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EDITED BY

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Shannon Dubenion-Smith

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Historical Linguistics 2005

*Selected papers from the 17th International Conference on Historical Linguistics,
Madison, Wisconsin, 31 July – 5 August 2005*

Edited by Joseph C. Salmons and Shannon Dubenion-Smith

HISTORICAL LINGUISTICS 2005

SELECTED PAPERS FROM
THE 17TH INTERNATIONAL CONFERENCE
ON HISTORICAL LINGUISTICS,
MADISON, WISCONSIN, 31 JULY – 5 AUGUST 2005

Edited by

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Foreword

The papers contained in the volume all grew and evolved from presentations given at the 17th International Conference on Historical Linguistics (ICHL 17), held 31 July–5 August 2005 on the campus of the University of Wisconsin-Madison. Between the general sessions and the workshops, over 170 papers were presented. From those, we had almost 60 submissions. A rigorous and lengthy review process led to often extensive revisions by the authors, and resulted in the papers you see before you.

We sought to draw people to Madison who represented the full range of current work in comparative and historical linguistics in the international scene, across languages and language families, theories, and subfields. To the extent possible, we have worked to carry that breadth into this volume. We have struggled to make the fairest decisions we could, relying on an array of outside specialists and sometimes repeated readings, in an effort to choose the papers that would best advance the study of language change and comparative linguistics in a broad sense. Many other papers from the conference are already on their way to publication in various journals and volumes.

In the papers contained here, some traditional ICHL topics are prominent, such as grammaticalization. That area of research is represented in two distinct senses, first from the perspective of two of the leading lights in traditional grammaticalization, Brinton and Traugott, but also from a ‘mentalist’ perspective by Faarlund, in addition to the more critical standpoint explored by Juge. In the realm of syntax and semantics, we were conscious of the range of fine papers from both what were traditionally thought of as ‘formal’ and ‘functionalist’ approaches. Kempson & Cann and Bouzouita reconcile both these approaches in their papers, written in the framework of Dynamic Syntax. Other papers examine historical data through the lens of modern syntactic theory (Wood and Madariga), or look at an old problem from a new perspective (Sundquist). Real-time data comes into play to verify language change in progress (Nambu & Matsuda) and offer insight into a change that took place centuries ago (Ritz). In morphology, we see classic topics in the history of European languages, like case loss (Smith & Ashdowne) as well as more recent changes in derivational morphology (Scherer). At the same time, Conradie, Dench and Fassberg shed new light on an array of topics, ranging from deflection and paradigm splitting to infinitival forms. In phonology too, languages treated range from Asia (Ahn & Iverson) to the Americas (Dakin), alongside important work in prosodic change in European languages from three distinct but related perspectives (Loporcaro, Page, and Smith). Variation is represented by innovative approaches to early modern Europe (Spencer) and an American immigrant community (van Reenen).

A conference of this size was only possible thanks to the work of a large group of people. But one person was almost single-handedly responsible for the smooth run-up to Madison and the week we spent here: We all owe Andrea Menz profuse thanks. She took on more work than was ever planned or intended for her, from designing our logo to working on the website to being apparently omnipresent during the conference to deal with registration, equipment, and virtually everything else. Given how much Andrea did to make the conference – and thus this volume – possible, it is right and proper that she did the last crucial piece of the work on this book, namely the core work on the indexes.

Our organizing committee consisted of Tom Cravens, Ray Harris, Rob Howell, Mark Loudon, Monica Macaulay, Cynthia Miller, and Jorge Porcel from Madison, as well as Greg Iverson from UW-Milwaukee. They advised and helped on every aspect of planning and did the bulk of the work in reviewing abstracts. The International Society for Historical Linguistics was a vital help, especially in planning, and in particular Laurel Brinton, Dorothy Disterheft, Lene Schøsler, and above all J. C. Smith. John Cook, Diana Elgersma, Felecia Lucht, Mike Olson, Helena Ruf, Nicola Schmerbeck, and others helped with registration and a range of other details. Behind the scenes, we relied heavily on Joan Leffler from the German Department, Kevin Kurdylo and Ruth Olson from the Center for the Study of Upper Midwestern Cultures and, naturally, the staff of the Pyle Center where the conference was held. We are very grateful to the College of Letters & Science for support from the Anonymous Fund, as well as Study of Upper Midwestern Cultures and the Department of German, plus moral and material support from a whole set of other departments and units across campus. Finally, we owe our gratitude to the editor of this series, E. F. Konrad Koerner, and to Anke de Looper of John Benjamins Publishing for a smooth process.

On to Montreal!
Madison, January 2007

Joseph Salmons and
Shannon Dubenion-Smith

PART I

Grammaticalization

Lexicalization and grammaticalization all over again

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1. Introduction

Two types of language change have been much discussed recently: grammaticalization and lexicalization.¹ Brinton & Traugott (2005) attempts to characterize the various, often contradictory, approaches to these two topics that have developed over the last fifty years, and to present a synthesis that highlights the similarities and differences between them and treats them as processes that affect the output of word formation, syntax, and construction-formation. Our purpose in this paper is to outline this approach and to show how grammaticalization and lexicalization relate to word formation processes, using a set of English combinatory forms beginning with *all* (e.g. *all-important*, *already*).

Grammaticalization is fairly widely understood as a change whereby “lexical items and constructions come in certain linguistic contexts to serve grammatical functions”, not vice versa (Hopper & Traugott 2003 [1993]: 1; see also e.g. Heine, Claudi & Hünnemeyer 1991; Lehmann 1995 [1982]). Standard examples such as Lat. *cantare habeo* “sing.INF have.1SG” > Fr. *chanterai* “sing.FUT.1SG” or Eng. *be going to* (motion with intention) > *be gonna* (planned future) highlight not only cross-linguistically attested shifts from major to minor class, but also fusion, gradual (local, almost imperceptible)

1. We thank Dieter Kastovsky and Ans van Kemenade for comments on an earlier version of this paper. Elizabeth Traugott thanks the other members of the “Stanford ALL project” 2005 (John Rickford, Zoe Bogart, Isabelle Buchstaller, Kelly Drinkwater, Rowyn McDonald, Thomas Wasow, Laura Whitton, and Arnold Zwicky; see http://www.stanford.edu/group/shl/research/changing_all.html) for their suggestions and inspiration. The views developed here on lexicalization and grammaticalization are in direct contrast to those put forward in the first (1993) edition of Hopper & Traugott (2000 [1993]), but in line with the second (2003). In this paper, we adopt the traditional abbreviations and dates for the periods of English: OE (Old English) c. 650–1150, ME (Middle English) c. 1150–1500, EModE (Early Modern English) c. 1500–1750, and ModE (Modern English) c. 1750–1970.

changes, and decategorialization of formerly major class members. By contrast, views of lexicalization have been of two very different types. One has developed mainly in the context of the search for counterevidence to the hypothesized unidirectionality of grammaticalization and focuses on the development of lexical items as autonomous, major class entities from grammatical items or derivational affixes. Here examples are of the following types: *up* (Adv, Prep) > *up* (N, V), *ante* (N, V); or derivational affix *-ism, -ology* > *ism, ology* (N). On this view, lexicalization and grammaticalization are considered maximally distinct, and lexicalization provides counterevidence for unidirectionality (Ramat 1992, 2001; Janda 2001). The other view of lexicalization conceives of it as:

die Eingliederung eines Wortbildungs – oder syntaktischen Syntagmas in das Lexikon mit semantischen und/oder formalen Eigenschaften, die nicht vollständig aus den Konstituenten oder dem Bildungsmuster ableitbar sind [the integration of a word formation or syntactic construction into the lexicon with semantic and/or formal properties that are not completely derivable or predictable from the constituents or the pattern of formation] (Kastovsky 1982: 164–165)

or as “the phenomenon that a complex lexeme once coined tends to become a single complete lexical unit, a simple lexeme. Through this process it loses the character of a syntagma to a greater or lesser degree” (Lipka 2002 [1990]: 111). When viewed in its own right, not narrowly as evidence of counterexamples to grammaticalization, lexicalization can crucially be seen to involve:

- i. Idiomaticization: loss of semantic compositionality (e.g. *hobnob* “speak chummily with someone” < ME *hab ne-hab* “have not-have” (via the drinking toast *hob or nob* “give or take”);
- ii. Univerbation: fusion, bonding, and loss of morphological boundaries (e.g. *nuts-and-bolts* “practical details”, not **bolts and nuts*);
- iii. Coalescence: loss of phonological structure (e.g. OE *hlæfdige* “loaf dough-er” > *lady, forcastle* > *fo’c’sle* “sleeping quarters under front deck of ship”).

This conception clearly suggests that there are many significant similarities between lexicalization and grammaticalization, especially fusion and gradual changes (see e.g. Hagege 1993; Lehmann 1989, 2002). We draw heavily on it in our approach.

Note that lexicalization is sometimes construed as including word formation (see e.g. van der Auwera 2002), but it is our intention in this paper to show how lexicalization and word formation are distinct.

The outline of the paper is as follows: we sketch certain basic assumptions (§2), then discuss some major similarities and differences between lexicalization and grammaticalization (§3), and present our proposed unified view of the two processes (§4). The case study follows in §5; §6 is an assessment of what the data show for the unified view.

2. Basic assumptions

For reasons of space, this section must be very brief. We assume that:

- i. Language change comes about through language use (Croft 2000) and occurs not in the individual but among networks of speakers (Milroy 1992); in other words, it is social as well as cognitive. Furthermore, changes are tendencies, not absolute phenomena (contra Newmeyer 1998, one exception does not invalidate an analysis).
- ii. The model of grammar assumed here is not strictly modular: no one ‘component’ uniquely underlies or motivates others (see e.g. Jackendoff 2002). Grammar is dynamic and allows for gradience (Denison 2001) and degrees of productivity (Baayen & Renouf 1996).
- iii. The lexicon is an inventory of stored form-meaning pairs. It includes items that range from ‘lexical’ (contentful, relatively idiosyncratic, semi-productive or non-productive, ‘major, open class’) items to ‘grammatical’ (indexical, functional, productive, ‘minor, closed class’) items.
- iv. Productive word formation occurs in morphology (see e.g. Booij 2002). The synchronic potentials of word formation need to be distinguished from processes of change; otherwise, it becomes impossible to separate productive from unproductive word formation, compositional from non-compositional combinations, or idiosyncratic lexicalization from productive grammaticalization.

3. Significant similarities and differences between lexicalization and grammaticalization

3.1 Major similarities

The following characteristics, which have often been associated with or considered criterial of grammaticalization, have been shown also to be typical of lexicalization (see especially Lehmann 1989, 2002; Himmelmann 2004):

- i. Both involve fusion and coalescence. The difference is that lexicalization increases internal fusion, while grammaticalization increases fusion either internally or with an external ‘host’ (Lehmann 2002). Examples of fusion/coalescence in lexicalization include *lady*, *hobnob*; OE *gar* “spear” + *leac* “leek” > *garlic*; OE *god* “good” + *spell* “tidings” > *gospel*. These involve fusion of X and Y within a string or construction [XY]_Z more or less equally, i.e., Z is affected “as a whole” (Lehmann 2002: 13). Examples of fusion/coalescence in grammaticalization include Old Hungarian *vila* “world” + *béle* “guts/core + directional” > *vilagbele* “into the world” > Mod. Hungarian *világba* “world” + ‘directional case marker’ (Anttila 1989 [1972]: 149). Here X and Y of a string or construction [XY]_Z are

- affected asymmetrically; typically one element is “the focus of the process”, and the nature of Z itself may change (see Lehmann 2002: 13);
- ii. Both involve idiomatization, or freezing, the demotivation of compositional semantics and morphology (for lexicalization see e.g. Bauer 1983; Lipka 2002 [1990]; for grammaticalization see e.g. Haiman 1991);
 - iii. Both lexicalization and grammaticalization are, therefore, unidirectional;
 - iv. Both are gradual, i.e., occur in small, local, overlapping steps sometimes in ambiguous/indeterminate contexts (for the gradualness of lexicalization see especially Lipka 2002 [1990]); for the gradualness of grammaticalization see e.g. Haspelmath 1999, 2004).

3.2 Major differences

Despite the similarities, grammaticalization is more complex. In addition to (i)–(iv) above, grammaticalization, but not lexicalization, involves:

- v. Functional shift/reanalysis (e.g. from lexical head to functional head, see Roberts & Roussou 2003; van Gelderen 2004);
- vi. Decategorialization (loss of characteristics of the original category and adoption over time of characteristics of a new one) (Hopper & Traugott 2003 [1993]);
- vii. Shift to a more systematic type frequency/productivity due to host-expansion, syntactic expansion, and, in some cases, paradigmaticization and obligatorification (Lehmann 1995 [1982]; Haspelmath 2004; Himmelmann 2004);
- viii. Increased token frequency because of increased type frequency (Bybee 2003);
- ix. Typological generality: changes are replicated across languages and time (Bybee, Perkins & Pagliuca 1994; Croft 2000).

These similarities and differences are strong tendencies, not absolute criteria. They are summarized in Table 1.

Table 1. Summary of diachronic similarities and differences between lexicalization and grammaticalization (see Brinton & Traugott 2005: 110)

(‘+’ means “characteristic of” and ‘-’ means “not characteristic of”)

		Lexicalization	Grammaticalization
i.	Fusion and coalescence	+	+
ii.	Idiomatization	+	+
iii.	Unidirectionality	+	+
iv.	Gradualness	+	+
v.	Functional shift/reanalysis	-	+
vi.	Decategorialization	-	+
vii.	Type frequency/productivity	-	+
viii.	Token frequency	-	+
ix.	Typological generality	-	+

4. Proposed unified view

4.1 Lexicon as inventory

We call the lexicon the ‘inventory’ to avoid terminological confusion caused by lexicalist theories of syntax in which every stored item is said to be ‘lexical’ whatever its function and sometimes said to be ‘grammaticalized’ if it is reduced/frozen.

The inventory contains lexical (L) items or grammatical (G) items. Synchronically, Ls in the inventory display (at least) three degrees of lexicality with respect to fusion:

- L1 = Partially fixed phrases (e.g. *lose sight of*, *agree with*);
- L2 = Complex semi-idiosyncratic forms (e.g. *mishap*, *desktop*); includes lexical derivational morphology (e.g. *un-*, *mis-*);
- L3 = Simplexes and maximally unanalyzable idiosyncratic forms (e.g. *desk*, *handicap* < *hand in cap*).

Likewise, synchronically Gs in the inventory display (at least) three degrees of grammaticality with respect to fusion (cf. Heine 2003):²

- G1 = Periphrases (e.g. *be going to*, *as far as*, *in fact* in their early stages);
- G2 = Semi-bound forms: function words, clitics (e.g. *must*, *of*, *'ll*, gen. *-s*);
- G3 = Affixes such as derivational morphology that change the category of the stem (e.g. adverbial *-ly* [very productive]; and most especially inflectional morphology, including zero inflection [Bybee 1994]).³

The synchronic situation may be modeled as in Figure 1.

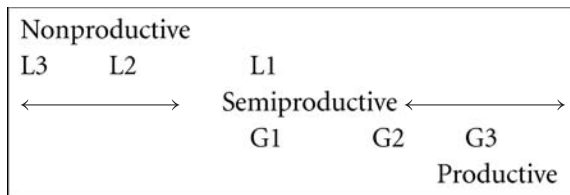


Figure 1. Synchronic clines of lexicality and grammaticality (Brinton & Traugott 2005:94)

2. Note, however, that Heine’s G₁, G₂, and G₀ are stages of grammaticalization, not subtypes of grammaticality.

3. These two types of affix roughly correspond to Booij’s (2002) ‘inherent inflectional’ (affixes that change grammatical category) and ‘contextual inflectional’ affixes (default inflections).

4.2 Input to the inventory

The input to the inventory is the output of word formation or the result of syntax that has become idiosyncratic in some way that requires it to be stored in memory. Word formation occurs productively in morphology and includes, among many other processes, compounding and conversion. Idiosyncratization of syntax may arise through reanalysis that catches on in the community and is replicated by speakers. To give some very simple examples: the compound *hlafeard* “loaf guardian”, when it is used as a term of rank rather than literally as “guardian of loaves”, has to be stored in memory, and the phrase *nuts-and-bolts* has to be stored in memory when it is used as a fixed phrase referring not to literal metal objects but to practical details; likewise, *be going to* must be stored in memory when it becomes a fixed phrase referring not to motion for a purpose but to future intention.

4.3 Lexicalization and grammaticalization

Once in the inventory, items undergo the normal processes of language change that arise as language users produce and perceive utterances (in childhood or later). Items in the inventory may be lexicalized or grammaticalized, depending on the function they come to be assigned (L or G). Diachronically, lexicalization is:

the change whereby in certain linguistic contexts speakers use a syntactic construction or word formation as a new contentful form with formal and semantic properties that are not completely derivable or predictable from the constituents of the construction or the word formation pattern. Over time there may be further loss of internal constituency and the item may become more lexical.

(Brinton & Traugott 2005:96)

This further loss of constituency leads from $L1 > L2 > L3$.

The converse of lexicalization is not, as is sometimes claimed, ‘delexicalization’, which has variously been thought of as grammaticalization (e.g. van der Auwera 2002) or shift from lexicon to morphology (Ramat 2001). Instead, the converse is ‘antilexicalization’,⁴ exemplified by folk etymology (Lehmann 2002). In folk etymology, structure is given to an unanalyzable morpheme (e.g. *hangnail* [reanalysis of *ang* “painful”, cf. Gm. *Angst* “fear” + *nail*]), thus $L3 > L2$.

Diachronically, grammaticalization is:

the change whereby in certain linguistic contexts speakers use parts of a construction with a grammatical function. Over time the resulting grammatical item may become more grammatical by acquiring more grammatical functions and expanding its host-classes.

(Brinton & Traugott 2005:99)

‘More grammatical’ refers to changes from $G2 > G3$.

4. We analogize this term with Haspelmath’s (2004) ‘antigrammaticalization’ (see below).

The converse of grammaticalization is not ‘degrammaticalization’, as suggested by e.g. Ramat (2001) and van der Auwera (2002), but rather ‘antigrammaticalization’ (Haspelmath 2004). A true example of antigrammaticalization would, like grammaticalization, need to be gradual, and would have to involve at least one of the pairs in a reverse trajectory $G3 > G2 > G1$. Convincing examples have been hard to find, but a possible example is the Eng. and Swed. *-s* genitive (see Norde 2002).

Processes of lexicalization and grammaticalization are therefore semantic-pragmatic, morphosyntactic, or phonological changes arising in language use (production and perception) that may affect the links that language users make between more abstract structures and items in the inventory. Being iterative, they can lead to gradual reanalysis of items that are either L or G. Sometimes an item in L may be reanalyzed as an element in G.

4.4 Compounding and conversion

From the perspective espoused here, the changes of *up*, *ante*, *ism*, and *ology*, etc. (all instantaneous changes) noted above, as well as a change such as *song* + *writer* > *songwriter* (see van der Auwera 2002:20), are concerned not with lexicalization, but with word-formation. In the first instance, *ism* and *ology* are clippings (a type of word-formation); when used along with *up* and *ante* as major class items they have undergone ‘conversion’, another type of word formation. *Songwriter* represents a prototypical example of ‘compounding’.

We understand compounding as giving rise to “complex lexical items consisting of two or more lexemes . . . There are substantival, adjectival and verbal compounds” (Kastovsky 1992:362); i.e., compounding involves the formation of major class members. Instances of compounding are semantically compositional.

Conversion is change in the class of a word with no change in form; it is often considered to be derivation by means of a zero-morpheme (Bauer 1983:32). Conversion may shift simplex words, compounds, and phrases.

5. Evidence from *all* in combinatory constructions

Combinations with *all* in English provide a rich source of data for our proposed differentiation between grammaticalization and lexicalization on the one hand and morphological process on the other because they range from:

- i. Semantically compositional (e.g. *all in one*) to non-compositional (e.g. *all over* “finished”);
- ii. Morphologically fixed but distinct (e.g. *all in all*) to fused and coalesced (e.g. *alone*);

- iii. Major parts of speech/lexical items (Adjs such as *all-important*, *all-knowing*, *all-praised*, *all right* “well (in health)”) to minor parts of speech/grammatical items (Advs and Conjs such as *always*, *also*, *all right* “indeed, yes”);
- iv. Instantaneously formed expressions (e.g. compounds such as *all-important* or conversions such as *(the) all clear*) to ones that developed gradually by small steps (e.g. *almost*).

The following discussion will be restricted to *all* as the first element in a combination. We start with compounds (formed in word-formation), and then move on to univerbations that seem to have a syntactic origin (and are therefore formed in morphosyntax). We leave discussion of combinations with *all* as the final element, such as *after all* (Traugott 2004), *withal* (van der Wurff 2002), *at all*, or *you-all*, to a later study.⁵

5.1 *All* and word-formation in the history of English

From the beginning, *all* (OE *eall/æel*) has had two functions (Buchstaller & Traugott 2006):

- i. As a quantifier/predeterminer (PreDet) (often classified as adjective) that modifies nominals, as in *all the children*, meaning “totally distributed” (see Roberts 1987);
- ii. As an adverb (Adv) that modifies adjectives and participials. Since ME it has modified some scalar Advs (e.g. *all very well*) and prepositional phrases (e.g. *all out of practice*). It is used both in the sense of “totality/completeness”, modifying complements usually regarded as non-gradable (*all dead*) or bounded (*all covered*), and as a degree Adv with booster function that locates its complement high on a scale (*all excited*).

Not only are there PreDet and Adv uses that in some forms are ambiguous in OE, but throughout English there has been indeterminacy in some contexts between quantifier float of the PreDet and Adv expressions when *all* follows a copula.⁶

- (1) *gegrap me witodlice stranglic fyrhto, and ic wæs eall byfigende gedrefed*
 seized me truly strong fear and I was all trembling afflicted
 “strong fear truly seized me, and I was trembling very much”
 (Ælf LS 23. 528 *Mary of Egypt* [DOE])

5. *All* in non-initial position seems to function quite differently, as *all* is primarily a PreDet, not an Adv and is typically anaphoric, as in *for all that*, *after all*.

6. In what follows, it has not been feasible to assess whether a frozen expression originally involved a quantifier-floated construction or not, nor is it possible to say with complete confidence that *all* in any particular form derives from PreDet or from Adv *all*, though it seems likely that originally nominal expressions, e.g. *all-star*, *all-day*, *all in all*, contain the PreDet in the sense of “total distributivity” while other expressions, e.g. *all-important*, *already*, *all over*, contain the Adv in the sense of “entirely” or “exceedingly”. These questions require further study.

Therefore historically, *eall* enters into the word-formation processes of compounding and conversion, as well as lexicalization and grammaticalization.

5.1.1 *Compounding*

The OED (s.v. *all*, def. E 6) estimates that about twenty Adjs were compounded with *eall* in OE, but only a few forms cited in the OED meet the criteria of major class membership and semantic compositionality. These include Adjs of color and temperature that are of native origin (e.g. *ealgrene* “all green”, *ealgylden* “all golden”, *ealhwit* “all white”, *ælcæald* “very cold”; also *ælfremed fram* “completely separated from”, *eal-gearo* “all prepared”) as well as others that may be calques of Latin (e.g. *ælcraeftig* “all-powerful, almighty”, *ælhalig* “all-holy” [cf. Lat. *omnino sanctus* “entirely holy”], *ealwealdend* “all-ruling”, *ælmihhtig* “almighty” [cf. Lat. *omnipotens*]). The Latin calques are largely restricted to religious contexts. Note that in many cases *eall* appears to function as an Adv meaning “entirely”, a function that is unusual among contributors to Adj compounds in English (see Kastovsky 1992: 374 for OE; Bauer 1983: 210 for ModE). Compounding with *all-* continued but was not highly productive in ME, with rare examples such as *alwytty* “omniscient” (Adj) or *allove* “all embracing love” (N).

In the EModE period, compounding became more productive, with the appearance of both N (*all-heart*, *all-star*) and Adj (*all-eloquent*) compounds. According to the OED (s.v. *all*, def. E 6), since 1600 *all-* has “become a possible prefix, in poetry at least”, adjoined to many past and most present participles (*all-armed*, *all-binding*, *all-convincing*) and Adjs of quality (*all-good*, *aljust*). Nevalainen (1999: 419) cites EModE *all-admired*, *all-dreaded*, *all-honoured*, *all-praised* with what she terms “intensifier *all* ‘fully’” (i.e. Adv).

Adjective compounds can, in turn, undergo derivational word-formation, as in the case of ME *alwyttynes* “omniscience”, EModE *all-eyed*, or ModE *allpervadingness*.

5.1.2 *Conversion*

Conversions of compounds date from the OE period, as in the *eall* + Adj > N shifts of *ælmihhtig* “the all-mighty one”, *ealwealdend* “the all-ruling one” (both referring to the Deity). In the modern period, *all* + N(s) combinations such *all points*, *all terrain*, *all risks*, *all time*, *all day*, *all weather*, *all wheel*, *all candidates* are converted into Adjs, as in *all-weather tires* or *all-terrain vehicle* (a hyphen often signaling their function as an adjective).⁷

7. The following example may show subsequent conversion of Adj > N, though it is better interpretable as derived via ellipsis: “The ‘*all-clear*’ for armament expansion on a great scale is being given” (1936 *Economist* 15 Feb. 347/2 [OED]).

5.2 *All* in syntactic combinations in the history of English

While initial *all* has been used productively in compounds over the centuries, it has also univerbated frequently in phrases. Some expressions appear to have undergone phonological coalescence, become fused, and partially lost structural and/or semantic compositionality in at least some uses. Some have involved lexicalization, but most have involved grammaticalization. A selected list of *all*-combinations from the historical periods of English is presented in Table 2.

In OE, univerbated forms such as *ealswa/alswa* are frequent, those such as *ealneg/alneg* less frequent, while the last four listed (*ealrihte*, *ealoffrung*, *eallwriten*, *ælmyrca*) are hapax legomena in these meanings. Other *eall*-combinations in Old English remain as free phrases, are compositional in meaning, and hence are not in the inventory, e.g. *ealle þa hwile* “all the while”, *eal geador* “all together”.

Progressive changes from OE to ME of one *all*-combination are exemplified in (2) by *eall* + *mæst*. It begins as a free collocation (2a), then appears as a fixed phrase meaning “almost all” (2b) (note the word order change), then an ambiguous form meaning either “almost all” or “nearly” (i.e., a ‘bridging context’, Enfield 2003) (2c), and finally a univerbated grammaticalized form meaning “nearly” in ME (2d):

- (2) a. *oð hie þær mæst ealle ofslægene wurdon*
 till they there most all slain were
 “until they were almost all slain there” (c. 880 *Oros.* 46.25 [DOE])
- b. *þa oðre synd ealle mæst MASCVLINI GENERIS*
 the others are all most masculine gender
 “almost all the others are of the masculine gender”
 (c. 1000 *Ælf Grammar* 46.16 [DOE])
- c. *ac seo scipfyrde ... ælmæst earmlice forfor feowan dagon*
 but the navy ... almost pitifully perished four days
toforan Sancte Michaëles mæssan
 before Saint Michaelmass
 “almost all the navy perished/all the navy nearly perished (+ > some did not perish) pitifully four days before St. Michaelmass”
 (1091 *Chron E* [Irvine] [DOE])
- d. *He is almeſt dead* (1250 *Lay Brut* 19328 [OED])

ME sees the univerbation of a number of OE free or compositional phrases (yielding *alone*, *al-though*, *al-wei(es)*, and *alwise*), as well as the rise of a large variety of new forms, some relatively common (e.g. *algate(s)*; see MED). Others, such as *all but if* “although”, *all but though* “although”, and *all hwat* “until”, are rare (Visser 1972: 906, 871). All involve grammaticalization as adverbs and conjunctions.

In EModE, some ME forms undergo semantic development (e.g. *all over*, *all but*) and new forms arise. The combination *all over* (*over* < OE *ufer* “upper”) is especially interesting. It begins in ME as “all [Pro] + above” (3a), and then develops the sense “completely distributed/throughout” (3b). EModE sees the rise of the meaning

Table 2. *All*-expressions in the periods of English

Old English	
<i>ealfela</i>	“very many/much”
<i>eall mæst</i>	“almost all” > “nearly” (v. late OE: <i>ChronE</i> 1091, 1123)
<i>ealne weg</i> > <i>ealneg, alneg</i>	“all way” > “always, perpetually”
<i>eall swa</i> > <i>ealswa, alswa</i>	“all/just as” > “even as, as if” (conditional)
<i>ealrihte</i>	“quite directly, exactly”
<i>ealoffrung</i>	“all-offering” (gloss for Lat. <i>holocaustum</i>)
<i>eallwriten</i>	“all-written” > “written in one hand” (gloss for Lat. <i>holograph</i>)
<i>ælmyra</i>	“all murky” > “Ethiopian” (converted > N “an Ethiopian”)
Middle English	
<i>al aboute(n)</i>	“in all directions”
<i>al be it</i>	“although” (calque of Fr. “tout soit il”) (see Molencki 1997; Sorva 2007).
<i>al bute</i>	“all except” > EModE “everything short of, nearly”
<i>al-dai</i>	“all day” > “every day, all the time” (calque of Fr.?)
<i>algate(s)</i> < ON <i>alla götu</i> “all ways”	“always, continually, by any means, after all, anywhere”
<i>alheil</i>	interj. “all hale, your health, hello!”
<i>alhol</i>	“entire” (calque of Fr. <i>tout entire</i> ?) also interj. “your health!”
<i>al if</i>	“even if”
<i>al-maner</i>	“of every kind” > “in every way”
<i>alone</i> < OE <i>eall</i> + <i>ane</i> “quite by oneself”	“sole(ly), unique(ly)”
<i>al-oneli</i>	“merely, exclusively”
<i>al out</i>	“utterly”
<i>al-over</i>	“everywhere” > “fullest extent” > EModE “completely finished”
<i>al-redi</i>	“completely ready” > “by this time”
<i>al-sauf</i>	“all-safe” > “quite safely”
<i>al-sonne</i>	“at once, immediately”
<i>al-thing</i>	“everything”
<i>al-though</i> < OE <i>all</i> + <i>þeah</i> “for all that”	“although”
<i>al-times</i>	“at all times, always”
<i>alto</i>	“to the fullest extent or degree, completely”
<i>al togeder</i>	“all in one group” > “completely”
<i>al-wei(es)</i> < OE <i>ealne</i> + <i>weg</i>	“continually”
<i>al-wher</i>	“anywhere else, elsewhere”
<i>alwise</i> < OE (<i>on</i>) <i>ealle wise</i> “in every way”	“always”
Early Modern English	
<i>all for</i>	“completely for the sake of” > ModE “completely for the sake of” > “on the side of, in agreement with”
<i>all in all</i>	“everything/all important” > ModE “all things considered”
<i>all in one</i>	“in unison”

Table 2. (continued)

<i>all of a sudden</i>	“suddenly”
<i>all one</i>	“all [is] the same” > “one and the same, immaterial”
<i>all over again</i>	“repeating from the start/starting once more”
<i>all the more</i>	“to that extent” (part of a comparative construction) > “even more” (no correlative)
Modern English	
<i>all over the place</i>	“distributed over space” > “muddled, disorganized” (20th C)
<i>all right</i>	“completely correct/proper” > “quite acceptable”, “well (in health)”, assent
<i>all that</i>	“very” (early 20th C); negative polarity
<i>all the same</i>	“indifferent”, “nevertheless”
<i>all told</i>	“when all [are] counted, together”
<i>all very well</i>	“acceptable as far as it goes”

“completely finished” (3c). (3a) is a free phrase, (3b) a grammaticalized one (*alouer* functions as an Adv). In the case of (3c), a lexicalized phrase has arisen out of the combination of *all* (Adv) + *over* (Adv) converted to V (as in *It’s all over* ‘It’s all finished’):

- (3) a. *Take honye & grese and meddel wip þine herbes, and sette*
Take honey and grease and mix with your herbs, and set
alle ouer þe fire
all over the fire
“take honey and grease, mix them with your herbs, and set them all over
a fire” (c. 1425 *MS Htrn.95 [MED])
- b. *Faire feldes, alouer floresched wit flores*
Fair fields, all-over ornamented with flowers
“fair fields, decorated all over with flowers”
(c. 1440 PLAlex.(Thrn) [MED])
- c. “On, no, it is *all over* with me; I’m going as fast as possible, to join the
majority.” (1764 *London May*. Nov. 581 [OED])

The subsequent ModE shift in *all over the place* from “distributed over space” (Adv, see (3b)) > “mentally chaotic” (Adj) can be understood as a conversion in word formation, with a concomitant metaphorical shift that requires its storage in the inventory as an L2.

In ModE, a number of *all*-expressions originating in the previous period undergo semantic extension. One such example is *all in all*, used in the sense “everything in everything” (4a) in EModE, and in the sense “all things considered” in ModE (4b):

- (4) a. *The very first and chiefe fountaine, and that which is all in all, is to under-
stand* (1612 Brinsley, *Ludus Literarius* 43 [HC])

- b. *She said she was very well, and did not like to be supposed otherwise; but take it **all in all**, he was convinced that her present residence could not be comfortable* (1814 Austen, *Mansfield Park* [U of Virginia])

Other expressions become fixed in the modern period and develop semantically. For example, *all right* undergoes development from “all proper/correct” (5a), to “quite acceptable” (5b), to “well (in health)” (5c) (lexicalization), and also an adverb of assent (5d) (grammaticalization):

- (5) a. *Is there nothing in your case, or way, that needeth a review? Is **all right**, and nothing out of order?*
(1685 Durham, *Heaven on Earth*, Serm iii [Chadwyck-Healey, EEBO])
- b. *For caresses, too, I now got grimaces; for a pressure of the hand, a pinch on the arm; for a kiss on the cheek, a severe tweak of the ear. It was **all right**: at present I decidedly preferred these fierce favours to anything more tender*
(1846 C. Bronte, *Jane Eyre*, Chap. 24 [Chadwyck-Healey, Brontes])
- c. *“He has stayed at home,” I thought, “and he’ll be **all right** to-day”*
(1847 E. Bronte, *Wuthering Heights*, Chap. 34 [Chadwyck-Healey, Brontes])
- d. *“Stand firm, Sam,” said Mr. Pickwick, looking down. “**All right**, sir,” replied Mr. Weller* (1837 Dickens, *Pickw.* xxxviii [OED])

6. Conclusion

We have investigated the *all*-combinations discussed in §5 to illustrate the unified view of lexicalization and grammaticalization proposed in §4 and summarized in Table 1. On this view, word formation is distinct from lexicalization, and thus compounding and conversion are excluded from it.

