of aspectual meaning and no independent completive or perfect aspect marker devoid of temporal or modal functions. In other words, these forms are multifunctional in nature (see Chapter 2). The findings of the spontaneous speech data suggest that children at first pick out one from among the many functions that a given form has. Given the semantic restrictions on the set of verbs each inflection co-occurs with, and the temporal scope of reference which is limited to the here and now, the first function that is singled out appears to be for aspect rather than for tense marking Further use then leads to the differentiation of the semantically related functions: in the present case, anteriority or past from completion, and co-temporality or present from ongoingness. Such a differentiation of meaning and func-

tion can be presumed to take place more readily and at an earlier point in development in the case of languages which have a one-to-one mapping between form and function because the presence of a separate form would facilitate semantic analysis. Evidence in this line is reported by Weist et al. (1984) from Polish, where tense and aspect receive distinct morphological marking. The authors note that in very early spontaneous speech data they find the contrastive uses of perfective and imperfective past forms of the verb, occurring with activity as well as with change of state verbs. They cite other supportive evidence for this view from Gvozdev's data on Russian (1961), Radulovic's on Serbo-Croat (1975), Smoczyńska's on Polish (1981) and Stephany's on Greek (1981) (Weist et al., 1984, p.349). However, they simultaneously note that such examples are reported to be infrequent compared with perfective past forms when used in reference to immediate past situations. The shared property of these languages is the presence of distinct tense and aspect marking, or one-to-one mapping between meaning and form, which presents children with a more transparent system.

The pro and con syntactic evidence for the aspect before tense position strongly indicates that the structure of the input language has a special bearing on the process of language acquisition, especially in terms of what relevant semantic distinctions children are going to make and when. On the other hand, it is also important to note that the general direction of development is from simple to complex, or from global organization to differentiation and hierarchical integration. This general principle of development would seem applicable to domains of language - such as tense-aspect-mood systems - which derive their significance from intralinguistic oppositions as well as from concrete reference. Therefore, even if the input offers children a fully articulated system with each unit of form corresponding to a unit of meaning, it will take some time for them to differentiate the correspondences. In the case of multifunctional forms such as the Turkish tense-aspect-mood inflections or the French determiners (Karmiloff -Smith, 1979a), what appears to be well mastered at an early age might not be so in terms of its full range of functions. This appears to be the case for the few inflections that have been under study here.

The third point to be discussed relates to the temporal component of the argument for the primacy of aspectual over tense marking. This concerns the fact that almost all contexts of the first uses of inflections have a very narrow temporal scope, where children mainly talk about entities or situations of the here-and-now. This should not however imply that an eighteen-month- to two-year-old lacks the cognitive capacity to reconstruct objects or events of past experience from memory. What seems to be lacking and in need of gradual development

is the ability to give such mental representations linguistic realization with the use of formal means.

There is sufficient evidence both from comprehension and production studies that at the one word stage children can envisage absent objects or immediate goals and refer to them by simple nominal forms (e.g. Bloom, 1973; Huttenlocher, 1974; Gopnik, 1982). At a slightly later point in development, they can answer questions about origins of objects, locations of typical activities, or whereabouts of familiar people, i.e. participate in conversations about nonpresent states of affairs. As will be discussed in section 9.1.3.1, the capacity to make more and more displaced reference appears to develop in the context of discourse. In this line Eisenberg (1985, p.194) notes that children can talk about past events without really remembering or understanding them, if either the nonlinguistic or the linguistic context provides the structure of the conversation. De Lemos and Bybee (1981) similarly point out that the difficulty children have in recounting a series of actual past events derives from the fact that these need to be ordered in a temporal sequence. Adult elicitations in these contexts serve just this purpose and take over the task of situating the description of the event for the hearer (Berman, Karmiloff-Smith and Lieven, 1981). Thus, in the translation of the yet unstable conceptual organization of a temporal series to the semantic level which renders intentions accessible for mapping onto linguistic forms, a two-year-old is still in need of help from the situational or linguistic context. Experience in set interaction routines appears to allow for learning how to think and talk about nonpresent events and for the internalization of information in such a way that it can be reported without external support (Eisenberg, 1985). Before further elaboration of the role of discursive interaction with adults, however, I will consider the second hypothesis regarding the semantic distinctions that are claimed to underlie displaced speech.

**9.1.2.** The homogeneity of the route to past tense through the initial distinction between the real and the non-actual

The second function that the -DI, -Iyor and -mIş inflections were observed to assume was to make deictic temporal reference relative to the moment of speech, i.e. 'tense'. It was argued that this function would depend upon the differentiation of the realms of the real and the non-actual, given the assumption that past and future are subdomains of the non-actual and therefore qualitatively different from the present. Furthermore, it was noted that Antinucci and Miller's claim for a non-homogeneous route to the discovery of the past tense functions of different inflections poses a logical paradox, since it posits that children differentiate the domain of the non-actual from the real subsequent to their

discovery of reference to past events through a process of coordination of present resultant states with past processes. However, though the availability in the immediate context of a present state may indeed facilitate the reconstruction of the causal past process for purposes of linguistic representation, this does not change the 'non-actual' status of the past process at the time of speech. This inconsistency can be avoided if the attribution of the meaning 'past' to the use of inflections in contexts which allow for present state-past process coordination can be supported with other evidence for the realization of the real vs. non-actual distinction at the same or some prior time in development.

The observation that constituted the basis for Antinucci and Miller's claim was the emergence of the imperfective past in Italian children's speech in contexts of fictive story-telling, at a developmentally later point than the use of the participial past in the context of present states resultant from past processes. The results of the present study also revealed that one of the first functions the later acquired -mIş past assumes is that of story-telling. Although similar observations about the imperfective past have been reported from other languages (e.g. Greek: Stephany, 1981a; Brazilian Portuguese: de Lemos, 1981b; Spanish: Jacobsen, 1981; French and Spanish: Clark, 1985), I believe that this phenomenon cannot be interpreted as an overt manifestation of the distinction between the real and the non-actual, since there are earlier developments that can be interpreted as such.

Evidence for the earlier realization of the distinction between the real and the non-actual comes from Turkish children's use of the -DI inflection with activity verbs, in reference to nonpresent situations. This type of use is observed in two kinds of contexts, play and discourse with adults. In play contexts, young children are engaged in the symbolic representation of events, describing them with activity as well as change of state verbs inflected in -DI past. The function of these utterances is actually to 'institute the event as real' or to 'actual-ize' it. Secondly, during the same period of development, the children can supply stereotyped answers to routine questions about nonpresent entities or situations. Although the use of the -DI inflection in these contexts is quite scarce initially, its frequency increases before the entry of the -mIş form in story-telling formats. Thirdly, during this period, the most frequent use of -DI is in reference to present states resultant from immediate or recent past processes, which therefore involve the partial reconstruction of a past event from contextually available cues. All these functions partake of the realm of the non-actual and possibly contribute to its differentiation from the real in a linguistically relevant way. Put differently, all these contexts contribute to the progress of the ability to refer to situations removed from the moment of speech and to the acquisition

of tense function by the inflections. In fact, a fourth type of evidence which supports this view is the entry of the future inflection -AcAk into the children's system and its contrastive use with -DI past and -Iyor present progressive, before the acquisition of -mIş. In summary, play, discourse with adults and reference to present states resultant from past processes are all seen to be contexts of differentiation of the realms of the real and the non-actual.

Of particular relevance to the differentiation of tense from aspect, or of anteriority from completion, are those contexts which allow for present state-past process coordinations, as emphasized by Antinucci and Miller (1976). The fact that the -mIş particle, like the -DI, also gains its temporal value of 'past' (inferential) in exactly such contexts where there are present evidential states, lends support to this view. I therefore agree with Antinucci and Miller that present state-past process coordination is a primary route to past time reference, since both -DI and -mIş inflections acquire their tense function in these contexts, albeit with a temporal lag of about two to three months. The present results do not, however, support their proposal concerning a developmentally later independent route to past reference through the real vs. the non-actual distinction, since both logical and empirical evidence indicates that this is either a prior or simultaneous development to the first route via the reconstruction of past processes from present states. In fact, it can be argued that the distinction between the real and the non-actual, rather than involving an independent process, is the end-product achieved consequent to the simultaneous use and interplay of linguistic forms in the contexts of play, discourse about nonpresent events, and present state-past process coordinations.

The later acquisition of inferential or imperfective forms, then, has to be regarded as the reflection of a further distinction within the domain of the non-actual. The new past form, typically associated with the narrative function in the input, first enters children's system in story-telling formats which constitute a familiar mode of discourse. Children gradually discover the semantics of the form through repeated use in these formats, since stories, having no basis in reality, are instances of 'that which belongs to the non-actual' par excellence. I suggest that the new semantic development achieved in these contexts involves the differentiation of that end of the epistemic continuum that represents 'knowledge based on no facts at all ... and in no way provable/verifiable' (Givón, 1982). In other words, the semantic domain thus marked covers situations of a different epistemic status from that of past events that were once experienced as real. Finally, at the pragmatic level, this development corresponds to the significant discovery that epistemic distinction can be overtly marked in language.

Further reorganizations in children's language for systematizing the various

functions of past markers acquired in distinct contexts presumably proceed through semantic routes that capitalize on aspectual or modal similarities, depending on the structure of the semantic domains governed by the surface forms in the input.

**9.1.3.** The role of social interaction in language acquisition

**9.1.3.1.** Discourse as a context for the differentiation of tense-aspect

The research of the last decade has strongly emphasized the importance of adult-child interaction both in the prelinguistic period and during the subsequent years. The dyadic relationship, particularly between mother and child, has been focused on as the context for children's discovery of the phonological, syntactic, semantic and functional aspects of language (Snow, 1972; Carter, 1974; Bruner, 1975; Halliday, 1975; Newport, Gleitman and Gleitman, 1975; Bruner and Sherwood, 1976; Bates, Camaioni and Volterra, 1979; Dore, 1979; Griffiths, 1979). The results of the present study also point to the significance of this interactive process as a major context for the acquisition of the different functions and the specific meaning systems embodied in the linguistic means children are acquiring. Almost all analyses of early acquisition that adopt discourse as the level of analysis underscore the syntactically and semantically contingent nature of adult-child utterances where important intersentential relations hold, and increased complexity proceeds from the construction of intersentential to intrasentential relations (Keenan, 1974b; Bloom, Rocissano and Hood, 1976; Greenfield and Smith, 1976; Scollon, 1976; Aksu, 1978a; Ochs, Schieffelin and Platt, 1979; Sachs, 1979; Bernstein, 1981; de Lemos, 1981a; Eisenberg, 1985).