There are, in fact, only a few instances of lexicalization in the data, belonging to L2 (complex semi-idiosyncratic forms) on the scale of lexicality. These include the following lexical/contentful forms whose formal and semantic properties are not completely derivable or predictable for the constituent elements: *alloffrung* “holocaust” (N), *call-writen* “holograph” (N), *ælmyrca* “all murky, Ethiopian” (Adj) in OE (but all are hapax legomena) and *all right* “well (in health)” (Adj) in ModE. Like instances of grammaticalization, these show fusion, demotivation (loss of semantic compositionality), and gradualness. However, unlike grammaticalization, they do not involve functional shift, decategorialization, or increase in token/type frequency.

By contrast, most of the *all*-combinations in Table 2 are instances of grammaticalization, belonging to G2 (semi-bound forms) on the scale of grammaticality. In addition to fusion, demotivation, and gradualness, these examples importantly show:

- i. Functional shift/reanalysis affecting the combinations, e.g. *all* (Adv) + Adj > Adv (*already, all right, alsauf*) or *all* (PreDet) + N > Adv (*algates, altime, althing* “everything”, *always*);
- ii. Decategorialization affecting subparts of combinations: even in OE *eall* has lost distinctive Adv *-e(s)* marking in some instances; nominal expressions lose plurality (**all-days*) and adjectival expressions lose the ability to be inflected for degree (**alreadier*) or to take *-ly* (**alreadily*);
- iii. Increased type frequency. (Over time, however, one item may be selected from among several available expressions with a similar function, e.g. *although* is chosen from among *albeit, although*; or *always* from among *ealneg, always, alwise, algates, altimes*.)

Although we do not find instances of L3 (in the sense of clear simplexes) or G3 (in the sense of affixes), we do find items that are totally noncompositional, such as *alone* or *also*.

In sum, the *all*-combinations confirm that univerbation is characteristic of both lexicalization and grammaticalization, as several others have observed. Because of the similarities, neither lexicalization nor grammaticalization can be considered converses of each other. However, despite these similarities, significant differences between the outcomes of the two processes remain, and therefore they must continue to be considered distinct from each other. Crucially, lexicalization leads to membership of a major category (Noun, Adjective, Verb), whereas grammaticalization leads to the development of grammatical markers (and concomitantly to significant differences in terms of frequency).

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Grammaticalization as reduction

Focus constructions in Chiapas Zoque*

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1. Introduction

In this paper I will defend a mentalist theory of grammaticalization, as opposed to ‘grammaticalization theory’ conceived as a separate theory or mechanism of grammatical change. I will argue here that grammaticalization in the usual sense of the term, the way it is used in the standard grammaticalization literature by its main theoreticians (Bybee et al. 1994; Haspelmath 1999, 2004; Heine 1992, 2003; Heine et al. 1991; Hopper & Traugott 2003; Traugott 2003) can be reduced to cases of omission through reanalysis during acquisition. The argument will be based on data from the northeastern dialect group of Zoque, a Mesoamerican language belonging to the Mixe-Zoquean family, spoken in the state of Chiapas in Mexico. This dialect has developed a morphological focus marker from an original pronoun. The stages of this development represent reductions in the phonology, semantics, and morphology, and are thus a typical example of a grammaticalization process. At the same time, the history of the focus marker also includes a case of “degrammaticalization”.

In §2, I offer a description of focus constructions and related constructions in Zoque. In §3 I give an outline of a mentalist theory of grammaticalization, and in §4 I return to the Zoque data to sketch the diachronic development connecting those different constructions described in §2.

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2. Zoque focus constructions

Zoque has typical characteristics of a polysynthetic language, but of a rather special kind. It turns out that many of the morphemes which make up the long words are clitics rather than affixes, in the sense that the same grammatical morpheme may be expressed in different parts of the clause and on different lexical categories. One such clitic is the focus marker *-te* (which appears as *-de* following a vowel or a voiced consonant). Examples of this focus marker are given in (1). The focus marker may appear on different categories: On a verb in (1a), on a case-marked demonstrative in (1b), and on an auxiliary in (1c). (The boldface words in the translations are attempts to render the focus or emphatic reading.)¹

- (1) a. Wene jyamtsüjk-yaj-pa-ajkü-uj-**de** nimeke
 perhaps 3.miss-3PL-ICP-CAUSSUB-EV-FOC very
 “Perhaps **precisely** because he was missing them very much”
- b. Te'-koda-**de** jinam mibü tun-dam-e
 that-because-FOC not 3.come see-IPL-DEP
 “**That’s why** they don’t come to see us”
- c. Tumdum-jama-se nü-**de** myüja-aj-yaj-u
 every-day-SIM CNT-FOC 3.big-v-3PL-DEP
 “Every day they were **in fact** growing bigger”

This focus marker does not appear in all varieties of Zoque, and as far as we can judge from missionary texts and descriptions from the early colonial period, it does not seem to have existed at older stages of the language, nor is it included in Wonderly’s detailed description of the neighboring Copainalá dialect (Wonderly 1951–52).

The key to the history and the functional properties of this focus marker can be found in another type of focus constructions: Cleft sentences. Zoque has a form of cleft sentences with basically the same structure as pseudo-clefts in English. An English pseudo-cleft sentence consists of a focused element, typically a DP, predicated of a relative clause: *What I want is a horse*. The difference is that Zoque does not have relative clauses introduced by *wh*-words or complementizers, and it lacks copula verbs. Relative clauses are formed by means of the suffix *-pü* on the verb, as in (2).

1. The following abbreviations for grammatical morphemes are used in the glosses: ABS absolutive; CAUSSUB causative subordinator; CNT continuative auxiliary; CP completive aspect; DEP dependent verb; ERG ergative; EV evidential; FOC focus marker; ICP incomplete aspect; IPL inclusive 1st person plural; PL plural; PRED predicator/copula; PRO pronoun; REL relativizer; SIM similitive; v verbal derivation; 1/2/3 1st/2nd/3rd person prefix. The Zoque data in examples (1), (3b), (4b), and (4c) are from the printed collection of stories *Y el Bolom dice . . . II. Antología de cuentos*, Gobierno del Estado de Chiapas, 2000. Example (4a) is from Silvia Perez Bravo, Sergio Lopez Morales: *Breve historia oral zoque*. Gobierno del Estado, Chiapas. 1. ed. 1985. The other examples are elicited from native Zoque speakers from the communities of Ocoatepec and Tapalapa.

- (2) *te* *kayu* *te* *pü'n-is* *chak-u-bü*
 the horse the man-ERG 3.beat-CP-REL
 “the horse that the man beat”

Non-verbal sentences in this language are formed by means of the clitic *-te* attached to the predicate word, whether noun or adjective, as in (3). In (3b) there is both a relative clause and a nominal predicate.

- (3) a. *Te* *une* *che'bü-de*
 the child small-PRED
 “The child is small”
 b. *Te'* *nü* *xüŋ-u-bü* *tumin-de*
 that CNT 3.shine-DEP-REL money-PRED
 “That which is shining is money”

Cleft sentences are now formed on the basis of relative clauses and non-verbal predicate constructions, illustrated in (2) and (3). The resultant cleft constructions are shown in (4):

- (4) a. *Üjt* *nü-t* *sutn-u-bü* *kayu-de*
 PRO1-ERG CNT-1ERG want-DEP-REL horse-PRED
 “What I want is a horse”
 b. *Judüm-de* *m-bad-u-bü* *te* *tumin?*
 where-PRED 2-find-CP-REL the money
 “Where was it that you found the money?”
 c. *Myukin-de* *nü* *ñu'k-u-bü*
 3.brother-PRED CNT 3.COME-DEP-REL
 “It was her brother who was coming”

A morpheme *te* is found also in other functions. It serves as a determiner, more or less corresponding to the definite article in Germanic and Romance languages, as in (2), (3a), and (4b). The difference between this *te* and the other two that I have discussed, is that the determiner is preposed to the word which it determines. And it is a separate word, which can be seen from language specific juncture phenomena. For example, there is no voicing of an initial stop followed by a vowel in the word following the determiner, although the language has a general rule of intervocalic voicing of stops.

- (5) a. *yüjkpü* “black”
chütübü “small”
 b. *te püt* “the man” (**te büt*)

The initial /p/ of the adjectival suffix *-pü* is voiced if the preceding adjectival stem ends in a vowel, (5a), while the initial /p/ of *püt* “man” remains voiceless after the determiner *te*, (5b).

Whenever a 3rd person pronoun is expressed, it has the form *te'*, as in (6).

- (6) a. Te' üj-tam-de n-dü
 PRO3 PRO1-PL-PRED 1-friend
 "S/he is our friend"
- b. Te'-is ayidatsüjk-u-'tsi
 PRO3-ERG 1.help-CP-1ABS
 "S/he helped me"

This pronoun is used only for emphasis, and it is really a demonstrative. It differs from the determiner in that it ends in a glottal stop and has independent stress. (Note incidentally that in (6a) the predicate marker is attached to the possessive pronoun.)

3. A mentalist theory of grammaticalization

Before going on to explain the diachronic connection among these various versions and uses of *te*('), I need to clarify my stand on grammaticalization theory. Whatever theoretical and empirical problems are raised by the notion of a grammaticalization theory, and however we want to characterize the counterexamples to unidirectionality, it remains a fact that the kinds of change subsumed under 'grammaticalization' are common across languages, and that they usually do not go in the reverse direction. It is indeed much more common for a lexical word to change into a grammatical word than for a grammatical word to change into a lexical one, and there are many more documented cases of words changing into clitics than vice versa, etc. Any linguistic theory should be able to account for this, and if we do not accept 'grammaticalization theory' as an explanatory theory, we are obliged to seek other explanations.

Since the child acquiring the language has no knowledge of its history, there is no way the child can know whether a given morpheme, say a grammatical word, corresponds to a lexical word or an affix in the language of previous generations. Therefore a change in either direction is equally plausible at the outset, but as we know, not equally frequent. The challenge of any linguistic theory is to offer an explanation of the relatively high frequency of 'grammaticalization processes' as compared to the much lower frequency of 'degrammaticalization processes'. In different terms, the challenge is to explain the apparently overwhelming 'unidirectionality'.

The mentalist response to this challenge is based on *Universal Grammar*, representing the initial state of the innate Language Faculty. UG includes a set of initial assumptions about the nature of human language. One pair of such assumptions can be formulated as in (7).

- (7) *Initial assumptions*
- a. There are words.
 - b. Words are signs, combining expression and content.

The language faculty is a faculty to acquire a grammar on the basis of experience.

Starting with the assumptions in (7) as a premise, a crucial part of the grammar acquisition process is *segmentation*: In order for the child to analyse and interpret the speech flow which he or she is exposed to, and thus acquire the grammar of the parental language, the speech flow has to be divided into smaller units. According to (7a), those units are words. Word boundaries must be assigned within the string of speech sounds. (For more comprehensive argumentation, cf. Faarlund 2007).

The segmentation process has to start before the child has acquired any lexical knowledge, since knowledge of words depends on the identification of segments. The caretakers' intentional teaching of words to the infant starts after the child has begun to speak. The segmentation starts from a null hypothesis derived from the assumptions in (7):

- (8) *Null hypothesis of language acquisition:*
A string is a word with lexical content.

The earliest stage of an infant's language acquisition and development is the one-word stage, where utterances consist of one single word: *Mummy, daddy, milk*, etc. Those are all words referring to entities in the real world of the child, they have a concrete lexical content. The null hypothesis in (8) also leads the child to interpret input strings of more than one word as single words. Thus at the one-word stage, a child may utter strings such as *look-at-that, open-the-door, what's-that, I-still-have-some* (Peters 1985).

Words are of course not the only relevant morphological unit in many languages. Crosslinguistically there seem to be three different categories of morphological units: Words, clitics, and affixes. The most general definitorial criterion for distinguishing among those is based on coherence; they differ in the degree to which they are attached to a neighboring unit, affixes being more closely tied to their stem than clitics to their hosts, while words are free in their relation to other units. Segmentation, therefore, consists in determining and distinguishing among three different types of segment boundaries.

Certain kinds of change are more likely and more frequent than others, leading for example to apparent unidirectionality. For example, in the child's analysis of the linguistic input, it is much more likely for an element to be ignored and therefore omitted from the new grammar than for something to be added at random. I will therefore propose the following condition on acquisition:

- (9) $X > \emptyset$
 $*\emptyset > X$

The formula in (9) does not exclude the possible addition of new material, but such addition will require specific circumstances, for example a previous loss of other material. The loss of material, on the other hand, may happen any time and unconditionally. My claim, then, is that loss is random, and any addition follows from the loss. The fact that it is much more likely for an element to be lost than added seems logical and trivial, but this is precisely what underlies those kinds of language change that are typically referred to as grammaticalization. Grammaticalization is reduction, and unidirection-

ality follows from (9). Any change that involves addition rather than reduction, and which therefore may be seen as counterexamples to unidirectionality, occur when special circumstances allow something to be inserted or added (for exemplification, see the next section).

According to most accounts, grammaticalization may involve the change from free word to clitic to affix. This means a change in coherence and thereby a change in the type of boundary between two elements. The three types of elements, words, clitics, affixes, correspond to three degrees of boundary, which I will symbolize with slashes: / for affix boundary; // for clitic boundary; and /// for word boundary. Morphosyntactic reduction then consists in the loss of one or more slashes. In terms of acquisition and reanalysis, this means that the child misses some of the boundary cues, and interprets the input string as having a weaker boundary (fewer slashes, stronger coherence) at a certain point.

Semantic reduction means deletion of semantic features, which makes the meaning of the expression more general, less specific. This is what has led the word *dog* from referring to the male, to referring to the animal of either sex: Loss of the feature MALE. In many Norwegian dialects, the cognate of “bitch”, *bikkje* has lost the feature FEMALE, and now means “dog” in general. Loss of semantic features is what is involved in *semantic bleaching*. Generally, lexical words have more semantic features – are more specific – than grammatical words. When a verb meaning “want” becomes a future marker it loses the feature VOLITION, but keeps the feature FUTURE, which is present already in the meaning of “want”. Also when a grammatical item becomes more grammatical, semantic reduction may take place. In many languages a definite article has evolved from a demonstrative or a pronoun, and in this process a specific kind of referential meaning is lost.

We will now see how these two types of reduction, loss of boundary strength and loss of semantic content, can be evoked to explain the grammaticalization process leading to the focus constructions in Zoque.

4. Grammaticalization in Zoque

All of the four functions of Zoque *te*([’]) described in §2 – pronoun/demonstrative, determiner, predicate marker, focus marker, have the same historical origin. The question is what the order and mechanisms of change has been in each case.

The point of departure is the pronoun/demonstrative. It has the fullest phonological form – three segments (the glottal stop is phonemic in Zoque), it is a free word, and it has independent stress. The development of a determiner or definite article from a demonstrative or a pronoun, combined with phonological reduction, is a well documented and familiar change in Germanic, Romance, and many other languages.

In other languages, including Arabic, Chinese, and Algonquian (cf. Ng 2004 on Passamaquoddy), a copula has developed from a pronoun or a demonstrative. The reanalysis of a pronoun as a copula in a language without a copula verb starts from

non-verbal sentences with a pronominal subject preceded by a topic phrase. (10a–c) may illustrate such a reanalysis.

- (10) a. He_{PRO} rich “He is rich”
 b. John, he_{PRO} rich “John, he is rich”
 c. John he_{COP} rich “John is rich”

The crucial step here is the reanalysis from (b) to (c). In Zoque, the pronoun or demonstrative *te'* was reanalyzed in this way, but it has ended up as an enclitic on the predicate verb, as we saw in (3). The reason may be that the unmarked word order in Zoque is traditionally verb-initial, although all logically possible orders of verb, subject, and object are permitted in contemporary dialects of the language. Rather than a structure like (10a), the point of departure is (11a), and the subsequent reanalyses as in (11b–c).

- (11) a. che'bü te'
 small s/he
 “S/he is small”
 b. te xka'e che'bü te'
 the girl small she
 “The girl, she is small”
 c. te xka'e che'bü-de
 the girl small-PRED
 “The girl is small”

The postposing of the copula also prevents an ambiguity, since the determiner is always preposed, as in (11b–c) and (12a–b).

- (12) a. te aŋmayobyabü
 the teacher
 b. aŋmayobyabü-de
 “S/he is a teacher”

Since the clitic *-te* has lost its pronominal meaning and thereby its nominal features, among them the person feature, it can be used as a predicate marker for all three persons. The person distinction is instead marked on the predicate noun or adjective in the same way as with intransitive verbs: The 2nd person has a distinct palatal prefix, *y-* or *ny-*, depending on the initial consonant of the predicate word, (13a); the 1st person and the 3rd person have a zero prefix, but the distinction is marked by means of a 1st person clitic, (13b).

- (13) a. y-'aŋmayobyabü-de
 2-teacher-PRED
 “You are a teacher”

- b. Ø-aŋmayobyabü-'tsi-de
 1.teacher-1ABS-PRED
 "I am a teacher"

This change from pronoun to copula involves a loss of phonological substance, semantic content, and boundary strength. A pronoun has referential meaning, whereas a copula has no reference, only the function of marking its host as a predicate. This is then a canonical example of grammaticalization. For grammaticalization theorists (e.g., Haspelmath 2004) a reference to reduction of content in itself seems to constitute an explanation, since it is part of the theory. (For documentation and further references, see Faarlund 2007.)

As I have argued above, all the changes subsumed under the notion of grammaticalization can be accounted for in terms of reduction, and reduction as part of grammatical change is due to some sort of omission during acquisition. What is omitted in this case is one segment of the pronoun, i.e. the final glottal stop, a word boundary, which is weakened to a clitic boundary, and the anaphoric or deictic reference.

Once we have a copula clitic like this, it is ready to be used also in cleft sentences, as we saw above in (4). So the next step in the development now is from copula to focus marker. In this transition there is no phonological or morphosyntactic reduction. On the contrary, the clitic *-te* acquires additional meaning, namely the focusing function. This, then, may seem like a counterexample to unidirectionality, a form of 'degrammaticalization'. Therefore it presupposes specific conditioning. Cleft sentences as those in (4) and the constructions with focus markers in (1) have a similar function, namely to focus or emphasize part of the expression. It is not, however, counterevidence to my claim that change follows from reduction at acquisition. In cleft constructions, there is an element "focus", expressed by the syntactic construction itself. An integral part of the cleft construction is, as we have seen, the relative clause, and the only mark of a relative clause is, as we have also seen, the suffix *-pü* on the verb. In cleft sentences, the focused element is the only meaningful element outside the relative clause. Therefore the road from a cleft such as (4b), repeated as (14a), to a simple sentence such as (14b), is very short.

- (14) a. Judüm-de m-bad-u-bü te tumin?
 where-PRED 2-find-CP-REL the money
 "Where was it that you found the money?"
 b. Judüm-de m-bad-u te tumin?
 where-FOC 2-find-CP the money
 "Where (exactly) did you find the money?"

If the ending *-te* is reanalyzed as the carrier of the focus function, the relative marker may be omitted, and the result is a simple sentence with a focus function. In this way, the morpheme *-te* acquires the function of a focus marker. The meaning of a whole construction is thereby taken over by a single morpheme, which earlier was just a grammatical marker of the construction.

Once the morpheme has acquired this function, its use is extended, so that it can be added to other sentence elements. It is a clitic, and typically of clitics, and above all Zoque clitics, it is very promiscuous, and can attach to all sorts of different categories, as shown in the examples in (1). The scope of the focus marker is not only the word or phrase to which it attaches. Without having had a chance to examine it in detail yet, my general impression is that the scope is whatever its host c-commands. But further examination of the data and of speakers' intuitions are required before making more conclusive statements about this.

A similar case of addition of meaning through the reduction of a construction can be seen in the development of the use of the subjunctive in reported speech in German (Askedal 2005). The subjunctive is used more or less automatically in complement clauses after verbs of saying, etc., as in (15a). In such contexts, the subjunctive is devoid of meaning. In a later development in German, the matrix verb may be omitted, while the verb in the reported speech is still in the subjunctive, as in (15b) and (15c), which are a continuation of (15a). Now the subjunctive has acquired the meaning of 'reported speech' through the omission of the conditioning matrix verb.

- (15) a. In E., sagte sie, habe sich ein Schüler erhängt
 in E said she have.SUB himself a student hanged
 "She said that a student had hanged himself in E."
- b. Am nächsten Morgen hätten Jungen verschiedener
 on-the next morning had.SUB boys different
 Klassen schwarze Armbinden getragen.
 classes.GEN black arm-bands worn
 "The next morning boys from different classes were wearing black arm-bands"
- c. Der Schüler sei Mitglied der jungen Gemeinde gewesen.
 the student be.SUB member the young society.GEN been
 "The student was allegedly a member of the young society"

Both in the Zoque case and the German case the full construction is still in use beside the reduced one. But once the reduced construction becomes possible, the morphemes marking focus or reported speech, respectively, must have acquired their new and extended meaning.

5. Conclusion

In Chiapas Zoque, a bound morpheme functioning as a focus marker derives historically from a personal pronoun or demonstrative. In the absence of sufficient historical documentation this is problematic to ascertain, but the first steps of this development represent a classical case of grammaticalization, while the final step is rather a counterexample to unidirectionality. Grammaticalization is, however, not a theory of change, but a generalization over a set of observations about language change. It does

therefore not have explanatory value, and as has been demonstrated by many linguists, e.g. Newmeyer (1998: Ch. 5), Campbell (2001), and Janda (2001), the changes involved in grammaticalization processes are in fact causally independent of each other. Thereby the whole notion of a grammaticalization theory vanishes into thin air. Grammaticalization is an epiphenomenon, a set of simple processes which follow from other factors, and which may or may not co-occur. One such factor is reanalysis in connection with first language acquisition, and the strong tendency towards unidirectionality follows from the fact that it is easier to omit something than to insert something new.

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Metaphor and teleology do not drive grammaticalization

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1. Introduction

Grammaticalization is a lengthy process in which a linguistic element becomes less prototypically lexical and more prototypically grammatical (Meillet 1912; Hopper & Traugott 1993; Bybee, Perkins & Pagliuca 1994, etc.). While the general view is that numerous factors – including syntactic, semantic, morphological, and phonological considerations – play a role in grammaticalization, the exact roles of various mechanisms of change are still being worked out. I will discuss some evidence regarding the roles of metaphor and teleology in grammaticalization, and explore the degree to which speakers consciously shape language. Ultimately I conclude that, contrary to some claims, metaphor and teleology play little to no role in grammaticalization.

2. Metaphor

The modern view of linguistic metaphor (as presented in Lakoff & Johnson 1980) sees it as a linguistic phenomenon reflecting patterns of human cognition which occurs with differing degrees of conscious awareness.

- (1) *Gas prices rose again this week.*
- (2) *We're coming up on Norwegian Constitution Day.*
- (3) *She shot down his arguments one by one.*

Heine, Claudi & Hünne Meyer argue vigorously for a strong role for metaphor in grammaticalization (1991: 150–151):

Grammaticalization can be interpreted as the result of a process which has problem-solving as its main goal, its primary function being conceptualization

by expressing one thing in terms of another. This function is not confined to grammaticalization, it is the main characteristic of metaphor in general.

Matisoff joins Heine et al. in placing grammaticalization under the umbrella of metaphor. He writes (1991:384, emphasis added),¹

Grammatization may also be viewed as a subtype of *metaphor* (etymologically “carrying beyond”), our most general term for a meaning shift ... Grammatization is a metaphorical shift toward the abstract, “metaphor” being defined as an originally conscious or voluntary shift in a word’s meaning because of some perceived similarity ...

In §4.2, I will address the significance of the conscious nature of metaphor to argue the opposite, namely that grammaticalization does not depend on metaphor. Newmeyer (1998:252) criticizes Matisoff’s view on the grounds that

such a definition fails in both directions ... [T]here are semantic shifts observed in grammaticalization that are not properly characterized as metaphoric. And metaphorical shifts to the abstract are commonplace which are not accompanied by the other components of grammaticalization.

Bybee, Perkins & Pagliuca (1994:25), meanwhile, argue against “metaphorical leap[s]” in grammaticalization, reasoning that “if metaphorical extension is the mechanism of change ..., [t]he shift to a new domain can be abrupt, as it often is in lexical change” (1994:197), whereas grammaticalization tends to progress gradually. They do, however, view metaphor as a factor towards the lexical end of the grammaticalization continuum (but see Juge 2002a for discussion questioning the very notion of such a continuum). In the following sections I present several cases of grammaticalization with a diverse set of apparent relationships to metaphor and argue that metaphor need not be invoked at all in treating these data. I also illustrate how other analytical problems, such as with lexical semantics, can compound the difficulties raised by metaphor analyses.

2.1 Potential cases of metaphorically-driven grammatical constructions

The first group of examples presents cases that appear at first to result from the application of metaphor to grammatical constructions. One of the best known instances of grammaticalization is the so-called GO-future, a version of which appears in many languages, including European languages like English, French, and Portuguese and numerous unrelated, lesser known languages from other regions, including Margi (Afro-Asiatic, Nigeria), Cocama (Tupi, Peru), Maung (Yiwaidjan, Australia), Atchin (Austro-nesian, Vanuatu), Abipon, Krongo (Niger-Congo, Sudan), Mano (Niger-Congo,

1. Traugott & Heine note that “disagreement about how to approach the subject starts with disagreements about what to call it. Some authors prefer ‘grammaticization’ or even ‘grammatization’ to ‘grammaticalization’” (1991:1).

Liberia), Bari (Nilo-Saharan, Sudan), Zuni (isolate, New Mexico, USA), Nung (Sino-Tibetan, Myanmar [Burma]) (Bybee, Perkins & Pagliuca 1994:267).

- (4) Eng *They're going to stay here for a while.*
 (5) Fr *Je vais l-ire un article*
 I GO.PRES.IND read-INF an article
 "I'm going to read an article."

Typically constructions such as those illustrated in (4, 5) are said to result from the application of the metaphor *SPACE IS TIME* and the reasoning that moving (forward) through space represents moving (forward) through time (cf. Fleischman 1982 and references therein). Further examples, such as the French construction *venir de* + infinitive, marking something that has just happened, as in (6), appear to be consistent with this type of metaphorical analysis.

- (6) Fr *Je viens de l-ire un article*
 I COME.PRES.IND from read-INF an article
 "I (have) just read an article."

Note that certain entailments typically found in lexical metaphor do not usually appear in cases of grammaticalization. For example, we might expect that a verb indicating backwards motion would mark movement backwards in time. In a metaphor-based approach to grammaticalization, the absence of such cases must be attributed to a 'target domain override' – a restriction on the application or extension of the metaphor based on the nature of the target domain – without any conceptual connection to the data observed. In some cases, then, metaphorical analysis appears to imply certain apparently unattested developments.

2.2 Superficial conflict with established metaphors

Other languages, however, exhibit constructions that appear to run directly counter to such patterns. Consider, for example, the Catalan periphrastic preterit, which uses forms of *anar* "to go" plus an infinitive to encode not a future but rather a perfective past, as in (7).

- (7) Ct *Ahir v-a-ig lleg-ir dos llibre-s*
 yesterday GO-PRES-IND.1S read-INF two.M book.M-P
 "Yesterday I read two books."

Although one could construct a metaphor-based analysis (based largely on the model established by Emanatian 1992), none is needed. Though not all scholars agree on certain aspects of the development of the construction (see Juge 2002b, 2006), few if any have proposed an account based on metaphor. While this does not indicate the impossibility of a metaphor analysis of the history of this construction, it does suggest that there is no obvious connection between the Catalan periphrastic preterit and

metaphor. Furthermore, this supports the idea that the position of scholars like Heine, Claudi & Hünne Meyer, cited above – that grammaticalization falls under the umbrella of metaphor – is at best overstated.

Future constructions figure here as well. The Scandinavian languages, for example, have a future with *COME* as the auxiliary (8), which has prompted scholars such as Fleischman (1982) and Emanatian (1992) to posit a ‘projection of the deictic center’, by which they mean that the point associated with I-HERE-NOW is imagined to be in some other space. They reason that this allows the use of *COME* – which they assume encodes motion toward the deictic center – to fit with the *TIME IS SPACE* metaphor, thus resolving the apparent conflict between the metaphor and the belief that *COME* verbs indicate motion toward the deictic center, along with the conflict between assumed motion toward the deictic center and motion toward the future, that is, away from now.

- (8) Nw *Jeg komme-r til å snakke med henne.*
 I come-PRS to INF talk with her
 “I am going to talk to her.”

Such an analysis presents several problems. First, it seems to assume that a construction like the Scandinavian *COME*-future can develop only on the basis of first person utterances, as this is the only context in which the metaphor and the deictic quality of *COME* conflict. It is easy, however, to find cases in which speakers talk about another person who is moving toward the deictic center with some activity in mind. Naturally, if this other person is en route now, the intended activity, if realized, must happen later, i.e., in the future, as illustrated in (9).

- (9) Eng Mary: *Where’s Kris?*
 Pat: *She’s coming to trim Fluffy’s claws.*

These considerations provide evidence that explaining a *COME*-future requires neither metaphor nor the complication of projection of the deictic center. No recourse to metaphor is required because the non-metaphorical meanings of these and similar lexemes, when used in certain contexts, present opportunities for reanalysis unrelated to metaphorical patterns, much as we find in cases of perfect constructions that develop with verbs of possession, which are rarely if ever cited as cases of metaphorically-driven grammaticalization (though if scholars such as Heine, Claudi & Hünne Meyer 1991 and Matisoff 1991 are consistent in viewing grammaticalization as a subtype of metaphor, then presumably they would include such perfect constructions).

Nor is it necessary to posit projection of the deictic center, as the conflict between deictic considerations and other factors relates only to the first person. Grammaticalization need not occur only in the context of a highly restricted set of forms. Thus, potential conflicts based on particular person-number combinations will not necessarily influence other parts of the process. An example from the development of suppletion in the Rhaeto-Romance languages (spoken primarily in Switzerland and Italy) illustrates this point. In several of these languages, the first person singular present indicative of the verb meaning “to come” has replaced the corresponding form in the

verb meaning “to go”, as in Surmeiran *vign* /vijɲ/. This replacement appears to stem from the deictic neutralization associated with the first person (evident in the use of *come* in English on the one hand and *ir* “to go” in Spanish on the other in response to a request for one’s presence: *I’m coming/Voy*). This pattern, however, is not extended to the plural, to other tenses, or to other moods, though deictic considerations appear to warrant such extensions.

The Germanic languages provide further evidence of the problems involved in this type of analysis, particularly in terms of deixis. When discussing grammaticalization, it is unfortunately common to assume that lexical items, especially those involved in grammaticalization, have essentially the same lexical semantics of European-language equivalents to a central meaning for the word in question. In the case of *COME*, even a moderately close analysis shows that the Germanic cognates of English *come* do not all encode motion toward the deictic center, as shown in (10),² where the destination is indicated with *dit* “there”, which clearly marks a place away from the deictic center.

- (10) Nw *Da han kom dit var han frisk igjen ...*
 when he come.PAST there be.PAST he healthy again
 “When he arrived there, he was already healthy again ...”

2.3 Lexical semantics and grammaticalization

While it seems that careful lexical semantic analysis would depend on the data found in a given language, some research takes a different tack. For example, Emanatian’s analysis (1992) of *COME* and *GO* in temporal constructions in Chagga (Eastern Bantu, Tanzania) presents a metaphor analysis with perspectival shifting, mentioned above, as its main component.

Although her study raises both methodological and more general analytical issues, here I will focus only on those aspects most relevant to this study. Emanatian analyzes two Chagga verbs, *icha* “to come from” and *ienda* “to go to”, in infinitival constructions, focusing on two future constructions. After introducing two examples (1–2, 11–12 here), she remarks, “This, OF COURSE, is spatio-temporal metaphor” (1992: 3, emphasis added). The phrase “of course” implies that her analysis has been established as the only one that might be correct.

- (11) Ch *mndu chu*
 person this
 naíndelupfíia
na -i -enda -i -lu -pfi -i -a
 FOC:SM:3SG PROG go:to INF OM:1PL die APPL IND
 “This person is going to die on us”

2. From <http://www.sporten.no/nettbirken/omrennet/rennet2001/>.

- (12) Ch *nái'chéálíka* *mkoóngi*
na -i -cha -i -alik -a
 FOC:SM:3SG PROG **come** INF marry IND wife:other
 “He’ll marry another wife” (lit., “he’s coming to marry another wife”)

Emanatian’s case depends primarily on the aforementioned perspectival shifting, which in turn depends on her approach to lexical semantics. As mentioned above, some researchers unfortunately tend to treat European-language glosses as definitive and to base their lexical semantic analyses on these languages, especially dominant ones like English and French. For instance, Emanatian writes, “‘Come’ OF COURSE expresses movement toward the deictic center” (1992:5, emphasis added). This “of course” is not appropriate for all verbs with one meaning that is like one of the meanings of English *come*. It is unjustified to assume that the lexical semantics of one language will neatly fit those of another language, especially an unrelated one. Lexical semantic analysis of this type is not required by using metaphorical analysis, but it does appear to increase the likelihood that metaphor analyses will not fit the data.

In her discussion of past constructions with these morphemes, Emanatian uses the same approach. She writes, for example, “‘Go’ expresses motion AWAY from the deictic center, even in its metaphorical, temporal use ...” (1992:11), and concludes that “[t]his directedness conflicts with the movement of an actor through time from past to present” (1992:11). But, she points out, perspectival shifting might be possible, since some languages have go pasts, even though “in Chagga ... the speaker’s vantage point cannot be de-coupled from the moment of speech for metaphorical uses of ‘go’” (1992:12). Again, Norwegian provides a reminder of the care needed in such analyses. Here the verb *gå* corresponds only partly to English *go*, and it does not appear in a variety of contexts in which *go* would be used. Additionally, semantic change can render the contemporary data a misleading guide to the relationship between a lexical source and a grammatical element.

2.4 Continuum effects – varying stages of development

Grammaticalization research often emphasizes crosslinguistic patterns and sequences of development called grammaticalization paths. Languages commonly follow very similar paths of development, and we often find that one language appears to be further along on a given path than another. These cases show a gradual quality which is at odds with typical metaphorical effects, as Bybee, Perkins & Pagliuca indicate in the quote above.

Consider French (13), where the GO-future seems quite advanced, appearing even with expletive subjects. Meanwhile Catalan uses a similar construction only when gen-

uine motion is involved (14), which contrasts with the ungrammatical (15), with the intended meaning “She’s gonna go to the beach tomorrow”.³

- (13) Fr *Il v-a pleuv-oir.*
 3M go-PRES.IND.3S rain-INF
 “It’s going to rain”
- (14) Ct *V-a-s a visit-ar l-a professor-a?*
 go-PRES.IND-2S to visit-INF the.F professor-F
 “Are you going to visit the professor?”
- (15) **Ell-a v-a a an-ar a l-a platj-a demà.*
 3-F go-PRS.IND.3S to go-INF to the-F beach-F tomorrow

Like English, French also allows the construction with past tense forms (imperfect) of the auxiliary, as in (16). This might lead us to expect that Scandinavian languages would show a similar pattern with their motion-verb futures. However, this construction does not admit a past-tense auxiliary, as shown in (17), expected to mean “It was going to rain”. Instead, the past tense of the auxiliary *skulle* is used, as in (18).

- (16) Fr *Ma mère all-ait l-ire un livre*
 my.F mother go-IMPF read-INF a.M book
 “My mother was going to read a book”
- (17) Nw **Det kom til å regne*⁴
 it come.PAST to INF rain
- (18) Nw *Vi skulle spise da hun kom*
 we AUX.PAST eat when she come.PAST
 “We were going to eat when she arrived”

Meanwhile, the fact that some languages, even those closely related to ones examined here, have no motion-verb future construction, as in the case of Romanian, reminds us that these developments simply need not occur in all cases. These data show not only that closely related varieties may follow different paths – which is to be expected – but also that languages following similar paths need not take all the same turns. In terms of metaphorical analysis, such cases emphasize the distinction between the gradual nature of grammaticalization and the typically abrupt nature of lexical metaphor, again showing that metaphorical analyses sometimes make predictions that do not seem to be borne out.

3. Actually, Catalan speakers do sometimes use such a construction, but it is regarded as a Castilianism and so does not constitute a case of grammaticalization in Catalan.

4. This construction actually is grammatical, but not in this sense. It means “It ended up raining”.

2.5 Changes orthogonal to metaphor

Many instances of grammaticalization seem to have no relationship to metaphor whatsoever. Consider the volition future in Romanian (19) and the obligation future in the Scandinavian languages (20), where the developments of future marking are straightforward conventionalizations of pragmatic implicatures. If a speaker asserts that someone wants to do a certain thing, then it is likely that the listener will conclude that it will happen. Likewise, expressing an obligation to perform a task is pragmatically tantamount to claiming that it will happen. Other languages show these kinds of future constructions, including the English *will* construction (volition) and the synthetic Romance futures (obligation: infinitive + *habeō*, “I have to do X”).

(19) Rom *Ei vor pleca mâine*
 they AUX.3P leave tomorrow
 “They will leave tomorrow”

(20) Nw *De skal spise snart*
 they AUX eat soon
 “They will eat soon”

In analyzing cases of grammaticalization it is important to identify possible BRIDGING CONTEXTS, namely circumstances in which the use of an existing construction may allow another interpretation, which then becomes conventionalized and gives the later meaning, leading to a new construction. This process is found both in lexical change and grammaticalization. The history of the English lexeme *want* shows lingering traces of its earlier sense of “lack” (as in *For want of a nail . . . , I find this wanting*), with no indication of desire on the part of the referent of *a nail* or *this*. In discourse if someone indicates that some animate being lacks something, then implicature encourages the hearer to interpret that as a statement of need or desire.

One of the best known grammaticalization patterns further weakens the case for metaphor either as a driving force for grammaticalization or as its parent category. Perfect constructions commonly develop from resultatives consisting of BE verbs and HAVE verbs along with participial forms in constructions with no metaphorical component. In these constructions the bridging context involves expressing that one has some object that is in a given state as the result of prior action, along the lines of *I have your papers graded*. With further pragmatic and morphosyntactic development, we end up with familiar constructions like *I have graded your papers*.

3. Teleology

As an approach to historical linguistics, teleology refers to analysis of changes in terms of purposes that those changes supposedly serve. Traugott & Heine discuss the issue and in the same paragraph, they address the possible role of “the phenomenon of gaps in grammatical paradigms” (1991:9), but for almost any linguistic category that

	anterior	simultaneous	posterior
absolute	preterit	present	future
relative	pluperfect	imperfect	conditional

Figure 1. Verb categories in Catalan according to Pérez Saldanya (1996)

comes to mind, there's a language that doesn't formally mark it. Indeed, William F. Weigel (personal communication) suggests that negation may be the only indispensably marked grammatical category.

3.1 'Problems' in language

The notion of language change as a way to solve problems has surfaced in the grammaticalization literature on a number of occasions, including in the quote above from Heine, Claudi & Hünemeyer, who refer to "a process which has problem-solving as its main goal" (1991:150). The word "goal" here merits special attention. One version of this approach assumes that such changes have a purpose and that the purpose is improvement. On this view, a language has some kind of problem that is mitigated or solved through linguistic change. We can dispute both parts of this reasoning, starting with the idea that language change has a goal of any kind. Although I will address possible exceptions below (§4.1), I argue that language change in general and grammaticalization in particular are not goal-directed processes. From this it follows that changes do not happen to improve languages (whether changes are considered improvements after the fact is a separate issue). The burden of proof falls on those who wish to argue the contrary.

One problem-based grammaticalization analysis is Pérez Saldanya's discussion of the Catalan periphrastic preterit (1996)⁵. He argues that the development of the Catalan GO-preterit (illustrated in 7 above) was motivated by a number of problems. He presents certain categories of the Catalan verbal system as in Figure 1.

Pérez Saldanya argues that in Old Catalan regular phonetic development had caused five serious formal problems that accelerated "the crisis of the derivatives of CANTAVI [Latin "I sang/have sung"]": (1) The loss of Latin -VI- left no explicit past marker in all persons, increasing morphological opacity. (2) The preterit conjugations varied greatly. (3) An imbalance developed in the 3P, which had one more syllable than the other forms. (4) Some preterit forms were homonymous with present forms, which was especially serious since these are absolute tenses. (5) In some strong and -ir preterits homonymy developed between the 1s and the 3s (e.g., *hac* "had", *dix* "said", *dormí* "slept"). Pérez Saldanya claims that this syncretism is normal in the relative tenses (imperfect, conditional, synthetic pluperfect) and in the subjunctive but that it is especially problematic in an absolute tense like the preterit (1996:96). He does not explain why homonymy should be a more serious problem in an absolute tense

5. This treatment of Pérez Saldanya is based on a longer discussion in Juge (2006).

than in a relative tense or in the subjunctive. In fact, he provides no discussion of how researchers are to conclude that patterns constitute problems in general, nor does he present any reason to consider any of these specific facts to be problems.

Not all dialects of Catalan replaced the synthetic preterit with the GO-periphrasis, which suggests that these ‘problems’ are not as serious as Pérez Saldanya indicates. Indeed, Spanish and Portuguese show similar patterns, but they retain the simple preterit, replaced neither by the HAVE-perfect nor a GO-preterit. Furthermore, the process of replacing the synthetic forms with the periphrastic ones took several centuries. If such changes are teleological, who directs them?

This approach is reminiscent of ease-of-articulation arguments in phonetics and phonology. Among those treating the view that sound changes result from considerations of ease of articulation are McMahon (1994) and Labov (2001). Labov raises an important limitation to this mode of explanation, namely that certain types of change, like those involving place of articulation, do not fit well with a scale of ease of articulation. He cites the shift of /t/ to /k/ in the history of Hawaiian in the Austronesian family (2001:25), to which we can add the change from /j/ to /x/ in Spanish and, presumably, changes in manner of articulation like those found reflected in the names of the Siouan-Catawban varieties Dakota, Lakhota, and Nakota.⁶

Besides these considerations, we must also reconcile such arguments with possible conflicts between attested sound changes and scholarly notions of ease of articulation. Open syllables seem to be nearly universally considered easy to produce. If this is so, and ease of articulation is an important factor in sound change, then some other principle must be at work that can explain examples like Georgian *gyprckvni* ‘you peel us’ (Hewitt 1996:6) or vowelless sentences (lacking even epenthetic vowels) as in the Bella Coola (Salishan) example provided by Bagemihl (1991:16): *xłp̄x^włłp̄łłs k^wč* ‘Then he had had in his possession a bunchberry plant’ (cited in Mithun 1999:22). While the apparent synchronic complexity these cases seem to challenge the notion of simplicity, two examples from French will further illustrate the problem with diachronic data. The Latin word *canem* ‘dog’ lost its final nasal early and developed into French *chien* [ʃjɛ̃]. Thus a word with two open syllables gives way to one with one open syllable with segmental features not found in the earlier system, namely palatal obstruents and nasal vowels. The word *peuple* ‘people’ [pœpl], from Latin *populum*, illustrates not only one of the vowels found in French’s larger phonemic inventory (13–16 vowels – including front rounded phonemes – and 20 consonants versus 13 and 15 respectively, depending as always upon one’s analysis) but also phonotactic possibilities not found in Latin, where complex codas were highly constrained.

Perhaps these facts can be reconciled if we draw a three-way distinction between causes, motivations, and consistent patterns. That is, it may be that ease of articulation is a motivation in (some) sound changes but not a cause per se, and that certain

6. Note, however, that Mithun points out that earlier reliance on this phonological point as a criterion for genetic relations among these varieties “is problematic and inadequate” (1999:502).

changes are consistent with other considerations – as when a case of grammaticalization appears to line up neatly with a given metaphor – even if the data do not support positing a causal relationship.

Morphological and syntactic changes raise similar issues of simplification. While some scholars espouse the view that language change simplifies the grammar, others have noted that the issue is not as straightforward as it might seem at first. Maiden, writing on the relationship between ‘italiano popolare’ or popular Italian and standard Italian, points out that the claims of Berruto (1983) depend on one’s definition of simplicity, which he calls “the rather nebulous notion of ‘structural simplification’”, since one may identify simplification in the grammar or in semantic terms as it relates to the isomorphic principle (1995:258–259), as we saw in Pérez Saldanya’s analysis of the Catalan periphrastic preterit. Not only is it not entirely clear how simplification should be defined, but even when a seemingly coherent definition is adopted, the data do not always bear out the principle.

Lass formulates a “Simplification Preference: Given a set of cognate dialects showing, for some morphological category, a complex system, and another set with a simple(r) one, the direction was from complex to simple,” which he then summarizes simply by saying, “Morphology decays” (1997:253). He goes on, however, to say, “But richly exemplified as [this] seems to be, the underlying intuition is not well supported. Certainly it’s nowhere near as reliable as the directionality predictions we can make in phonology with regard to lenition hierarchies” (1997:254). Ultimately, Thomason & Kaufman sum up matters succinctly and a shade litotically: “Deciding whether a given change simplifies the grammar, complicates it, or has neither effect is not always easy” (1988:87).

3.2 Methodological considerations

McMahon (1994:334) offers a cogent discussion of the issue and concludes that the

verdict of Not Proven in the Scottish courts ... seems the best judgement on teleology. We cannot prove teleological explanations wrong (although this may in itself be an indictment, in a discipline where many regard potentially falsifiable hypotheses as the only valid ones), but nor can we prove them right. More pragmatically, alleged cases of teleology tend to have equally plausible alternative explanations, and there are valid arguments against the teleological position.

Most of the cases McMahon considers are in the area of phonology, but her reasoning extends readily to grammaticalization. One of her examples is Lass’s (1974) claim that a number of changes related to vowel length in Scots was a type of conspiracy. More recent defenses of parts of such explanations can also be found (Anttila 1988; Shapiro 1991).

Bybee, Perkins & Pagliuca take a clear anti-teleology stance (1994:300):

Our view, then, is that grammaticization is not goal-directed; gram[matical morpheme]s cannot “see” where they are going, nor are they pulled into abstract functions. The push for grammaticization comes from below.

Lessau identifies the following components as implicit in any teleological approach (1994:861): (psychological) VOLITION, (psychological) IMAGINATION, (psychological) ANTICIPATION, (psychological) EVALUATION AND SELECTION, and (physical) MANIPULATION. In the case of grammaticalization, it is not plausible to propose that speakers have the awareness or means to enact changes so as to serve any purpose.

4. Awareness of grammatical change

Indeed, any teleological analysis depends on the notion that speakers could identify a pattern as a problem and initiate changes that would address the supposed problem. In this section I address this issue in general terms (§4.1) and in terms of metaphor (§4.2).

4.1 Planning grammatical change

Sociolinguistically, the identification of putative problems generally involves variant patterns associated with groups of speakers with different levels of prestige. For example, in English some prescriptivists have latched onto the case forms used in conjoined noun phrases with pronominal elements, as in (21a–b) and (22a–b).

- (21) a. *She and I met two years ago.*
b. *Me and her met two years ago.*
- (22) a. *It's none of your business. It's between her and me.*
b. *It's none of your business. It's between she and I.*

Starting with subject NPs, some speakers consistently produce sentences like (21a), while others at least sometimes say things like (21b), which is sometimes stigmatized. Some speakers then adopt the pattern found in (22b), to the chagrin of many who follow the model of (22a). Conscious pressure for change need not always result in the desired effect.

Grammaticalization presents two significant differences from the above case. First, it is not clear that speakers regularly identify the kinds of patterns that Pérez Saldanya mentions in the case of the Catalan preterit. If only a few do, then how does a small group affect the direction of changes in their language?

Secondly, and perhaps more significantly, the time scale is vastly greater. Even if we accept, for the sake of argument, that speakers might identify an aspect of their language that needed to be addressed in some way and identify a state of affairs to aim at, how are we to suppose that they could set into motion a plan that would, over a period of centuries, lead to the desired result? It appears that no speech community has ever attempted or accomplished such a task.

Consider the possible counterevidence provided by Thomason (2003). She has examined several instances in which speakers have apparently effected change intentionally. For example, speakers of the mixed language Ma'a spoken in Tanzania insert a voiceless lateral fricative into the Bantu language Pare, in which all current speakers are fluent, thus creating a case of intentional phonological change. Furthermore, Thomason claims:

Bilingual languages like Michif (spoken primarily in Manitoba and North Dakota) and Mednyj Aleut (once spoken on Mednyj, or Copper, Island off the far eastern coast of Russia) cannot have arisen gradually, and they almost certainly emerged at least in part through deliberate, conscious decision.

While cases such as these certainly must be accounted for and may require clarification on other fronts, the examples that Thomason adduces do not fall under the rubric of grammaticalization. Perhaps the key difference between these examples and cases of grammaticalization lies in the time span involved. Thomason asserts that some if not all of these changes occurred quickly. Grammaticalization, on the other hand, unfolds over much greater time periods, and it is far from clear how speakers might realize such long-term changes consciously.

4.2 Consciousness of metaphorical use

Metaphorical analyses of grammaticalization raise similar concerns. At the lexical level, a key characteristic of metaphor is that it is subject to substantial novel extension. Consider the lyric in (23) from the song “Charlie Brown’s Parents” by the rock band Dishwalla. This line shows an extension of the conduit metaphor, which presents communication as a process of packaging content – primarily in words – and sending it to the recipient, who then opens the package and gains access to the content. Here, the fact that the packaging is nearly impenetrable corresponds with the difficulty that the singer (or his character) has in understanding the addressee, who, like the cartoon characters, is incomprehensible. This example, along with many others, shows that speakers understand metaphorical entailments and rely on them and their extensions to express themselves. This process involves a high degree of speaker awareness of the manipulation of the mechanism.

(23) *“Can’t you see it would take the jaws of life to pry open your words?”*

On the other hand, the available evidence strongly indicates that mechanisms of grammatical change such as reanalysis, (pragmatic) inference, and pragmatic strengthening are subconscious processes and not open to the kind of manipulation found in lexical metaphor.

5. Relationship between metaphorical and teleological analyses

Not all researchers who espouse metaphorical analysis also espouse teleological analysis, nor vice versa. Heine (1993), for example explicitly discusses metaphor as a part of grammaticalization but does not discuss teleology. While metaphor-based analyses of grammaticalization typically imply at least some degree of teleology, scholars do not always make an explicit connection between them. Meanwhile, teleological analyses need not include metaphor as an explanatory factor in grammatical change. Anttila (1972), for instance, discusses both, but does not connect metaphor with either grammatical change or teleology.

6. What instead of metaphor and teleology?

If metaphor and teleology are not driving forces – or not even contributing factors – in grammaticalization, then we must seek other explanations for these changes. Linguists have already identified many mechanisms that contribute to grammatical changes. Just in Hopper & Traugott (1993) and Bybee, Perkins & Pagliuca (1994), we find a healthy list of processes that, unlike metaphor and teleology, are indisputably connected with the changes under study. These two sources alone present reanalysis, analogy, pragmatic inferencing, and phonological reduction, among others.

7. Conclusions

While many changes in grammaticalization are consistent with common metaphors, some seem to be orthogonal to such metaphors, and still others appear to conflict with attested metaphorical patterns. The data suggest that there are two approaches to metaphor and grammaticalization that overstate the role of metaphor and do not fit the facts. First, some, like Heine, Claudi & Hünemeyer (1991) and Matisoff (1991), view grammaticalization as a subtype of metaphor. Certain types of grammaticalization, however, are, to the best of my knowledge, never explicitly analyzed in terms of metaphor. For example, I have not encountered a metaphor analysis for the development of perfects with either *BE* or *HAVE* used in conjunction with participles.

Others, meanwhile, like Bybee, Perkins & Pagliuca (1994) and Emanatian (1992), posit a metaphorical component to grammaticalization that not only lacks justification but in fact complicates the analysis. In the development of tense-aspect constructions with verbs of motion, like the Scandinavian *COME*-future and the Catalan *GO*-past, metaphor analysis has led researchers to propose unnecessary and undersupported notions, such as the projection of the deictic center, to resolve difficulties that do not arise in non-metaphorically based analyses. Questionable lexical semantic analysis has further complicated the situation.

Teleological explanations appear to suffer from the flaw of suggesting that certain kinds of changes are necessary, even though such changes fail to occur in other contexts in which they seem equally well motivated. Such analyses also raise the problematic issue of intent on the part of speakers. While Thomason (2003) has analyzed cases that appear to show intentional change, these seem to occur on a different time scale than grammaticalization. The phenomena of metaphor and teleology may both be related to an attribution of more conscious awareness of and control over linguistic patterns than speakers actually have.

While it is possible that metaphor may make some contribution to grammaticalization, the data currently available suggest that teleology has no role. Furthermore, the evidence indicates that neither metaphor nor teleology is a principal driving force in grammaticalization. Without recourse to these explanatory devices, grammaticalization researchers nonetheless have at their disposal numerous well-understood processes and mechanisms to aid them in their work.

Abbreviations

1	first person	IND	indicative
2	second person	INF	infinitive
3	third person	M	masculine
APPL	applicative	Nw	Norwegian
AUX	auxiliary	OM	object marker
Ch	Chagga	PL	plural
Ct	Catalan	PRES	present
Eng	English	PROG	progressive
F	feminine	Rom	Romanian
FOC	focus	SG	singular
Fr	French	SM	subject marker
IMPF	imperfect		

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PART II

Syntax and semantics

Processing factors in syntactic variation and change

Clitics in Medieval and Renaissance Spanish

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1. Introduction

The placement of object clitics in the Romance languages has long piqued the interest of linguists. Central to the clitic puzzle is why in Modern Romance these unstressed pronouns, and not other NPs, can occur preverbally in unmarked finite verb contexts. The present paper contributes to this discussion by examining various phenomena related to the distribution of clitics in Medieval (MedSp) and Renaissance Spanish (RenSp) finite main clauses from a Dynamic Syntax (DS) perspective (Kempson et al. 2001; Cann et al. 2005) in which constructed trees are representations of semantic content, not strings of words. The more general aim of this paper is to show that processing factors can contribute to syntactic variation and change.

The paper is divided into two parts: (1) an extensive discussion of Spanish clitic placement with respect to the finite verb at the beginning and the end of the time period under scrutiny, the 13th–16th century; and (2) various synchronic accounts of MedSp and RenSp within the DS framework. In part two, I will first examine finite main verb environments containing clitics in order to find out what regulates MedSp clitic placement. I will show that processing (parsing/producing) strategies, i.e., different ways of building up semantic content, governed the positioning of clitics with respect to finite main verbs in the 13th century: proclisis is attested whenever the clitic is preceded by an element that is parsed/produced as structurally underspecified, whereas enclisis occurs in the absence of this processing strategy. Second, I will demonstrate that, due to the availability of different processing strategies, phenomena such as interpolation, clitic and NP climbing do not pose a problem. Unlike other analyses, no additional machinery or structure-specific stipulations need to be made to account for the combination of these phenomena. Once a synchronic analysis for RenSp has been proposed, the diachronic shift between the MedSp and the RenSp system will be

modeled. I will conclude that different processing strategies are not only the source of synchronic variation in MedSp clitic placement, but also a motive for the diachronic shift from the MedSp to the RenSp clitic system.¹

2. Clitic placement in Medieval and Renaissance Spanish

2.1 Clitic placement in 13th century Spanish

The positioning of object clitics is considered a classical problem within Romance linguistics and has been studied frequently since the 19th century. In general, these studies describe the position of the clitic with respect to the verb using a string-linear approach that involves identifying the element immediately preceding the clitic-verb complex (e.g. Gessner 1893; Keniston 1937; Ramsden 1963; Elvira 1987; Nieuwenhuijsen 1999, 2002, 2006). These accounts either assume that the pre- or postverbal placement of the clitic is determined by the grammatical nature of the element immediately preceding the clitic and verb, or by the phonological nature of the clitic itself; more specifically, clitic pronouns, being unstressed, are postposed onto the first stressed constituent in a clause. As we will see, neither assumption is correct. First, there exist plenty of examples in which postverbal clitics occur with more than one stressed constituent preceding the clitic, as illustrated in (1):²

- (1) *E Abraam a el diol el diezmo ...*
 and Abraham to him gave-wp the tithe ...
 “and Abraham gave him the tithe ...” (Faz.:44)³

Similarly, we will see that it is not the grammatical nature of the element preceding the clitic-verb complex that determines clitic placement, but rather the way in which this element is processed (parsed/produced). Furthermore, this strict string-linear methodology for identifying the different clitic environments is problematic as it presupposes that only the grammatical element immediately preceding the clitic and verb can influence the placement of unstressed pronouns. However, this is not always the case:

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2. For visual clarity, the weak pronouns under consideration have been highlighted in bold and are glossed as wp.

3. My corpus for the 13th century consists of 2025 tokens taken from the *Fazienda de Ultramar* (Faz.), which dates from around 1230 and has been edited by Lazar (1965).

- (2) *Agora, Sennor infante, vos he dicho ...*
 now Lord prince WP have said ...
 “prince, now that I have told you ...” (Granberg 1988: 153)

Adopting such an approach, one would conclude from (2) that the vocative *Sennor infante* “prince” is responsible for the proclitic position of the pronoun *vos* “you”. However, a closer look at other data reveals that it is the adverb *agora* “now”, and not the vocative, that triggers proclisis in the 13th century, given that vocatives always appear with enclisis when not preceded by another constituent:⁴

- (3) *Sennor, ayudam*
 Lord help-WP
 “Lord, help me” (Faz.: 114)
- (4) *Agora se tornara el pueblo ...*
 now WP will-return the people ...
 “now the people will return ...” (Faz.: 152)

Thus, in setting up taxonomy criteria for my corpus, I did not opt for a strict string-linear approach but decided for a more DS-oriented methodology whereby only the elements of the tree to which the clitic contributes are considered relevant, and not necessarily the entire sentential sequence (see the concept of LINKED tree introduced in Section 3). Largely following Nieuwenhuijsen (1999, 2002, 2006), I subsequently identified for the 13th century fourteen different main clause environments containing clitics, which can be grouped into (i) the strict proclitic constructions, (ii) the strict enclitic constructions and (iii) the variation structures. The most frequently encountered position for the unstressed pronoun in finite main clauses is the enclitic one: 75% (1519/2025) of all registered cases exhibit this placement. This postverbal placement can be regarded as the norm for 13th century object clitics considering this is the default position, which can be overwritten in certain circumstances, namely when a proclisis-triggering constituent precedes the clitic under consideration, as in (2) and (4).

2.1.1 *Strict proclitic constructions*

In the following, I will give an overview of the different clitic environments. A handful of constructions appear exclusively with preverbal clitics throughout the period between the 13th and the 16th century. In these constructions, the clitic is either preceded by a *wh*-element, a negation marker, a focused object NP, a prepositional or a predicative complement, as illustrated below. Observe that the constituents preceding the clitic – except for negation – are arguments of the verb that occur in non-canonical position.

4. Notwithstanding this, as a mere observational sketch the string-linear approach succeeds largely in disentangling the complex clitic distribution of MedSp.

- (5) *Que te dixo Heliseus?*
 what WP said Heliseus
 “what did Heliseus tell you?” (Faz.:134)
- (6) *Non los destruyré*
 not WP will-destroy
 “I will not destroy them” (Faz.:77)
- (7) *A to linnaje la daré*
 to your lineage WP will-give
 “to your lineage I will give it” (Faz.:81)
- (8) *Con aquellas se aiunto Salomon*
 with those WP slept Salomon
 “with those women, Salomon slept” (Faz.:150)
- (9) *Testimonias me sed oy*
 witnesses WP be today
 “be my witnesses today” (Faz.:200)

2.1.2 *Strict enclitic constructions*

Similarly, there exist some constructions in my corpus for the 13th century that occur solely with enclitic pronouns. The constructions in question are those in which the verb is located in absolute sentence-initial position, as in (10), and those that contain either a vocative (11) or a contrastive coordination marker such as *pero/mas* “but” (12) preceding the verbal form:

- (10) *Oyol Ruben*
 heard-WP Ruben
 “Ruben heard it” (Faz.:51)
- (11) *Sennor, ayudam*
 Lord help-WP
 “Lord, help me” (Faz.:114)
- (12) *... mas dixom ...*
 ... but told-WP ...
 “... but he told me ...” (Faz.:207)

2.1.3 *Variation constructions*

The last category in the distributional classification consists of the variation constructions in which heterogeneous clitic positioning can be discerned within one and the same environment. This behavior has been observed for those constructions in which the clitics are preceded by either subjects (13), adverbials (14), coordination markers *et/y* “and” (15), left-dislocated object NPs that are co-referential with the clitic (CLLD, (16)), non-root (17) or root clauses (18):

- (13) a. *e ella dixogelo*
and she told-WP-WP
“and she told it to him” (Faz.:47)
- b. *Sant Mate lo testimonia*
Saint Matthew WP testify
“Saint Matthew attests it” (Faz.:97)
- (14) a. *E despues adurmios*
and afterwards fell-asleep-WP
“and afterwards he fell asleep” (Faz.:53)
- b. *Assi lo fizieron*
this-way WP did
“they did it like that” (Faz.:192)
- (15) a. *Sonno Joseph un suenno e contolo a sos ermanos*
dreamt Joseph a dream and told-WP to his brothers
“Joseph had a dream and he told it to his brothers” (Faz.:50)
- b. *Yot acreceré e te muchiguaré*
I-WP will-enlarge and WP will-multiply
“I will enlarge and multiply you” (Faz.:58)
- (16) a. *El espada; e la cabeça; aduxola; a Jherusalem*
the sword and the head brought-WP to Jerusalem
“his sword and head, he brought them to Jerusalem” (Faz.:140)
- b. *Levo cativo el rey de Babilonia al rey Joachin e a*
took captive the king of Babylon to-the king Joachim and to
sue madre, a sus mugieres e a sos vassallos e todos los
his mother to his wives and to his vassals and all the
mayores de toda su tierra; todos los cativo ...
elders of all his land all WP captured ...
“the king of Babylon captured king Joachim, his mother, his wives, his
vassals and all the elders of all his land, he captured them all ...”
(Faz.:160)
- (17) a. *Quant le connocio Abdias, homillose*
when WP recognized Abdias, lowered-WP-WP
“when Abdias recognised him, he bowed for him” (Faz.:121)
- b. *antes que saliestes del vientre te santigué*
before that left of-the belly WP blessed
“before you were born, I blessed you” (Faz.:165)
- (18) a. *Ella echos a sos pies, encorvos*
she threw-WP to his feet, bended-WP
“she threw herself to his and feet, she bowed” (Faz.:132)

Table 1. Occurrence of proclisis in 13th century Spanish

Approach	Bouzouita Dynamic	Nieuwenhuijsen Strict String-linear
1. Wh-word	100% (42/42)	100% (1/1)
2. Negation	100% (167/167)	100% (13/13)
3. Object NP (no doubling)	100% (22/22)	100% (1/1)
4. Prep. complement	100% (8/8)	–
5. Pred. complement	100% (6/6)	/
6. Verb	0% (0/335)	0% (0/43)
7. Vocative	0% (0/14)	–
8. <i>Pero/mas</i> “but”	0% (0/3)	–
9. Subject	69% (112/163)	62% (10/16)
10. Adverbial	70% (117/168)	58% (7/12)
11. Coordination	2% (23/997)	4% (5/117)
12. Object NP (CLLD)	19% (5/27)	0% (0/1)
13. Non-root clause	8% (3/39)	14% (1/7)
14. Root clause	3% (1/34)	0% (0/1)
Total	25% (506/2025)	18% (38/212)

- b. *murio [de] mala muert en Judea; lo comieron gusanos*
 died of bad death in Judea; *WP* ate maggots
 “he died horribly in Judea; the maggots ate him” (Faz.:203)

It must be pointed out that, despite the observed variation, clitics generally arise postverbally in the latter four constructions. Table 1, which compares my data with Nieuwenhuijsen’s findings (1999, 2002, 2006), confirms this view: only 2% (23/997) of proclisis is recorded for the coordination cases, 19% (5/27) for the CLLD ones, 8% (3/39) for the preceding non-root clauses and 3% (1/34) for the paratactic main clauses.

Regarding the coordinate constructions, preverbal placement only seems possible if the first conjunct contains a proclisis-inducing element, e.g. a subject or *wh*-element, as illustrated in (15b), which contains a proclisis-inducing subject *yo* “I” in the first conjunct.⁵ Proclitic CLLD contexts, on the other hand, only arise in the presence of the quantifier *todo(s)* “all” or *ambo(s)* “both”, as shown in (16b). As this example clearly illustrates, the repeated quantifier *todos* “all” summarizes an enumeration of different people that were captured, thus we can assume that it is emphasized and pragmatically salient. Enclisis also seems to be the default position whenever a non-root clause precedes the matrix clause (see (17a)), unless this non-root clause contains the subordinating element *antes que* “before that”, as in (17b). Similarly, postverbal placement is found almost without exception in paratactic main clauses, as in (18a). As Table 1 shows, I found only one counterexample displaying proclisis, given in (18b). This table

5. Out of a total of 997 examples, 2 exceptions to this were found. I will regard these as first attestations of a change taking place in the grammar. See §3.1.3.

also compares Nieuwenhuijsen's (1999, 2002, 2006) and my findings: as can be seen, two environments considered to be strictly enclitic by Nieuwenhuijsen (the CLLD and preceding non-root clauses cases) turn out to allow variation. Furthermore, she did not find cases for all the different environments due to the relatively small size of her corpus.

Returning to the question of which principles underlie 13th century clitic placement, it has been argued that pragmatic considerations are responsible for the varying clitic positioning. Martins (2003), for instance, argues that the variation constructions appear to be emphatic when a preverbal clitic is present and neutral otherwise. Likewise, Granberg (1988: 195–227) has shown that the position of the MedSp clitics following expressed subjects is determined by the presence or absence of emphatic stress on the subject, as in Modern Galician: clitics occur postverbally unless the subject is highlighted by emphatic stress. All this suggests that pragmatic considerations indeed seem to regulate MedSp clitic placement to some extent. As we will see later on, I claim that this pragmatic motivation for clitic placement gradually atrophied once the pragmatic principles became encoded in the lexical characterization of the clitic pronoun due to routinization. A unified account will be given for all the different clitic environments in 13th century MedSp, not only those that display variation, based on the different strategies used for parsing/producing these environments, i.e., different ways of building up semantic content. Furthermore, I will show that for the variation environments more than one processing strategy is available, thus resulting in the availability of both pro- and enclisis within one and the same syntactic environment.

2.2 Clitic placement in 16th century Spanish

Although the overwhelming majority of 13th century clitic cases exhibit enclisis in finite main clauses (75%), a shift from postverbal to preverbal positioning took place during the Middle Ages. As Table 2 illustrates, Nieuwenhuijsen (1999, 2002, 2006), despite the relatively small sample size of her corpus, records 91% (154/170) proclisis. In order to gain a more accurate view of the clitic distribution of the 16th century, I included in this table data from Keniston (1937: 89–112), who consulted thirty different texts.⁶

As shown, nothing changed for the strict proclitic constructions compared to the 13th century. Additionally, this table reveals that the generalization of proclisis observed for the 16th century is the result of both the former strict enclitic constructions allowing proclisis and the variation environments using this preverbal positioning more frequently. Notice as well that the Tobler-Mussafia Law, i.e., the restriction on sentence-initial clitics, no longer applies, although the postverbal placement is still

6. Because Keniston classified the clitic environments differently than Nieuwenhuijsen, I opted for a non-statistical way of representing his findings in order to maintain transparency. Notice as well that I could not determine whether he found any prepositional complement examples.

Table 2. Occurrence of pro- and enclisis in 16th century Spanish

	Nieuwenhuijsen Proclisis	Keniston Proclisis	Enclisis
1. Wh-word	100% (1/1)	X	
2. Negation	100% (7/7)	X	
3. Object NP (no doubling)	–	X	
4. Prep. complement	100% (12/12)	?	?
5. Pred. complement	/	X	
6. Verb	0% (0/11)	X	X
7. Vocative	0% (0/1)	X	X
8. <i>Pero/mas</i> “but”	0% (0/1)	X	X
9. Subject	100% (44/44)	X	X
10. Adverbial	100% (26/26)	X	X
11. Coordination	91% (20/22)	X	X
12. Object NP (CLLD)	100% (4/4)	X	X
13. Non-root clause	98% (39/40)	X	X
14. Root clause	100% (1/1)	X	X
Total	91% (154/170)		

clearly preferred.⁷ Furthermore, the higher frequency of proclisis in the variation environments is not due, e.g. for the CLLD cases, to a higher use of proclitic cases containing *todos/ambos* “all/both”, as in (16b), nor is it for the preceding non-root clauses due to the more frequent use of non-root clauses containing *antes que* “before that”, as in (17b). As (19) exemplifies, in the 16th century proclitic CLLD cases are found that do not contain the quantifiers *todos/ambos* “all/both”. The same applies to preceding non-root clauses lacking the subordinating element *antes que* “before that”, as shown in (20). Such cases are novel and not found in the 13th century. In sum, the observed generalization of proclisis indicates that the pragmatic principles governing the placement of clitics in the 13th century no longer underlie their positioning in the 16th century.

(19) *A mi padre; se; la dieron*
to my father WP WP gave
“to my father, they gave it to him” (Keniston 1937:93)

(20) *Despues que se partieron ..., me ha enbiado*
After that WP left ..., WP has sent
“after they left ..., he sent me ...” (Keniston 1937:94)

7. Keniston (1937:95) found only one proclisis example out of a total of 423 examples. Even in the 17th century, sentence-initial clitics are not found regularly: Lesman (1980:177) recorded only one such case. Nonetheless, the existence of prescriptive rules lamenting the loss of the Tobler-Mussafia Law (e.g. Correas 1628, apud Granberg 1988:246) indicates that sentence-initial clitics must have been widely used in spoken 17th century registers.