Work of investigators like Stoel-Gammon and Scliar-Cabral (1977), Berman, Karmiloff-Smith and Lieven (1981), de Lemos (1981a), de Lemos and Bybee (1981), Eisenberg (1981, 1985), Sachs (1983) and Aksu-Koç (1986b), has specifically pointed out the significance of adult-child discourse for the development of displaced speech, i.e. for talk about nonpresent entities and events. In the particular domain of past reference, two important characteristics of such discourse have been emphasized. The first is the presence of well-established formats between adult and child, or what have been called 'conversational routines'. These are instances of talk where each participant knows what to expect from the other, and the child has had repeated experience of discussing the same content with specific forms (Eisenberg, 1985). Second, such conversations are at first always elicited and maintained by adults. Gradually, the children's performance becomes more autonomous and they begin to talk about past events without adult aid. These two features are also highly characteristic of the linguistic interaction that goes on between adult and child in the longitudinal sample of the present

study. Conversation about nonimmediate situations is always initiated by the adult. Mothers generally question the child about events or entities which they know he or she can talk about. Unfamiliar adults tend to ask about origins of present objects or whereabouts of familiar people. During the earliest phase tapped in the present data, the children's answers consist of single words and single turns. Later, they increase both in complexity and the number of turns maintained, getting more elaborate both in semantic content and pragmatic function (Aksu-Koç, 1986b).

Eisenberg (1985), analyzing data from the early period of Spanish acquisition, traces the shift from elicited routines to spontaneous conversations about the past. She observes that the proportion of conversational routines as well as adult initiations decrease steadily with age. Until about age 2.6, children appear to be heavily dependent on the scaffolding provided by adult questions, while by the end of the third year they start to refer to a wider scope of past events independently of discourse and situational context. Similar reliance on adult questions and statements in reference to the past has also been reported by Sachs (1983). In summarizing her observations, Sachs notes that first references to earlier past and future in children's or parents' speech cause difficulties in communication and the instances which are successful occur within the framework of a few, highly restricted topics which involve unique references. By age 3.0, though still infrequent, there is an increase in talk about shared past experiences and nonpresent objects, and in interest in sequencing of events (1983, p.21). In other domains such as the construction of elliptical relations (Bernstein, 1981) or the expression of causal relations (Aksu, 1978a), it has again been observed that children gain competence first at the intersentential level, building on adult utterances, and then express the same relations intrasententially in their own utterances.

Focusing on the ability to elaborate on a topic in the early stages of syntactic development, Berman, Karmiloff-Smith and Lieven (1981) consider how the nature of adult scaffolding changes as the child develops. In data from Hebrew and English, supported by that from Polish, Turkish, Brazilian Portuguese and German, they delineate four developmental phases, the first two of which are particularly relevant to the discussion here. Up to about the age of two years, a child's strategy of maintaining discourse with an interlocutor is through imitation and repetition, and by answering certain kinds of adult questions, strategies also documented by Keenan (1974a,b) and Ochs, Schiefflin and Platt (1979). Elaborating on a topic is possible only in contexts where there is support either from objects in the immediate context or from well-developed routines about absent people, objects or events. Between 2.0 and 2.6 years, although still depen-

dent on formulaic content, the here-and-now, and adult scaffolding, children demonstrate some ability to elaborate on propositional content and refer to somewhat more displaced topics. They can produce discursively appropriate utterances which often do not meet truth conditions, as pair parts to adult statements and routine answers to routine questions. However, they cannot provide information about nonpresent entities or events not known to the interlocutor by reliance on exclusively linguistic means. The authors observe the increased ability to elaborate more independently, and on topics that are increasingly displaced with respect to the here-and-now, only in the second half of the second year. After 3.0 years, children start to talk like a real conversational partner in the intralinguistic sense (Berman, Karmiloff-Smith and Lieven, 1981, p.15).

De Lemos (1981a) worked out this interactional relationship in more detail, showing the incorporation of child actions and later, child utterances into frames set up by adult actions and utterances during interaction. Her work shows how the acquisition of aspectual and temporal markers can be accounted for if a child's participation in discourse is regarded in terms of processes of inter-format and intra-format operations, i.e. in terms of the shift from vertical to horizontal levels of organization. Supporting the claim for continuity between pre-linguistic interactional formats, dialogue and eventually discourse, she argues that such processes of mutual incorporation constitutive of adult-child dialogues are the foundations for linguistic functions like presuppositions, topic and comment, or perspective and focus, to the extent that these functions involve a representation of the interlocutor in the speaker's construction of his utterance.

All of the above documented evidence supports the view that the differentiation of tense and aspect and thus the development of the deictic functions of the verb inflections take place in the course of discourse with adults. The exceptions to the generalization that the scope of temporal reference is limited to the here-and-now at the beginning, are then actually a necessary aspect of this process in the developmental phase covered in the present study. In other words, my recourse to dialogue or routine talk with adults is not for lack of a better explanation of the few counterexamples to evidence for the aspect before tense interpretation of the data, but for accounting for subsequent developments in differentiation. In fact, the data suggest that it is not only past or future reference but all sorts of displaced speech, that is, talk that does not refer to any presently available state of affairs, that develops in the course of discourse with others. The case in point is the discovery of the 'evidential' component of the -mIş particle. As has been observed, the development of this form progresses through various functions such as indicating perfect aspect, new information and finally evidentiality - first as inferential past and later as hearsay. Given that

displaced speech, by definition, is about the not-here and not-now, it is difficult to imagine how else but through experience with language in discourse a child can discover the semantic distinctions and pragmatic functions of new syntactic forms that derive their significance not from referential but from language internal oppositional functions. This brings us to the consideration of another process that is operative in discourse and partially accounts for the acquisition of new syntactic forms, that is, imitation.

**9.1.3.2.** Imitation as a syntactic, semantic and pragmatically progressive process Imitation has been regarded as a major process of language acquisition according to accounts of early learning theory. However, it has long been recognized that it cannot be a sufficient explanatory principle, but needs to be considered as a supplementary functional process. Analyses of the role of imitation have led to a variety of views, most of which converge on its grammatically progressive function, particularly for the acquisition of new lexical or grammatical structures slightly above a child's level of competence at a given point in development (Brown and Bellugi, 1964; Ervin-Tripp, 1973; Slobin and Welsh, 1973; Keller-Cohen, 1974b; Kuczaj and Maratsos, 1975; R. Clark, 1977). This emphasis has been at the expense of recognizing that the primary context where the process of imitation is operative is that of discourse. Investigators like Keenan (1974a,b) and Bloom, Hood and Lightbown (1974) have, on the other hand, approached the problem from a pragmatic perspective, relating the utterance to its context of use. In this regard, Keenan (1974b) proposes that imitation, viewed as 'repetition', is a social act rather than just an attempt to reproduce an adult utterance for the sake of mastering the formal code. Criticizing the earlier literature for having ignored the social context in which imitative utterances take place, she points out that they have many other functions like the maintenance of dialogue, attention to topic and the differentiation of various kinds of speech acts. In fact, Keenan claims that children's acquisition of syntax is incidental to the more direct goal of learning social acts. Bloom, Hood and Lightbown (1974), similarly show the different functions of children's imitative utterances, considering them in relation to the adult utterances on which they are contingent. Imitation, then, advances competence both at the levels of discourse and of grammar and plays a more positive role in language acquisition than was once supposed (Ervin, 1964).

The importance of imitation at the level of grammar resides in its being a process that provides a way for the entry of new syntactic forms into children's speech. Along these lines, Slobin and Welsh (1973) note that imitation may be an external indication of an attempt to accommodate existing linguistic schemata to new material. Clark similarly proposes that imitation helps a child

> to notice these (adult) forms more readily when adults use them, and enables him to assimilate their function gradually through use. (1977, p.351)

Bates, Benigni, Bretherton, Camaioni and Volterra, emphasizing its covert as well as overt nature, also propose that imitation

> permits the incorporation of relations that are unanalysed or poorly understood as well as the re-presentation of these relations for analyses long after they have been acquired. (1979, p.342)

In their view, children differ in terms of the timing of their imitative activity; in whether they engage in overt imitation before or after vehicle-referent analyses. Children who appear as non-imitators are, then, those who imitate after vehicle-referent analyses.

Studies (Slobin and Welsh, 1973; Kuczaj and Maratsos, 1975) of elicited as well as spontaneous imitation have led to the view that imitation works through comprehension, or that children actively search for linguistic means to express already formed communicative intentions. However, as R. Clark (1977) also notes, semantic intentions are not always acquired before the conventional means for their expression. That is, imitation does not always presuppose comprehension, and the full semantics of a lexical or grammatical form can be discovered after its use in imitative utterances in discourse. Clark's analysis reveals that such utterances in part consist of extracted fragments from adult speech and in part of children's spontaneous constructions. Such material then becomes subject to internal analysis, from which comprehensive and productive competence follows. Imitation, then, involves both a mechanical copying and a reconstruction according to children's own interpretations and rules.

Observations from the longitudinal part of the present study show that the -mIş particle enters children's speech through imitation and its different functions of indicating perfect aspect, inferential past and evidential modality gradually separate out in the context of discourse with adults. The concrete-referential uses of the form by adults in contexts of existing states, are always modally colored and serve the pragmatic function of indicating 'new information'. The children's first productions are mainly modelled after such use but are quite restricted in terms of contexts of applicability. The discovery of the pragmatic function of signalling 'information new for cognizance' appears to proceed through the imitation not only of surface form but also of the discourse-appropriate role of the adults. The initially random nature of the imitations of the -mIş inflection, without regard for the nonwitnessed process variable, further supports the view that there are mechanical elements in imitation and that children do imitate material the semantics of which they do not comprehend fully (Fraser, Bellugi and Brown, 1963; Cazden, 1968; Ervin-Tripp, 1973; R. Clark, 1977). Particularly

for the acquisition of grammatical structures like tense-aspect-mood indicators, which do not have any referents in the situational context, overt or covert imitation in the context of discourse appears to be functional in bringing about semantic and/or syntactic analysis and in the acquisition of new communicative intentions.

### 9.2. Summary and discussion of cross-sectional findings

The experimental studies conducted with older children (3.0 to 6.4 years) focused on the production and comprehension of the pasts of direct and indirect experience and the hearsay function of the latter. This data base yielded findings that lend support to those of the longitudinal study in various ways, as well as revealing the dynamics of development in the semantic domain studied.

The production experiments which focused on the epistemically modal distinction of evidentiality, incorporated aspectual but no temporal contrasts. Younger children's (3.0 - 4.0) use of the two past inflections in describing situations with different internal temporal characteristics is governed by aspectual rather than modal distinctions. Furthermore, SITUATION ASPECT has primacy over VIEWPOINT ASPECT: in cases where situation aspect calls for one type of marking and viewpoint aspect for another, younger children's responses favor situation aspect while those of older ones favor viewpoint aspect. In their descriptions of different types of situations, younger children use grammatical forms typically associated with the idealized situation types that those situations are exemplars of, in the language. The older children on the other hand, take into account different viewpoints and can describe the same situations in linguistically non-standard ways. In other words, the tendency to describe situations in terms of various viewpoints such as DYNAMIC-DURATIVE vs. COMPLETED-RESULTATIVE vs. STATIVE increases with age. EVIDENTIALITY, or the differential marking of direct vs. indirect experience, becomes a determining feature again only in the descriptions of older children. Thus, the abilities to modify one's speech in accordance with a specific narrator's stance vis à vis a situation (viewpoint aspect) or with a specific informational status (evidential modality) appear to be developmental phenomena which approach adult language standards only gradually. Such development appears to be, partly, a function of the acquisition of new grammatical structures and the discovery of new functions for old forms. For instance, participial constructions qualifying an entity in terms of the temporal characteristics of the action it is participating in, are acquired later than verb inflectional morphology, as evidenced by the production data. Or, the inferential past function of the -mIş form is discovered after its aspectual function as the perfect, as evidenced by the longitudinal data. The availability of various linguis-

tic structures such as verb inflections, participial adjectives or adverbs, then, increases children's options and allows for the coordination of different viewpoints or informational perspectives, where required.