3. Dynamic Syntax accounts for Medieval and Renaissance Spanish clitics

The accounts to be given for both the 13th and the 16th century clitic systems adopt the Dynamic Syntax framework (Kempson et al. 2001; Cann et al. 2005). It is a grammar formalism that reflects the dynamics of parsing since it formalizes the idea that hearers build semantic representations following the left-to-right sequence of words/morphemes. In other words, DS respects the fundamental time-linear processing aspect of parsing by representing the parsing process itself as the incremental growth of binary semantic trees that get updated after every parsed word or morpheme. Ultimately, it will yield a fully annotated tree, the top node of which is decorated by some formula of type t ($Ty(t)$) representing a possible interpretation of the parsed natural language string. Furthermore, in a fully decorated tree each node is decorated with a subterm of the formula. The tree growth is driven by requirements such as $?Ty(t)$ to establish a propositional formula as interpretation at the top node of a tree and additional subgoals such as $?Ty(e)$ for an individual-denoting expression, $?Ty(e \rightarrow t)$ for a one-place predicate, etc. The concepts of the words in the string are then used to create the appropriate decorations. Thus, transitions from one partial tree to another are licensed not only by lexical actions but also by computational and pragmatic rules. At any interim stage, the tree will be in some way not fully specified. The pointer \diamond indicates the node currently under development.

One of the central notions within the DS framework is the concept of underspecification. Pronouns, for instance, project underspecified formula values, which are lexically defined as providing a metavariable place-holding device, e.g. $Fo(U)$ instead of a full content expression, e.g. $Fo(Miriam)$. Hence, such underspecified formulas are accompanied by a requirement for a full content expression ($? \exists x Fo(x)$). Subsequently, these placeholders are assigned a value either from context or during the construction process.

In addition to fixed nodes, nodes can be introduced within the tree structure as unfixed, representing as such structural underspecification, i.e., the structural relation of the unfixed node to the other nodes in the tree is not known yet at the point at which the expression decorating the unfixed node has been parsed. The introduction of an unfixed node is subject to locality constraints determining whether the unfixed node will become fixed within some single predicate-argument structure, or within some larger but single tree structure. The computational rule of LOCAL *ADJUNCTION, for instance, can build a locally unfixed node that is precluded from crossing tense barriers when its position gets updated by merging with a fixed node. Unfixed nodes introduced by *ADJUNCTION, on the other hand, can cross tense barriers as long as they become fixed within one single tree. All unfixed nodes are accompanied by a requirement for a fixed tree node address ($? \exists x Tn(x)$). Another important processing strategy is the concept of LINKED structures: these structures involve the development of two separate trees connected by a LINK relation, with a requirement for a shared term in each of the two trees, in effect inducing an anaphoric relation between two structures within the processing of a single sentence. I will refer to these different ways of building

up semantic content as processing strategies and not just as parsing strategies, since DS uses for parsing and production the same tree representations and tree-building actions (Purver et al. 2006).⁸

3.1 Clitics in 13th century Spanish

In this section, I will show that 13th century clitic placement is governed by different strategies used for processing constituents preceding the clitic: proclisis seems to occur whenever the clitic is preceded by a structurally underspecified element, i.e., an expression decorating an unfixed node, whereas enclitic pronouns appear in the absence of an unfixed node. In order to verify this claim, the different main clause environments containing clitics will be scrutinized from a DS point of view. We will also see that enclitic pronouns are taken to annotate fixed argument nodes introduced by the lexical actions of the verb, whereas proclitics, on the other hand, construct their own fixed argument node lexically prior to the parsing of the verb.

3.1.1 *Strict proclitic constructions: Unfixed nodes as proclisis trigger*

Recall that, with respect to finite main clauses, I identified five environments as inducing strict proclisis, namely those in which the clitic is preceded by (i) a wh-element, (ii) a negation marker, (iii) a focused object NP (no doubling), (iv) a prepositional or (v) a predicative complement.⁹ In English, wh-questions in which the wh-expression appears sentence-initially are modeled in DS as involving an unfixed node: the sentence-initial wh-element projects a metavariable w_H that annotates an unfixed node (Kempson et al. 2001: 150–189). Thus, after the starting point of the parse – which reflects the requirement to create a decorated tree with a top node of type t ($?Ty(t)$) – *ADJUNCTION may construct an unfixed node that can be decorated by the wh-element once its lexical actions have been processed, as shown in Figure 1.¹⁰

Similarly, focused object NPs, prepositional and predicative complements occurring at the left-periphery can be taken to decorate unfixed nodes in MedSp and RenSp. Like English, MedSp and RenSp are VO languages. Thus, whenever these complements occur at the left-periphery (without a doubling element present), they do not appear in their canonical position. Granberg (1988: 135) demonstrated by a contextual analysis that these proposed constituents are meant to draw attention. These phenomena are thus cases that the generative literature has analyzed as involving focus movement.

8. For a detailed introduction to DS, I refer the reader to Kempson et al. (2001) and Cann et al. (2005). See also Kempson & Cann (this volume).

9. I will not provide an analysis for the negation constructions, as this issue has not yet been addressed in DS. The feature [NEG +] will be used to mark the presence of a negation operator.

10. The level of detail in the trees is specific to the point to be made. Note that the order of the nodes in DS trees does not reflect word order but is determined conventionally: arguments appear on the left, functors on the right.

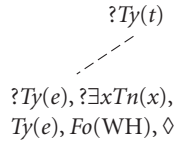


Figure 1. Parsing a sentence-initial wh-element

DS, on the other hand, does not need to invoke movement as it has the means to represent through the use of unfixed nodes structural underspecification, i.e., the structural relation of the unfixed node to the other nodes in the tree is not known yet at the point of parsing the expression decorating the unfixed node. In other words, these environments also involve the application of *ADJUNCTION to introduce an unfixed node, which the left-peripheral complement will then annotate and which subsequently will become fixed in the tree through the computational rule MERGE. Hence, clitics in strict proclitic environments indeed seem to be preceded by a left-peripheral constituent decorating an unfixed node, even though the negation environment remains without a formal characterization.

3.1.2 Strict enclitic constructions: Absence of unfixed nodes

The analyses for the strict enclitic constructions, on the other hand, do not involve unfixed nodes and thus do not contravene my claim concerning the appearance of proclisis. Recall that the environments that always occurred with enclisis in the 13th century are those commencing with (i) a verb, (ii) a contrastive coordination marker *pero/mas* “but”, or (iii) a vocative. As mentioned, the enclitic configuration is the predominant one for main clauses of the 13th century. Since in this configuration the clitics appear in the position in which full object NPs usually occur, I propose that the postverbal clitics decorate the fixed object node that has been created by the lexical actions of the verb. This will be the case for all strict enclitic environments. Clauses connected by the contrastive coordination marker *pero/mas* “but”, for instance, are then analyzed as different type *t* trees between which a LINK relation (without requirement for a copy of a formula) has been established. Thus, in a sentence like (12), once *mas* “but” has introduced the LINKed structure with ?Ty(*t*), the verb will be parsed, and subsequently its lexical actions will give the full subject-predicate template and place the pointer at the newly constructed indirect object node that is merely decorated with the requirement ?Ty(*e*), as shown in Figure 2.

A similar analysis can be given for main clauses commencing with a vocative phrase since the relation of the vocative phrase to the rest of the main clause can be described as a pair of LINKed structures as it is not functioning as an argument. The only difference with the previous construction is that, in the case of the vocative, it is not a type *t* tree that is LINKed to another tree, but a type *e* tree, which the vocative expression will decorate. In conclusion, we can say that the strict enclitic constructions corroborate indirectly the hypothesis that proclisis takes place after any expression that

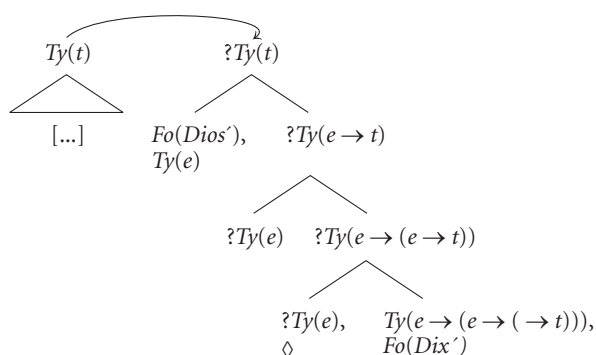


Figure 2. Parsing *mas dixo* in *mas dixom* “but he [God] told me” (cf. (12))

induces the construction of a left-peripheral unfixed node, considering these enclitic construals do not involve unfixed nodes as tools for their account. Furthermore, enclitic pronouns can be taken to decorate, like full postverbal NPs, a fixed argument node within the tree.

3.1.3 Variation constructions: Availability of different processing strategies

At first sight the variation environments might seem problematic for my claim about the occurrence of proclisis since these environments display clitic variation within one and the same environment. However, a closer look reveals that from a DS perspective different processing possibilities are available for these environments. In other words, the semantic representations of these sentences can be constructed in different ways since DS makes available different concepts of tree growth such as structural underspecification, LINKED structures, etc. Recall that distributional variation in the 13th century has been observed for those sentences in which the clitic is preceded by either (i) a subject, (ii) an adverbial, (iii) the coordination marker *et/y* “and”, (iv) a left-peripheral object NP that is co-referential with the clitic (CLLD), (v) a non-root clause or (vi) a paratactic main clause. Notwithstanding this, not all these variation environments have a similar status in view of the fact that variation can either be licensed by a single grammar or be the result of what has traditionally been seen as the competition of two different grammars, one of which will eventually supplant the other (e.g. Kroch 1989). The cross-linguistic comparison of these variation environments with closely related language varieties reveals that the variation observed for the preceding non-root clauses, the paratactic main clauses and a certain subset of coordinate structures can indeed be regarded as the first attestation of a change taking place.¹¹ As for

11. I will not take this variation (i.e., 6 examples out of a total of 2025) into account, thus offering in effect an analysis that is not completely representative for the 13th century but reflects rather an older stage of MedSp. I will regard the non-root and paratactic root clause environments as strictly enclitic, on the one hand, and coordinate constructions as an environment

the variation environments that are not the result of a change in the grammar, they can be constructed using different production/parsing strategies: they involve either the construction of (i) an unfixed node, which will trigger the appearance of preverbal clitics, or (ii) fixed nodes (with/without LINKED structures), in which case postverbal unstressed pronouns will occur. For instance, in subject pro-drop languages, expressed preverbal subjects can be represented as decorating either an unfixed node or a LINKED structure of type *e* (see also Kempson & Cann in this volume: §2.2). Furthermore, in such languages verbs are in a sense richer than those in non-pro-drop languages as their lexical specifications ensure the presence in the tree of a metavariable in subject position, exactly as though a morphologically expressed pronoun were present. If the subject is processed as decorating an unfixed node, this unfixed node will merge later on in the parse with the subject node, which the verb has introduced and annotated with a metavariable. However, if the subject is processed as a LINKED structure, the subject metavariable introduced by the verb will duly be replaced by a term that is identical to whatever decorates the LINKED structure, fulfilling its requirement for a shared term. In other words, subject NPs can be construed as (i) either being structurally underspecified, in which case the subject is processed as belonging to the same semantic tree as the clitic, or (ii) as a topic-presenting structure without any explicit anaphoric devices present, in which case the subject is processed as part of another tree than the one to which the clitic belongs. The only reflex of this distinction in construal will be the positioning of the object clitics, these being proclitic in the presence of an unfixed node, enclitic otherwise. Similarly, different processing strategies are available for the adverbial, coordinate and CLLD constructions: the left-peripheral elements can be analyzed either as involving the construction of an unfixed node, or they can be taken to decorate fixed nodes or LINKED structures. The heterogeneous clitic position in these environments is thus expected. Hence, clitic placement in 13th century MedSp finite main clauses seems to be regulated by the different processing strategies used for the constituents preceding the clitic: proclisis appears when the clitic is (not necessarily immediately) preceded by a constituent decorating a left-peripheral unfixed node – or at least when the actions of building an unfixed node are present in the context – whereas enclisis is precluded from arising after this processing strategy but can occur after the construction of fixed nodes or LINKED structures.

3.1.4 *Lexical entry for 13th century clitic pronoun*

Now that I have given analyses for the different clitic environments, I will discuss the lexical entry for the 13th century MedSp clitic, given in Figure 3.

Recall that some scholars (e.g. Martins 2003) have observed that pragmatic considerations were at the basis of the variation observed in some 13th century environ-

manifesting variation in a systematic way on the other, whereby preverbal placement is only possible if the first conjunct contains a proclisis-inducing element. See Bouzouita (2005) for more details on the cross-linguistic motivations underlying this decision.

P R O C L I S I S	IF THEN ELSE IF THEN ELSE IF THEN ELSE ELSE	$?Ty(t),$ $Tn(a)$ IF $[NEG+] \mid$ $(\langle \downarrow_* \rangle Fo(\alpha), ?\exists x Tn(x))$ THEN $make(\langle \downarrow_1 \rangle \langle \downarrow_0 \rangle), go(\langle \downarrow_1 \rangle \langle \downarrow_0 \rangle),$ $put(Fo(U), Ty(e), ?\exists x Fo(x),$ $[\downarrow]_{\perp}, ?\langle \uparrow_0 \rangle Ty(e \rightarrow t))$ ELSE ABORT IF $?Ty(e),$ $\exists x Tn(x), \langle \uparrow \rangle \top$ THEN IF $\langle \uparrow_0 \rangle \langle \uparrow_* \rangle [NEG+] \mid$ $\langle \uparrow_0 \rangle \langle \uparrow_* \rangle (?Ty(t) \wedge \langle \downarrow_* \rangle Fo(\alpha))$ THEN ABORT ELSE $put(Fo(U), Ty(e),$ $? \langle \uparrow_0 \rangle Ty(e \rightarrow t),$ $? \exists x Fo(x), [\downarrow]_{\perp})$ ELSE ABORT	} Negative marker } Unfixed node
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Figure 3. Lexical entry for MedSp accusative clitic *lo*

ments: in subject environments, for instance, the appearance of proclitic pronouns has often been associated with a focus reading of the preceding subject. However, I claim that in the 13th century it is the processing strategy used for analyzing this focused subject as decorating an initially introduced unfixed node that is the basis for the preverbal clitic positioning. In my view, the once fully pragmatic basis for the distribution of unstressed pronouns was replaced with a lexically encoded basis, whereby the focus reading became associated with the presence of a left-peripheral unfixed node. More specifically, the pragmatic basis, already present for Classical Latin weak pronouns (Adams 1994), became lexically calcified in the characterization of the clitic due to a process of routinization. In this process, expressions become routines, i.e., “expressions that are ‘fixed’ to a relatively great extent”, in order to create a processing shortcut (Pickering & Garrod 2004: 181). The most well-known examples of routines are idioms (e.g. *kick the bucket*), whereby the component words are stored as a complex in the lexicon. In the lexical entry for 13th century MedSp clitics, on the other hand, it is the pragmatic basis of clitic placement that was stored in the lexicon. In other words, the 13th century Spanish clitic distribution was no longer determined simply by pragmatic reasoning itself, since this had been shortcut by the presence of a routinized sequence of lexical actions such that calling up pragmatic reasoning became no longer necessary (see also Kempson & Cann in this volume: §4).¹² The lexical entry presented in Figure 3 reflects this routinization process given that the construction of a proclitic pronoun is associated with the presence of a negation marker or an

12. It remains, however, difficult to pinpoint when exactly this routinization step took place, considering such a processing change cannot be visually discerned as a change in clitic placement. Nonetheless, we can take as a *terminus ad quem* the moment clitic placement started shifting towards proclisis, the earliest signs of which can be seen in the 13th century (see §3.1.3).

unfixed node, while the enclitic does not have such a trigger. Both proclitic and enclitic pronouns are taken to annotate fixed object nodes, but those decorated by the enclitics have been introduced by the lexical actions of the verb, whereas those annotated by proclitics have been constructed by the lexical entry of the clitic itself. Furthermore, notice how nothing additional needs to be said to ensure the Tobler-Mussafia Law: unlike other accounts, there is no need for a phonological filter or a last resort mechanism precluding sentence-initial clitics (e.g. Fontana 1993; Rivero 1986, 1991).

3.1.5 Interpolation, clitic and NP climbing

I will now try to show that the availability of different processing strategies is not only responsible for the variation between pro- and enclisis but can also account for interpolation.¹³ Additionally, I will examine constructions that exhibit a combination of interpolation, clitic and NP climbing.¹⁴ Consider the following:

- (21) *que les esta mj carta mostrare*
 that *wp* this my letter will-show
 “that I will show them my letter” (Castillo Lluch 1998:412)

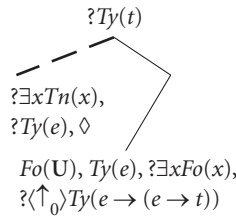


Figure 4. Interpolation of direct object in parsing (21)

Interpolation usually involves the application of the computational rule of LOCAL *ADJUNCTION. Figure 4, for instance, represents the stage in processing (21) at which the dative clitic *les* “them” has been parsed and LOCAL *ADJUNCTION has built a type-*e*-requiring locally unfixed node, which the interpolated direct object *esta mj carta* “my letter” is taken to annotate once its lexical actions have been triggered. After the decoration of this locally unfixed node, the verb will give the propositional template and the unfixed node will be able to merge. Although this particular account involves decorating a locally unfixed node, other analysis possibilities are available, depending on what kind of constituent separates the clitic from the verb. Interpolated subjects, for

13. Another important factor is of course the grammatical status of the MedSp clitics: they are phonological clitics but not bound morphemes that form a single complex with the verb (Rivero 1986). Because interpolation is uncommon in root clauses, the examples given are non-root clauses even though we have not discussed their clitic placement with respect to the verb.

14. However, I will not discuss the reasons for the (non-)occurrence of clitic climbing. Note that locally unfixed nodes are represented with bold dotted lines.

instance, can also be taken to annotate LINKED structures of type e given that MedSp is a subject pro-drop language. Interpolated adverbs of type $Ty(t \rightarrow t)$, on the other hand, can construct a fixed node. In fact, the only processing strategy that cannot be responsible for interpolation is *ADJUNCTION, as its application is restricted to those constituents appearing at the left edge of the clause. Similarly, sentences exhibiting a combination of interpolation, clitic and NP climbing can be accounted for.

- (22) *que vos mal quisieren fazer*
 who WP evil would-want make
 “[all of those] who would want to hurt you” (Rivero 1991:260)

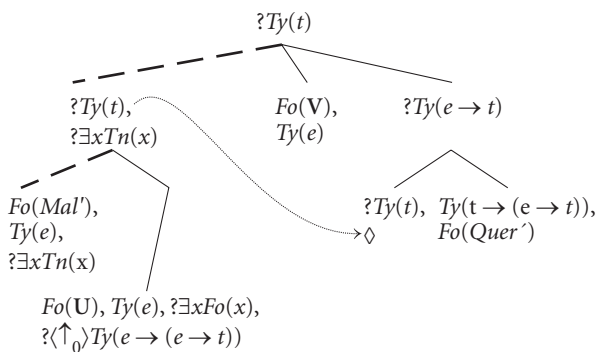


Figure 5. Interpolation, clitic and NP climbing

Observe that in (22) both the clitic *vos* “you” and the interpolated direct object *mal* “evil” belong logically to the non-finite verb *fazer* “to make”. Whenever this is the case, the following analysis can be given. First, LOCAL *ADJUNCTION can introduce a type- t -requiring locally unfixed node from which the clitic is subsequently built. The pointer \diamond can, instead of going back to the top node, then move to the locally unfixed node. At this point, LOCAL *ADJUNCTION can apply again, but this time to introduce a locally unfixed node with $?Ty(e)$, which the interpolated object NP *mal* “evil” will then decorate. Once the pointer is back at the top node, the finite verb *quisieren* “they would want” can be parsed, the lexical characterization of which will introduce the subject-argument structure with the pointer left at the open object node with $?Ty(t)$. Now the locally unfixed node with $?Ty(t)$ can unify with this object node, as illustrated in Figure 5. Afterwards, the infinitive *fazer* “to make” will be parsed, resulting in the construction of the rest of the propositional structure. Finally, the locally unfixed node with $Ty(e)$ will be able to merge with the open direct object node that the infinitive has constructed. In this example, both the clitic and the interpolated object are complements of the infinitive verb. If, however, the climbed NP does not occur in an interpolating

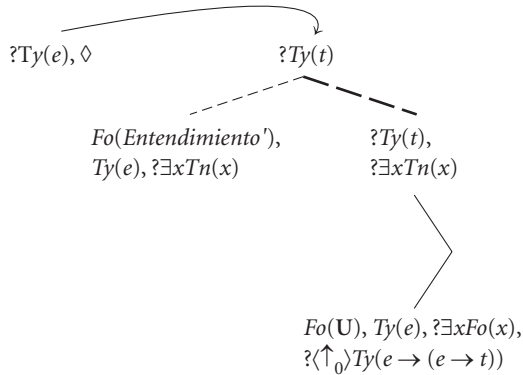


Figure 6. Interpolation, clitic and NP climbing

position but instead at the left-periphery, another kind of account can be given, as shown in Figure 6.¹⁵

- (23) *si buen entendimiento le Dios quiso dar*
 if good understanding WP God wanted give
 “if God wanted to give him a good mind” (Rivero 1991:261)

Observe that in Figure 6 the climbed NP *buen entendimiento* “good understanding” decorates a left-peripheral unfixed node introduced by the computational rule of *ADJUNCTION. After the annotation of this node, LOCAL *ADJUNCTION introduces a locally unfixed node with $?Ty(t)$ from which the proclitic *le* “him” is then built. The pointer \diamond moves subsequently back to the root node to introduce a LINKED structure with a requirement for a type e ($?Ty(e)$). It is this moment in the parsing process that Figure 6 displays. The uttering of the subject *Dios* “God” will then trigger its lexical actions to decorate this LINKED node.¹⁶

In conclusion, not only interpolation but also cases in which interpolation is combined with clitic and NP climbing can be accounted for using only the different processing strategies made available by the DS framework. Thus, unlike other accounts, such as Martins (2003, 2005), for instance, who needs a multiple Specs configuration in AgrS to accommodate interpolation, no additional machinery must be invoked for the DS analyses of the phenomena discussed.

15. The adjective *buen* “good” has not been taken into account in the parsing derivation given in Figure 6.

16. If all such occurrences of interpolation turn out to require the construal of the clitic pronoun locally to what precedes it, then an analysis in terms of *ADJUNCTION feeding successive steps of LOCAL *ADJUNCTION, as in Figure 5, might be more appropriate. But I leave this aside here.

	IF	? $Ty(t)$, $Tn(a)$	
P	THEN	$make(\langle \downarrow_1 \rangle \langle \downarrow_0 \rangle), go(\langle \downarrow_1 \rangle \langle \downarrow_0 \rangle),$	
R		$put(Fo(U), Ty(e), ?\exists xFo(x),$	
o		$[\downarrow] \perp, ?\langle \uparrow_0 \rangle Ty(e \rightarrow t))$	
C	ELSE	IF	? $Ty(e)$,
L.			$\exists xTn(x), \langle \uparrow \rangle \top$
	THEN	IF	$\langle \uparrow_0 \rangle \langle \uparrow_*^1 \rangle [NEG+] \mid$
E			$\langle \uparrow_0 \rangle \langle \uparrow_*^1 \rangle (?Ty(t) \wedge \langle \downarrow_* \rangle Fo(\alpha))$
N		THEN	ABORT
C		ELSE	$put(Fo(U), Ty(e),$
L.			$?\langle \uparrow_0 \rangle Ty(e \rightarrow t),$
			$?\exists xFo(x), [\downarrow] \perp)$
	ELSE	ABORT	

Figure 7. Lexical entry for RenSp accusative clitic *lo*

3.2 Clitics in 16th century Spanish and the diachronic change

As we have seen, a shift from the predominant use of enclisis to proclisis took place, and proclisis became an option in all environments in which enclisis was possible. This was due to a relatively small change in the lexical characterization of the clitic pronoun: the restrictions imposed on the occurrence of proclitic pronouns in the 13th century, namely the presence of a negation marker or an unfixed node, no longer applied in the 16th century, as shown in the lexical entry given in Figure 7.

The immediate result of the loss of these proclisis triggers is thus the diffusion of this preverbal positioning: RenSp preverbal clitics can appear anywhere as long as there is a requirement for a type t ($?Ty(t)$). Thus, the diachronic shift from enclisis towards proclisis is modeled in this account essentially as the ‘simplification’ of the lexical characterization of the clitic. However, the question remains why this ‘simplification’ in the lexical entry occurred in the first place. In my view, the availability of different processing strategies for the variation environments could have contributed to this change. We saw in §3.1.3 that left-peripheral expressions can be produced/parsed using various processing strategies. Due to this availability of different processing strategies for one environment, the possibility exists that the speaker and hearer produce/parse the left-peripheral element each using a different processing strategy. In other words, a speaker-hearer processing mismatch is very real for these environments. Consider the following scenario: a sentence containing a subject and a proclitic pronoun, for instance *Juan lo vio* ‘Juan saw him’ is uttered. Imagine that the production strategy used for the subject is the one with an unfixed node and that the lexical entry used for the clitic is the one given for MedSp clitics in Figure 3. The hearer, on the other hand, parses this subject *Juan* as annotating a LINKED structure of type e . Then once the proclitic pronoun is heard, the hearer has two choices: (i) he can access the lexical entry for MedSp clitics and notice that the left-peripheral subject should have been parsed as an unfixed node due to the occurrence of this preverbal clitic and conse-

quently choose to parse this subject as an unfixed node instead, or (ii) he can choose to ignore this MedSp lexical entry and infer that proclitics are allowed after LINKED structures since that is how he has parsed the subject, in effect reanalyzing the lexical entry for the clitic (see Figure 7). In other words, a production-parsing mismatch in the variation environments could accordingly have led to the inference that there are no conditions on the occurrence of proclisis. Notice that this production-parsing mismatch, restricted to variation environments only, has led to the reanalysis of the clitic's lexical entry, thus affecting all the other environments as well. Such a reanalysis could only take place successfully once the pragmatic reasoning behind clitic placement atrophied, which we saw is coincident with pragmatic considerations becoming lexically calcified. Tentative confirmation of this processing mismatch hypothesis can be found in the high rate of proclitic subject and adverbial constructions in the 13th century, 69% and 70% respectively, which is rather unusual considering 75% of all examples in this century display enclitic placement. In sum, the different processing strategies can be regarded not only as the source of synchronic clitic variation in MedSp, but also as partially responsible for the diachronic shift towards proclisis.

4. Conclusion

First, we saw that clitic placement in 13th century MedSp finite main clauses is no longer governed by pragmatic considerations but by different processing (producing/parsing) strategies, i.e., different ways of building up semantic content. Proclisis occurs when the clitic is preceded by a structurally underspecified constituent where this is taken to be an element decorating an unfixed node, while enclisis is precluded from arising after this processing strategy. The once fully pragmatic basis for the clitic distribution has become lexically calcified in the characterization of the clitic in order to create a processing shortcut (routinization). Furthermore, the oscillation between pro- and enclisis in the variation environments is expected in view of the fact that different processing strategies are available for the constituents preceding the clitic: subjects, for instance, can be construed as either being structurally underspecified (as an unfixed node), or as a topic-presenting structure (as a LINKED structure). Because DS licenses an array of processing strategies, complicated sentences exhibiting a combination of interpolation, clitic and NP climbing can be accounted for without having to make structure-specific stipulations or invoke additional machinery. Accordingly, we can conclude that processing factors contribute to the syntactic variation in the MedSp clitic system.

Regarding the diachronic change between MedSp and RenSp, a generalization of proclisis due to the 'simplification' of the lexical characterization of the clitic pronoun was observed. The restrictions on the occurrence of proclisis, namely the presence of a negation marker or an unfixed node, were lost for RenSp. Additionally, once the pragmatic reasoning behind clitic placement atrophied (due to its lexical calcification), the various processing strategies could have played a role in this diachronic shift from

enclisis to proclisis since their availability within one syntactic construction made a processing mismatch between speaker and hearer plausible. This processing mismatch could eventually have resulted in a reanalysis of the lexical entry of the clitic, which consisted in the loss of restrictions on the appearance of proclitics.

In sum, using only the different concepts of tree growth provided by the DS framework, I have given a principled account of the heterogeneous positioning of MedSp and RenSp clitics, of various related phenomena such as interpolation, clitic and NP climbing, and of the diachronic shift in clitic distribution. Consequently, we can conclude that processing factors can contribute not only to syntactic intra-speaker variation, but also to syntactic change.

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Dynamic Syntax and dialogue modelling

Preliminaries for a dialogue-driven account of syntactic change

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1. Introduction

The functionalist/formal split in historical linguistics is commonly taken to be irreconcilable, particularly in the area of syntactic change. This paper puts forward an argument that the two are nonetheless reconcilable, if we adopt a psycholinguistic perspective afforded by recent work on conversational dialogue, put together with a grammar formalism that defines natural-language syntax in terms of the dynamics of parsing. We are going to take one very well-known phenomenon of syntactic change, the emergence of the clitic pronouns in medieval Spanish from the earlier Latin system, and suggest the basis for an account that is simultaneously functional and formal.¹ The account is functionalist in that it starts from a pragmatic explanation of the universally observed strategy of placing given information before new in terms of dialogue pressures on production, and then analyses the mixed Medieval Spanish system as an encoding of these pressures, from which the finite preverbal position of most modern Romance clitics can be seen as different emergent calcifications of this strategy. The observations are not new (Givón 1979; Panhuis 1982; Ramat 1990), but the grammar that underpins them is, as indeed is the emphasis on psycholinguistic, more specifi-

1. The detailed work on medieval Spanish and the diachronic study of Spanish clitics could not have taken the form it has without the input of Miriam Bouzouita. See Bouzouita (2002), Bouzouita (this volume), Bouzouita (in preparation) and Bouzouita & Kempson (2006). We are very grateful to her for presenting the impetus for this provision of a larger perspective into which her more detailed results might fit, and for detailed comments on the analysis. The work of this paper is an application of the Dynamic Syntax framework as applied to dialogue, to which a number of people have contributed over the years. So thanks are due also to Eleni Gregoromichelaki, Wilfried Meyer-Viol, Masayuki Otsuka and Matthew Purver, among others. Responsibility for all errors, however, remains ours alone.

cally dialogue effects, and the relevance theory account that the analysis feeds into. The grammar system itself is functionally motivated in being defined in terms of parsing, progressively building representations of content. Yet it is respectably formal, defining language change in terms of transitions from an interacting set of general and lexical actions at one point to a different set at a subsequent point. In what follows, we are deliberately programmatic, intending to give just enough sense of the details to see the new direction we think this provides for diachronic syntax, and the theoretical significance of the interaction between grammar and pragmatics that this entails. To give a sense of the direction we are going to move in, this is the way the story runs.

The starting point of the account is the work of Pickering & Garrod (2004) on dialogue.² As they point out, speakers and hearers systematically re-use the tools the other person in the dialogue has used wherever possible, a phenomenon they call alignment. Dialogue is replete with ellipsis (where the content of what has just been said is relied on as a means of ‘completing’ the uttered fragment); with pronouns (where the content is, likewise, picked up from the context); but, additionally, with re-used words with the same interpretation, subcategorization choices and containing syntactic structure:³

- (1) A: What should Michael give Ruth?
B: For Christmas? A pianola.
C: Unless he’s giving her a harpsichord.

As (1) shows, the speaker-hearer coordination is so intertwined that interlocutors may even finish each other’s sentences. It is the particular dynamics underpinning this pervasive context-dependence that we argue is the driving force behind the emergent syntactic properties of clitics in the shift from Latin to Romance.

The grammar framework to be used, Dynamic Syntax (Kempson et al. 2001; Cann et al. 2005), is defined as inducing semantic representations from strings of words uttered in context; and these representations are linked together through appropriate construal of anaphoric devices of one sort or another. In consequence, the minimal construction unit in this system is that of predicate-argument structures – individual propositional domains, not the artificial units determined by the writing convention of the space between a capital letter and a full stop, nor indeed that of clausal sequences of words. In conjunction with such a commitment to growth of semantic representations, we assume that speakers and hearers necessarily keep processing costs to a minimum, a consequence of the tenets of relevance theory. These two assumptions taken together

2. Pickering & Garrod set out a challenge to those involved in formal and psycholinguistic modelling that all such models should be evaluated by how well the formalism defined reflects the data of conversational dialogue, the core language data.

3. Note the repetition of the double-object construction in C’s utterance, rather than a shift into a NP-PP form.

entail that whenever an individual grammar system licenses freedom of order within the process of constructing any propositional unit, anaphoric expressions will be positioned in such a way that their construal ensures minimization of the context relative to which they have to be interpreted – put simply, as close to the left edge of a sequence building up such a unit as possible.

This enables us to address the supposed distinction between strong and weak pronouns in Latin (the latter the precursor to the subsequent clitic pronouns in Romance). Some pronouns, the ones that are stressed, occur at the very edge of an emergent propositional domain, indeed in part indicating what is such an edge, occurring in the position where they can be focussed. The remainder, by definition unstressed, occur in second position in some roughly clausal sequence, following immediately after focussed constituents, relative pronouns, complementizers, negation, even verbs when there is nothing else (the Wackernagel and Tobler-Mussafia effects). What each of these triggers shares, given a real-time parsing perspective, is the property of allowing the parser to uniquely identify the first edge of such a structure. So the placement strategy for weak pronouns is to place them as close as possible to the left edge of emergent predicate-argument structures once that new emergent domain has been definitively identified by some OTHER expression.⁴ So the strong and weak use of pronouns are two sides of the same coin, the pronoun either serving solely an anaphoric role and relying on something else to provide a boundary-edge, or simultaneously serving an anaphoric role plus that of a boundary-indicator, in both cases being placed so as to minimize the search in context for their antecedent value.

Since this minimizing of context relative to each domain is a pragmatic strategy subject to very general cognitive considerations, we might expect that this two-faceted role of an anaphoric expression could remain stable over a long period of time (see Sornicola 1996 on the role of stability in language change). And indeed, it was retained over a long spell of Latin in the distribution of its pronouns, it is displayed during the extensive period in which Medieval Spanish was used, and it is still preserved in Galician (a dialect of Portuguese). As is well-known, the pattern is very widespread. Nevertheless, as the bifurcation between unstressed and strong forms of pronouns increases, these may become associated with distinct and complementary parsing strategies, with the procedures for tree growth associated with early and non-contrastive construal of pronouns becoming encoded via routinization of actions for the distinct modes of construal. The first form such a lexical encoding would take to determine these actions will have to take the form of a list of all the various struc-

4. As we shall see, in applying equally naturally to complementizers, relative pronouns, negation and so-called focussed constituents, this analysis has the edge over accounts in terms of attraction to focus, which, as Adams (1994) points out, fails to apply to what is arguably the central case of clitic attraction, the relative pronoun (over and above the puzzle of why such contrary-to-focus elements should be attracted to a focus site), and indeed over phonological explanations also, though intonation is often used to buttress the identification of such structures.

tural environments that trigger them; but, again as a consequence of that encoding, such a clumsy disjunction will, in due course, simplify due to internal pressures of the system. This is a calcification of what had been a general process (driven solely by production constraints) and became an encoded sequence of actions specific to the clitics.

We argue that this encoding results from the routinization of alignment patterns often found in dialogue (Pickering & Garrod 2004; Garrod & Docherty 1994) where speaker and hearer re-use words and constructions that have already been used in the discourse, a strategy of re-using actions, which enables them to avoid what would otherwise be a highly costly incremental word-by-word search in the full lexicon for appropriate actions. If such a sequence of actions gets stored as a 'routinized' unit, it can be retrieved as a whole relative to the trigger for parsing the first word in the stored sequence, in so doing economizing dramatically on decision-making in the production process. This is a clear means of reducing production costs, hence maximizing relevance. The re-bracketing characteristic of the shift from medieval Spanish, in which pronouns that had been enclitic on some early element came to be proclitic on a verb, can then be modelled in the same terms. As Adams (1994) and others (e.g. Ramat 1990; Salvi 1996) point out, sequences of actions associated with inducing individual predicate argument arrays in many cases leave the weak pronouns immediately preceding the verb, and we accordingly expect routinization in response to such commonly used actions to take the form of a sequence of actions covering both pronoun and verb, operating in the environment that triggers the action of the pronoun. These successive steps of routinization constitute a formal reconstruction of grammaticalization: the process is modelled as the shift from some generally available tree-growth process into one that is induced by one particular form of a word. This is then stored as a lexically driven sequence of actions, which itself in due course may become part of a larger lexical unit. This account, as an observation of what took place, is not new at all: what is new in this account is the direct correspondence between the formal account and traditional insights. In particular, within the framework to be introduced, ALL projection of structure is projection of semantic structure, whether by generally available syntactic rules, lexical rules or specifications provided by morphological encodings; so there are ONLY issues of economy that dictate whether some sequence of tree-update actions is given by a general syntactic rule or lexicon-internally. So overall, the claim to be presented is that the point of departure for the change to a clitic-based system, the nature of the change and the reason why it might lead to a re-bracketing, can all be seen as the effect of production pressures in dialogue, constrained by relevance as driven by a parsing-based system of production. And this, we suggest, is an extremely natural basis for syntactic change – for we all do dialogue all the time. Its cross-society influence is immediate, and ever present.

2. Towards a Dynamic Syntax of Latin

The Dynamic Syntax (DS) model we use as the framework for this analysis is radical in that it is a grammar formalism that reflects the step-wise way in which interpretation is built up during a parse sequence. A mapping is defined from words, as parsing actions, onto progressively enriched representations of content, until a fixed (in part, contextually established) interpretation is constructed. Interpretation in this framework is articulated as a semantically transparent tree structure, in which a logical formula decorates the topnode, and the various sub-terms of that formula decorate the nodes it dominates. Individual nodes are decorated with *Formula* (*Fo*) and *Type* (*Ty*) values, reflecting semantic content in terms of expressions of some typed lambda calculus. The process of tree-growth is the basis of syntactic explanation: a sentence is defined to be well-formed only if there is at least one possible route through that process. Central to the process is the concept of requirement $?X$ for any decoration X . For example, decorations on nodes such as $?Ty(t)$, $?Ty(e)$, $?Ty(e \rightarrow t)$ etc. express requirements to construct formulae of the appropriate type on the nodes so decorated (propositions, terms and predicates, respectively), and these drive the subsequent tree-construction process.⁵

2.1 The parsing mechanism

The process of both setting out and building up interpretation for a string is defined as a serial process of tree growth following the order of words in a string. Individual steps take the parser from a tree with just a single root-node decorated with $?Ty(t)$, indicating the requirement (the assigned goal) of establishing a formula of type t , finally deriving a binary branching tree with all nodes decorated with formula values (see the two trees in Figure 1). So in the parsing of (2), we have the initial tree and final tree as in Figure 1:

- (2) Xerxes praemium proposuit
 Xerxes.NOM reward.ACC offered
 “Xerxes offered a reward”

5. The formal system underpinning the partial trees that are constructed is a logic of finite trees (LOFT: Blackburn & Meyer-Viol 1994). There are two basic modalities, $\langle \downarrow \rangle$ and $\langle \uparrow \rangle$, such that $\langle \downarrow \rangle \alpha$ holds at a node if α holds at its daughter, and its inverse, $\langle \uparrow \rangle \alpha$, holds at a node if α holds at its mother. Function and argument relations are distinguished by defining two types of daughter relation: $\langle \downarrow_0 \rangle$ for argument daughters, $\langle \downarrow_1 \rangle$ for functor daughters (with their inverses $\langle \uparrow_0 \rangle$, $\langle \uparrow_1 \rangle$). There is also an additional ‘LINK’ operator, $\langle L \rangle$, which relates paired trees, with a LINK relation from a node in one tree to the topnode of another (see below). With these primitive relations, concepts of ‘dominate’ are definable in ways that are standard in formal tree-logic systems (see the concept of ‘functional uncertainty’ defined in LFG: Kaplan & Zaenen 1989). Thus $\langle \uparrow \cdot \rangle Tn(a)$ holds at a node if some node $Tn(a)$ is along some sequence of mother relations from this node.

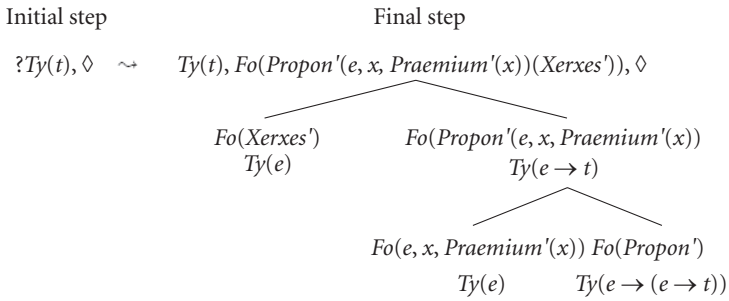


Figure 1. Parsing *Xerxes praemium proposuit*

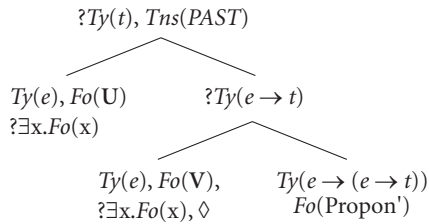


Figure 2. Result of running lexical actions of *proposuit*

The pointer, \diamond , indicates the node under development. So, at the initial step in any transition sequence, the pointer is at the initial (root) node in some emergent tree; and at the final step the pointer returns to that node in completing its decoration (see Figure 1).

The intermediate steps in deriving such trees are determined either by general computational actions, such as anticipating a subject-predicate structure, or lexical actions triggered by parsing lexical items in the order in which they are presented in some string of words.⁶ All such actions are procedures for making and decorat-

6. Quantification is expressed in terms of variable-binding term operators, so that quantifying NPs like all other NPs are of type e , with quantifiers analyzed in the manner of arbitrary names posited in predicate-logic proof steps: all scope effects are expressed within the evaluation of the restrictor of the term itself. The logic underpinning this is the epsilon calculus, of which the primary quantifying term is the epsilon term, the internal structure of such terms containing an epsilon binder, ϵ , a variable and a restrictor: e.g. $\epsilon, x, Man'(x)$. Since in Latin, nouns project full specification of terms, the structure defined to be projected by *praemium* would be a subtree of which the quantifying term is the topnode, dominating a subtree decorated with a binder, a variable and a restrictor specification. Furthermore, given the sensitivity to context in the way such bare nouns are understood, either as definite or as indefinite, this variation can be straightforwardly expressed simply by not requiring that they be assigned a fresh variable (unlike determiner-noun configurations in other languages: see Kempson et al. 2001). We leave all details aside.

ing nodes in a tree and moving around within a local subtree. Lexical specifications are defined as macros of such actions, which characteristically do not simply annotate nodes with information about semantic content, but may equally project partial trees. This is particularly relevant to verbs, which induce some, or all, of the propositional template they express. In English, by hypothesis (see Cann et al. 2005: Ch. 2), verbs do not project their semantic subject position, but in other languages, such as Latin, they project full propositional structure; and these specifications include not merely a one- or two-place predicate specification, but, if the language is pro-drop, a specification of the accompanying arguments that is equivalent to what in English might be a sequence of subject pronoun, verb and object pronoun:⁷

Defining lexical actions of *proposuit*:

IF	$?Ty(t)$	
THEN	$put(Tns(PAST));$	Tense
	$make(\downarrow_0) : go(\downarrow_0);$	
	$put(Ty(e), Fo(U), ?\exists x.Fo(x)); go(\uparrow_0)$	Subject Metavariable
	$make(\downarrow_1); go(\downarrow_1); put(?Ty(e \rightarrow t));$	Predicate Node
	$make(\downarrow_1); go(\downarrow_1);$	
	$put(Fo(Propon'), Ty(e \rightarrow (e \rightarrow t)), [\downarrow]\perp)$	Main Functor
	$go(\uparrow_1); make(\downarrow_0); go(\downarrow_0);$	
	$put(Fo(V), Ty(e), ?\exists x.Fo(x))$	Internal Argument
ELSE	Abort	

Thus in parsing a transitive verb like *proposuit*, a tree structure is projected that expresses the fact that the predicate associated with *proposuit* takes two semantic arguments, and these are provided with concept-placeholders, meta-variables U and V, which stand for some value to be assigned from the context, exactly as though there were morphologically identifiable pronouns in the sequence.⁸ What is induced is a partial tree, and this is in virtue of an uninterruptable macro of actions that construct and decorate individual nodes. This gives the first flavour of the DS commitment to articulating the projection of a semantic representation as involving articulation of

7. According to this characterization, Latin is object-drop, which is not uncontentious. One way to capture canonical verb object orderings within a full pro-drop system is to define the pointer to be at the object node on the tree following the parse of a verb, with the effect that the ordering of the object after the verb would be the least marked of the available options (see Cann et al. 2005 for discussion of right-periphery effects). We ignore details of tense specification throughout this paper.

8. The difference between lexicalized pronouns on the one hand, and agreement systems and clitics functioning in an agreement-like manner on the other, can be expressed by the distinction between whether or not the decoration of the node in question has an associated terminal-node restriction in the manner of full lexical items. This is the decoration $[\downarrow]\perp$ included in the specification of *proposuit*. We ignore these details here; see Cann et al. 2005.

concepts of underspecification and update, both of content and structure. Both pronouns and verb specifications project partial specifications of content through such metavariables, and these have to be replaced as part of the process of constructing an interpretation. This, too, is faithfully modelled in the system, since all such partial specifications have an associated requirement, which ensures that they are replaced with a contentful value during the construction process. This substitution process is directly reflected in the system with a pragmatic process of substitution that enriches some lexically provided metavariable with a term that has already been established in context. But this has a further significance: the DS definition of well-formedness for a string involves the pairing of a string with a tree at output, with no outstanding requirements on any of its nodes, where that tree is derived from actions associated with the words taken in strict sequence. The effect is that the notion of well-formedness is itself context dependent (see Cann et al. 2005: Ch. 9).

2.2 The left periphery

2.2.1 *Structural underspecification and its update*

This concept of underspecification plus update is extended well beyond the conventional recognition of anaphora as a content-based form of underspecification: central to Dynamic Syntax is the articulation of a structural form of underspecification plus update. In particular, discontinuity effects are expressed by licensing structural relations that are relatively weak, characterised as a dominance relation that only subsequently gets updated, with the point of update constituting the point at which the initial early partial specification becomes fully determined. For example, long-distance dependency effects are expressed by the construction of a node in some newly initiated logical structure to be developed downwards from a top type-*t*-requiring node. This node is specified only as dominated by that topnode, its position within the unfolding tree being otherwise unfixed at this point in the construal process. Such nodes are annotated as $(\uparrow^*)Tn(0)$, using the standard formal concept of ‘dominate’ (see fn. 5).⁹ It is this move that enables the presentation of content being presented as a tree structure to be built up incrementally, for this unfixed relation needs, at some point in the construction process, to be fully specified in order to satisfy its requirement $(\exists x.Tn(x))$ that it eventually be assigned a fixed tree node position as in the displayed construal of (3) in Figure 3:

- (3) *praemium proposuit* [Latin]
 reward offer.3.SG.PAST
 “he offered a reward”

9. *Tn* is a predicate taking tree-node labels as its value, e.g. *Tn(0)* indicates the rootnode. The provided annotation then indicates that the rootnode dominates the current node.

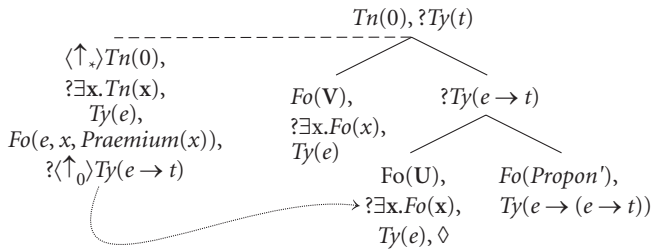


Figure 3. Updating an unfixed node

On this partial tree, the unfixed node (indicated by the dashed line) is decorated with $\langle \uparrow_* \rangle Tn(0), ?\exists x. Tn(x)$, indicating the domination relation and the requirement for its update. It is decorated with $Ty(e), Fo(e, x, Praemium(x))$ specifying its formula and type values that result from having parsed the word *praemium*; but it is also decorated with $?\langle \uparrow_0 \rangle Ty(e \rightarrow t)$, which is a case specification that the mother node must in the output be decorated with a formula of predicate type. In this derivation, case merely constrains the update within a structure independently provided by the actions of the verb; and this is updated by unifying that unfixed node with the object argument node provided by *proposuit*. With the subject argument then identified indexically from context, the parse of the string can lead to a fully completed propositional structure with no outstanding requirements, and so is well-formed.

There is a further form of parallelism with anaphora that enables us to distinguish long-distance discontinuity effects and more local discontinuity effects: we distinguish three different forms of structural underspecification in terms of the domain within which their update must be provided. There is (i) a dominate relation that has to be updated within an essentially local minimal propositional structure, associated with nodes that are introduced as ‘locally unfixed’; (ii) a dominate relation that has to be updated within an individual structure but not necessarily locally (the general case already introduced); and (iii), a weakest form of dominate, which allows update even across a sequence of trees. Of these, the computational action introducing a locally unfixed node involves introducing from some treenode $Tn(a)$ an unspecified sequence of functor relations ($\langle \uparrow_* \rangle$), and an argument relation ($\langle \uparrow_0 \rangle$) – in effect, a functor spine along which arguments can be developed, plus one such argument node. The relation between such a node and the dominating node $Tn(a)$ is thus defined as $\langle \uparrow_0 \rangle \langle \uparrow_* \rangle Tn(a)$.

Defining a computational action that introduces locally unfixed nodes enables us to capture local freedom of ordering of individual argument/adjunct constituents with respect to some verb. In languages that license such free permutation of argument expressions, there is essential interaction with a constructive use of case. In these languages, case is defined to license the fixing of its hierarchical position in the emergent tree as soon as the decorations on an unfixed node are completed (see Nordlinger

1998).¹⁰ For example, in the parsing of a string such as (4), the parsing of *praemium* involves building a locally unfixed node, and from the accusative case specification fixing it as the matrix object well before the parsing of the verb so that the result of parsing *praemium* in (4) is a partial propositional tree with a predicate-requiring node and just its immediate daughter-argument node:

(4) *praemium Xerxes proposuit*
 reward.ACC Xerxes.NOM offered
 “Xerxes offered a reward”

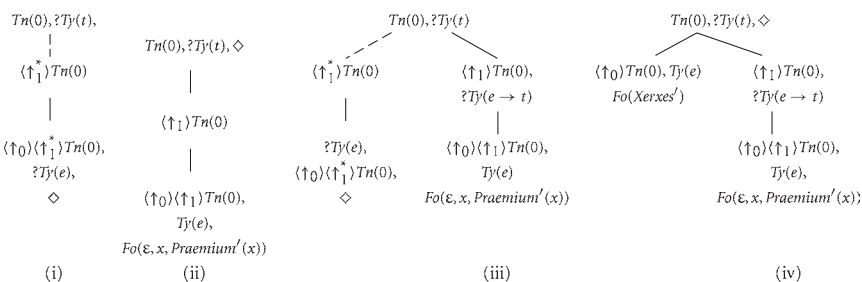


Figure 4. Incremental parsing of *Praemium Xerxes*

Once this relation is fixed, another unfixed node can be introduced in order to parse *Xerxes* by the very same process of using the case specification, this time nominative, to fix the tree relation as an argument daughter to the type-*t*-requiring node, yielding a partial tree with so far just two argument nodes (see Figure 4, where the succession of partial trees required for the processing of these two NPs is displayed).¹¹ The verb then follows, filling out the remainder of the propositional structure to yield the appropriate output tree with $Fo(Xerxes')$ as subject argument to the predicate $Fo(Propon')$, $Fo(\varepsilon, x, Praemium'(x))$ as its object argument.¹² This allows permutation of constituent order without any fixed interpretational effect.

10. This function of case serves to license successful derivations, despite there being a restriction that there be only one unfixed node of a type at a time. This constraint on only one unfixed relation of a type from any one node at a time is a consequence of the tree logic underpinning the system (Blackburn & Meyer-Viol 1994). Formally, nothing prevents the construction of more than one unfixed node, but all nodes in a tree are identified by their relation to other nodes in a tree. This has the consequence that if more than one node is constructed from a dominating node characterized only as dominated by that node, these will collapse to a single node yielding inconsistent decorations, and the whole tree will be debarred.

11. The details of this process are not critical to this paper, but see Cann et al. (2005), ch. 6, for a discussion of this process with respect to Japanese, and Bouzouita (this volume) for a detailed specification of clitics that relies on the processes that underpin these actions.

12. Unlike two case-distinguished unfixed nodes, either subject or object nodes induced by actions of the verb harmlessly collapse with those introduced as unfixed and updated through

2.2.2 Building paired trees: Topic structures as linked trees

This family of parse strategies by no means completes the list of possible DS strategies for general tree-unfolding. In addition, pairs of trees can be built – so-called linked trees – that are subject to a restriction that they be anaphorically linked but otherwise independent; and these may, furthermore, be constructed in tandem, with one partial tree being initiated, then a linked tree being developed from one of its nodes, with the pointer subsequently returning to complete the originally initiated tree only once that linked tree has been completed. Relative clauses, for example, are analyzed as involving the construction of pairs of independent propositional trees that share some term through the relative pronoun. The process of inducing such pairs of semantic trees is permitted by defining an additional modal operator in the tree logic, $\langle L \rangle$, and its inverse $\langle L^{-1} \rangle$; and a rule is defined to yield a transition from an arbitrary node in one tree across a LINK relation to the top node of a new propositional tree. This tree is introduced with a requirement that one of its nodes must share a term with the node (the ‘head’) from which the transition was constructed. This copy is, in Latin as in English, supplied anaphorically by the relative pronoun (see Figure 5):¹³

- (5) *Xerxes, qui nos amabat...*
 XERXES.NOM who.NOM US.ACC loved
 “Xerxes, who loved us...”

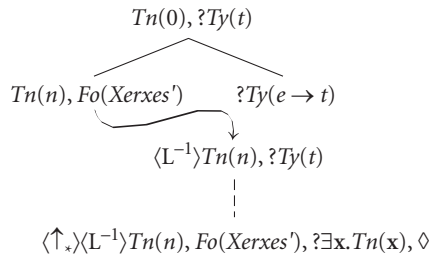


Figure 5. Building an unfixed node for relative clause construal

We will not go further into details of the analysis of relative clauses here (see Cann et al. 2005: Ch. 4). However, the action of introducing paired trees of the sort associated with relative clauses applies more generally than just to a single construction type: it is

constructive use of case (Nordlinger 1998), as annotations provided by the verb are compatible with those provided by computational actions used in parsing the NPs. The formula decorations provided on the verb-induced argument nodes are metavariables, compatible with all formula updates.

13. In Latin there is no necessary contiguity between the head and the relative pronoun, suggesting that the relative pronoun itself may decorate a locally unfixed node. We ignore this here.

a general computational action that from any node with a completed formula decoration, $Fo(\alpha)$, licenses the construction of a linked tree that is required to contain a copy of that formula $Fo(\alpha)$. Given observed parallelisms between relative clauses and topic structures (see Kempson et al. 2001), we define topic structures as involving an initially constructed tree of type e , decorated by some term, with a LINK relation to a propositional tree required to contain somewhere within it a copy of that term: one treenode,



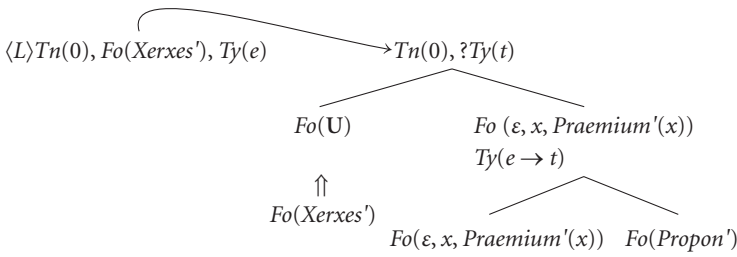
Figure 6. Topic structure construal

the rootnode $Tn(0)$, has another tree to which it is linked, and that tree, $\langle L \rangle Tn(0)$, is decorated with solely a type e term, $Fo(\alpha)$ ($\langle L \rangle$ for ‘linked’). Note the decoration, $?\langle \downarrow^* \rangle Fo(\alpha)$: this is a requirement that somewhere in the tree to be developed from this node there must be a node decorated with $Fo(\alpha)$, whatever α might be. Since this decoration is a requirement and does not provide the formula itself, there has to be an anaphoric expression somewhere in the following string to provide this second copy of the formula, as otherwise in the resulting structure an outstanding requirement will remain and the string will not be well-formed. This modal form of requirement also drives the processing of relative clauses; but in that case, this requirement was met by the relative pronoun. In topic structures, with no such encoded pronoun, regular anaphoric devices have to be made use of in providing this value.

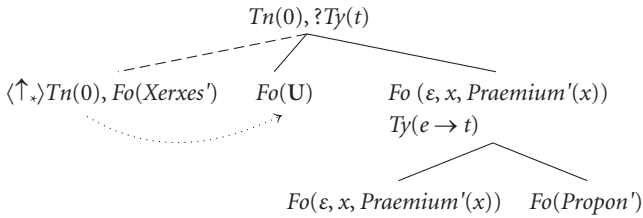
We now, of course, have several strategies for any single string-interpretation pair. In particular, there will be three ways of building up interpretation for subjects in all subject pro-drop languages. First, the value of the metavariable at the subject-argument node may be provided by building a linked structure, taking the term projected from the subject expression to decorate the introduced linked-structure node and then using it to provide the context for identifying the value of this metavariable by a process of substitution, as in the first tree of Figure 7.¹⁴ Second, the value of the metavariable may be provided by taking the subject expression to provide decorations on an unfixed node, with this unfixed node unifying with the subject node provided by the verb, as in the second tree of Figure 7. Third, the subject relation may get fixed by constructing a locally unfixed node and updating immediately upon the parsing of the subject expression to yield a fixed subject relation prior to parsing the verb (the final tree of Figure 7). And indeed, as is widely observed of both subject pro-drop and full pro-drop languages, the subject expression can serve either a background, contrastive or more neutral purpose.¹⁵

14. Note the \uparrow in Figure 7 indicating pragmatic substitution.

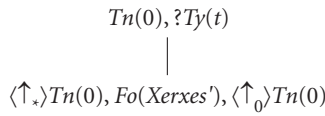
15. See Belletti (1999) for arguments of the clause-external status of preposed subjects in Spanish.



Building a LINK relation for identifying the subject



Building an unfixed node and identifying the subject via parsing the verb



Building and directly fixing a subject relation

Figure 7. Three ways of identifying a subject relation

So DS provides processes for building up predicate-argument arrays through progressively updating what may initially be very underspecified relations, and these processes may be carried out successively, over a sequence of predicate-argument structures, using anaphoric devices and the sharing of terms wherever possible. The commitment to multiple strategies for even a single denotational content for a string is part and parcel of developing a parsing-directed grammar formalism, for the system makes available the fine structure of how interpretation is built up, not merely defining string-content mappings.

2.3 Production

Although it is not commonplace in theoretical syntax to mention matters of production, the parsing perspective of DS invites some discussion of the subject and, as we shall see, this extra dimension provides the basis for an account of dialogue and thus, by hypothesis, of syntactic change.

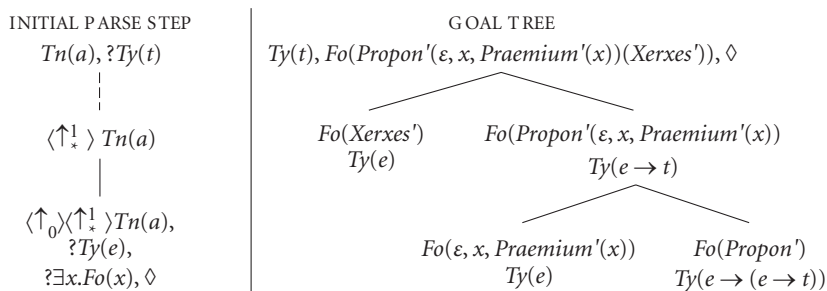


Figure 8. First step in producing *Praemium Xerxes proposuit* with a locally unfixed node

In production, the minimal assumption is that the very same rules used in parsing apply also, the essential difference being that while the parser may not know in advance the interpretation to be constructed, the producer in contrast must know this, at least in part. So we assume that, in generation, the very same computational actions initiate the development of some tree; but each update step licensed by the parsing mechanism has to meet the severe restriction of being a sequence of progressive enrichments towards yielding a particular tree, the goal tree representing the interpretation to be conveyed.¹⁶ For example, in the production of (4), *Praemium Xerxes proposuit*, the first action in initiating a sequence of steps to yield the goal tree is to start with the step that introduces a node decorated with the requirement $?Ty(t)$, just as in parsing; and one possible follow-up to this step is then to introduce a locally unfixed node (see Figure 8). Transparently, both the initial tree and this development subsume the goal tree in the sense that there is a licensed progression from these to the richer goal tree. From this step on, there is the problem of searching in the lexicon for words to express the given conceptual array. With this weak an update in structure, a very large number of lexical expansions are available; indeed, in principle the entire lexicon needs to be scanned, though only words that induce subtrees with a formula of type e will even be putative contenders, given that the pointer, \diamond , is at a type- e -requiring node. Of these, one word whose lexical actions lead to a partial tree that subsumes the goal tree is the word *praemium*; so this can be selected, and the word *praemium* uttered. One possible use of the case specification is then, at this early stage, to enrich that underspecified tree relation to provide a fixed object relation, and so we can take as established a partial tree with just two relations, that between the topnode and some predicate-requiring node, and between that predicate-requiring node and an object node. Such a sequence of parse steps can be re-used to license the introduction of a further unfixed node, so a subject node can be introduced by an analogous routine, and the utterance of the

16. Formally, a subsumption relation is required to hold between the parse tree and the goal tree. For an early development of this view, see Otsuka & Purver (2002) and Purver & Otsuka (2003).

word *Xerxes* also licensed. Of course, this is not the only possible sequence of actions, and more than one string matches the intended goal tree; but all that matters is that with this choice, the subsumption relation between the parse and goal trees is satisfied, so the choice of word is justified. Finally, the search through the lexicon is now for a word that provides the appropriate update to that partial tree so as to provide the predicate. Again, in principle every word in the lexicon needs to be checked out, but with *Praemium Xerxes* as the sequence already selected, only the verb *proposuit* will do, for only its actions will yield the requisite result. The actions associated with the verb also include the building of a subject node and an object node, but this is entirely unproblematic. The apparent re-building of a subject and object node may be carried out without untoward effect, for any action additionally to construct either node will simply collapse with the node already constructed. The effect of retrieving the lexical item *proposuit* is to fill out the remainder of the structure of the goal tree, including the decoration of the functor node with the predicate node *Propon'*. And once these actions are in place, the decoration of all non-terminal nodes can be completed and the goal tree duly reached. So production and parsing tasks are solved in harmony, using the very same devices.

Despite the simplicity of this parsing/production correlation as so far set out, this production task threatens to be impossible. A mammoth blind search through the total lexicon appears to be imposed, a task that would be bad enough even if such a full search only had to be done once per sentence. But the commitment to production proceeding in lock-step with parsing means that this search must be made incrementally, word by word; and the problem is compounded by the multiple possible ways of communicating the goal tree: in free word order languages, where there are a relatively large number of ways of 'saying the same thing', the problem is acute.

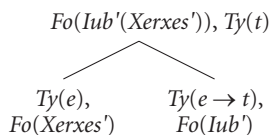
The solution is to presume that the production system is just as context-dependent as parsing: it uses what is provided in context at each step, so that structure or formula values (and even the actions used to construct trees) are taken from context wherever possible, and re-used. Any element in context that can be identified as adding appropriately to the tree may not require words to be uttered, as long as the effect of adding it as a tree update matches the subsumption condition. The effect is exactly as in the parallel parsing task, but in production, the substitution step ensures that the words themselves do not need to be recovered and uttered – the context itself provides the update. It is this use of context that we argue pervades the phenomenon of overlapping actions, repetition of words, ellipsis, use of pronouns, all of which are characteristic of dialogue (Pickering & Garrod 2004), and for good reason: all such choices enable search through the main lexical store to be totally by-passed (Purver et al. 2006).

To take the simplest kind of case, consider the mechanisms for producing an utterance of (7) in the context of having processed (6):

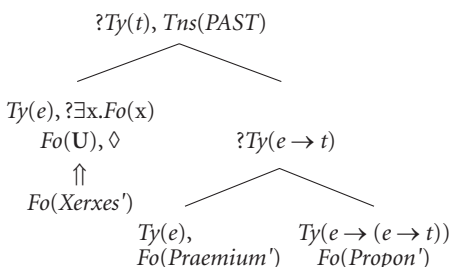
- (6) *Xerxes iussit milites castra captare*
 XERXES.NOM ordered soldiers.ACC camp.ACC capture.INFIN
 “Xerxes ordered the soldiers to capture the camp”
- (7) *praemium proposuit*
 reward.ACC offered
 “he offered a reward”

In uttering (7), the only difference from the earlier sequence of actions for the generation of (4) is the identification of the subject argument node provided by the verb’s actions. And it is here that using the very same process as in parsing reaps its rewards. Latin is pro-drop, so the subject node introduced by the verb is decorated with a metavariable licensing its identification from context. As long as the minimal context contains a suitable term, matching the subsumption constraint, that term can be substituted as the value of the metavariable without further ado (see Figure 9). Since the context is made up of the tree established by parsing (6), it will indeed contain the term $Fo(Xerxes')$. So this can be substituted for the variable $Fo(U)$ in the tree under construction, duly updating that tree, exactly as in parsing except that, in addition, there has to be the process of checking that the appropriate subsumption relation is satisfied.¹⁷ The lack of any need to use words if the appropriate terms are already in the context applies equally to anaphoric expressions, as pronouns themselves by assumption project metavariables whose value can be provided from context, a clear saving if the formula recovered is itself complex. So the only addition to the produc-

CONTEXT



TREE UNDER CONSTRUCTION



GOAL TREE

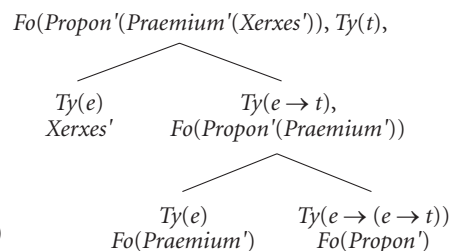


Figure 9. Parsing elliptical forms in context

17. We use the predicate *Iub'* as shorthand for the predicate parsed/constructed from the processing of *iussit milites castra captare*.

tion story on top of the ellipsis account is that anaphoric expressions must have special status in the lexicon as easy to retrieve in virtue of their function of enabling reuse of terms from context.

The significance of this use of context should not go unnoticed. The whole point of using items from context, in both parsing and production, whether triggered by the license of ellipsis or by the presence of morphological pronouns, is to side-step the need to search in the main lexicon. If the context provides an update that itself will meet the restriction of subsuming the goal tree, then that update can freely be used without further ado. And with such an update, the tree can now be completed to yield the goal tree.

This minimization of cognitive costs in production extends beyond merely using elements in context wherever possible. It also applies to choice of words as well, even to choice of structure. Once a word or sequence of actions has been used in processing a string – parsing it or producing it – these actions can be re-used. In each case, the effect will be a sizeable reduction in the production task since the need to look in the general lexical store will simply have been side-stepped in favour of using what one has immediately at hand. Take (8), for example, and let us assume that the initial pronoun decorates an unfixed node, and that the vocative *dea* decorates an independent tree linked to the initial structure via an appositional rule (see Cann et al. 2005), supplying the formula value of the pronoun.¹⁸

- (8) *te, dea, te fugiunt venti, te nubila*
 you.ACC goddess.VOC you.ACC flee winds.NOM you.ACC clouds.NOM
coeli
 heaven.GEN
 “you, goddess, you the winds flee, you the clouds of heaven flee”
 [Lucretius.1.6 cited in Ramat (1990)]

On this supposition, all that is required to explain the parallelism between the first and second sequence in (8) is to analyze the production of *te fugiunt venti* as re-using the very same strategy as used in either parsing or producing the first occurrence of *te*, i.e., by assumption, building an unfixed node requiring a formula of type *e* that the second person pronoun is taken to decorate. Then the actions used to process the second sequence themselves provide the context for processing the third sequence, *te nubila coeli*. Here the speaker achieves a major source of economy. Just by repeating the word *te* the speaker can pick up on the actions in context, constructing an unfixed node and decorating it, then constructing the requisite predicate argument relation. Literally all that is required is the search for the words *nubila coeli* – the rest is provided by the context.

18. This is not the only possible sequence of actions: each occurrence of *te* might, for example, be taken to decorate a structure to which the remainder is linked (see Figure 6).

3. Pronoun placement: Latin and Medieval Spanish

This constraint of minimizing production costs applies not merely to lexical selection but also to the positioning of words once selected. In languages such as Latin, there is commonly no need of a pronoun, as the verbs provide the license to use the context directly to identify their arguments. Nonetheless, anaphoric expressions serve a purpose in the linearization task, as we have just seen with (8), as they enable argument terms to be identified independently of processing the verb. This consideration, in conjunction with the parallelism of parsing and production and general cognitive constraints such as relevance, helps to explain the positioning of pronouns. In relying on context, both speaker and hearer need the search for a substituent to be as small as possible (by general relevance considerations: Sperber & Wilson 1995). Accordingly, unless there is reason to the contrary, the position of an anaphoric expression will be as early as possible in the setting out of any propositional structure since this ensures that the search in the context for the value to be assigned to this expression will thereby be as small as possible. Indeed, in order to minimize the search space effectively, there is pressure not to introduce words expressing new information into the string before contextually determined ones. This is of course no more than a pragmatic, relevance-based explanation of the very well-known given-before-new ordering that is regularly reported in free-constituent-order situations (see, for example, Vincent 1996).