In summary, the results of the production studies reinforce those of the longitudinal study by revealing the importance of attention to event characteristics or situation aspect, as a primary strategy determining young children's choice of inflections. Although in the adult language the marking of evidentiality contrasts is obligatory, in a child's developing system aspectual variables still play a critical and competing role. Children's early lack of sensitivity to the distinction between direct and indirect experience suggests that they are more attentive to concrete, referential and objective characteristics of situations than to subjectively relevant distinctions such as the speaker's attitude to the proposition asserted. Hence, the expression of linguistic distinctions concerning situation aspect precedes the expression of distinctions relevant to evidential mood or viewpoint aspect. Given the definition of situation aspect as a referential category that concerns temporal characteristics of idealized situation types, the claim that children mark aspect before tense or epistemic modality amounts to arguing that they make 'concrete' before 'relational' reference and talk about 'objective' aspects of reality before 'subjective' distinctions relevant to discourse.

The comprehension study which aimed at assessing children's understanding of the evidentiality contrast signalled by the pasts of direct vs. indirect experience was particularly revealing in terms of the progressive structuration of the semantics of the -mIş particle and the discovery of its several functions. Metalinguistic awareness of the rules governing the use of the two forms, together with comprehension performance, suggest the following course of development. At first, children have no awareness that the contrast between the two past inflections is to qualify an assertion in terms of its validational grounds, i.e. as based on either direct evidence or inference. Their dominant interpretive strategy in identifying the speaker of a given speech act is in terms of -DI past - the first of the two inflections to be acquired - which seems to be motivated by the assumption that an assertion can only be made by a direct experiencer. Next, children recognize that present states resultant from past processes have informational value for indirect experiencers. This development is reflected at the linguistic level with expressions in periphrastic forms with adverbs or particles, or interrogative constructions, all indicating the 'new information' value for its speaker of the proposition being asserted. In other words, different speaker perspectives with respect to source of information are first differentiated at the conceptual level. Finally, these perspectives are systematized in association with obligatory linguistic marking of evidential modality, where -DI past indicates the

informational perspective of a direct experiencer, and -mIş past, that of an indirect experiencer.

Parallel to the sequence of development observed in the longitudinal study for the -mIş particle, the functional route to inferential past originates in commenting on present states, advances to noticing the 'new information' value of such states and results in inferring past processes from them. In other words, the function of indicating 'information new to consciousness' forms the semantic bridge between the particle's aspectual function as the resultative perfect and its modal function of indicating indirect experience.

The purely modal quotative use is the last basic function of the -mIş particle acquired by Turkish children. The additional semantic-pragmatic requirement underlying such use is recognizing the 'spoken word' as adequate evidence, and thereby accepting that one can make an assertion about a given situation without committing oneself to its truth, by explicitly indicating that information about it is based on hearsay. The analysis of strategies used by the children revealed that awareness of the implications of quotative -mIş utterances increases with age. Younger children reject the possibility that one can talk about an event one has not directly experienced. Then, they recognize the informational value of another person's speech act but cannot accept this as a valid basis for an assertion. Finally, they recognize that the two inflections signal different degrees of commitment to the truth of what is said. They realize that if the speaker indicates in his utterance that he is reporting someone else's assertion, then he must not have directly experienced it, and conversely, if he does not indicate this, then he is committing himself to the factuality of what he is asserting. It is not surprising that this sequence of development is very similar to the one observed in the comprehension study, since the pragmatic presuppositions underlying the inferential and the hearsay functions are very similar and the same conceptual requirements underlie the differentiation of the informational perspectives of speakers.

Following this summary of the progressive structuration of the semantic field governed by pasts of direct vs. indirect experience, I will discuss the relative contributions of cognition and of language itself to this process.

**9.2.1.** Interrelations between cognitive development and language development

There is no doubt that language learning activity rests on the ability to form and utilize symbols. According to Piaget, the most significant development that demarcates 'intelligence that is acted out' from 'intelligence that is thought' is the emergence of the capacity for mental representation at around eighteen months of age. The symbolic function which constitutes one aspect of this

general capacity concerns 'the ability to represent something by a sign or symbol or another object' (Piaget, 1973, p.45). This capacity manifests itself in various types of activity such as deferred imitation symbolic play, language, or mental imagery, where 'there is a signifier which represents that which is signified' (1973, p.45). In other words, all of these activities involve a vehicle-referent relationship of various degrees of distancing. The roots of mental representation in general, and the symbolic function in particular, are traced by Piaget to 'imitation', a capacity which emerges very early and follows its own developmental course (Piaget, 1951, 1952). Imitation, then, allows the transition from sensorimotor to representative thought, as well as the advent of the symbolic function, i.e. the differentiation of signifiers (vehicles) and signifieds (referents).

Both symbolic play and language involve substituting signifiers (gestures and words) for the signified objects or actions (Piaget, 1951; Bates, Benigni, Bretherton, Camaioni and Volterra, 1979; Sachs, 1980; Galda, 1984). Symbolic play is characterized by pretence activity which involves imitating aspects of experience through actions and verbalizations. According to Bates et al. (1979), play can be regarded as a product of imitation where the symbol is the action rather than the object to which it is applied. Therefore, realistic play where there is no deformation of action schemes - as in early stages of development - can also be considered symbolic. Language, on the other hand, is a sign system with conventionally determined sign-referent relationships. Children use language in play to 'transform roles, objects and situations from their real to a pretense function' (Galda, 1984, p.106). Language and play are further related because they both are affected by and effect an important developmental change. This cognitive process is 'decontextualization', which refers to increasing independence from the limitations of presentational stimuli and increasing control of behavior by means of internal processes. It is achieved through the use of symbols in a variety of contexts linked by the presence of a particular referent (Bates et al., 1979; Sachs, Goldman and Chaille, 1984). In the case of play decontextualization involves progressively less dependence on the properties of objects and the application of the play scheme in an increasingly abstract fashion, while in the case of language it is reflected in the increase of displaced speech, that is, talk about objects and events not in the here-and-now. As explicitly stated by Galda:

> It is, therefore, both logical and widely held that there is a basic relation between the abilities to use language and play. (1984, p.107)

In their investigation of the very early phases of various aspects of symbolic activity, Bates et al. (1979) found strong correspondences between symbolic

development in play and in language. They report that the major precursor of both referential and nonreferential language production was symbolic play. A number of other studies investigating the relationship between play and accompanying uses of language from later points in development (2.0 to 6.0 years) have produced findings that reinforce the view that close relationships exist between the two domains (Sachs, 1980; McCune-Nicolich, 1981; Galda, 1984; Sachs, Goldman and Chaille, 1984).

The emphasis on play and its close relationship with language stems particularly from its contribution to decontextualization, since play provides one of the contexts in which speech in relation to the 'not real at the moment' takes place. As discussed earlier, I located the origin of 'past reference' partly in such contexts dominated by pretense activity. With the same line of reasoning, the origins of the notions of possibility central to epistemic modality, are seen in children's ability to pretend (Piaget, 1951), because such activity involves the creation of an 'as if' world by the child. However, utterances accompanying early symbolic activity closely related to immediate intentions, rather than being expressions of objective possibility, are probably deontic in meaning in terms of modality. Supportive evidence for this view comes from both studies on play and on language development. Research on early play activity (Sachs, 1980; Sachs, Goldman and Chaille, 1984) shows that two-year-olds primarily engage in talk about actions performed on objects, with little pretense. Stephany (1986), on the other hand, reports that children's modalized utterances first express only deontic modality. The findings of the present study similarly reveal that during the early phase of development, children use the -DI, -Iyor or -sIn inflections in describing successive actions on objects in play. Epistemically modal expressions of pretense, marked as such with -mIş, on the other hand, emerge towards the end of the third year when children start using language for setting the stage, ascribing roles and explicitly specifying what is non-actual but should be presupposed as 'factual' for play purposes (Aksu-Koç, 1986b). A type of linguistic activity which can be said to be transitional between these two qualitatively different kinds of language use in the pretense mode (the former marked with -DI and the latter with -mIş), is the telling of stories, which consist of events with no reality basis.

One parallel between story-telling and symbolic play in terms of language use lies in the fact that children use the conventional markers that distinguish these modes from reality (indicating 'this is a story' or 'this is play') quite early (Applebee, 1978, in Galda, 1984; Stromquist, 1981). In fact, it is exactly this function that the evidential (-mIş) serves when it is first used in story contexts. It can be claimed, then, that symbolic play and story-telling, as contexts where the differentiation of the real from the non-actual takes place, also provide the

conditions for children to zero in on the fact that one can explicitly indicate in language the status of situations in terms of the degree to which they are seen to be factual. In other words, the epistemically modal function of language for indicating one's degree of commitment to what one says is discovered in these contexts. Further differentiations within epistemic modality, related to commitment to the possibility, necessity or factuality of what is asserted then follow, with the acquisition of new forms or the extension of the meaning of old ones.

In the case of Turkish, this discovery is reflected with the acquisition of the -mIş particle first in story formats and in reference to present states. Through its use in these contexts, children realize the special modal function of the form for indicating 'status of information for the speaker'. This is first manifested in the context of resultant states, as 'information new to consciousness'. The form then gradually gains its deictic function of indicating inferential past tense and later the purely modal function of presenting hearsay information. Although the development of other epistemically modalized utterances was not traced in the present study, it was observed that the future -AcAk, predicting events that are almost certain to happen, and the aorist -Ar, which in its modalized uses indicates a lesser degree of commitment to the possibility of the predicted event, are acquired earlier than the modal uses of -mIş. The difference between the epistemic notions expressed by -mIş on the one hand, and by -AcAk and -Ar on the other, is that though evidentiality and possibility both involve statements of a speaker's commitment to the truth of what he is saying, only the former requires a validational basis, since in the case of yet unrealized events, there cannot be any concrete justificational grounds. The data, then, suggest that within the third year of life, children are starting to mark epistemically modal distinctions between the factual and the possible. The developmental relationships between these different types of epistemic modality, which have remained outside the scope of this study, have to be investigated in detail in future research. Nevertheless, these findings support the view stated above, that the differentiation of the non-actual from the real lays the grounds for the distinction of epistemic modality as a separate domain.

This interplay between language and cognitive development manifests itself also at the level of metalinguistic activity. Children's metalinguistic judgements related to the inferential and hearsay functions of the indirect experience form suggest that linguistic and cognitive achievements reciprocally feed into one another at different points in development. While three-year-olds are unable to engage in reflective activity at all, four- to five-year-olds can participate in discourse on language itself. However, they achieve consciousness of the critical variables differentiating direct from indirect experiencers at the conceptual level

only, on the basis of nonlinguistic, contextual, variables. Finally at around five to six years, they can take into account the grammatical forms that indicate different informational perspectives and reach awareness at the linguistic level. This progress can be tied to a more general change in children's mode of thought during these years, namely the shift from centration on a single dimension or perspective to decentration.