In languages such as Latin, there is something more to be said. Latin is said to display a distinction between strong and weak pronouns, a distinction indicated by stress, which is motivated primarily on the strength of the fact that clitic pronouns developed from the unstressed weak pronouns (Salvi 1996), and in these cases the pronoun canonically occurred in Latin in some poorly defined supposedly second position (though see Adams 1994), and NOT at the left periphery of any clausal sequence. Though this distinction is disputed by some (Rosanna Sornicola, personal communication), USES of pronouns indeed divide into those that do more than merely serve an anaphoric device, and those that do not. And those that do so may serve two further functions. Either they provide some initial term that constitutes a point of departure for what follows (as in (8)), or they provide a contrast, an update to what follows, in both such cases being set out initially in order to be identifiably separate from the structure to be constructed from what follows:¹⁹

19. The pronouns in (8) are identified by Ramat as free tonic pronouns “emphasized or referring to new referents” (Ramat 1990:177); the pronouns in (9) by Adams are taken to be illustrative of an emphatic use “often marked by placement of the pronoun at the head of its clause” (Adams 1994:104).

- (9) “*Tibi ego dem?*” “*Mihi hercle uero*”
 you.DAT I.NOM give.1.SG me.DAT by-Hercules, in-truth
 X. “Am I to give it to YOU?” Y. “Yes, by god, to ME.” (Adams’ translation)
 (Plautus, *Pseudolus* 626)

Reconstructing these observations within the present framework, the so-called strong pronouns constitute a use in which the pronoun decorates a node at the edge of a propositional boundary, i.e., a separate linked structure (8), or an unfixed node (9). In such cases, the pronouns serve a purpose over and above the anaphoric device of projecting a metavariable to which context provides a value, such as providing a shift in topic or a contrastive, hence focussed, item for update. Such devices have the added bonus of providing the means of identifying boundaries to propositional domains, either in the projection of a separate tree, a linked structure, or in identifying the initiation of some new propositional structure within which the term that they serve to introduce will provide an update.

Weak pronouns, by contrast, are involved in those uses of pronouns that serve only as anaphoric devices. Being by definition complementary to the use of pronouns for topic or contrastive purposes, this remainder of the set of pronouns will not be associated with those very structural devices that serve to identify some initiation of an emergent propositional structure. Nevertheless, like their ‘strong’ counterparts, the positioning of these pronouns under this use will be driven by relevance considerations. That is, once an emergent propositional structure is identified by some OTHER expression, we can expect weak pronouns to occur as closely following as possible.²⁰ With all pronouns, the search within the context has to be minimized by placing the pronoun as close to the context within which its value is to be identified as is commensurate with its function in that context.

We now have everything in place to capture the effects of Wackernagel’s ‘law’. Both clitics and, by analysis, the weak pronouns of Latin occur as close to the left-edge of a clause as possible, but apparently not quite at the edge. Rather, they follow those devices that define an emergent propositional boundary. So it is that they immediately follow focussed elements, expressions containing a negative element, complementizers, relative pronouns, subordinate temporal adverbials, for what it is that these have in common is, by analysis, their association with some emergent edge of a new propositional domain:

20. Following Relevance Theory assumptions (Sperber & Wilson 1995) we would expect that if there are any specific inferential effects to outweigh this minimization of contextual search, then this will provide justification for commensurate enlargement of the context to be searched. And this we would take to cover the lack of tightness of fit that Adams (1994) notes of weak pronoun positioning in Latin, even assuming that the effects are clause by clause (or ‘colon’ by ‘colon’ in his terminology).

- (10) *rogo ut mi mittas dalabram* [complementizer+pronoun]
I-ask that me.DAT you-send mattock
“I ask you to send to me a mattock”
- (11) *et non eum uendedi* [negation+pronoun]
and not him.ACC I-sold
“and I did not sell it/him”
- (12) *quae tibi nulla debetur* [relative-pronoun+pronoun]
which.NEUT.PL you.DAT no.NEUT.PL is-owed
“nothing of which is owed to you”
- (13) *nihil me aliud* [negative-quantifier+pronoun]
nothing me.ACC other.NEUT.SG.NOM
consolatur
it- consoles
“nothing else gives me comfort”
- (14) *magno me metu liberaveris* [split part+pronoun]
great.NEUT.ABL me.ACC fear.ABL you-will-have-freed
“you will have released me from great fear”
- (15) *delectarunt me tuae litterae* [verb+pronoun]
delighted me your letter
“I was delighted with your letter”

Subordinating complementizers, for example, transparently define the left-edge of a new propositional structure under construction, as in (10). So does negation, (11). In the case of so-called focussed elements, (13), it is the particularities of the Dynamic Syntax framework that determine that these reflect initiation of a new propositional structure, since the rule introducing an unfixed node applies only if the type-*t*-requiring node has no other daughter node already introduced. The Dynamic Syntax account of relatives also leads us to expect that pronouns in Latin will immediately follow the relative pronoun (12) for precisely the same reason: the relative pronoun decorates an unfixed node with a copy of the head (see the pattern of construal in Figure 5). This same style of analysis will apply without any modification to cases where the verb is initial, (15). If nothing precedes it, the verb will be the sole but unmissable indication of a propositional structure, and it will duly be followed by a pronoun, securing the minimal distance from the context that its optimal use requires. Hence the Tobler-Mussafia effect.

The clitic pronouns of Medieval Spanish show much the same distribution:²¹

- (16) *esto es el pan de Dios que vos da a comer* [rel-pro+pronoun]
this is the bread of God that CL he-gives to eat
“this is the bread of God that he gives you to eat” (Granberg 1988:35)

21. Data are taken from Bouzouita (2002): for details, see sources referenced there.

- (17) *e non los hi fallo* [negation+pronoun]
 and not them there found.3.SG
 “and he did not find them there” (XIII)
- (18) *dixo la mugier: Quien te fizo rey?* [WH+pronoun]
 said.3.SG the woman who you made.3.SG king
 “the woman said: who made you king?” (XIII)
- (19) *e dizie que lo tenie del prior de*
 and he-said that CL.DO he-had of-the prior of
Sancti Johannis [complementizer+pronoun]
 Saint Johan
 “and he said that he got it from the prior of Saint John” (XIII; Granberg 1988)
- (20) *e todo lo metieron a espada ...* [quantifier+pronoun]
 and all CL.DO they-put to sword ...
 “he said they shed their swords through all” (XII; Granberg 1988)
- (21) *connocio la Jacob* [verb+pronoun]
 recognised.3.SG her Jacob
 “Jacob recognised her” (XIII)

And so it is that we have the proclisis and enclisis effects in finite clauses for the weak pronouns of Latin and the clitic pronouns of medieval Spanish, described by a single generalization – not as an attraction to focus,²² but as a minimizing of context search, given the new introduction of an appropriate-sized domain. We can even explain the mixed effect displayed in Medieval Spanish in which the subject clitic may occur with either the clitic following the verb or preceding it, with subtly different effects. As we saw in Figure 7, subjects may be parsed as decorating an unfixed node, possibly immediately updated, hence since so identifying an emergent propositional structure, providing the necessary identificatory clues to warrant the generation of an immediately subsequent ‘weak’ pronoun. But they may also be taken to decorate the topnode of an independent linked tree, in which case the subject expression will not itself be the indicator of the transition to another structure, hence there will have to be some OTHER expression intervening between the subject and the pronoun to provide this identificatory clue. And so it is that clitic preposing in Medieval Spanish in the presence of a subject expression tends to be identified with a focus, contrastive interpretation and that when a clitic follows the verb in the presence of a subject, it is associated with background construal of the pronoun (see Bouzouita 2002 for detailed discussion).

22. This analysis of Adams (1994) fails to apply to relative pronouns, as he himself notes, and in any case there is no functional reason why pronouns should be attracted to a focus element, despite attempts to argue that this is pragmatically motivated. A focussing device generally presents some term in CONTRAST to what is to be taken as background, which is the antithesis of weak pronouns.

- (22) *Maestre Fferran Garcia archidiano de Niebla la mandó*
 master Ferran Garcia archdeacon of Niebla CL.DO ordered.3.SG
ffazer por mandado del jnffante. Yo Martin Perezz la
 to-make for order of-the prince. I Martin Perez CL.DO
escruii [contrastive-NP+pronoun]
 wrote.1.SG
 “Master Ferran Garcia archdeacon of Niebla ordered to make on order of the
 prince. I, Martin Perez, wrote it” (Granberg 1988)

4. Alignment, routinization and change

Of course, reflections on pragmatic pressures that induce linear ordering of words do not themselves provide an answer to why a language might have changed. Indeed, given that such relevance-induced pressures are assumedly ever-present since they are language independent, one might expect that such pragmatically based determination of placement of weak uses of pronouns would be robust and long-lasting (Sornicola 1996). And indeed, as already noted, it was and is long-lasting, being pervasive through Latin (Adams 1994), lasting throughout medieval Spanish, and surviving even today in some dialects of Portuguese (Galician). The interpolation data such as (23) confirm the parallelism between medieval Spanish and Latin rather than with the modern Spanish, showing the possibility of expressions intervening between the clitic and the verb (data from Riviero 1986):

- (23) ... *quien te algo prometiere...*
 who you something would-promise...
 “the one who would promise something to you...” (Cor. 145)

With this potential for continuity across different time slices of a linguistic system, what has yet to be explained is why this production pressure should have atrophied into a sequence of actions specific to the clitics. And now we can combine the details of the analysis presented for Latin with relevance-theoretic assumptions. As we have already seen, dialogue considerations show that in spontaneous dialogue, people use the same words, the same structures, the same senses to the words used, all of these parallel phenomena being modelled in DS terms as re-use of actions from context. But the effects go further than this: as Garrod & Doherty (1994) show, hearers, having set up a parse sequence of actions in order to process what their speaker provides, may over a very short time set up routines for retrieval of a stored sequence of actions encompassing more than just one word; and clearly this is an independent means of saving on cognitive costs since it involves the retrieval from the lexicon of only one sequence of actions for a multiple string.

Production, storage and language change can now be seen as going hand in hand. One form of the pronoun gets progressively phonologically reduced in virtue of pre-

dictability and recoverability from context, while another form, by virtue of its use for other inferential effects, does not get reduced at all.²³ As a result of their increasing phonological dissimilarity, these two forms may come to be stored separately, the unstressed clitic becoming defined to follow the set of triggers previously established through production constraints on the order of words based on relevance considerations. This process constitutes a form of routinization, listing as triggers the environments with which such weak pronouns are construed as dependent on their immediate context, as noted above in (10)–(15). The first observable step of encoding such a structurally heterogeneous set of triggers can only take the form of a disjunction, and this is clumsy, and hard to learn. So, once the clitic is stored separately as a discretely encoded form, such a disjunctive strategy for its construal is a natural candidate for yet further routinization effects. In all such cases, much the commonest expression to immediately follow the clitic(s) is the verb (noted by Adams 1994 amongst others); and a natural subsequent step of routinization, given the DS form of analysis, would be to call up the actions associated with the verb, together with those associated with the clitic, with a single lexical look-up mechanism, albeit one that is ‘phrasal’ in form. Again, this constitutes an economy measure, further reducing processing effort. And so it is that routinization of clitic construal devices might come to constitute a re-bracketing – not so much an encliticization on the previous expression, but a procliticization on the subsequent verb. With such routinization, the restrictions on proclisis collapse, since the heterogeneous set of triggers defining the environment licensing construal of a clitic is not in principle a property that appropriately subclassifies the verbs with which the clitics are stored; and we get the intermediate stage of Renaissance Spanish, when all constraints on pre-verbal positioning of the clitics drop (see Bouzouita 2002; Bouzouita this volume; Bouzouita in preparation). And with this evidence of the routinization step of clitic-V sequencing taking place in Renaissance Spanish, we have indirect evidence that the placing of clitic pronouns must have ceased to be a purely relevance-driven strategy in Medieval Spanish; the merging of two discretely stored sequences of actions depends on there being two such stored sequences in place already.

With the splitting off of the weak pronouns from the inferentially more specialized ‘strong’ pronominal effects, we expect there to be a counterpart for the strong pronouns, and indeed the strong pronouns of Medieval Spanish, as in modern Spanish, are subject to obligatory clitic doubling, a phenomenon generally taken to be a puzzle since it appears to be a dual realization within an individual structure of a single thematic role (see Anderson 2005 for discussion):

23. See Rosenbach & Jäger (2006) for a discussion of phonological reduction in connection with an independent argument for the role of priming (equivalently, alignment) in language change.

- (24) *él perdono-ló* [Med. Spanish]
 he forgave.3.SG-him
 “as for him, he forgave him” (Riviero 1986)
- (25) *a ella le hablabaron* [Mod. Spanish]
 to her her.DAT spoke.3.PL
 “they spoke to her”
- (26) *le hablabaron a ella* [Mod. Spanish]
 her.DAT spoke.3.PL to her
 “they spoke to her”

On this analysis, these data are entirely expected, for the pattern, already available in Medieval Spanish, is the effect of building a pair of linked structures, with the consequent obligatory explicit pronominal in the primary structure: it is merely the encoding of a routinization characteristic of the earlier strong pronoun use.

A lot more needs to be said, of course. There is the attendant shift from object pro-drop in so far as Latin displayed this securely; and the subsequent divergent ways in which the Romance languages established discrete orderings in multiple clitic sequences.²⁴ But nevertheless, we hope there is sufficient evidence here to see a novel explanation of clitic ordering in the making. There is one particular reason why the specifics of the transition steps in the change process are so naturally characterizable in DS. ALL update actions, whether induced by a general computational action, or by a word- or morpheme-specific action, are defined in the very same vocabulary, that of updating the emergent semantic representation. Any shift from a generally available action to one that is associated with some idiomatic phrase or individual morpheme is no more than a shift in balance between generally available or lexically stored macros of actions: there is no formal shift whatever, merely the potential for progressive economizing on how many distinctly called-up

24. Arguably, this is due to the atrophying of case with the demise of case-marking morphology so rich in Latin, and this would lead to a situation in which case could no longer be used constructively. Consequently, the emergent languages would be faced with resolving a ban on more than one unfixed node at a time, with the distinctiveness of constructive case being retained only in the pronominal system and as a sequence of lexically triggered actions. The synchronic distribution of Romance clitic pronouns indeed reflect the process of unfixed-node building with case-triggered update in a number of ways: (i) developing a clitic form that is underspecified with respect to the two discrete object construals, the Spanish *leísmo* effect in which the dative *le* is used for both direct- and indirect-object construal, on the DS analysis decorating a locally unfixed node; or (ii) developing a fixed object relation directly as with French *le*, which is the conflation of building a locally unfixed node and then fixing its relation immediately; or (iii) developing a single composite clitic as with Spanish *se lo*, *se los* and Italian *glielo*, reflecting the building of a paired sequence of argument NPs. See Bouzouita (this volume) for detailed specifications of single clitic placement in Medieval and Renaissance Spanish.

sequences of actions the production process should involve.²⁵ Another immediate advantage of this account is that we expect all such changes to be gradual. More than one parsing strategy in pairing string with interpretation is available in the vast majority of cases. The presumption of there being non-identical paths to the recovery of some interpretation thus allows space for failure between speaker and hearer to match the sequence of actions the other participant has selected, without any communication breakdown.²⁶ But this means that over time, one procedure may atrophy without any individual noticing any diminution in expressiveness of their grammar system, or any discrepancy between their system and anyone else's.

5. The syntax-pragmatics interface

It may seem at this juncture that we have said nothing that is not entirely obvious. However, the stance on which this account depends is precluded by almost all grammar formalisms, for the system of grammar as articulated is not encapsulated in any orthodox understanding of this term. First, in order to establish each predicate-argument substructure in an interpretive process, there has to be progressive build-up of structure and assignment of values from the progressively developing context to all underspecified elements. All such resolution is an essential part of the construction process. Without it, compositionality of content assigned to an uttered string is not definable. So the feeding of pragmatically determined values into the structure-building process is an intrinsic design feature.

Second, there is the nature of the pragmatic construal itself. We take the process to involve the construction of representations following a broadly Fodorian methodology, constructing representations in the language of thought (see Fodor 1983 and elsewhere).²⁷ So the general discourse configurations and the cognitive constraints that determine them may be no less structured than representations internal to any individual natural-language grammar, contrary to assumptions sometimes favoured by those adopting a functionalist perspective (see Traugott 1998 for discussion). Furthermore, given the proposed account of alignment in dialogue, there is no essential entertaining of the other participant's mental state in language use, either in the assignment of

25. This is unlike systems that analyze clitic placement in terms of a quite discrete form of morphological template (see Monachesi 2005; Anderson 2005), a perspective that would require the Latin-Romance shift to be seen as a perplexing categorial change.

26. See Bouzouita (this volume) for an argument that this mismatch plays a role in triggering this shift.

27. The language of thought is taken to differ from natural languages in not being a parsing system, and so is not associated with a mapping from one system onto another, a process that is definitive of a natural language.

structure as interpretation to the string, or in selection of words to express some structure as content of a thought; and this account is novel. All decisions, according to this DS account, are made relative just to the immediate context as established by having processed the previous structure (whether as parser or as producer), and this context provides a detailed record not only of the information processed, but how it was processed. This reliance on context for establishing as many aspects of interpretation as possible is essential to the production task if it is to remain doable at all. It is not, or does not have to be, a matter of altruistically considering the hearer's task; it is simply that without such heavy reliance on what has just been processed, the incremental lexicon-search task would be daunting indeed. These assumptions are in conflict with Gricean assumptions about the nature of the communication process, as held, for example, by recent advocates such as Bach and Clark (Bach 1994; Clark 1996), for whom higher-order reasoning about speaker/hearer intentions is essential to communication. The assumptions made also fail to coincide with relevance-theoretic assumptions (Sperber & Wilson 1995), though in this case the divergence is less striking.²⁸ In Relevance Theory, the interpretation of a string requires a concept of sentence-meaning encoded within the grammar formalism, and recovering an interpretation of an uttered string involves building some interpretation that the speaker could have intended (Sperber & Wilson 1995). In the DS account to the contrary, the account of interpretation and of production involves parsing the words item by item and re-using constructs made available in one's own cognitive context to progressively establish some propositional formula with which to reason. This task may be successfully performed without any evaluation by either speaker or hearer as to the mutual manifestness of elements of that context, for they are made direct from the individual's own context as part of the building of the structure expressed by the string as uttered in that context. Substitution of values for anaphoric expressions and for ellipsis are part of the construction process itself BEFORE any such high-level constructs are entertained.²⁹ So there is on this view a pervasive interaction between structural processing and general cognitive principles, which is quite unlike the encapsulation view in which sentences are parsed first with some assignment of sentence-meaning before any pragmatic processing takes place (Sperber & Wilson 1995; Carston 2002). It follows from this that there is no intervening level of logical form that constitutes the output of the grammar as a sentence-meaning, which could serve as the source of input to high-level reasoning about what is mutually manifest and thereby reach some conclusion about what could have been intended.

28. In this connection, see Sperber's characterisation of 'the naive optimist's' mode of interpretation (Sperber 1994).

29. Nothing prevents representations of other participants' attitudes being constructed if required, but nothing necessitates their construction either.

There is also an articulation of the feeding relation between production and parsing, an aspect of the model that is not matched by any other formalism. On this view, the pressures of production are so tightly coordinated with steps of parsing that they are no more than the implementation of the principles for action determined by the grammar formalism itself. The consequence is that any shift in the response to such production pressures leads to change in the underlying system of processing, and that itself constitutes a change in the grammar formalism, despite its parsing orientation. So, appropriately, language change is seen as driven by speakers (Joseph 1990 amongst others), and syntactic change no longer has to be seen as occurring only in the shift from one generation to another. Children in early acquisition stages make very high use of alignment, with the notable use of copying (Tomasello 2003), a clear manipulation of immediate context that enables production to follow closely upon parsing, well before a secure body of lexical specifications is in place. On this view, there is little reason to see young children as uniquely the source of syntactic innovation (contra Lightfoot and others: see Lightfoot 1998). Nor does syntactic change have to be seen as the result of peer pressure of one dominant group over another. Syntactic change may, after all, simply be a change induced by the every-day way in which we use and store the tokens of our language.

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An economy approach to the triggering of the Russian instrumental predicate case*

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1. Introduction

In recent years, generative linguists have developed a theory of syntactic change, applying to diachrony the same criteria that govern synchronic generative studies. This theory of change relies on basic concepts of formal linguistics, such as the differentiation between I-grammars and E-languages, the existence of a Universal Grammar (UG), and the significance of language acquisition.

According to this conception of change, a grammar is a mental state (I-language, what we ‘know’) that is used in different speech acts (E-language, what we ‘say’). Chomsky’s (1995) Minimalist Program views the syntactic internal system (the I-grammar) as an optimally designed device. I will assume, following Lightfoot (1999, 2006) and Fodor (1998), that our language acquisition device is also optimal. So why does syntactic change happen? Lightfoot (1999, 2006) has proposed that learners scan for grammatical ‘cues’ (called ‘triggers’ by Fodor 1998) in their environment. These cues help the learner in setting grammatical parameters and acquiring structures. When cues get lost, the evidence necessary to set parameters or acquire structures is weakened.

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But how do cues get lost? The key issue here is E-language: performance and E-languages are governed by different sociolinguistic factors, e.g. frequency, functional and communicative needs. Thus, performance can partially condition the external form of adult output (the Primary Linguistic Data, or PLD, acquired by children), introducing into it late peripheral changes. In turn, this ‘new’, slightly divergent output is parsed by young learners, who can acquire a grammar different than the one their parents have (Lightfoot 1999, 2006; Pintzuk, Tsoulas & Warner 2000; Uriagereka 2006).

Spontaneous or superficial changes can trigger problematic PLD if the resulting word string to which the learner is exposed is ‘inconsistent’ with the I-grammar that generated it. However, learners can acquire irregularities and inconsistencies, even whole chunks of E-language, as special entries in the lexicon. An ‘E-language’ chunk is a piece of morpho-phonological material without a grammatical background, acquired in an ‘unusual’ way (late, usually learnt by heart) and integrated as a frozen element into the lexicon. In this paper, I will show that these E-chunks can be sporadically interpreted by learners as active cues for new structures.

Syntactic change stems from the divergence between a child’s grammar and his or her parents’ grammar. More specifically, from the Minimalist perspective, reanalysis simply means ‘feature reassignment’, i.e., a child fails to apply the Operation of the lexicon in the same way the previous generation did (see Section 3). This gives rise to a new relation between a feature and a lexical item, which in turn entails new oral and written production related to the crucial structure (Pintzuk, Tsoulas & Warner 2000).

In this paper, I focus on the reverse process, namely syntactic change triggered by the *introduction*, not the loss, of new morphological material to the PLD. As we will see below, the effect of this process is the same ‘adaptive’ acquisitional mechanism as in the cases mentioned above: a new way of parsing data, resulting in a new grammar. More specifically, I will explore the triggering of the Russian instrumental case in noun predicate contexts: I will argue that it started as a spontaneous innovation in very restricted E-language uses and, later on, underwent a reanalysis in noun predicates, eventually becoming the grammatical case of Russian non-verbal predication.

In Section 2, I briefly review the cross-linguistic and Old Russian patterns of non-verbal predicate encoding. Section 3 introduces the two minimal principles of syntactic change that will be illustrated in this paper. Section 4 develops a step-by-step account of the triggering and reanalysis of the instrumental predicate case in Old Russian. Section 5 is devoted to the diffusion of the new, reanalysed instrumental form over the old encoding pattern. Section 6 explains how and why the new, instrumental case spread to predicate adjectives. Finally, Section 7 summarizes the main conclusions we can draw from this paper.

2. The parameter of non-verbal predication

A review of typological studies on non-verbal predicate encoding reveals that researchers distinguish two different patterns, both in the classic typological school (Comrie 1997; Stassen 2001) and in the generative framework (Bailyn 2001; Baker 2003).

The most frequent pattern cross-linguistically is agreement of the non-verbal predicate with its antecedent. The other possibility is special encoding of the predicate NP. This last pattern comes in different flavours: the Balto-Slavic instrumental case, the Arabic accusative,¹ the citational case of the Oromo dialect of the Harar in Ethiopia (Comrie 1997) and special adverbial forms in Balto-Finnic, Dagestanian, Chechenian, Dravidian languages, Celtic and Northern Basque (Stassen 2001).

These two patterns correlate with the two stages of the Russian predicational system: antecedent agreement was the non-verbal predicate encoding in Old Russian (1a), while Present-Day Russian usually displays instrumental case on nominal predicates (1b):

- (1) a. *Bě Cainŏ ratai, a Avelb pastuxŏ*
 was Cain.NOM farmer.NOM and Abel.NOM shepherd.NOM
 (OR: *Laurentian Chronicle*, 29b)
- b. *Kain byl zemledel'cem, a Avel' byl pastuxom*
 Cain.NOM was farmer.INST and Abel.NOM was shepherd.INST
 "Cain was a farmer and Abel, a shepherd" (Pr. Day Russian)

The Minimalist approach proposes that all morphological parameters should be reduced to features on functional heads. Syntactic change and variation can be viewed in the same way, i.e., as the change of a feature on a functional head. As a matter of fact, the parameter we are concerned with can be reduced to a \pm feature on a Pred(ication) head in a very simple way:² either the feature on Pred is active (Pred values special case on its complement) or it is inactive (no special case assignment, i.e., default antecedent agreement applies), as Bailyn (2001) has proposed for the Slavic languages. The parameter of non-verbal predicate encoding is formalized in (2):

- (2) 'The Non-verbal Predicate Case Parameter': non-verbal predicates can display a special encoding morpheme or default encoding under the following conditions:
- (i) If the functional head selecting the non-verbal predicate is active (has the ability to value case on its complement), special predicate case is valued on the predicate;

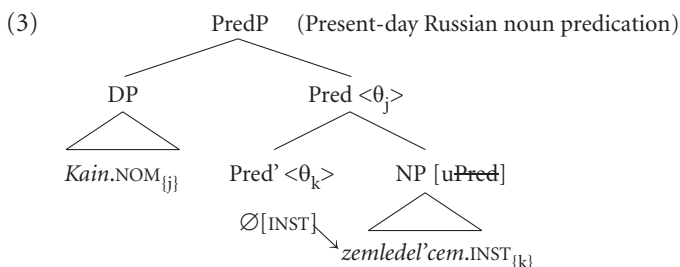
1. This case is also found, though less systematically, in English (*It's me*) and French (*C'est moi*).

2. Bowers (1993) first proposed that a Pred head projects a functional layer over lexical predicates (verbs, nouns, adjectives). This tradition has been followed by a series of scholars, e.g. Bailyn (2001) among the Slavists. Other authors posit an Asp(ect) head or a light verb (little v) head instead.

- (ii) If the functional head selecting the non-verbal predicate is inactive (assigns no case), no special predicate case is valued: default case or antecedent agreement applies.

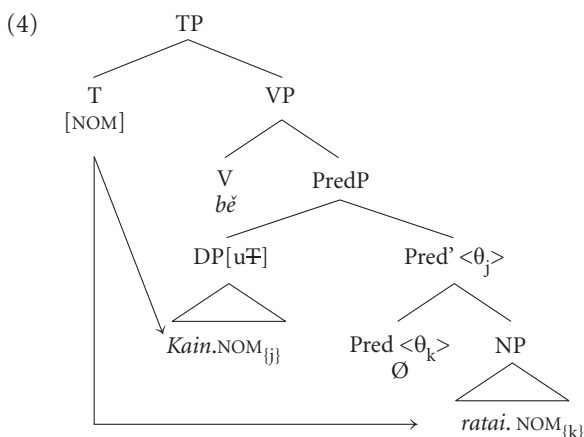
Every non-verbal predicate, then, must display one of these two patterns. Let us illustrate them through noun predication, which underwent the first changes in Old Russian. The following structures are based on Baker (2003) and Bailyn (2001):

(i) Non-agreeing noun predication (structure 3, example 1b): a functional null head Pred selects an NP, marked with instrumental case. Instrumental case is valued against the Pred head, together with theta-role assignment (Bailyn 2001). The instrumental NP phi-agrees with the specifier of the PredP (the subject of the predication).



The complex Pred' assigns a theta-role to the specifier and Pred assigns a theta-role to its complement. Theta-role assignment to the complement NP is necessary because predicate nouns, unlike predicate adjectives, need a theta-role to satisfy their own referentiality (Baker 2003).

(ii) Agreeing Noun predication (structure 4, example 1a): Pred selects an NP, which shows up in its default case. The Pred head is inactive (unable to value case), so the case of the predicate is default nominative because the closest active Probe in the derivation is T. The head T thus values several Goals (the subject and the subject-related nominal predicate) by multiple agreement (Chomsky 2001).



3. Two minimal principles of grammar change

This paper proposes the necessity to restrict syntactic change with the help of two simple principles, challenging the view that the indeterminacy of analysis of the PLD can itself be a cause of change (as stated by Timberlake 1977 and Gibson & Wexler 1994).

I propose two principles in light of Economy and, more specifically, the Principle of Full Interpretation and the Last Resort operation formulated by Chomsky (1995).

Full Interpretation disallows superfluous symbols in representations at any level (PF or LF).³ At LF, it requires that every element take on a non-vacuous role in the final interpretation of the syntactic representation. This requirement on representations is parallel to Lightfoot's (1979) Transparency Principle, a requirement on parsing, which demands that superfluous symbols in the inputs or symbols having no immediate interpretation are diachronically (acquisitionally) eliminated (see Section 4.2).

My Principle 1 is a tentative reformulation of the Transparency Principle as a condition on the Operation, which relates features and lexical items in the Lexicon during the language acquisition period (Pintzuk, Tsoulas & Warner 2000).

Principle 1 – ‘Condition on the Operation of the Lexicon’: There must be a univocal relation between the features a child acquires and the interface symbols in a certain string (PF and LF); otherwise, superfluous symbols must be diachronically (acquisitionally) eliminated.

In other words, reanalysis is a mechanism that language acquisition provides for a certain input to be interpreted, in case previous changes in the adults' productions have increased the opacity degree of that input. Opacity results from the mismatch between acquired features and special inputs. This mismatch gives rise to conflicts, and the accumulation of these conflicts can lead to the unparsability of a word string by the learner. When the opacity degree of a word string cannot be further assimilated by the learner, Principle 1 takes effect: it eliminates superfluous symbols in the representations and readjusts the crucial lexicon entries, i.e., gives rise to a new analysis of the conflictive data.⁴

3. “(Full Interpretation – condition on representations) if a symbol in a representation has no sensorimotor interpretations, the representation does not qualify as a PF representation. This is what we called ‘interface condition’. The same condition, applied to LF, also entails that every element of the representation have a (language-independent) interpretation” (Chomsky 1995:27).

4. The necessity to eliminate superfluous symbols can be illustrated through the process of movement loss: a morphological conflict arises if a child receives evidence for a movement led by a strong or EPP feature (Affix Hopping, for instance), when the overt morpheme (the one that was to be attached to the moved object) has been lost. The child receives a superfluous PF element: a phonetically overt dislocated pronunciation of an item associated to no strong feature checking. The learner must acquire a special null morpheme in this structure or eliminate the offending movement. More clarifying examples are provided in Madariaga (in progress).

The second minimal principle I reformulate – from a diachronic perspective – is Last Resort.⁵ Last Resort requires that syntactic operations must be motivated: if they are not obligatory, they *cannot* take place. Applying this notion to syntactic change, I propose that if a reanalysis is not obligatory, then it is disallowed (see Section 6):

Principle 2 – ‘Condition on Reanalysis’: All other things being equal, syntax should undergo as few reanalysis processes as possible.

This principle also includes the successive reanalyses that are externally manifest as the diffusion of a change over new items (and classes of items) or over new syntactic environments. Apparent spreading of a new form is viewed here as further reanalyses or further changes in the linking of specific items with features.

The Condition on Reanalysis completes the one given in Principle 1: it limits the excessive power of change as a solution to unparsability, restricting it to the contexts where it is strictly necessary for language acquisition.

4. Principle 1: Instrumental case as the case of nominal predication

This section explores step-by-step the triggering of the instrumental case as the case of predication in Old Russian NPs. Principle 1 will guide us in explaining how external changes in the PLD (in word strings) forced a change in acquisition, and consequently, diachronic change.

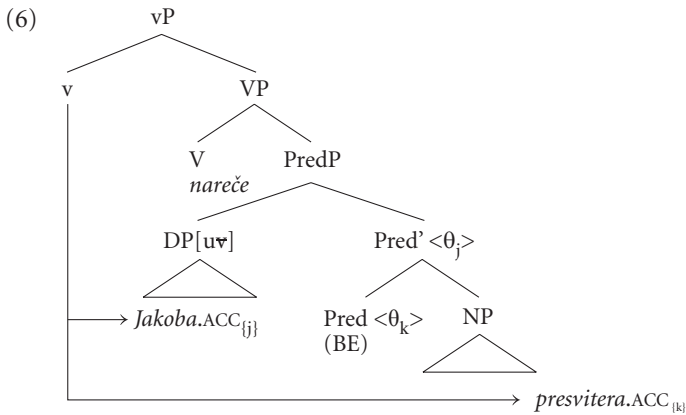
The change described in this paper originated from a theta-role conflict: a theta-role began to be assigned to an NP by a head against which the NP did not match its case. As a result of this, the problematic word strings were reanalysed, producing a shift in the nature of the instrumental case in predicational contexts: it stopped being an inherent lexical case and became configurational (inherent non-lexical).

4.1 The initial trigger: Spontaneous extension of the lexical instrumental case

In the 12th century, the Russian system of predication and related phenomena were changing. Some literary genres favoured the stylistic extension of an instrumental of ‘way of action’ and ‘comparison’ to certain predication contexts, where previously only antecedent agreement was possible (Xodova 1960; Potebnja 1958 [1888]). Old Church Slavonic and the first documented Slavic languages encoded non-verbal predicates with antecedent case agreement, as in example (5), structure (6):

- (5) (*Feodosii*...) *nareče imō Ijakova presvitera*
 Theodosius named them.DAT Jacob.ACC priest.ACC
 “Theodosius appointed Jacob as their priest” (*Laurentian Chronicle*, 63)

5. “(Last Resort – condition on derivations) a shorter derivation is preferred to a longer one, and if the derivation D converges without application of some operation, then that application is disallowed” (Chomsky 1995:200).



According to Xodova (1960) and Potebnja (1958 [1888]), the instrumental predicative case stemmed from a comparative-modal usage as in (7a); then, it was extended to the typical designative-modal usage of Old Church Slavonic (7b); finally, it reached designative structures with the verb “to be”, such as the one exemplified in (8), the first documented instrumental predicate case in Old Russian (very rare in early texts).