A question that arises at this point is whether younger children's centration is due to cognitively or discourse-pragmatically motivated factors. Although I do not have the kind of evidence to arrive at a clear-cut decision, the findings point to the importance of both factors. At the conceptual level, evaluating a speech event from the perspective of a direct experiencer involves the construction of anteriority relations between event time and speech time, while doing so from the perspective of an indirect experiencer requires the coordination of three temporal points: event time, time of information acquisition and speech time. Furthermore, the act of inference made by an indirect experiencer involves the establishment of a relationship between 'effects' which signify 'causes' and the recognition that if the truth of the former is held, then the truth of the latter follows. The temporal-causal relations that underlie the inferential uses of the -mIş form, then, render it cognitively more complex.

The pragmatic developments relevant to discourse concern assumptions about the nature of information that constitutes a legitimate basis for talking about an event. Research on the pre-linguistic and initial periods of acquisition provides ample evidence that very early in development children have a clear notion of what kinds of semantic functions can be expressed with what kinds of sentence types, suggesting that the acquisition of speech acts precedes the acquisition of speech (Bruner, 1975; Halliday, 1975; Griffiths, 1979). Along these lines, Levinson (1983, p.282) proposes that 'the acquisition of illocutionary concepts is a precondition for the acquisition of language itself'. It is, therefore, not surprising to find three-year-olds insisting that a declarative sentence can only be uttered by a direct experiencer who can (by definition) commit himself to the truth or factuality of his assertion without any reservations. The pragmatic underpinnings of this insistence can be explained by appealing to the Gricean maxim of Quality, which requires the speaker (i) not to say what he believes to be false, and (ii) not to say that for which he lacks adequate evidence (Levinson, 1983, p.101). It appears that children at first operate with the standard and more general implicature of this principle, which is that one believes what one asserts to be true. When they understand that physical or linguistic evidence, in addition to first hand experience, also qualify as adequate justificational bases, they limit the scope of the application of this implicature to assertions only, in line with

the additional convention that 'if one asserts p, one should believe and know p' (Levinson, 1983, p.105). They thus accept interrogatives or adverbially modified analytic constructions that do not have the same truth requirements, as possible speech acts for indirect experiencers. Finally they discover that language offers special grammatical means for making assertions in declarative sentences while simultaneously qualifying the degree of the speaker's commitment to their factuality by indicating the nature of the evidence.[2] These modifications appear to be guided by language itself to the extent that repeated use of given linguistic forms in different contexts leads to further differentiation of both the semantic and pragmatic conditions of use.

Throughout the above discussion, I have been suggesting that language itself plays a significant role in the structuration of its functional, formal and semantic aspects. In learning the set of systemically related formal means marking distinctions of past vs. nonpast time, direct vs. indirect evidence, and completive vs. durative situations, children's progress is guided sometimes by the language forms they put to use, and sometimes by the communicative intentions grounded on the conceptual distinctions they are already capable of making.

The long-prevailing view that children first have the communicative intention before they acquire the form used for its expression in language, has to be modified on several grounds, as the discussions up to this point have illustrated. Underlying this view are two basic assumptions: (i) cognitive development proceeds through the same stages at more or less the same rate, and (ii) communicative intentions arise from this conceptual basis regardless of the syntactic/semantic structure of the language being acquired. If these assumptions are valid, then all children should display the same semantic intentions at corresponding times and strive to find formal means for their expression. The fact that there are a number of examples in this direction (e.g. temporal terms: Clark, 1970, 1971; contingency relations: Clancy, Jacobsen and Silva, 1976; locative terms: Johnston and Slobin, 1979) has lent support to this position as well as leading to the view that children approach the task of mapping intentions onto grammatical forms with a set of semantic preferences. This position has been modified and more explicitly spelled out by Slobin (1985b) as relevant to the early phases of acquisition in an updating of the operating principles approach.

The present research has also taken as its starting point the first assumption stated above, and proceeded with the Piagetian view that the post-sensorimotor child is already capable of inferring past causal processes from present effects on the concrete plane of action. However, for this capacity to translate itself into communicative intentions that can be mapped onto linguistic forms, it appears that the guiding force of the input language is necessary. It may seem

that I am restating the obvious since there is no doubt that not only do languages not grammaticize all the humanly possible conceptual distinctions, but different languages do not always grammaticize the same subsets. However, most acquisition research has concentrated on semantic domains that are almost universally grammaticized and are presumably basic to human cognition and communication. This had led to the almost unquestioned assumption that communicative intentions become readily available once their conceptual substrata are constructed in accordance with the general progress of cognitive development. Consequently, the determining role of the structure of the input in shaping communicative intentions, or noticing the grammatically relevant semantic distinctions, has been ignored. The significance of the present study is that, by focusing on a set of semantic distinctions that are not obligatorily marked in most languages and therefore not assumed to be part of the universal intention repertoire of children, it highlights the function of language itself in the structuring of the semantic system being acquired. Its results concerning the 'aspect before tense' hypothesis show that the first function verb inflections serve is to indicate situation aspect, lending support to the view that children operate with some universal semantic preferences at the beginning. Marking of viewpoint aspect, however, is governed by language specific structures, getting more elaborated with the acquisition of new formal means. In particular, the findings on the development of epistemically modalized utterances covered by evidentials indicate that the notions constituting this semantic space in Turkish are discovered after the entry of the indirect experience marker (-mIş) into children's speech and its use in various contexts. Such evidence makes the second assumption mentioned above not equally valid for different sorts of semantic intentions.

A final consideration in this line is whether the presence of a grammaticized distinction in the language will lead to the development of the relevant conceptual distinctions at an earlier age and with greater strength. Data from research of the 1980s point in this direction emphasizing language specific as well as language universal aspects of development. Weist et al.'s (1984) findings in Polish or Stephany's (1981a; 1986) in Greek have already been discussed in this relation. Similarly, results from a preliminary cross-linguistic analysis of narrative data from English, German, Spanish, Hebrew and Turkish children aged three and over show that

> children come to take particular perspectives in describing events on the basis of the distinctions typically embodied in the grammar of their native language. (Berman and Slobin, 1986, p.1, see also Slobin, 1987b)

Also basing herself on a cross-linguistic comparison, Bowerman reports that while in English, when and if indicating different degrees of subjective certainty

regarding antecedent events are acquired with ease, Dutch children acquiring English as a second language have difficulty in figuring out the notions underlying these forms, since they are conflated in the meaning of a single word in their native tongue (1985, p.1290). Although the right kind of comparative data is not available, studies on the comprehension of epistemic verbs in English (such as think, know, pretend, forget) have shown that children understand their propositional implications at around four years of age (Macnamara, Baker and Olson, 1976; Johnson and Maratsos, 1977). Given the drawbacks of making age based comparisons with experimental data, and the difference between the implications of these verbs in English and the evidential mood in Turkish, it is difficult to reach a conclusion. Therefore, to see if language really acts as a pacesetter of cognition, or, more specifically, to see when and how children make the conceptual distinctions in the domain of epistemic modality, it is necessary to make comparative studies between languages with and without evidentiality contrasts. In summary, it can be said that there are domains of meaning where it is not always conceptual growth that determines what can be intended for linguistic expression, but language structure itself plays a crystallizing role through already constituted routes within semantic space.

In conclusion, the present in-depth analysis of one part of the tense-aspect-mood system of Turkish, with particular emphasis on a single form which assumes all three of these functions has, I hope, illustrated the complex relationships that exist between cognitive and linguistic competence. Although Piagetian theory provides explanations for a tremendous amount of the cognitive ground work that has to be accomplished both before and during the process of language acquisition, it remains incomplete to the extent that it has not stressed the role of social interaction and language itself. Such a complementary approach is provided by Vygotsky (1962, 1978), for whom the development of language as well as of other higher mental processes proceeds from the inter-psychological to the intra-psychological plane through the process of internalization. A view of language acquisition as an integral part of general cognitive and social development, whereby children discover the meaning systems constituting their social world vis à vis which they define their subjectivity, necessitates the recognition of the role of social and linguistic interaction in development. Through participating in varied types of discourse, children are able to learn the different functions, meanings, and forms in their language which will allow them simultaneously to represent cognitive content, express subjective intentions, and contract interpersonal relations by using conventional linguistic forms, in one utterance, in the sense explicated by Habermas (1979).

**9.3. Implications for the analysis of the tense-aspect-mood system of Turkish**

On the basis of this developmental analysis of a specific set of verbal suffixes that have to do with tense, aspect and modality, it is not possible to make definitive statements but only some suggestions concerning the direction which future investigations of this part of the Turkish language might follow.

First, I would like to note that although the hypothesized sequence for the order of emergence of the meaning structures governed by the -mIş particle was advanced independently of any historical linguistic evidence, it did find support from such data. Grunina (1976), in a historical analysis of the semantics of -mIş in the Turkic languages, reports that the -DI particle is a general past form in all varieties of Turkic, whereas the equivalents of -mIş have different surface realizations, a fact which suggests the later development of the -mIş form in Turkic. The initial function of the form, she notes, was that of the past participle, indicating the category 'perfect', or the actualization of a state prior to the present. This led to its incorporation into the temporal reference system, and the form thus acquired the function of past tense. This development, Grunina claims, brought about the restructuring of the past reference system resulting in its differentiation in terms of modality, -DI marking past of direct evidence and -mIş past of indirect evidence. The relations between the historical and ontogenetic sequences are striking and raise potentially important psycholinguistic questions (Slobin, 1977), as well as being suggestive for synchronic treatments of the system.

Both my analysis and the observed acquisitional patterns suggest that aspect and modality are more basic categories in Turkish than tense, and inflections typically treated as indicators of tense have to be reanalyzed in terms of these functions. Except for Yavaş's study (1980) on the semantics of the primary tense, aspect and mood inflections, the traditional classifications ascribe primacy to tense over mood and aspect, which does not really appear to be warranted. Instead, modal and aspectual distinctions seem to be more pervasive over the inflectional system, and the developmental data suggests that these categories should receive at least equal weight to tense. In fact, the system in Turkish presents a good illustration of the view that it is very difficult to separate tense, aspect and mood in most languages (Lyons, 1977), which however does not preclude the possibility that one category may have primacy over the others in a given language.