- (7) a. *Krǫvъ tečaše rěkami*
 blood.NOM.SG poured rivers.INST.PL
 “blood was pouring like a river” (OCS: *Codex Suprasliensis*, 53:27)
- b. *Dobrěa ti estъ malomoštijъ vъ životě vъniti*
 good for-you is maimed.INST in life to-enter
 “it is good for you to enter into life maimed”
 (OCS: *Codex Marianus*, Mk. 9:43)
- (8) *Ta dva byla poslǫmbъ u rizě*
 [those two].NOM.DUAL were.DUAL ambassador.INST.SG in Riga
 “both were ambassadors in Riga” (OR: *Smolensk Treaty of 1229*, 5)

The same parallelism is observed in Old Russian: see the instrumental of comparison in (9) and the first designative uses in (10):

- (9) *Igorъ sokolomъ poletě*
 Igor falcon.INST flew
 “Igor flew away as a falcon” (*The Lay of Igor’s Campaign*, 443)
- (10) a. *Volodimerъ že velikimъ mužemъ stvori togo i otca*
 Vladimir PART [great man].INST.SG made this.ACC and [father
jego
 his].ACC
 “Vladimir turned him and his father into important men”
 (*Laurentian Chronicle*, 43)

- b. *Vy že kogo xoščete igumenomъ iměti sobě, da i*
 you PART whom.ACC want abbot.INST have yourself PART PART
azъ blagoslovenie podalъ byxъ emu
 I blessing give would to-him

“I would give my blessing to the one you want to be your abbot”

(*Laurentian Chronicle*, 62b)

There are several reasons to think that the initial spreading of this lexical instrumental case was a non-canonical E-extension of adverbial instrumental phrases to instances of predication and that it was not yet fully integrated into the predicational system of Old Russian. First, we observe the fact that the earliest examples of these instrumental phrases often lack phi-agreement with respect to their antecedent. Notice that the instrumental predicates are singular in (9) and (10a) though they refer to a dual subject and a plural object, respectively. Compare this with the canonical lack of phi-agreement of the adverbial instrumental phrases of comparison (7a).

Another piece of evidence follows from the fact that lexical items showing this initial – extended – instrumental case formed almost a closed class: names of charges, professions and designative nouns with verbs of change and assignment. They have been listed by Borkovskij (1978: 122, 127) and Nichols (1981). This strongly suggests that the instrumental in its first occurrences was still a lexical case, associated to lexical items and not to specific predicative structures.

Borkovskij (1949: 198–199, 1978: 82–83) also noticed the small number of predicate instrumental instances in the Old Russian colloquial letters (as well as other non-legal texts) and their limited contexts, concluding that this instrumental was exclusively used in fixed legal formulae.

All this points to an instrumental usage first triggered as a stylistic feature of legal speech (the first legal texts were inherited from the oral tradition), which favoured the extension of the instrumental case to the first predicative contexts. It seems natural that this innovation originated within the legal genres (characterized by precise and accurate speech), given the fact that the predicate instrumental encoding allowed to clearly distinguish dignitaries and their posts, whereas case agreement could produce confusion and ambiguity in certain contexts.

4.2 Theta-role conflict and reanalysis

The stylistic extension of this instrumental in adult production introduced a change in the input new learners received. The new unusual morphological marker gave rise to a theta-role conflict in learners, which, in some cases, induced unparsability. Some speakers, then, were forced to reanalyse the problematic structure.

The complements of ‘way of action’ and ‘comparison’ were ordinary adjuncts or circumstantial complements that modified the verbal action. Bare adverbial adjuncts or complements of this kind are synchronically analyzed as bare PPs with a null preposition head (van Riemsdijk 1978; Kayne 1984).

I propose that early Russian instrumental NP adjuncts (6, 8) were in fact bare PPs with a null P head. Old Church Slavonic and Early Old Russian could have displayed bare PPs, often attested cross-linguistically. PP complements with no overt preposition were characteristic of all early Indo-European languages (Meillet 1934); compare Old Church Slavonic (11a) and Latin (11b). Old Church Slavonic and Early Old Russian PPs were often headed by null prepositions (12):

- (11) a. *Azъ že sьde gladomъ gyblq*
 I PART here hunger.INST die
 “and I am starving here (dying of hunger)”
 (OCS: *Codex Marianus*, Lk. 15:17)
- b. *Hostes metu oppidum deseruere*
 enemies fear.ABL town abandoned
 “the enemies left the town with fear” (Latin)
- (12) *Sqtъ sьxranjeny kosti našę semъ męštę*
 are kept bones ours this.LOC place.LOC
 “the bones are being kept in his place” (OCS: *Codex Suprasliensis*, 1, 42:3–4)

So the OR instrumental NP in example (9) should be analyzed as follows:

- (13)
- ```

 graph TD
 A["PP (Inherent Instrumental)"] --- B["P"]
 A --- C["NP"]

```
- $\emptyset [+INST] < \theta_m \text{ "MANNER"} > \Rightarrow sokolom.INST_{[m]}$

In Russian, after the 12th century, old bare circumstantial complements began to be replaced by overt-preposition-headed PPs; see the contrast offered by Sprinčák (1960), illustrating an earlier syntactic pattern (14a) and a more recent one (14b):

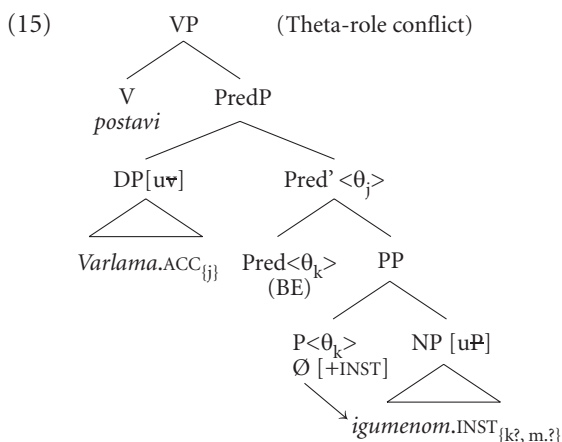
- (14) a. *Pride Batyj Kyevu*  
 came Batu Kiev.DAT.DIRECT  
 “Batu came to Kiev” (Hypathian Chronicle, 265)
- b. *Pride Batyi ko Kyevu*  
 came Batu to Kiev.DAT  
 “Batu came to Kiev” (Supraslian Chronicle, 31)

The predicative instrumental phrases we are concerned with were formed on the basis of these lexical instrumental bare PPs (structure 13). Null-P-headed PPs extended to non-canonical contexts, namely to predicational contexts in certain performance uses; this initial extension gave rise to new unusual chains in the PLD some speakers were receiving. The new word string was a predicational instance, so it was analyzed as a PredP selecting a PP (something like English: *The cat is on the table*). Therefore, learners could acquire the new structure by fixating special selectional properties for the crucial verbs. So far each verb had been selecting for a specific PP (with a null

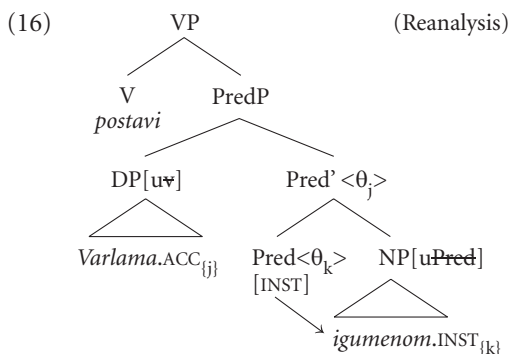


or overt P head), as we saw above. But the new structure that concerns us was more complicated: instrumental-case-encoded phrases were acquired as special PPs headed by a null P, selected by a Pred that was, in turn, selected by specific verbs: the verbs of designation.

Nevertheless, there was still a problem because the new word string had given rise to a theta-role conflict: the word string indicated that an NP apparently valued instrumental inherent lexical case against a null P head but, surprisingly, it seemed to receive its theta-role from Pred(icate), not from the P, as expected for a lexical case (structure 15).



The word string parsed by the previous generation as a PP selected by an inactive Pred head was reparsed by some younger speakers as a different structure: an active Pred, valuing case – instrumental – on a bare NP (structure 16, example 17b). A feature change of the selectional properties of Pred repaired the theta-role conflict by changing the instrumental case from lexical to configurational (associated with a structure-dependent selectional path).



Recall the initial and the final stages of the reanalysis process, which can be represented by the following two sentences: the old agreeing system (17a) and the new

instrumental system (17b). Both grammars probably coexisted for some time; because of this, different outputs are documented in the same text as optional variants (semantically equivalent). It is conceivable that even a single speaker could have and use both patterns simultaneously for a time (Yang 2002): one pattern would be part of his I-grammar, and the other one an E-object learned ‘by heart’:

- (17) a. *Poěxa, poimō s soboju Klimenta, ego že igumena*  
 went taking with him Klimenta him.ACC PART abbot.ACC  
*postavi vō svoe město*  
 put in his place  
 “he left and took with him Kliment, who was appointed as the abbot of his place”  
 (*Laurentian Chronicle*, 53b)
- b. *I postavi imō igumenomō Varlama*  
 and put them abbot.INST Varlam.ACC  
 “and he appointed Varlam as their abbot”  
 (*Moscow Chronicle*, 65b)

### 4.3 Cues or triggers lost

Let us return to structure (15), the one that illustrates the theta-role conflict. We know that learners can acquire and integrate irregular E-objects into their language system if there is sufficient positive evidence. Nevertheless, reanalysis of these predicative instrumental structures became obligatory when previous changes weakened the cues that had been making possible an exceptional acquisition of these new PLD.

In order to map the concrete conditions for reanalysis, I will explain one-by-one the weakening processes of first-order data (overt morpho-phonological material) and second-order data (other syntactic cues or triggers, such as the ones analysed by Lightfoot 1999, 2006; Fodor 1998).

(i) First-order data (loss or inexistence of certain morphemes overtly): the new instrumental phrases lacked an overt preposition, which had started to replace Indo-European null prepositions of non-argumental complements (see the previous section). Even though other bare PPs were reanalysed as overt PPs, instrumental predicative phrases remained the same, and it made difficult the interpretation of the instrumental bare PP as a real PP.

(ii) Second-order cues, necessary to acquire the expected structure, became undetectable: the theta-role of ‘way of action’ and ‘comparison’ (<MANNER>), typical of the original PPs, was not suitable for the new phrases valuing instrumental (charges and professions could not be interpreted in terms of a comparison or ways of action but rather as predicates).

(iii) The extension of the instrumental case affected verbs that did not traditionally select PPs: the instrumental case encoding circumstantial complements shifted to some verbs selecting complements that had so far been encoded with antecedent agreement (structural accusative or nominative case); the traditional encoding associated with these verbs weakened the perception of their new instrumental complements as PPs.

(iv) The loss of antecedent agreement on other secondary predicates such as gerunds (Sprinčak 1960) in favour of various fossilized special markings could also contribute to parsing instrumental phrases as special NPs, instead of PPs.

## 5. Extension of the reanalysed instrumental case over case agreement

After reanalysis took place in some speakers, a period of diglossia began. A well-known fact is that a situation of diglossia must be finally solved by promoting one structure over the other. This usually happens after a long process of feeding the most advantageous structure until this one eventually replaces the other (Haspelmath 1999).

In our case, pragmatic advantage consisted of the disambiguation of some instances of syntactic homophony, specific to Old Russian and other Slavic languages. Syntactic homophony occurred between instances of agreeing predication (an argument + a non-verbal predicate) and instances of split NPs (an argument + a split apposition). Example (18) is structurally ambiguous because *knjazja* “prince” can be interpreted either as a non-verbal predicate or as an attributive, part of a split DP *Gleboviča knjazja* “the prince Glebovich”:

- (18) *Poločane... Gleboviča k sobe knjazja vvedoša*  
 Polovtsians Glebovich.ACC to themselves prince.ACC brought  
 Structure 1: “Polovtsians appointed Glebovich as their prince”  
 Structure 2: “Polovtsians brought the prince Glebovich along to their place”  
 (*1st Novgorod Chronicle*, 140b)

Disambiguation was achieved thanks to the instrumental encoding of the secondary predicate in Structure 1 (replacing the form in (18) by *knjazem* “prince.INST”), while the split apposition *knjazja* “prince.ACC” of Structure 2 could maintain the old accusative marking.

## 6. Principle 2: The instrumental predicative case on adjectives

In this section, I will offer a new proposal for the fact that the predicate instrumental case was extended to adjectives later than to nouns. The most widespread proposal so far is the one put forward by Švedova (1952) and Borkovskij (1978): they state that the late extension of the instrumental case to predicative APs lies in some featural incompatibility. According to these authors, Old Russian long adjectives entailed a permanent quality or a durative event, while the instrumental predicative case encoded a transitory quality or event. They encoded different types of events, so they were incompatible. But these authors did not explain why instrumental case was not extended to Old Russian *short* adjectives, which expressed a transitory event, and why they had to wait until *long* adjectives acquired a transitory feature instead.

Let us see how our Principle 2 can offer a solution to this mystery. First, we must be aware that no theta-role conflict could arise in Old Russian adjectival predication: adjectives have no referential index, so they are not assigned a theta-role from either P or Pred (Baker 2003). The extension of the reanalysis to them could be only based on the advantage of the new structure already created on NP predicates.

On the other hand, these predicate APs entered contexts where syntactic homophony did not arise and, therefore, reanalysis was banned, according to Principle 2. Consequently, the default system (agreement) continued to be used on them. Until the 15th century, AP predicates could not display syntactic homophony (like the one in example 18), because they clearly distinguished their predicate and non-predicate uses: the long adjectives were used as exclusively attributive forms, contrasting with the short adjectives, which were mostly predicative (Borkovskij 1978; Georgieva 1952).

In the 16th century, however, long adjectives started to be used as non-verbal predicates (alongside short adjectives). As a result, new structural ambiguities needed to be undone: example (19b) is a fictitious 16th-century variation of (19a), the real example from the 13th–14th century. If a long adjective is used (19b), instead of the short one (19a), two different structures can be parsed: a predicational structure (structure 1) and a split attributive one (structure 2).<sup>6</sup>

- (19) a. ...zane knjazb ešče malb bjaše  
 because prince.NOM still small.NOM.SHORTADJ was  
 “because the prince was still young” (Fictitious 16th-century variation)
- b. Knjazb ešče malyi bjaše  
 prince.NOM still small.NOM.LONGADJ was  
 Structure 1: “the prince was still young”  
 Structure 2: “there was / existed still a young prince”
- c. Knjazb ešče malymb bjaše  
 prince.NOM still small.INST.LONGADJ was  
 “the prince was still young”

Russian speakers managed to reduce opacity, once again reproducing the syntactic solution applied to NP predicates some centuries before: the instrumental predicate encoding (19c).

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6. In example (19b), the word order suggests that the adjective (*malyi* “small”) is the predicate, so pragmatically, interpreting it as a split apposition to *knjazb* “prince” is disallowed. Nevertheless, (19b) is really homophonic, as syntactic homophony is not a pragmatic issue but a matter of different *structures* that can be parsed departing from a single phonetic representation or a single word string.

## 7. Conclusion

In this paper, a new approach to the triggering and extension of the Russian instrumental case as a predicate case has been offered. It has been proposed that the instrumental case started being used as lexical case to encode nominal non-verbal predicates with specific verbs, for expressive or stylistic reasons, in late Common Slavic. The subsequent external changes in adult output gave rise to parsing conflicts in the individuals who acquired that language. The instrumental case was reanalysed in Old Russian as the structural case of noun predication around the 12th–14th centuries.

The conflict that made difficult the normal acquisition of the new word strings was a theta-role conflict: the new instrumental NPs apparently valued case against a P head but received theta-role from Pred. The reanalysis consisted of the replacement of a PP selected by an inactive Pred head with an active (case valuing) Pred, which selected a bare instrumental NP. After reanalysis took place in some speakers, there was a period of diglossia during which the new structure was fed as the most advantageous one.

In the 16th century, there was a further extension of the reanalysis to other predication structures, namely to AP predicates. The spreading was economic in the sense that reanalysis applied to APs only when the necessary conditions arose.

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# Change and variation in *ga/no* conversion in Tokyo Japanese\*

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## 1. Introduction

One of the most prominent case alternations in Japanese is *ga/no* conversion (henceforth GNC). As shown in (1) and (2), a genitive particle *no* is variably substituted for a nominative particle *ga* in certain embedded clauses:<sup>1</sup>

- (1) a. *Ken-ga/no kaita hon*  
Ken-NOM/GEN wrote book  
“the book that Ken wrote”  
b. *ryoosin-ga/no nokosita isan*  
parents-NOM/GEN left assets  
“the assets that the parents left”

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1. The Kyusyu dialect permits *no* as a subject marker in main clauses:

- i. *Ame-no futte kita.*  
rain-GEN fall become  
“It's started to rain.”  
ii. *Doroboo-no haitta.*  
thief-GEN came-in  
“The thief came in.”

(The National Institute for Japanese Language 1989)



- c. *yuki-ga/no ooi kuni*  
 SNOW-NOM/GEN heavy country  
 “the country where there is heavy snow”
- d. *inu-ga/no neteita basyo*  
 dog-NOM/GEN slept place  
 “the place where the dog slept”
- (2) *Ken-ga/\*no hon-o kaita.*  
 Ken-NOM/GEN book-ACC wrote  
 “Ken wrote the book.”

GNC was first noted by Harada (1971), who historically derived the genitive construction from the nominative one. In this paper, however, we take GNC as it is and do not assume a particular position as to its derivation. Since Harada (1971), a number of studies of GNC have emerged in almost every grammatical paradigm proposed to date. What has been missing in previous approaches, however, is empirical verification of Harada’s (1971) hypothesis that there is indeed an ongoing change, whereby the speakers of Tokyo Japanese increasingly prefer *ga* to *no* in relevant environments; this intriguing hypothesis has been left untouched for about 30 years. Thus the goal of this paper is to verify Harada’s hypothesis quantitatively. In a word, we will present the results of a real-time verification of change in progress similar to those conducted in previous studies, such as Fowler’s (1986) restudy of (r) in New York City and the three linguistic surveys at 20-year intervals by The National Institute for Japanese Language (NIJL 1953, 1974; Yoneda 1997). It is particularly worth noting that the corpus we have used makes it easy to access decades of speech data, compared to studies using real-time evidence, which face some obstacles such as the comparability of data and time required for data collection (Bailey 2002). In addition to the analysis of this change, we also use the data to specify the language external and internal factors that affect GNC, and also verify whether the Constant Rate Hypothesis, one of the most intriguing hypotheses about language change and variation in recent years, holds for our dataset.

## 2. Methodology

### 2.1 Corpus-based analysis

To verify whether language change is, indeed, taking place, solid empirical data are required. Almost all of the large number of syntactic treatments of GNC are based on introspection, while only a few rely on usage or surveys of judgments. Horie & Kang (2000), for example, is a corpus-based study on variation, and Maki et al. (2004) report results from a questionnaire-based survey. Both of these studies, however, are purely synchronic in nature, and as such, they do not mention Harada’s hypothesis. Obviously, we need a diachronic corpus of substantial size with historical depth, covering

generations of the same dialect, so that any syntactic change can be clearly observed and analyzed.

For this purpose, we draw our data from the minutes of the Japanese Diet. The minutes, available on the world wide web,<sup>2</sup> store records of Diet members' speeches from every meeting in the Diet, almost verbatim. The minutes' most prominent feature, for our purposes, is that they contain speech data spanning about 60 years, starting from 1947 (Matsuda 2004), and as such, they provide us with an ideal dataset. Furthermore, the website features a user-friendly search facility by which the data can be searched by keyword, speaker, date of the session, session name, etc., and the search results can be downloaded to the user's terminal at once.

## 2.2 Subjects and speech data

Because Harada's hypothesis was based on Tokyo Japanese, we restricted our data to the speech of members who are also native speakers of that dialect. By checking the hometown of the Diet members,<sup>3</sup> we arrived at 182 subjects.<sup>4</sup> We then sampled one Diet member for each birth year to create a dataset with chronologically equal proportions. This yielded 76 subjects whose birth years range over almost 100 years (1876 to 1970). Their data in the minutes was downloaded from the website as a text file. For each speaker, we took 100 tokens of the variable, making the final sample size 7,600 tokens of which 948 (or 12.5%) were marked with *no*.<sup>5</sup>

## 2.3 Envelope of variation

Before counting occurrences of *ga* and *no* in the data, we needed to delineate the environments where variation is possible (the envelope of variation). One such environment is adnominal clauses, which have been discussed as a typical situation where GNC can occur, as in (3):

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2. The website is accessible at 'Full-text Database System for the minutes of the Diet' (<http://kokkai.ndl.go.jp/>).

3. The references we used are as follows: *Kizokuin/Sangiin Giin Meikan* (Shugiin/Sangiin 1990a), *Shugiin Giin Meikan* (Shugiin/Sangiin 1990b), *Gendai Seijika Jinmei Jiten* (Nichigai Associates 1999), *Seijika Jinmei Jiten* (Nichigai Associates 2003), *Kokkai Binran* (Nihon Seikei Shimbunsha 1998, 1999, 2000, 2001, 2002, 2003, 2004).

4. Diet members who have received special language training (e.g. TV announcers) were excluded from the sample.

5. Data in parentheses or brackets in the minutes were not extracted because they are citations from someone else's speech. Sections where Diet members clearly read texts were excluded from the sample as well.

- (3) *Ken-wa musuko-ga/no yonda hon-o katazuketa.*  
 Ken-TOP son-NOM/GEN read book-ACC cleaned-up  
 “Ken cleaned up the books that his son read.”

In addition to adnominal clauses, we included *made* or *yoru* subordinate clauses, following Watanabe (1996) and Kikuta (2002) who claim that these clauses allow GNC, as shown below:

- (4) a. *Basu-ga/no kuru made suwatte iyooka.*  
 bus-NOM/GEN come until sit be  
 “Let’s sit until the bus comes.”  
 b. *Kyaku-ga/no kuru yori hayaku nimotu-ga tuita.*  
 customer-NOM/GEN come than earlier package-NOM arrived  
 “The package arrived before the customer came.” (Kikuta 2002)

Also included in our data set are *toyuu* and *tono* apposition clauses, which have intervening *toyuu* or *tono* between the embedded clause and its head noun. Those clauses are discussed in Inoue (1976) as environments where *no* cannot be used as a subject marker. Contrary to Inoue (1976), however, Ura (1993) showed that *no* can appear in such clauses if the head noun is a non-derived one such as *uwasa*. This can be seen in (5), which contrasts with (6) where the head noun is a noun derived from the verb *siraseru*:

- (5) *Handai-ga dansigakusei-ga kinben-da toyuu uwasa*  
 Osaka-University-NOM male-student-NOM diligent-be COMP rumor  
 “the rumor that male students in Osaka University are diligent” (Ura 1993)  
 (6) *karera-ga buzi-datta toyuu/tono sirase*  
 they-NOM safety-were COMP news  
 “the news that they were safe” (Inoue 1976)

### 3. Results

#### 3.1 Language change

To test Harada’s hypothesis, we calculated the rate of *no* and checked its correlation with the members’ birth year. If his hypothesis is right, the rate should decrease as birth year increases. The results are given in Figure 1, where each dot represents a Diet member. The gradual decline of the overall trend is fairly clear, such that the members are gradually switching to *ga* at the expense of *no* as their birth year approaches the present. The logistic regression line also supports this impression statistically. Thus, Harada’s insight in the early 1970s was right, and GNC is indeed involved in a change in progress.



Figure 1. Scatterplot of the rate of *no* and the birth year of the Diet members

What, then, causes this change? Table 1 shows the historical change in the distribution of *ga* and *no* over the recorded period of Japanese history (cf. Konoshima 1970; Doi 1982; Matsunaga 1983).<sup>6</sup> At the first stage, before the Kamakura and Muromachi periods (–1192), *ga* and *no* show a similar distribution, occurring between nominals and in embedded clauses (represented by white cells in the table). They then underwent a change during the Kamakura and Muromachi periods (1192–1573), as *ga* emerged in main clauses as a subject marker. In present-day Japanese *ga* cannot be used between nominals, and in embedded clauses, as we have observed above, a change is now in progress (shaded gray).<sup>7</sup> Notice here that a completion of this change

6. Of course, Table 1 is a brief summary of the historical development of *ga* and *no*. When we talk about the historical transition of Japanese, we should keep in mind that the political center was moved from Kyoto to Tokyo (known at the time as Edo). It is necessary to consider to what extent change in this period reflects historical change and how much is due to a shift in dialect.

7. Here we show the context in the Edo period (1603–1867), just before the present. Yamada (1936), studying the language in *Ukiyoburo* and *Ukiyodoko* by Sanba Shikitei (1776–1822), shows that the proportion of *ga* to *no* in embedded clauses that precede an NP is 12.4% (25/202) *ga* and 87.6% (177/202) *no* in those books. Of course, it should be taken into account that Yamada (1936) and our study probably differ in environments where *ga* and *no* are counted as GNC. This suggests that GNC has changed from a situation where *no* was predominant in the relevant clauses to the current state.

Table 1. Historical distribution of *ga* and *no*

|                  | Before Kamakura / Muromachi Era (-1192) |    | Kamakura / Muromachi Era (1192–1573) |    | Present |    |
|------------------|-----------------------------------------|----|--------------------------------------|----|---------|----|
|                  | GA                                      | NO | GA                                   | NO | GA      | NO |
| Between Nominals |                                         |    |                                      |    |         |    |
| Embedded Clauses |                                         |    |                                      |    |         |    |
| Main Clauses     |                                         |    |                                      |    |         |    |

will make the distribution of the two particles perfectly complementary, so that where *ga* can occur, *no* cannot.

This picture suggests to us that the current change is the final stage of a millennium-long transition that was originally motivated by a need for differentiation of two particles with a similar syntactic distribution.<sup>8</sup>

Although we can observe a change in progress, we are not suggesting that the change began only in the present time. Here we would like to hypothesize about the time when the change in GNC may have begun by considering its relation to the emergence of *ga* in main clauses. Our hypothesis is that the change in GNC began around the same time that *ga* in main clauses emerged. As Ono (1977) and Kikuta (2006) mention, the rise of *ga* as a subject marker has been underway since the Muromachi period. We can thus assume that the change in GNC has progressed following this trend across all environments since that time. Ono (1977) provides evidence to support this hypothesis, through an investigation of two versions of the epic *Heike Monogatari* (*Tale of the Heike*) written in different periods. Comparing two books, *Kakuitibon Heike Monogatari* written in the Kamakura period and *Amakusabon Heike Monogatari* written in the Muromachi period, Ono observes that the former uses *no* as a subject marker in some embedded clauses, while the latter uses *ga* in the same clauses. Although we need to examine the relative proportion of the change between those books, the difference implies that the change in GNC had already begun in that period.

### 3.2 Language external/internal factors

In this section, we will discuss the language external and internal factors that affect GNC. First, we take up language internal factors: adjacency between the subject NP

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8. At this point, we would like to mention another change in the roles of *ga* and *no*. As pointed out in Kinsui (1984), there was formerly a difference between *ga* and *no* in honorific usage, but the difference has disappeared in the modern Tokyo dialect. It is reasonable to assume that this disappearance provided an impetus for the change in GNC, since the disappearance brought about an overlap of *ga* and *no* in embedded clauses. However, this reasoning might also be reversed, with the change in GNC interpreted as causing the disappearance of the different roles of *ga* and *no*.

Table 2. Probability of *no* by adjacency

|             | Adjacent  | Non-Adjacent | Total     |
|-------------|-----------|--------------|-----------|
| % <i>no</i> | 17.3%     | 1.6%         | 16.2%     |
| #           | 907/4,398 | 36/1,417     | 943/5,815 |

and the verb, the Transitivity Restriction, and stativity.<sup>9</sup> We then look into language external factors: Plenary vs. Committee sessions and House of Representatives vs. Councilors.

### 3.2.1 Adjacency

Harada (1971) pointed out that the existence of intervening elements between the subject NP and its predicate affects the acceptability of GNC. If there exist some intervening elements, genitive *no* cannot appear as a subject marker, as in (7):

- (7) *kodomotati-ga/\*no minna-de ikioiyoku kakenobotta kaidan*  
 children-NOM/\*GEN all-with swiftly run-up stairs  
 “the stairs that all children run up swiftly” (Harada 1971)

Table 2 compares the adjacent case with the non-adjacent one. Here the rate of *no* in the former case is higher than in the latter one. It shows that adjacency has a crucial effect on the rate of *no*. But why does adjacency matter? Here, Shibatani (1975) suggests a possible explanation. He indicates that the particle *no* has a latent ambiguity between subject marker and possessive marker, and this ambiguity causes a processing problem for the hearer. The problem becomes more serious when the particle occurs in the non-adjacent environment, and consequently the interpretation requires more time to process. All of this will be resolved once *ga* is used to the exclusion of *no*.<sup>10</sup>

### 3.2.2 Transitivity Restriction

Watanabe (1996) proposes a Transitivity Restriction (TR) where if a direct object exists as an argument of the predication in the embedded clause, as in (8), genitive *no* cannot appear in the same embedded clause as a subject marker:

- (8) a. *Ken-ga hon-o katta mise*  
 Ken-NOM book-ACC bought store  
 “the store where Ken bought a book”

9. We also checked other internal factors such as animacy (Silverstein 1976) and negativity (Givón 1979). None of these factors, however, turned out to be significant in our analysis.

10. Interestingly, another particle, *o*, which marks the accusative case and displays variation between *o* and zero in the colloquial speech of Tokyo Japanese, shows a similar adjacency effect, such that the zero-form is more likely to be used when the verb and the object NP are adjacent to each other (Matsuda 1995).

Table 3. Probability of *no* by the TR

|             | With Direct Object | Without Direct Object | Total     |
|-------------|--------------------|-----------------------|-----------|
| % <i>no</i> | 0%                 | 13.7%                 | 12.5%     |
| #           | 0/656              | 948/6,944             | 948/7,600 |

Table 4. Probability of *no* by type of predicate

|             | Adjective | Nominal Adjective | Verb      | Total     |
|-------------|-----------|-------------------|-----------|-----------|
| % <i>no</i> | 30%       | 14%               | 14%       | 16.2%     |
| #           | 222/718   | 17/121            | 704/4,976 | 943/5,815 |

- b. *hon-o Ken-ga katta mise*  
 book-ACC Ken-NOM buy store  
 “the store where Ken bought a book”

If a TR indeed affects GNC, the rate of *no* in clauses with a direct object should be lower than in clauses without a direct object. The results are given in Table 3. As they show, no tokens of *no* have been found with a direct object in the data here. Hence, the TR correctly captures an aspect of the distribution of *ga* and *no*.

### 3.2.3 Stativity

Horie & Kang (2000) claim, on the basis of their corpus-based analysis, that *ga* is preferred if the predicate is stative. They argue that the acceptability of GNC follows the hierarchy of predicate type: *Verb* > *Existential predicate*, *Adjective* > *Copula* (in the order of ascending stativity). Although their claim is based on *frequency* and not on the *rate* of occurrence, their interesting insight is worth checking against our minutes data. Here we categorized the predicates into verbs, adjectives, and nominal adjectives.<sup>11</sup> Contrary to Horie & Kang (2000), our results, shown in Table 4, indicate that it is the rate of *no* that follows the order *Adjective* > *Nominal Adjective*, *Verb*, which is the order of *descending* stativity. Notice that the results are consistent with the results of the TR. In fact, the TR is a direct antithesis of stativity, and there would be a discrepancy if we took the claim of Horie & Kang (2000) as it is: higher usage of *no* in lower stativity, i.e., higher transitivity does not coincide with the TR.

### 3.2.4 Speech style

Nakagawa (1987) states that there is a style difference between *ga* and *no*, and it is often said that written language and formal speech promote the use of *no* over *ga*. To check differences in style in this research, we took into consideration the kind of session

11. Due to space limitations, we do not mention the copula here, but we have also investigated it in earlier work. The probability of *no* in this context is very low for reasons discussed in detail in Nambu (2005a).

(plenary session vs. other committee) and type of House (House of Representatives or *Shugiin* vs. Councilors or *Sangiin*). With respect to the former, there is a difference between plenary session and other committees in the degree of formality. A plenary session provides a more formal environment than others because all Diet members are required to attend it and it is broadcast nationwide. The prediction from this difference is that the probability of *no* in a plenary session would be higher than in others.

Our study, however, failed to find any style effect in terms of kind of session and type of House. One can think of several possible explanations for this result, but most probably, the style difference may be subtler than is detectable with our broad taxonomy. Indeed, our scheme cannot, in principle, capture the style difference that should exist within the same House or session. In order to pursue the style issue in the Diet minutes, then, we must devise some means to precisely locate a given speech on a style gamut, which we leave for future research.

#### 4. GNC and the Constant Rate Hypothesis

The GNC data also provide us with a rare opportunity to test the Constant Rate Hypothesis (CRH: Kroch 1989) with a change in progress. The CRH is a hypothesis concerning the relationship between the linguistic environments where a change occurs, and the rate with which it proceeds. While its predecessor, the Wave Model (Bailey 1973), holds that the rate of change is different for different contexts, with “favored” contexts (where the innovative form often appears) proceeding faster, the CRH claims that the rate of change is uniform across the linguistic environments in which the change occurs.

Being a hypothesis about syntactic change, however, most of the evidence for the CRH comes from past changes where only documentary evidence is available. But it is from change in progress that linguists can learn about the way language changes in the most detailed and empirically satisfiable way (Labov 1994). GNC, although it is approaching its final stage (Figure 1), surely gives us the most reliable data in this sense. It is then worthwhile to check whether the hypothesis also holds for our data.

In statistical terms, the CRH is reduced to the independence of the time variable from the linguistic variable in logistic regression modeling (Matsuda 2006). In the regression model under consideration, the dependent variable is the rate of occurrence of *no*, and the time corresponds to the birth year of the Diet members. As for the linguistic factor, we take adjacency for its decisive effect and its comparatively balanced distribution throughout the dataset. We can then test the significance of the interaction term comprised of the birth year variable and the binary adjacency variable, and if the term turns out to be non-significant, we can conclude that the CRH also holds in the ongoing change of GNC. As the statistical program requires all cells to be non-zero, we have used 13 birth year points for this analysis.