First, if modality is considered, it can be seen that Turkish is quite rich in terms of the distinctions it observes on this scale. Since the acquisition of deontically modalized utterances has remained outside of the scope of the present study, I will confine myself to the domain of epistemic modality. In his analysis

of mood and modality, Palmer (1986) proposes that the term 'epistemic' should apply to any modal system that indicates the degree of commitment by the speaker to what he says, and observes that a distinction within epistemic modality, between 'judgements' and 'evidentials', holds for many languages. He further notes the difficulty of making a clear distinction between the two systems because 'speakers' judgements are naturally often related to the evidence they have' (1986, p.70), and that some systems are primarily evidential while others are primarily judgemental. 'Judgement' systems involve the expression of deductions and speculations and therefore the speaker's degree of commitment, as do evidential systems. Thus, what is involved in both is the indication by the speaker of 'his (lack of) commitment to the truth of the proposition being expressed' (Palmer, 1986, p.51). It should be clear by now, particularly in the light of the semantics of the -mIş particle, that Turkish is a language with an evidential system. Although this study has not focused on judgements, the epistemic system of Turkish qualifies as one which incorporates judgements as well as evidentials since it has another modal operator -dIr to express deductions or speculations, at various points along the modality scale between certain and noncertain. Depending on which tense-aspect-mood markers it combines with in a given utterance, -dIr makes a statement either 'factive' or 'non-factive' (Tura Sansa, 1986). In sentences where it follows -mIş, which itself might be assigned a value in terms of 'factivity', -dIr makes the statement either more or less 'factive'. This behavior of -dIr with -mIş shows, I suggest, that both forms cover a range within epistemic space in terms of factuality, the former in the domain of judgements, and the latter in the domain of evidentials. Tura Sansa concludes her analysis of -dIr as a 'nonfactive' modality marker by noting that it should be studied within the framework of speech act semantics, as an abstract performative verb which is the predicate of a higher sentence, taking into account discourse factors as well. My analysis of -mIş also pointed out its role as an abstract performative verb in its purely modal functions. These observations suggest that investigations of modality in Turkish, carried out at the level of speech act semantics and at the sentential level, can yield interesting systematic differences in terms of subjective vs. objective epistemic modality, the former having to do with the speaker's degree of commitment to what he is saying in terms of the kind of evidence he is relying on, and the latter with possibility or necessity. These considerations indicate that Turkish has a highly differentiated and grammaticized system of epistemic modality, according primacy to the validational component of its markers which express the degree of commitment of the speaker to the assertion he is making.

Given the above characterization, the question arises as to whether Turkish

has any 'unmodalized declaratives' in the past. In this regard Palmer quotes from Lyons that

> there are some languages in which a speaker cannot utter a subjectively unmodalized declarative sentence, (1982, p.110, in Palmer, 1986, p.27)

in the sense that the forms typically used for declaratives belong semantically as well as formally to a modal system. In the case of the Turkish past reference system, it can be said that declarative statements in -DI past, since they enter into an opposition with declarative statements in -mIş past, are also modalized. By choosing -DI from the -DI vs. -mIş contrastive pair, the speaker is indicating that what he is asserting is based on first-hand knowledge, which suggests that declaratives in the past are always modalized, denoting either direct or indirect experience. If this is a valid conclusion, and if it is remembered that beyond the primary axis of orientation any tense-aspect category - except for -DI past - can combine with the quotative -mIş, then it can be claimed that temporal and aspectual distinctions are subsumed under modal distinctions in Turkish. This view that the Turkish temporal reference system is pervasively colored with rather complex modal distinctions is reinforced by the developmental patterns observed and in particular, by the relatively late and lengthy reorganizations children make in this domain.

The implications of the present study for treatments of aspect and tense in Turkish are also interesting. The first issue that arises concerns whether the -mIş particle should be regarded as a tense marker or not, given its weighted modal function. It was noted above that as a purely modal operator, -mIş behaves like an abstract performative verb, and, as also noted by Palmer, time reference in such subjectively modalized utterances is to the moment of speaking or the present. However, we have seen that all uses of this particle are not purely modal. When it indicates inference, although a resultant state from a past event is available at the time of inference, the event inferred has taken place prior to the time of inference. Secondly, if the view is accepted that -DI as well as -mIş is incorporated under the system of evidentiality, then the past tense function of -mIş also has to be accepted on the grounds that the forms acquire their functions through their intralinguistic oppositions. Thirdly, both acquisition data and historical evidence suggest that the 'inferential past' function of the form is the connecting link between its functions of denoting 'perfect aspect' and 'evidential mood'. The fact that there are counter-proposals which do not attribute any tense value to -mIş (Yavaş, 1980), makes this question one which needs further linguistic analysis.

As for the treatments of aspect, it can be said that although the aspectual

functions of the progressive -Iyor and the aorist -Ar are generally recognized, that of the -mIş particle is not. The present study has however revealed that its basic function, acquired first by children, is aspectual: it marks the category 'perfect' both as the past participle and in utterances orientated around the moment of speech where it also has modal and tense value. Furthermore, in utterances made from a retrospective or prospective axis, when it precedes other tense or mood inflections, -mIş marks aspect without any modal connotations. In line with the definition of aspect as indicating how a given situation is related to an already established reference point, then, -mIş clearly has the important aspectual function of marking the category 'perfect' in Turkish.[3] The reason why this function has been overlooked could be sought in the multifunctional nature of this form which is also a tense and mood marker.

The developmental data reinforce the view that the primary function of -Iyor is aspectual rather than temporal or modal since the first function realized by this form in children's speech is to mark ongoing or durative aspect. As for the aorist -Ar which expresses habituality in its aspectual, and possibility in its modal uses (see also Savaşır, 1986), it can be suggested that its primary function is modal rather than aspectual. The present findings (as well as data from Aksu, 1974; Savaşır, 1983, reported in Slobin, 1985a) show that young children do not use this form to mark habituality or for generic statements that qualify the entity in terms of a given property, but rather, in deontically modalized utterances indicating intention or potential for action. In fact, we have seen that constructions which present an action as a property of an object or entity (such as participial adjectives) are acquired later than those which focus on the characteristics of the action itself. These observations suggest that the aspectual function of the aorist is a derivative of its modal function in Turkish. Regarding the relation of habitual aspect to modality, Comrie (1985) points out that what is involved is induction from limited observations about the actual world to a generalization about possible worlds. He further claims, both on definitional and empirical grounds, that 'grammatical expressions of habituality will always be integrated into the aspectual or modal system of a language rather than into its tense system' (1985, p.40).

In summary, Turkish appears to have three distinct markers for aspect: the perfect -mIş, the progressive -Iyor, and the habitual -Ar. Though -mIş marks the inferential past, -Iyor and -Ar can hardly be qualified as tense markers. Though the primary function of progressive -Iyor is aspectual, whether the aorist -Ar should be analyzed as part of the aspectual or modal systems of Turkish has to be investigated in further detail. These considerations, suggesting that the progressive should be integrated into the aspectual and the aorist into the modal

or aspectual systems, lead to the view that the present tense receives zero marking in Turkish, as has been suggested by Yavaş (1980). It would be premature for me to arrive at a specific conclusion regarding this point since I do not have the grounds for doing so, but this proposal is certainly one which needs further investigation, particularly in view of the formal asymmetry between the past and the nonpast is aspect marking, with there being no aspectually unmarked present tense in Turkish.

A final point I would like to reiterate is the importance of taking into account discourse-pragmatic factors in analyzing the tense, aspect, and in particular the modal system of the language. It is by now well emphasized that modality cannot be regarded as independent of discourse (Lyons, 1977; Palmer, 1986), as has also been implied above. We have similarly seen in this analysis of aspect that this category is also closely bound up with the linguistic system of discourse, to the extent that it allows the speaker to present events from various perspectives that he might deem appropriate. The connection between modality and aspect in fact resides in the fact that both function to bring forth the subjectivity of the speaker. Tense, as a deictic category, again serves to organize temporal relationships around the subject taken as a referent. The fact that temporal reference in general is a primary domain via which subjectivity enters into language has best been expressed by Benveniste who states that (1971, p.227)

> Ultimately, human temporality with all its linguistic apparatus reveals the subjectivity inherent in the very using of language,

and that the instance of discourse is constituted of all the coordinates that define the subject.

In conclusion, I hope that the present study, in raising some questions as well as answering some, has revealed the necessity for more systematic analyses of the tense-aspect-mood system in Turkish within a perspective not determined by the categories of the Indo-European languages, in order to explain the intricacies of a most interesting system.

# APPENDIX A

Table A1. Summary table of multivariate analysis of variance for response-types in association with situation-types by age

Multivariate results

| Source | df | F | p |
|---|---|---|---|
| Age | 20 | 2.31 | .0021 |
| Error | 170.10 | | |
| Age-linear | 5 | 8.08 | .0001 |
| Error | 51 | | |
| Age-quadratic | 5 | 1.43 | .228 |
| Error | 51 | | |

Univariate results

Stative responses to stative items

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Age | .29 | 4 | .07 | .48 | .75 |
| Age-linear | .04 | 1 | .04 | .26 | .61 |
| Age-quadratic | .24 | 1 | .24 | 1.66 | .20 |
| Error | 8.15 | 55 | .15 | | |

Stative responses to change of state items

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Age | 2.04 | 4 | .51 | 1.05 | .39 |
| Age-linear | .68 | 1 | .68 | 1.39 | .24 |
| Age-quadratic | 1.14 | 1 | 1.14 | 2.32 | .13 |
| Error | 26.86 | 55 | .49 | | |

-Iyor responses to activity items

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Age | 2.58 | 4 | .64 | .92 | .46 |
| Age-linear | 0.03 | 1 | .03 | .04 | .84 |
| Age-quadratic | 0.003 | 1 | .003 | .004 | .95 |
| Error | 38.32 | 55 | .70 | | |

-An responses to activity items

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Age | 9.78 | 4 | 2.44 | 3.48 | .01 |
| Age-linear | 8.52 | 1 | 8.52 | 12.11 | .001 |
| Age-quadratic | 0.02 | 1 | 0.02 | 0.03 | .86 |
| Error | 38.67 | 55 | 0.70 | | |

-mIş responses to change of state items

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Age | 11.33 | 4 | 2.83 | 6.87 | .002 |
| Age-linear | 9.45 | 1 | 9.45 | 22.97 | .0001 |
| Age-quadratic | 1.81 | 1 | 1.81 | 4.40 | .040 |
| Error | 22.67 | 55 | .41 | | |

Table A2. Transformed means for response-types within situation-types for age levels

| | Response-types / Situation-types | | | | |
|---|---|---|---|---|---|
| Age | Stative/ stative items | Stative/ change of state items | -mIş/change of state items | -Iyor/ activity items | -An/ activity items |
| 3.0 - 3.7 | 1.41 | 1.76 | 0.92 | 1.51 | 0.70 |
| 3.8 - 4.3 | 1.30 | 1.35 | 1.46 | 1.00 | 1.27 |
| 4.4 - 4.11 | 1.30 | 1.37 | 1.93 | 1.60 | 1.24 |
| 5.0 - 5.7 | 1.35 | 1.21 | 2.04 | 1.46 | 1.40 |
| 5.8 - 6.4 | 1.48 | 1.46 | 2.03 | 1.35 | 1.96 |

Table A3. Hotelling's $T^2$ for response-types within situation-types for age levels

| Age group | Hotelling's $T^2$ | p |
|---|---|---|
| 3.0 - 3.7 | 34.13 | .0002 |
| 3.8 - 4.3 | 7.99 | .21 |
| 4.4 - 4.11 | 4.14 | .57 |
| 5.0 - 5.7 | 5.42 | .42 |

Table A4. Transformed means for -mIs and stative responses for order x age x situation-type

Order I ($\bar{X}$ = 1.71)

| Age | Activity | Change of state |
|---|---|---|
| 3.0 - 3.7 | 0.71 | 0.83 |
| 3.8 - 4.3 | 0.97 | 0.93 |
| 4.4 - 4.11 | 0.88 | 0.92 |
| 5.0 - 5.7 | 0.91 | 0.88 |
| 5.8 - 6.4 | 0.77 | 0.75 |

Order II ($\bar{X}$ = 1.43)

| Age | Activity | Change of state |
|---|---|---|
| 3.0 - 3.7 | 0.63 | 0.73 |
| 3.8 - 4.3 | 0.74 | 0.57 |
| 4.4 - 4.11 | 0.87 | 0.78 |
| 5.0 - 5.7 | 0.76 | 0.72 |
| 5.8 - 6.4 | 0.76 | 0.59 |

Table A5. Summary table of analysis of variance for -mIs and stative responses for order x age x situation-type

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Between subject | 7.38 | 59 | | | |
| A (order) | 0.59 | 1 | 0.59 | 4.75 | .05 |
| B (age) | 0.38 | 4 | 0.095 | 0.76 | |
| A x B | 0.20 | 4 | 0.05 | 0.40 | |
| S / AB | 6.21 | 50 | 0.124 | | |
| Within subject | 1.61 | 60 | | | |
| C (situation-type) | 0.04 | 1 | 0.04 | 1.53 | .25 |
| A x C | 0.05 | 1 | 0.05 | 1.92 | .25 |
| B x C | 0.17 | 4 | 0.04 | 1.53 | .25 |
| A x B x C | 0.03 | 4 | 0.007 | 0.27 | |
| C x S / AB | 1.32 | 50 | 0.026 | | |

Table A6. Transformed means for -mIş responses for order x age x situation-type

Order I ($\bar{X}$ = 1.54)

| Age | Activity | Change of state |
|---|---|---|
| 3.0 - 3.7 | 0.35 | 0.70 |
| 3.8 - 4.3 | 0.93 | 0.90 |
| 4.4 - 4.11 | 0.80 | 0.89 |
| 5.0 - 5.7 | 0.85 | 0.85 |
| 5.8 - 6.4 | 0.76 | 0.64 |

Order II ($\bar{X}$ = 1.25)

| Age | Activity | Change of state |
|---|---|---|
| 3.0 - 3.7 | 0.37 | 0.66 |
| 3.8 - 4.3 | 0.54 | 0.55 |
| 4.4 - 4.11 | 0.74 | 0.78 |
| 5.0 - 5.7 | 0.75 | 0.71 |
| 5.8 - 6.4 | 0.57 | 0.59 |

Table A7. Summary table of analysis of variance for -mIş responses for order x age x situation-type

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Between subject | 11.27 | 59 | | | |
| A (order) | 0.60 | 1 | 0.60 | 3.33 | .10 |
| B (age) | 1.35 | 4 | 0.34 | 1.89 | .25 |
| A x B | 0.45 | 4 | 0.11 | 0.61 | |
| S / AB | 8.87 | 50 | 0.18 | | |
| Within subject | 3.85 | 63 | | | |
| C (situation-type) | 0.12 | 1 | 0.12 | 4.00 | .05 |
| A x C | 0.00 | 1 | 0.00 | 0.00 | |
| B x C | 0.54 | 4 | 0.135 | 4.50 | .05 |
| B / Activity linear | 0.55 | 1 | 0.55 | 18.33 | .001 |
| A x B x C | 0.04 | 4 | 0.01 | 0.33 | |
| C x S / AB | 1.56 | 50 | 0.03 | | |
| B / Change of state quadratic | 0.42 | 1 | 0.42 | 14.00 | .001 |
| C at age | 0.62 | 1 | 0.62 | 20.59 | .001 |

Table A8. Transformed means for -DI and -Iyor responses for order x age x situation-type

Order I ($\bar{X}$ = 1.65)

| Age | Activity | Change of state |
|---|---|---|
| 3.0 - 3.7 | 0.83 | 0.78 |
| 3.8 - 4.3 | 0.85 | 0.75 |
| 4.4 - 4.11 | 0.82 | 0.80 |
| 5.0 - 5.7 | 0.88 | 0.91 |
| 5.8 - 6.4 | 0.89 | 0.74 |

Order II ($\bar{X}$ = 1.82)

| Age | Activity | Change of state |
|---|---|---|
| 3.0 - 3.7 | 0.89 | 0.91 |
| 3.8 - 4.3 | 0.95 | 0.89 |
| 4.4 - 4.11 | 0.88 | 0.93 |
| 5.0 - 5.7 | 0.87 | 0.91 |
| 5.8 - 6.4 | 0.97 | 0.90 |

Table A9. Summary table of analysis of variance for -DI and -Iyor responses for order x age x situation-type

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Between subject | 3.06 | 59 | | | |
| A (order) | 0.22 | 1 | 0.22 | 4.4 | .05 |
| B (age) | 0.03 | 4 | 0.007 = 0.01 | 0.2 | |
| A x B | 0.07 | 4 | 0.02 | 0.4 | |
| S / AB | 2.74 | 50 | 0.05 | | |
| Within subject | 0.74 | 60 | | | |
| C (situation-type) | 0.03 | 1 | 0.03 | 3.0 | .10 |
| A x C | 0.01 | 1 | 0.01 | 1.0 | |
| B x C | 0.09 | 4 | 0.02 | 2.0 | .25 |
| A x B x C | 0.01 | 4 | 0.003 | 0.3 | |
| C x S / AB | 0.60 | 50 | 0.01 | | |

Table A10. Summary table of multivariate analysis of variance for differences in response-types for change of state items by age

Multivariate results

| Source | df | F | p |
|---|---|---|---|
| Age | 24 | 1.73 | .02 |
| Error | 175.64 | | |
| Age linear | 6 | 3.84 | .003 |
| Error | 50 | | |
| Age quadratic | 6 | 2.54 | .03 |
| Error | 50 | | |

Univariate results

Inference - Statives task

Difference between -Iyor responses

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Age | 9576.68 | 4 | 2394.18 | 2.51 | .87 |
| Age linear | 5595.27 | 1 | 5595.27 | 5.87 | .01 |
| Age quadratic | 2517.74 | 1 | 2517.74 | 2.64 | .10 |
| Error | 62363.30 | 55 | 952.06 | | |

Difference between -DI responses

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Age | 2733.60 | 4 | 683.40 | .30 | .87 |
| Age linear | 706.54 | 1 | 706.59 | .31 | .57 |
| Age quadratic | 47.39 | 1 | 47.39 | .02 | .88 |
| Error | 122563.65 | 55 | 2228.43 | | |

Difference between -mIş responses

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Age | 12025.72 | 4 | 3006.43 | 1.28 | .28 |
| Age linear | 11461.57 | 1 | 11461.57 | 4.89 | .03 |
| Age quadratic | 1.64 | 1 | 1.64 | 0.0007 | .97 |
| Error | 128709.35 | 55 | | | |

Process-perceived - Statives task

Difference between -Iyor responses

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Age | 8279.48 | 4 | 2069.87 | 3.23 | .01 |
| Age linear | 4603.75 | 1 | 4603.75 | 7.19 | .009 |
| Age quadratic | 2763.64 | 1 | 2763.64 | 4.31 | .04 |
| Error | 35201.65 | 55 | 640.03 | | |

Difference between -DI responses

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Age | 10738.80 | 4 | 2684.70 | 1.18 | .32 |
| Age linear | 409.22 | 1 | 409.22 | 0.18 | .67 |
| Age quadratic | 9948.09 | 1 | 9948.09 | 4.40 | .04 |
| Error | 124313.75 | 55 | 2260.25 | | |

Table A10 (Continued)

Difference between -mIş responses

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Age | 45516.64 | 4 | 11379.16 | 3.48 | .01 |
| Age linear | 28280.53 | 1 | 28280.53 | 8.65 | .004 |
| Age quadratic | 14319.23 | 1 | 14319.23 | 4.38 | .04 |
| Error | 179714.70 | 55 | 3267.54 | | |

Table A11. Summary table of multivariate analysis of variance for differences in response-types for activity items by age

Multivariate results

| Source | df | F | p |
|---|---|---|---|
| Age | 24 | 1.44 | .09 |
| Error | 175.64 | | |
| Age linear | 6 | 3.60 | .004 |
| Error | 50 | | |
| Age quadratic | 6 | 0.88 | .51 |
| Error | 50 | | |

Univariate results

Inference - Statives task

Difference between -Iyor responses

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Age | 12080.68 | 4 | 3020.17 | 1.03 | .40 |
| Age linear | 891.02 | 1 | 891.02 | 0.30 | .58 |
| Age quadratic | 3407.67 | 1 | 3407.67 | 1.16 | .28 |
| Error | 161223.15 | 55 | 2931.33 | | |

Difference between -DI responses

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Age | 5770.20 | 4 | 1292.55 | 0.88 | .48 |
| Age linear | 2767.10 | 1 | 2767.10 | 1.88 | .17 |
| Age quadratic | 1355.36 | 1 | 1355.36 | 0.92 | .34 |
| Error | 80694.35 | 55 | 1467.17 | | |

Difference between -mIş responses

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Age | 43487.12 | 4 | 10871.78 | 3.47 | .01 |
| Age linear | 32764.78 | 1 | 32764.78 | 10.48 | .002 |
| Age quadratic | 9939.33 | 1 | 9939.33 | 3.18 | .08 |
| Error | 171917.35 | 55 | 3125.77 | | |

Table A11 (Continued)

Process-perceived - Statives task

Difference between -Iyor responses

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Age | 11532.92 | 4 | 2883.23 | 1.10 | .36 |
| Age linear | 2424.06 | 1 | 2424.06 | 0.92 | .33 |
| Age quadratic | 981.36 | 1 | 981.36 | 0.37 | .54 |
| Error | 143508.20 | 55 | 2609.24 | 0.37 | .54 |

Difference between -DI responses

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Age | 8969.68 | 4 | 2242.42 | 1.76 | .14 |
| Age linear | 4777.30 | 1 | 4777.30 | 3.76 | .05 |
| Age quadratic | 17.13 | 1 | 17.13 | 0.01 | .90 |
| Error | 69848.35 | 55 | 1269.97 | | |

Difference between -mIş responses

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Age | 5450.36 | 4 | 1362.59 | 1.01 | .40 |
| Age linear | 28.50 | 1 | 28.50 | 0.02 | .88 |
| Age quadratic | 388.24 | 1 | 388.24 | 0.29 | .59 |
| Error | 73662.60 | 55 | | | |

Table A12. Summary table of multivariate analysis of variance for differences in response-types between inference and process-perceived tasks for change of state items by age

Multivariate results

| Source | df | F | p |
|---|---|---|---|
| Age | 12 | 1.11 | .35 |
| Error | 140.5 | | |
| Age linear | 3 | 1.03 | .38 |
| Error | 53 | | |
| Age quadratic | 3 | 2.77 | .05 |
| Error | 53 | | |

Univariate results

Difference between -Iyor responses

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Age | 149.12 | 4 | 37.28 | .04 | .99 |
| Age linear | 48.31 | 1 | 48.31 | .05 | .82 |
| Age quadratic | 5.72 | 1 | 5.72 | .006 | .93 |
| Error | 50874.45 | 55 | 924.99 | | |

Table A12 (Continued)

Difference between -DI responses

| Source | SS | df | MS | F | P |
|---|---|---|---|---|---|
| Age | 14912.32 | 4 | 3728.08 | 1.57 | .19 |
| Age linear | 2191.28 | 1 | 2191.28 | 0.92 | .34 |
| Age quadratic | 8622.23 | 1 | 8622.23 | 3.64 | .06 |
| Error | 130356.60 | 55 | 2370.12 | | |

Difference between -mIş responses

| Source | SS | df | MS | F | P |
|---|---|---|---|---|---|
| Age | 22985.88 | 4 | 5746.47 | 2.47 | .05 |
| Age linear | 3734.36 | 1 | 3734.36 | 1.60 | .21 |
| Age quadratic | 14014.18 | 1 | 14014.18 | 6.02 | .01 |
| Error | 127853.55 | 55 | 2324.61 | | |

Table A13. Summary table of multivariate analysis of variance for differences in response-types between inference and process-perceived tasks for activity items by age

Multivariate results

| Source | df | F | P |
|---|---|---|---|
| Age | 12 | 2.10 | .02 |
| Error | 140.5 | | |
| Age linear | 3 | 6.26 | .001 |
| Error | 53 | | |
| Age quadratic | 3 | 1.69 | .18 |
| Error | 53 | | |

Univariate results

Difference between -Iyor responses

| Source | SS | df | MS | F | P |
|---|---|---|---|---|---|
| Age | 1180.80 | 4 | 295.20 | 0.20 | .93 |
| Age linear | 375.77 | 1 | 375.77 | 0.25 | .61 |
| Age quadratic | 731.62 | 1 | 731.62 | 0.49 | .48 |
| Error | 81120.60 | 55 | 1474.92 | | |

Difference between -DI responses

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Age | 21231.32 | 4 | 5307.83 | 3.44 | .01 |
| Age linear | 14816.07 | 1 | 14816.07 | 9.62 | .003 |
| Age quadratic | 1677.26 | 1 | 1677.26 | 1.09 | .30 |
| Error | 84678.00 | 55 | 1539.60 | | |

Table A13 (Continued)

Difference between -mIs responses

| Source | SS | df | MS | F | p |
|---|---|---|---|---|---|
| Age | 57095.16 | 4 | 14273.79 | 4.79 | .002 |
| Age linear | 34726.25 | 1 | 34726.25 | 11.65 | .001 |
| Age quadratic | 14256.34 | 1 | 14256.34 | 4.78 | .03 |
| Error | 163822.45 | 55 | 2978.59 | | |

Table A14. Summary table of multivariate analysis of variance for differences in response-types between inference and process-perceived tasks for each age level

Multivariate results

Change of state items

| Source | | df | F | p |
|---|---|---|---|---|
| Age group | 3.0 - 3.7 | 3 | 0.47 | .69 |
| | 3.8 - 4.3 | 3 | 0.05 | .98 |
| | 4.4 - 4.11 | 3 | 3.14 | .03 |
| | 5.0 - 5.7 | 3 | 1.07 | .36 |
| Error | | 53 | | |

Activity items

| Source | | df | F | p |
|---|---|---|---|---|
| Age group | 3.0 - 3.7 | 3 | 7.16 | .0004 |
| | 3.8 - 4.3 | 3 | 0.99 | .40 |
| | 4.4 - 4.11 | 3 | 0.30 | .82 |
| | 5.0 - 5.7 | 3 | 0.98 | .40 |
| Error | | 53 | | |

## Notes

### Chapter 1

1. Such a conception of language is based on a 'symbolic model' of society and a phenomenological-interpretive epistemology, where the relationship between knowledge and reality is not one of 'representation' but one of 'formation' or 'constitution'. This view has found various expression in the works of philosophers, sociologists and psychologists of the late nineteenth and twentieth centuries such as M. Weber, L. Wittgenstein, W. Dilthey, P. Winch, G. H. Mead, P. L. Berger and T. Luckman, M. Merleau-Ponty and L. S. Vygotsky, just to name a few.

### Chapter 2

1. See Comrie (1985) who cites Hua, a New Guinea language as an example of a system making a future-nonfuture distinction.

2. Languages use other lexical categories such as adverbs, adjectives, nouns or derivational affixes for the expression of modality, but I shall not be concerned with these here.

3. For a review of other proposals, see Palmer (1986), Chapter 1.

4. In the conclusion to her analysis, Yavaş states that 'past tense is marked with -DI; non-past tense has no morphological marking. What is regarded as future tense in Turkish is best analyzed within the category of modality' (1980, p.166).

5. In synchronic analyses two distinct forms of the past tense with different distributions are recognized: the suffix -DI and the postclitic idi, (-(y)DI). The suffix -DI can follow only verbal stems whereas idi comes after a set of tense-aspect-mood markers attached onto the verb stem or substantive predicates. Another property of postclitics is that they have a variant which may occur as a free form. When the suffix variant of this postclitic is attached onto a form which ends in a vowel, (y) in -(y)DI will surface.

e.g. suffix : gel-di
postclitic: gel-miş-ti
gel-miş idi
*gel idi
hasta-ydı
hasta idi

Similarly, the past of indirect experience and the conditional mood have suffix and postclitic forms (-mIş vs. imiş and -sA vs. ise, respectively). Historically, these postclitics are said to have developed from the verb er-mek 'to be'. Due

to phonological changes in the course of time, the vowel of the verb er changed to i and the form lost its independent status. The following example (8th century) illustrates the historical use:

Bay bar ertim ağılım on, yılkım sonsuz erti
Zengin idim ağılım on, yılkım sonsuz idi.
I was rich, my stables ten, my horses were infinite in number.
(Orhun monuments, in Gencan, 1975, p.313).

See also Lewis, 1967.

6. Other examples of such gerunds indicating aspect are: Verb+A verb+A, constructed either by the repetition of the same verb or by using two verbs side by side, functions as a manner adverb, however denoting numerous repetitions of the action in the embedded clause, thus iterativity and duration. Verb+ArAk, similarly functions as a manner adverb and denotes repeated activity (iterative or continuous) either contemporaneous or slightly prior to that referred to by the main verb. Nominalized forms of the verb also carry aspectual value where the -dIK past participle marks completion and thus the event is presented from a completive perspective.

7. However, as will become clear in the following discussion, this distance is not temporal but, rather, psychological.

8. Comrie (1976, p.16) defines the 'perfective' as 'indicating the view of a situation as a single whole, without distinction of the various separate phases that make up the situation'. This aspect basically contrasts with the 'imperfective', which 'pays essential attention to the internal structure of the situation', and incorporates in itself aspectual meanings of the habitual, iterative, progressive and the like.

9. This term is used by Forsyth for the Russian perfect. I decided to adopt it since it captures the aspectual value carried by the Turkish perfect best.

10. By positing -DI to be the only past tense, or tense marker for that matter, in the language, Yavaş (1980) makes a stronger claim. She suggests that sentences which contain the mood -mIş will have 'present' as their tense since -mIş denotes the attitude of the speaker towards the proposition at the time of the speech act, not before or after it. In such utterances, she suggests, event time will be marked by aspect markers.

11. The terms 'quotative' and 'hearsay' will be used interchangeably to indicate this purely modal function of -mIş.

12. The -mIş particle is ambiguous in indicating inference or hearsay when suffixed to a bare verb root. However, when suffixed to any stative existential and/or tense, aspect, or modal particle, -mIş can only convey hearsay or surprise, irony and the like but not inference since the language limits inference to the predication of processes/events (Slobin and Aksu, 1982). Of course, in its participial uses it has no inferential connotation but marks perfect aspect.

13. These are summarized briefly here since they remain out of the scope of the present study and are discussed in detail in Slobin and Aksu (1982).

14. Similar functions of the evidential and/or perfect forms for indicating the degree of novelty or expectedness of the information or for rhetorical force have been noted in various other languages such as Mandarin (Li, Thompson and Thompson, 1982), Tibetan (DeLancey, 1986), Akha (Thurgood, 1986) and Quechua (Weber, 1986).

15. It is striking that Yavaş (1980) has arrived at almost the same analysis of the semantics of -mIş that I had proposed and found supportive evidence for in my developmental data (Aksu, 1978b, Slobin and Aksu, 1982, first presented in the Conference on Tense-Aspect, UCLA, 1979).

## Chapter 3

1. These developments in the emergence of inflections and/or other elements of the verb phrase have been observed for German and French in early diary studies (Stern and Stern, 1928; Gregoire, 1937-47; Leopold, 1939-49) and are reported in Werner and Kaplan (1963) and Stephany (1986). Furthermore, Brown (1973) charted data reported by other investigators and noted a high degree of concordance providing strong support for this sequence covering the pre-inflectional and inflectional stages discussed here. Data thus treated by Brown come from studies of Leopold (1939-49), Gvozdev (1949, Slobin's summary 1966), Ervin and Miller (1964), Menyuk (1969) and Blount (1969).

2. Gee and Savaşır (1985) present a detailed analysis of the modal functions of will and gonna in terms of different activity types which aims to provide a unified account of the modal and temporal functions of these forms.

3. See Gee (1985) for a discussion of this general issue.

4. The issue of redundancy will be discussed at length later in Part III, Chapter 9.

5. For example, in a recent study, I investigated the development of transitivity marking from a discourse perspective (Aksu-Koç, 1986a), specifically, in relation to backgrounding/foregrounding of information. As has been noted by Hopper and Thompson (1980), transitivity is closely related to aspect, with low transitivity situations, being typically states, and high transitivity situations typically dynamic events/processes. In the event descriptions of children from 3.0 to 6.0 years, I found that, at first, the degree of transitivity marked in the clause is determined by objective event characteristics rather than by experimentally imposed perspectives or totally independent subjective point of view. Differential transitivity marking for purposes of backgrounding/foregrounding, which would be reflective of the latter, was a late developing strategy which emerged after the age of 5.0.

6. Stephany (1981a, 1986), for instance, notes that the first examples of imperfective past in Greek children's speech occurs in modalized utterances rather than with temporal meaning in the indicative.

## Chapter 4

1. Since at the time the hypotheses of the present study were formulated the only research available in the literature on the acquisition of tense and aspect distinctions was that of Brown (1973), Antinucci and Miller (1976), Bronckart and Sinclair (1973), and the early diary studies, the assumptions presented in this section were based on their data. The present review has shown that although the studies in this area have increased in number, they have basically revealed more detailed but noncontradictory evidence which does not run contrary to the main logic of my arguments. I therefore do not attempt to incorporate all the findings available at the time of writing into this section which lays the grounds for my hypothesis construction which I believe cannot be changed post factum at any rate. I will add the additional pro or con findings wherever appropriate, in the notes.

2. This section is primarily based on Italian and English data, the latter Brown's. The part of the past tense system of Italian discussed is the imperfect and participial past tenses, which are the most commonly used in the language and the only ones that appear in the speech of the children reported on, up to the age of 3.0. The two forms differ on the basis of their aspectual meanings. Antinucci and Miller note that the participial past is used as the neutral past tense for nonstative verbs. Imperfect past, on the other hand, is the regular form that makes past, stative verbs. It also functions as the narrative past, confined to description of sequences of past events, signalling their continuity. When a nonstative verb is used in the imperfect, it conveys either a progressive or an iterative meaning. When a stative verb is used in the participial past, it conveys either an inceptive or a terminative meaning.

3. Although Antinucci and Miller do not report on uses of nonpast inflections, data from other Romance languages like French and Spanish (Jacobsen, 1981; Clark, 1985) suggest that children use the present indicative during this period.

4. The stative-nonstative distinction has also been observed as the first distinction in the speech of Chinese children acquiring Mandarin (Erbaugh, 1982). The children marked activity as well as change of state verbs with the verb suffix -le indicating perfect aspect.

5. More specifically, these were observed to be achievement verbs, and accomplishment or activity verbs used in the sense of achievement verbs, focusing on a resultant state (e.g. eat up, cry with meaning of 'be a crybaby', etc.).

6. Regarding this point, Antinucci and Miller propose that the connection lies in the similarity between the internal structure of the two types of events involved. That is, the 'linguistic event of narrative' and 'activity' verbs referring to events of the type described above are related on semantic grounds. In their words:

> A story is the narration of a succession of events that make up the story itself...a succession or repetition of the same elementary event, constitutes the semantic nature of an activity verb. Verbs like cry or knock can and must be analysed as a repetition of smaller acts, each consisting of a simple 'burst of crying' or a single act of 'knocking'. (1976, p.187)
>
> In the same way, the durational quality that is inherent in the concept of succession provides the link by which states that are inherently durative and unbounded can be marked by the imperfect. (1976, p.188)

Also, see Antinucci and Gebert, 1976, for a treatment of activity verbs as a representation of a 'succession, repetition of the same elementary event', i.e. as statives. In the theoretical framework they suggest, activity verbs are regarded as statives on the basis of their durational character, which they share with other verbs in this category.

7. In the initial formulation of the hypotheses in 1978, I had presented the completive-durative differentiation in terms of the ± punctual distinction. I now find that this was an unwarranted collapsing of the two types of oppositions and treat as primary that between completion and duration.

8. I am considering only the nonmodalized uses in these early phases and only the epistemically modal meanings in later phases, of the inflections under consideration.

## Chapter 5

1. The Berkeley Cross-Linguistic Acquisition Project was carried out under the

direction of Dan I. Slobin, University of California, Berkeley, in collaboration with S. Ervin-Tripp, F. Antinucci, J. R. Johnston, L. Radulovic, T.G. Bever, E. V. Clark, H. H. Clark and A. A. Aksu. The project investigated language development in a variety of areas in 2.0 - 4.8 year-olds acquiring English, Italian, Serbo-Croatian and Turkish, from a comparative perspective.

2. This criterial base of 100 spontaneous utterances could not be met in the case of the youngest subject ES in her fourth sample, where MLU was computed on the basis of 43 utterances.

3. When bit-ti 'finished, all gone' was used after the consumption or disappearance of an object, it was interpreted as a stative predication.

4. The conventions used in the examples are as follows: contextual information is presented between slashes; adult utterances are in the right-hand column and child utterances in the left-hand column; child utterances are given morpheme-by-morpheme gloss, while only the inflection is underlined in adult utterances; E stands for investigator and Mo for mother.

5. I thank Annette Karmiloff-Smith for bringing this example to my attention and suggesting this interpretation.

6. The use of the particle with activity verbs like gel 'come' or git 'go' does not constitute a contradiction of the claim that -mIş is being used to mark states, since context shows that the child is talking about the presence or absence of people rather than about their activities of going or coming.

7. If the intention of disclaiming responsibility for breaking the toy is attributed to the child here, then this example can be interpreted as having an inferential reading.

8. The past perfect and pretense functions have been observed in data sets from older subjects and are discussed in Aksu-Koç (1986b). An example for each is presented below:

(2.10) / re: toys he is putting away /

E: Şimdi ne oldu? Ne yapıyorsun?
What happened now? What are you doing?

Bu - nlar dağıl - mış - tı
this - PL scattered - PERF - PA:DE

Bu - nlar - ı düzel - t - iyor - um
this - PL - ACC tidy - CS - PRES:PRG - 1SG
These had been scattered, I am tidying them up.

(3.0) / setting the stage for a new game with the adult /

Sen hasta - ymış - sın
you sick - PA:IE - 2SG

Araba sen - i hastane - ye götür - sün
car you - ACC hospital - DA take - OPT:3SG
Let's pretend you are sick. Let the car take you to the hospital.

## Chapter 6

1. In many instances, the child's response was simply 'verb+mIş' without any preceding or following noun, which made it impossible to tell whether the form was an adjectival or predicative use of the verb. Therefore the two groups were combined for the statistical analyses.

2. Lexical adjectives (1) and -IK adjectives (7) were treated as members of a single category on the basis of semantic criteria, since both types similarly represent a stative perspective in regard to the object in question. Also, only four of the seven change of state verbs used in the task can derive adjectives with both the -IK and -mIş particles. As such, entering responses of adjectives derived with the -IK particle as a separate category into the chi-square or subsequent analyses would have resulted in very low cell frequencies.

3. The analysis was performed on the response-type x situation-type pools described above. An individual chi-square was computed for each of the 60 subjects and then pooled together.

4. More specifically, the dependent variables were the six response-type x situation-type pools obtained in the chi-square analysis. The multivariate analysis of variance was performed on the square-root transformations of this data.

5. All tables relevant to the statistical analyses carried out on the production tasks, except for some tables of means that figure in the discussion, are presented in Appendix A. The reader will however be referred to them by number in the text.

6. Since the numbers of items representing each situation-type were unequal (four activity items and ten change of state items), a square-root transformation was applied on the proportion of correct responses to meet the requirement for homogeneity of variance (Winer, 1971).

7. Since there were six activity items and eight change of state items, a square-root transformation was performed on proportion scores, in order to ensure homogeneity of variance.

8. In all the cross-task analyses, an arcsin transformation was applied to the basic observations expressed in proportions, in order to stabilize the variances (Winer, 1971).

9. In a recent analysis of film description data, E. Erguvanlı-Taylan (1986) has found the frequent use of this mode of narration by Turkish adults.

## Chapter 7

1. In order to avoid the problem of a 50-50 choice a pilot study was done using pictures where all three of the characters were present in the final picture. For a -mIş past utterance the probability of a correct response by chance was 1/3 because there was always one possible speaker who had not witnessed the preceding transformation; but for a -DI past utterance this probability was 2/3 since there were always two characters who had seen the event take place. The results revealed that the differential probabilities associated with a correct speaker had negative effects on the subjects' responses and made the data difficult to interpret. The children had difficulty in making a choice and keeping to it when there was more than one possible correct response, as was the case for -DI past items constituting 50 per cent of the task. While choosing one character as the correct speaker, the children seemed to be aware that the other alternative would also be correct on the basis of the same line of reasoning. This lack of certainty generalized to the rest of the items and seemed to create a disturbance even when there was only one correct choice, as in the case of -mIş past items. That is, this design lacked consistency across item-types which could serve as an internal feedback mechanism that would help the subject regulate his or her responses. Evidence for this was reflected in the rationales

children constructed as to why, for example, Ahmet but not Ali, was the speaker when both had witnessed the event: e.g. 'this one saw the donkey escape from a closer distance but that one was further away', 'this one was standing next to him', etc.

2. Body language properties like position of the hands, state of the mouth, direction of gaze, and the like, that could serve as informative clues in the identification of the speaker on a nonlinguistic basis were eliminated from the pictures as much as possible, since pilot testing revealed that these led to justifications like, 'because his mouth is open', 'because his hand is like that, he is pointing', 'because he is looking at that one', etc. Though such responses were an indication of the children's sensitivity to nonlinguistic information, it was decided to minimize them as they were blocking the kinds of explanation that were of interest.

3. The past tense inflection used by the child is indicated with a (-DI) for -DI past and with a (-mIş) for -mIş past, after the verb in the English translations. The child's utterance is underlined. NR stands for 'no response'. Initials of the subjects' names and ages are given in parantheses.

4. Three subjects constituted an exception to this rule and seemed to operate with the reverse principle that 'the one who has not seen the event is the one who speaks'.

5. The points (A), (A') and (C), or (A), (B) and (C) have to be further related to (D), the here-and-now of the experimental situation the subject is located in. However, for the purposes of the present discussion, I will ignore the complexity that may arise from this additional coordination, since it contributes equally to both information perspectives.

## Chapter 8

1. The implications of the modalized (inferential and quotative) uses of -mIş are very similar to those of parenthetical verbs like 'think', 'suppose' or 'believe' which serve to 'modify or weaken the claim to truth that would be implied by a simple assertion' (Urmson, 1952, quoted in Lyons, 1977, p.738).

Lyons notes that both Benveniste and Austin have underlined the similarity between parenthetical and performative verbs. He expresses this similarity most clearly by summarizing Benveniste's conceptualization of parenthetical verbs as 'devices whereby the speaker, in making an utterance, simultaneously comments upon the utterance and expresses his attitude to what he is saying' (1977, p.739).

## Chapter 9

1. Habitual aspect is marked by the aorist (-Ar) in Turkish which, like -Iyor, combines with either past or nonpast (present) but not future.

2. In the present work I have not dealt with the other constructions in Turkish for quoted speech which function in a similar fashion to those in Indo-European languages. In addition to having more complex syntax that involves subordination, use of these structures either presupposes or requires that the speaker one is quoting from, be specified (except in impersonal passive constructions). With the quotative/hearsay uses of -mIş, however, the specification of the source is avoided. Therefore, it appears that underlying the use of the hearsay -mIş as opposed to the inferential -mIş, there is the additional pragmatic requirement dictated by the Gricean Quantity maxim, which states that the speaker should make his

contribution as informative as required but no more (Levinson, 1983, p.101). This might be another factor that accounts for the fact that the hearsay function is more complex than the inferential function for young children.

3. The claim that the semantic roots of the -mIş particle lie in the 'perfect' from which its modal and tense functions develop finds support in a comparative analysis of the perfect in English, Turkish and Mandarin by Anderson (1982). Basing his analysis of the Turkish perfect on Slobin and Aksu (1982) and of Mandarin on Li, Thompson and Thompson (1982), Anderson proposes that the meaning 'current relevance' occupies a central position in semantic space representing the perfect and qualifies as a possible definitional universal. He suggests that current relevance relates to the aspectual/tense notions of 'result' and 'anteriority' on the one hand, and to the modal notion of 'new situation' on the other. He thus proposes a unified account of the various functions that branch off from the perfect in these typologically different languages through a single variable.

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