The results show that the interaction term is not significant ( $p < 0.6367$ ), while the birth year ( $p < 0.0007$ ), adjacency ( $p < 0.0001$ ) and the constant ( $p < 0.0033$ ) are



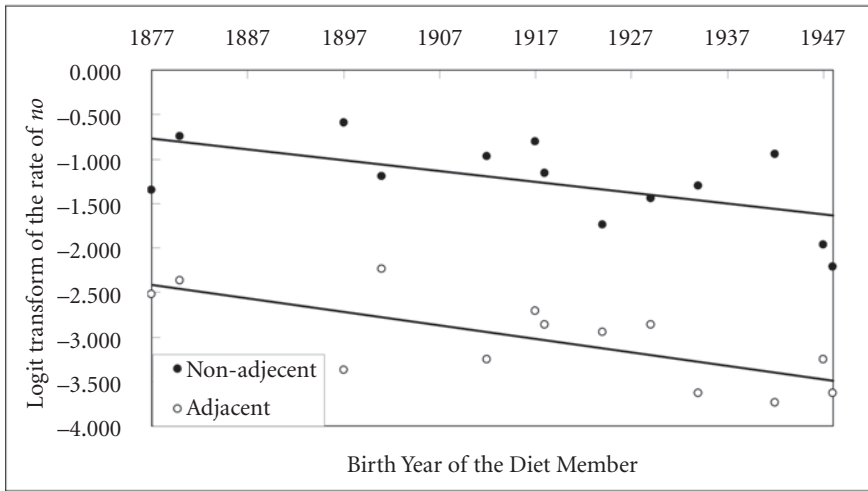


Figure 2. Scatterplot of the logit transform of the rate of *no* for adjacent/non-adjacent environments and the birth year of the Diet members

all highly significant. The Pearson goodness-of-fit statistics also show a satisfactory fit of  $p < 0.5054$  ( $d.f. = 23$ ). The two independent variables, then, are independent of each other, and the CRH is demonstrated to hold for our GNC data. Figure 2, which plots the logit transform ( $\ln(p/(1-p))$ ) of the rate of *no* from the 13 data points for the adjacent and non-adjacent environments, indeed shows that the regression lines for each environment are almost parallel, a situation that is expected under the CRH.

## 5. Conclusion

We have tested Harada's language change hypothesis regarding GNC variation and have demonstrated, using the Diet minutes data, that the linguist's insight 30 years ago was correct. The change, we have argued, is moving toward the complementarity of the two particles, which originally showed a similar distribution. The GNC has also been found to be affected by several internal and external factors. As for the internal factors, the adjacency between the subject NP and the predicate, the TR, and the stativity of the predicate are all strong factors affecting the rate of *no*. In contrast, only the birth year of the members has any notable effect on GNC variation, although the style effect still leaves some room for exploration. Finally, the minutes data demonstrate that the CRH holds for the GNC, at least with respect to adjacency.

The fact that GNC is involved in an ongoing change raises several interesting issues. First of all, since GNC itself is a famous syntactic phenomenon in Japanese, the reliability of numerous grammatical judgments that have been used as data during the past 30 years is put in question. Naturally, younger linguists may well prefer *ga* to

*no* in certain syntactic positions than older linguists, but the issue has never been addressed in the field of Japanese syntax. Once we know that GNC itself is in transition, we should be wary of using introspective judgments about GNC without considering the background of the linguist.

Second, there is the issue of locating the change within the individual. The classical model of language change seeks its source at the time of language acquisition where the child remodels the input data as his own new grammar. Such a model excludes the possibility of language change *after* acquisition, but there is some evidence that casts doubt on this point (Labov 1982). The fact that GNC is an ongoing change and that the minutes are a goldmine of transcribed speech data makes it a prime experimental ground to determine whether a member (an adult) shows any significant change in the rate of *no* in the course of his tenure, which could be as long as 30 years. At this stage, we can only give a rough sketch of these problems, but we hope that the current paper has managed to mark the beginning of such a research program.

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# Perfect change

## Synchrony meets diachrony\*

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### o. Introduction

This paper furthers work investigating the non-standard use of the present perfect (PP) in spoken Australian English (Engel & Ritz 2000; Ritz & Engel forthcoming), and focuses particularly on how discourse features support extensions in the meaning of this tense. As will be shown, analysis of rhetorical relations in discourse reveals that, unlike in other English varieties, expression of temporal progression in Australian English frequently involves PP clauses. More generally, data from this variety show that the PP is completely flexible with respect to temporal order and thus can appear in clauses that are part of a large variety of rhetorical relations.

The interest of such a study lies in the fact that, by investigating the contribution made by pragmatic factors to our understanding of temporal relations in discourse, we can gain further understanding of mechanisms that may in the course of time lead to semantic change. Indo-European perfects in the present tense are notoriously unstable and tend to evolve into aorists (see e.g. Bybee et al. 1994). In this respect, the English PP has been somewhat puzzling in that it has retained the functions of a true perfect, unlike its morphosyntactic equivalents in neighbouring languages. This situation, in turn, means that any current change occurring in the usage of the PP can be examined in detail.

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Examination of such synchronic data can shed useful light on diachronic phenomena, especially since our understanding of the evolution of perfects is otherwise limited to written, historical records that do not necessarily reveal some of the crucial steps leading to extension in usage. A combination of historical information (Traugott 1972; Harris & Campbell 1995) and synchronic analysis can thus be revealing, on the reasonable assumption that contemporary processes are representative of what may have happened in the past (Labov 1981).

The paper is divided into three parts. Section 1 briefly reviews some theoretical issues relating to the representation of 'the' PP in English and how it differs from morphosyntactic equivalents in other languages. It also summarises principles that have been proposed to explain semantic change and introduces the framework for the present analysis. Section 2 begins with a summary of our previous findings before reporting the results of a rhetorical analysis of texts containing instances of the non-standard PP, and Section 3 discusses them in light of the theoretical issues introduced in Section 1. Section 4 concludes the paper.

## 1. Background

### 1.1 The meaning(s) of 'the' English PP and semantic change

A semantic characterisation of 'the' English PP has so far proved a difficult task, and there is currently no agreement among scholars as to how this category should best be represented. We cannot do justice here to the wealth of accounts that have been proposed to capture the meaning of perfects in general, and even of the English PP more specifically, so we will content ourselves with a very general characterisation, which will be sufficient for present purposes. We need to preface such a characterisation with a word of caution: semantic accounts of the PP in English have generally assumed a great deal of homogeneity in the use of this category. In light of our data and other studies, we find this position untenable. Nonetheless, it is helpful to have a starting point, so we summarise below what seems to be common to most theories on the PP.

The PP in English is typically represented as semantically complex, involving dissociation of event and reference times in contrast to the simple past (SP) and the present tense (Pres). Reichenbach's (1947) representation forms the basis of many accounts:

- a. **PP:** E,R,S: the event time precedes the reference and speech times, which are co-temporal;
- b. **SP:** E,R,S: the event and reference times are co-temporal and precede the speech time;
- c. **Pres:** E,R,S: all three points are co-temporal.

We also note Klein's (1992) substitution of the pragmatic notion of 'topic time' for Reichenbach's reference time, a concept we find useful in that it highlights the topi-

cality of the present time in uses of the PP and helps explain extensions such as those observed in Australian English (Ritz & Engel forthcoming).

Semantic accounts have focused on a well-circumscribed set of behaviours of the PP (summarised in e.g. Portner 2003), which includes the following:

- a. A clause in the PP refers to a time that lies after the situation denoted by the VP, not that situation itself;
- b. The time referred to (or time under discussion) includes the speech time;
- c. The PP does not felicitously combine with definite past adverbials; (1) is ungrammatical for most English speakers:

(1) \**Joanne has arrived yesterday/last Monday/on the 20th of July.*

- d. The PP is not used in sequences of clauses expressing temporal progression; (2) again is not considered grammatical for most speakers:

(2) \**Joanne has washed the dishes. Then she has cleaned the bathroom. Finally she has watched her favourite program on TV.*

Points (c) and (d) above set the PP apart from its equivalent in other Germanic and some Romance languages, as combinations with adverbials and/or use in narrative sequences are common. Such variation is considered to be the result of historical change and has traditionally been viewed as following grammaticisation of perfects out of stative resultative constructions, leading subsequently to the evolution towards aorists (see e.g. Traugott 1972; Nedjalkov 1988; Bybee et al. 1994; Harris & Campbell 1995).

In order to better understand how such changes occur, principles proposed in Traugott & Dasher (2002) to explain the mechanisms underlying semantic change will be particularly relevant to us. Traugott & Dasher's theory highlights the importance of pragmatic inferences in the process of creating new meanings and shows how invited inferences become semanticised over time. One concept that is given an important place in Traugott & Dasher's theory and will be of interest to us is that of 'intersubjectivity'. Building on Benveniste's (1971) view that communication is only possible insofar as each participant is aware of other participants as speaking subjects, Traugott & Dasher (2002: 20–21) emphasise the role of the speaker/writer's point of view in discourse and comment that "In the dynamic production of speech or writing, linguistic material may be used in novel ways to express that subjectivity". As a result, Traugott & Dasher (2002: 40) defend the view that "meanings become increasingly pragmatic and procedural". Traugott & Dasher do not analyse tense/aspect categories in their book, but we can expect that these categories will be particularly susceptible to pragmatic changes given their deictic status and the extent to which a speaker's point of view is involved in tense-aspect selection at the discourse level. In order to explore such phenomena further, we now turn to pragmatic effects associated with the use of tenses at the discourse level and present our analytical framework.



## 1.2 Rhetorical relations and the temporal structure of discourse

Much work has been carried out in recent years to clarify the role of context in the interpretation of the temporal relations that are established between eventualities reported in discourse. Partee (1973) was the first to point out the anaphoric property of the past tense in English. Subsequently, Kamp & Rohrer (1983) observed that events and states behave differently in discourse. Sequences (3a) and (3b) provide an illustration:

- (3) a. *Joanne entered the family room. She greeted Darryl. He offered her a drink.*  
 b. *Joanne entered the family room. Darryl was watching TV. The room was pitch dark.*

(3a) contains VPs in the SP that denote events and thus succeed one another in time. In contrast, (3b) contains a stative VP in the second sentence. The state described is understood to have held before Joanne entered the room and continue to hold after she did.

But it has been observed that such principles do not apply consistently; for instance, a stative sentence in the past can denote a state that temporally follows an event introduced immediately prior to it:

- (4) *Joanne entered the family room. Darryl was happy to see her.*

More generally, the view that temporal and aspectual information plays a fundamental role in helping us construct the temporal structure of a text has been challenged by Lascarides & Asher (1993), Asher & Lascarides (2003) and others, who have argued that temporal relations are in fact derived from rhetorical relations, which define types of speech acts. Temporal relations are considered to be implicatures: lexical and compositional semantics enable us to identify rhetorical relations, which in turn lead us to derive temporal relations that are themselves implicit. Here, we take a more moderate view in that while we acknowledge the importance of rhetorical relations in our understanding of temporal structure, we also find that temporal and aspectual information make an important contribution (see also de Swart & Verkuyl 1999). The identification of temporal implicatures may nonetheless complement in important ways the information provided by tense and aspect and thus help us explain speakers' innovations in their use of tense-aspect forms.

Turning now to individual relations that have temporal consequences, *NARRATION* is considered to be the default case. Thus, the assumption that the order in which events are presented follows their temporal order holds unless we have information to the contrary.

Temporal consequence of *NARRATION*:  $\text{NARRATION}(\alpha, \beta) \Rightarrow (e_\alpha < e_\beta)$

More specifically, and importantly for our purposes, two events related by *NARRATION* need to cohere spatio-temporally in addition to being related by a temporal precedence relation (i.e., "where things are in space and time at the end of  $e_\alpha$  is where they are at

the beginning of  $e_\beta$ " (Asher & Lascarides 2003:462)). This requirement is captured by a more specific version of the axiom for narration, stated as follows:

$$\text{NARRATION } (\alpha, \beta) \Rightarrow \text{overlap} (\text{pre-state } (e_\beta), \text{Adv}^1_\beta (\text{post-state } (e_\alpha)))$$

However, two events presented consecutively may not be related by the default relation of narration. Consider (5):

- (5) *Wayne fell. Darryl pushed him.*

Here, the event described in the second clause can be understood to have caused that described in the first clause. As causes precede their effect, the temporal order is therefore reversed:

Temporal consequence of EXPLANATION:

- (a) EXPLANATION  $(\alpha, \beta) \Rightarrow (\neg e_\alpha < e_\beta)$   
 (b) EXPLANATION  $(\alpha, \beta) \Rightarrow (\text{event } (e_\beta) \Rightarrow e_\beta < e_\alpha)$

The first consequence, (a), states that the eventualities of the first part cannot precede temporally those of the second. The second consequence, (b), specifies that if the second part contains a verb referring to an event, then this event will precede any event in the first part.

Another rhetorical relation leads us to infer temporal sequence: that of RESULT, the converse of EXPLANATION. This is illustrated in example (6):

- (6) *Joanne switched off the light. The room was pitch dark.*

Here, the switching off of the light causes the state described in the second clause, which therefore occurred afterwards.

$$\text{Temporal consequence of RESULT: RESULT } (\alpha, \beta) \Rightarrow (e_\alpha < e_\beta)$$

ELABORATION does not enable narrative progression to take place and refers to those segments in discourse where the speaker adds extra information. If it holds, the event described in the second clause is a mereological part of the event described in the first (e.g. its preparatory phase, see Moens & Steedman 1989). This is illustrated in example (7):

- (7) *The city of Sydney built the Opera House. The architect drew the plans on a paper napkin.*

Here, the drawing can be understood as part of what we understand the building of a monument to involve, thus:

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1. The requirement that there be no gap between the two events still allows for the possibility of a shift in time and place due to the presence of an adverbial. However, there should be no intervening event between  $e_\alpha$  and  $e_\beta$ , with the effect that the post-state of the first event no longer holds when the second event is about to start (in other words, there should be no logical incompatibility for both states to hold at the same time; see also Bras et al. 2001).

Temporal consequence of ELABORATION:  
 ELABORATION ( $\alpha, \beta$ )  $\Rightarrow$  Part-of ( $e_\alpha, e_\beta$ )

Finally, BACKGROUND does not enable temporal progression either, but rather involves overlap between eventualities that are part of a BACKGROUND-FOREGROUND pair (see Asher & Lascarides 2003).

The formulation of rules stipulating temporal consequences of rhetorical relations has enabled insightful analyses of texts containing mainly past tenses. As far as we are aware, little information is available about the use of the PP in English from this perspective. We expect, however, that the PP will not be used in sequences expressing the relation of NARRATION or RESULT, as the expression of narrative progression with the PP is considered ungrammatical in most varieties of English. This is indeed confirmed by one study carried out by de Swart & Molendijk (2000) that examined the use of the perfect form in three languages from the perspective of the rhetorical relations it can be part of. Although the study uses as its corpus a written literary piece in French, *L'étranger* by Albert Camus (narrated entirely in the *passé composé*) and its translations into Dutch and English, thus not spontaneous narratives, it is of interest to us as it shows that there are constraints with respect to PP use.

De Swart & Molendijk found that in the case of the *passé composé*, any temporal relation is possible<sup>2</sup> (i.e., temporal progression or narration, temporal overlap and temporal inversion, all compatible with the more neutral rhetorical relation of CONTINUATION<sup>3</sup>). Thus, they argue that while the *passé composé* is not a 'barrier' to narrative usage, the PP represents such a barrier as it does not appear in narrative sequences or with a range of adverbials typically associated with narration. As we will see in Section 2 below, the PP in our Australian narratives is more flexible. We now turn to the analysis of these texts.

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2. This was also argued in Ritz (2002), although the analysis did not use a rhetorical relation framework.

3. CONTINUATION is similar to NARRATION but lacks its temporal consequences. The following set of sentences from Asher & Lascarides (2003:461) illustrates this: "*The teacher asked the students to look for the lost cat. John looked under the table. Mary looked in the garden. Max searched all the cupboards*", where the actions performed by John, Mary and Max may have occurred in any order or overlapped with one another (this does not exclude the possibility that they succeeded one another in time).

## 2. Use of the PP in Australian English

### 2.1 Overview of non-standard uses: Summary of previous findings

The data of interest for the present paper were collected from several radio stations in Australia and come from narratives told on chat show programs by radio presenters and members of the public phoning in.

Chat shows were taped from national and local (Western Australian), commercial and non-commercial radio stations (for details, see Ritz & Engel forthcoming).

Narratives containing the use of the non-standard PP total 19,101 words with 315 instances of what we have termed 'vivid narrative PP'. Such usage is characterised by the fact that the PP is used in a past context and marks a switch to a narrative tone where we would normally expect the narrative present (NarrPres); the PP is also used in sequences of clauses expressing temporal progression and combines with a range of adverbials mostly expressing progression in time, but also, to a lesser extent, locating the eventuality denoted by the VP in the PP in the past.

We found in our narratives that 79.2% of VPs in the PP are non-standard. Typically, these VPs denote events and contrast with the NarrPres in that the latter tends to be used with states (including the progressive; the percentage of stative VPs in the NarrPres is 71%). More specifically, the majority of VPs in the vivid narrative PP are characterised by the fact that they contain a process part – activities and accomplishments together form 73.6% of all VPs used in this way; thus they are both durative and dynamic and are likely to give rise to ambiguities when used in the past tense.<sup>4</sup> Such ambiguities arise when these VPs are used in the PP in past contexts too, and contribute to the listener's impression that she is placed in the middle of the situation, thus creating a narrative effect. Examples illustrating these points will be presented shortly. In summary, we found that PP use in these narratives is able to achieve two things at once: signalling a retrospective look at a situation (with the possibility of the inception of a situation being understood to be such a past event) and providing a post-time in which other events can be located. We thus gain a sense that events are tightly connected, as they overlap with one another and/or occur in very quick succession if telic verbs are used.

### 2.2 The PP in discourse: An analysis of pragmatic innovation

Given that relatively few adverbials are used with the PP, especially in narratives, it is interesting to examine more closely the contribution made by the discourse context in

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4. For example, 'Joanne almost ran' can mean that Joanne did not start running, or that she walked very fast – a little faster would have amounted to running. With a telic verb, there are three possible readings: 'Joanne almost ran to the house' can have both readings above plus the interpretation where Joanne ran most of the way to the house but did not reach it (see e.g. Parsons 1990).

our understanding of the temporal relations that come about with such uses. We have shown elsewhere (Engel & Ritz 2000) that PP use is quite frequent in the complication part of a story (see Labov & Waletzky 1967), a position where we normally would not expect it. In such instances, it is well supported by an orientation in the SP, clarifying the temporal location of the set of events to be described, and often alternates with the NarrPres and/or SP.

Turning now to the examination of rhetorical relations involved where the vivid narrative PP is used, we find that NARRATION is most frequent, amounting to 41% of cases. For example, (8) is part of a story<sup>5</sup> where a caller, Dean, who feeds sharks in an aquarium, explains an incident in which he was involved when he first started his job. After introducing the story, Dean explains that one is expected to hand-feed sharks from the front. He then moves on to the main story:

- (8) *And umm yeah, the big set of jaws come down  
and, I happened to get to the side,  
so I'm thinking, "Okay 'kay, I've gotta duck, I've gotta duck".  
And at the same time there's, it's school holidays,  
there's a thousand little kids stuck to the, the glass in the tunnel. BACKGROUND  
And umm, I've ducked under (e<sub>1</sub>) FOREGROUND  
and I've looked back (e<sub>2</sub>) and, NARRATION  
and she's gone past (e<sub>3</sub>) NARRATION  
and I've gone (e<sub>4</sub>), "Okay, that, that was all good". NARRATION  
Another one's come down (e<sub>5</sub>), NARRATION  
I've thrown (e<sub>6</sub>) this fish out, NARRATION  
and he's started (e<sub>7</sub>) snapping on it, RESULT/NARRATION  
and I'm like (s<sub>1</sub>), "Ohh, thank God for that". RESULT  
And then I've looked (e<sub>8</sub>) at at the tunnel, at the kids, NARRATION  
and all the little eyes are (s<sub>2</sub>) just like "Christmas"! ELABORATION  
and the, the tour guide in the tunnel's just like lost it (e<sub>9</sub>), ELABORATION  
she's just throwing (s<sub>3</sub>) her hands in the air. ELABORATION*

Here the incident is introduced in the SP making the past orientation clear, followed by a description of the background in the NarrPres, introducing the narrative tone. This is followed by a series of clauses all connected by the relation of narration. Thus the events 'duck under', 'look back', 'go past', 'go', 'throw out', 'start' and 'look at the tunnel' are understood to succeed one another in time. We also note the use of 'then' in the PP clause following a NarrPres ('and then I've looked back'), the most frequently used adverbial in combination with a PP in our corpus. After a comment on the background, use of this adverb makes it explicit that the narration continues (we have analysed the use of 'then' in detail in Ritz & Engel forthcoming). Thus we infer:

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5. The full story is presented in Ritz & Engel (forthcoming), where we have analysed temporal and aspectual phenomena in detail.

$$e_1 < e_2 < e_3 < e_4 < e_5 < e_6 < e_7 < e_8; e_7 < s_1; e_8 \subseteq s_2$$

Clearly, the sequence  $e_1 - e_8$  introduces an ambiguity, as the PP in its vivid narrative use could be argued to move the reference time ahead, if we consider that this reference time is a metaphorical speech time (i.e., the present in narrative or historical use). Yet, the invited inference that the events themselves succeed one another in time and form the backbone of the narrative is strong and can supersede an interpretation that each time we need to take a retrospective look at the event. Clearly, the interpretation also depends on the aspectual class of verbs as discussed in Ritz & Engel (forthcoming).

Another way temporal progression is expressed using a PP is through the relation of RESULT. Such instances amount to 15% of uses of the PP in our corpus, and thus we have a total of 55.9% of PP clauses expressing temporal progression. RESULT is illustrated in example (9), which relates a visit by Prince Charles to Jamaica where he was given a rasta tam, the traditional hat worn by people there. The episode starts with a series of explanations describing the context:

- (9) *it's [the rasta tam] normally for covering your dreadlocks* – EXPLANATION  
*now Prince Charles shaved off his dreadies years ago [...]* ELABORATION  
*so because he didn't have any of his own,* EXPLANATION  
*it was actually Rita [Rita Marley] who organised to have a few fake dreadlocks*  
*sewn onto a rasta tam* RESULT  
*and presented to Prince Charles* RESULT/ELABORATION

The SP immediately precedes a series of clauses in the PP:

*and so he's been presented* ( $e_1$ ) *with this novelty rasta tam.* NARRATION  
*now it's got* ( $s_1$ ) *dreadlocks at the back* ELABORATION  
*now he's just gone* ( $e_2$ ) *"okay thank you very much"* NARRATION  
*and has put it on* ( $e_3$ ) *back to front,* NARRATION  
*so the dreads have just fallen* ( $e_4$ ) *straight in front of his face.* RESULT

Again, we infer:  $e_1 < e_2 < e_3 < e_4$ ;  $e_1 \subseteq s_1$

Here the last clause describes the result of the action that was presented in the preceding clause, thus enabling progression in time.

The remaining instances of PP use do not express temporal progression. The next most frequent type is ELABORATION, which is neutral with regard to temporal structure (PP = 22.9%). Example (10), describing how the boyfriend of a listener named Anna broke up with her, illustrates such usage:

- (10) *He didn't even go and see her and say "look things just aren't working out, we're not meant to be ra ra ra".*  
*he's given her a bit of a letter* ( $e_1$ ) CONTRAST  
*he's given her the breakup letter* ( $e_2$ ) ELABORATION  
*he's given her the 'Dear Anna' letter* ( $e_3$ ), ELABORATION  
*but he's such a tightarse* ( $s_1$ ) EXPLANATION

*he hasn't sent it through Australia Post* ( $s_2$ ) RESULT  
*as all good Australians do* ( $s_3$ ), *dammit* – CONTRAST  
*he's decided that* ( $e_4$ ) ELABORATION ON RESULT  
*he's gonna drop off the letter to her letterbox* ( $e_5$ ).

$e_4 < e_5 < (e_1, e_2, e_3)$

Again, the sequence of PP clauses immediately follows a SP in a clause expressing some contrast. ELABORATION here clearly achieves a stylistic effect and emphasises the medium through which the boyfriend communicated his intentions (the rest of the story explains that he drew a postage stamp on the letter including the head of the Queen and '45 cents', all in the SP). We also note the use of the periphrastic future in the last clause, confirming the narrative tone in that the reference time includes the present.

In many instances, the PP clause is foregrounded since it contrasts with a clause or series of clauses describing the background and containing a stative VP in the present or eventive VP in the present or past progressive. The percentage of PP clauses in the foregrounded member of a BACKGROUND-FOREGROUND pair (see Asher & Lascarides 2003) is 16.5%, and if we exclude the PP clauses in those positions that also start a narrative sequence (since they were included in our calculation of clauses in the relation of NARRATION), they amount to 7.9%. The following example illustrates the use of the past progressive in the backgrounded clause, followed by a PP:

- (11) *and he [= Kenny Rogers] was being a little bit, y'know, frisky* ( $s_1$ ), BACKGROUND  
*and for – God knows why – he's thrown a frisbee off the stage* ( $e_1$ ) FOREGROUND

$e_1 \subseteq s_1$

Example (12) shows that the PP can also be used in clauses that express the relation of explanation and thus can denote an event that is located prior to the one mentioned in the immediately preceding clause. This example explicitly signals the relation with 'because', but in other cases, we simply infer the causal relation.

- (12) *So then my phone started ringing* ( $e_1$ ), *from him* NARRATION  
*because obviously she's rung him* ( $e_2$ ) EXPLANATION

$e_2 < e_1$

Here, the female protagonist, referred to as 'she', rang the speaker's husband to obtain the speaker's number before her phone started ringing.

The remainder of the relations in which we find PP in these narratives do not have temporal consequences and are less frequent, therefore have not been included here.

### 3. Discussion

The data in Section 2 show that the PP in spoken Australian English is clearly not a barrier to NARRATION. The analysis presented here reveals that more than half of





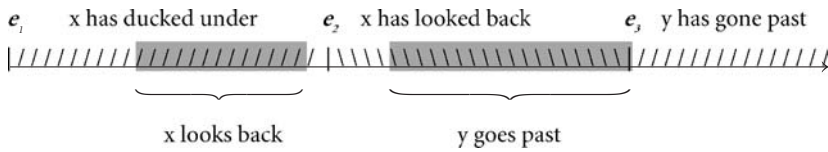


Figure 2. Representation of asserted and inferred information in three clauses from *Shark Story*

at the time preceding the event denoted in the next clause. However, the following clause does not denote an event, but rather its post-phase again. What we understand from the context and the relation of *NARRATION* is that the whole event of looking back is included in the state of being under. What is explicitly stated in the discourse, however, is only the existence of the post-phase ('I've looked back'), so the occurrence of the event itself is inferred. The same is true of (13c), where Dean would have looked back, seen the shark somewhere behind him, and then seen her going all the way past him. Again, the hearer is directed to the post-phase, 'she's gone past'. So the stated post-phase of the looking back overlaps with the inferred event of the shark going past.

The effect of such a presentation, as we 'jump' from post-phase to post-phase, is a sense that the events have occurred in rapid succession. At the same time, the events themselves are made pragmatically available through a strong inference. We understand that the post-phases are temporally ordered, and as a result of their overlap with the following event we also infer that the events themselves succeed one another in time. What matters especially is that at least part of the inner phase, together with the final boundary (or telic point if the verb is telic), are understood to overlap with the post-phase of the previous event (see Figure 2 above).

In Figure 2,  $e_1 \dots e_2$  represent the final boundaries or telic points of each of the events denoted by the VPs. Portions containing diagonal lines represent the post-phases that are asserted by the clauses, and the shaded areas the inferred information, namely the inner phases and end points of the events.

Repeated uses of the PP in such contexts can result in a reanalysis where the PP, rather than being understood to denote the time following the event described in the clause, is now understood to semantically include (part of) the inner stage of the event itself, as this stage is pragmatically available or salient. If such a reanalysis takes place, temporal modification of the time of the event with a definite past adverbial then becomes possible since the event denoted is part of a story that was introduced as recounting a past incident.

In narratives such as the one presented in (8), the skilled story teller accomplishes two things at once: advancing the narrative in what feels like a quick pace (unlike the use of the historical present), and giving the hearer a sense that the sequence is unfolding in front of her eyes (unlike the use of the SP). The latter effect is achieved through strong invited inferences combined with the 'presentness' of the PP, which is used in a way similar to the historical present.

Although we do not have spoken data illustrating the early changes that took place in the evolution of other perfects, Foulet (1920) argues convincingly that the French perfect also evolved through vivid use and that the transformation of the French perfect into a preterit originated in an orientation of the past to the present to render a story more lively, much like what we observe in contemporary Australian English. Foulet strongly defends the view that, although the only available data are in the written form, the changes must have first taken place in the spoken language.

Caudal & Roussarie (forthcoming) argue that the French *passé composé*, initially a 'resultative perfect' (i.e., much like the 'standard' British English PP) became compatible with temporal succession in discourse as early as the 11th century. At this stage, they claim, the *passé composé* was still incompatible with past time adverbials such as 'yesterday' and other past modifiers, which were only used from the 17th century onwards.

Caudal & Roussarie (forthcoming: 3–4) describe the stage between the 11th and 17th century as follows:

In middle and classical French ... the PC still described result states but could be pragmatically associated with transitions between inner stages and result states (i.e., (past) transitions are inferred) – it was so to speak a 'pragmatic' aorist.

They support their argument with examples from *La chanson de Roland*, an interesting text as it is very much part of the oral story-telling tradition. The narrator would have tried to keep his listeners' attention through linguistic devices, in a way similar to what our radio presenters and story-tellers do in contemporary Australian English. If the text subsequently written down is faithful to the spoken version (which we would expect, at least to preserve the rhythm and rhymes), then it may give us some clues as to French speakers' early use of the perfect form in everyday language. Thus, what we observe in contemporary spoken English in Australia may be a useful source of information in that we have a unique opportunity to analyse the mechanisms that characterise the extension of the perfect in a detailed and well-documented manner.

#### 4. Conclusion

In conclusion, we have argued here that the semantic analysis of the English PP has tended to operate on the basis that English is a monolith, and has ignored variation across and within varieties. Analysis of data from an informal spoken register of Australian English reveals that speakers are manipulating this category in interesting ways. As access to historical material of the same type is by its nature very difficult to obtain, we have suggested that the synchronic data presented in this paper are of great interest in that they can shed light on some of the steps that may also have characterised extension in the meaning of other perfects.

Analysis of discourse structure enables us to support and extend into a new domain of analysis Traugott & Dasher's view that pragmatic factors contribute signifi-

cantly to semantic change and that the relation between speaker and hearer is crucially important in the making of new meanings.

In particular, it has lent support to the view that creation of new meanings arises from speakers' awareness of their hearers as speaking subjects (Traugott & Dasher's notion of intersubjectivity), an awareness that enables speakers to lead hearers to draw very specific inferences. This remarkable process becomes even more intriguing when one considers the complexity of the linguistic material that is being manipulated, and we hope that this paper has contributed in a small way to some further understanding of how it can happen.

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# Variable use of negation in Middle Low German

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## 1. Introduction

As in earlier stages of English, sentential negation in the history of German goes through each of the phases of Jespersen's (1917) well-known cycle of development in negative marking. The four successive stages of this cycle are described for German in (1):<sup>1</sup>

- (1) a. Stage 1: negation with single negative marker *ni/ne*
- b. Stage 2: bi-partite negation with *ni/en* and negative adverb *nicht* (not)
- c. Stage 3: bi-partite negation with negative adverb *nicht* and optional *ni/en*
- d. Stage 4: negation with single negative adverb *nicht*

Stage 1 is attested in the earliest period of German, particularly in Old High German between 750 and 1050, when negation is expressed by a single negative marker *ne* or the phonological variant *ni*. This negative particle has clitic-like status, attaching to and moving along with the finite verb to a higher position in the main clause (2) or to clause-final position in embedded clauses (3):

- (2) *nist man ther siu al irzelle*  
NEG-is man there who all tells  
“there is no man who tells it all” (Coombs 1976:77)
- (3) *thaz thu irrimen ni máht*  
that you (it) name NEG can  
“that you cannot name it” (Jäger 2004:1)

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1. For previous analyses of Jespersen's cycle in the history of German, see Weiß (1998), Abraham (1999), or Jäger (2004). For recent and similar analyses of English, see van Kemenade (1998, 2000).

Unlike in Old High German, sentential negation in Middle High German (ca. 1050–1350) is also expressed by the bi-partite construction in Stage 2 of the cycle with *ne* and *nicht*:

- (4) *daz er niht wider sî ne sprach*  
 that he NEG against her NEG spoke  
 “that he did not speak against her” (Weiß 1998:177)

- (5) *ich ne mach sie nicht gesochen*  
 I NEG can her NEG seek  
 “I cannot search for her” (Jäger 2002:1)

As in (4) and (5), *ne* moves along with the finite verb, occurring in combination with the negative adverb *nicht*. Stages 3 and 4 are attested in Early New High German in texts from the 14th to the 17th centuries. After a transitional stage in which *ne/en* optionally and less frequently occurs in combination with the negative adverb (6), the final stage of Jespersen’s cycle eventually takes shape when *nicht/nit* becomes the sole marker of negation in the Early New High German period (7):

- (6) *aber es enhalff in nicht*  
 but it NEG-helped them NEG  
 “but it did not help them” (Jäger 2002:1)

- (7) *wir narren haben es nit verstanden*  
 we fools have it NEG understood  
 “we fools didn’t understand it” (Jäger 2002:1)

These three types of negation – negation with a single marker *ne* or *en*, negation expressed solely by *nicht*, and bi-partite negation – are well-documented in descriptive overviews of Old, Middle, and Early New High German by Behaghel (1924), Pensel (1977), Paul et al. (1989), and Ebert et al. (1993). However, little attention has been paid either to the diachronic aspects of sentential negation in the history of German or to the particular factors that cause one of these variants to be more common than another when all three types of negation occur in the same period. One reason for the lack of attention to variation is that there is little overlap of negation types in many German dialects by the time *nicht* becomes more common as the main negator and the other types of sentential negation disappear.<sup>2</sup> By focusing mainly on High German dialects, scholars have been unable to examine which factors, if any, may be simul-

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2. Pensel’s (1977) study of negation in German dialects between 1470 and 1730 indicates that most East Central and Upper German dialects exhibit negation with *nicht* by itself in nearly 100% of sentences with sentential negation. According to Pensel’s (1977:310) data, West Central dialects are the only varieties of German that still exhibit a small fraction of bi-partite sentential negation or negation with *en* by itself in the late 15th century other than Middle Low German, which I will discuss in more detail here.

taneously at work during the decline of the earliest type of negation from Stage 1 of Jespersen's cycle and the rise of *nicht* as the single marker of negation by Stage 4.

Middle Low German (MLG) texts written in the 14th and 15th centuries, on the other hand, provide a useful testing ground for quantitative analysis of negation. Unlike most dialects from this period, MLG exhibits all three types of negation over a longer period of time with a more even distribution. As a result, we can more easily examine the slowly blurring lines of distinction between the stages of Jespersen's cycle and gain new insight into what factors are most significant in affecting the frequencies of each negation type. Such an analysis of variation is also necessary in determining the relationship – both diachronically and synchronically – between the three different types of negation.

In the following study, I present the results of a quantitative investigation of MLG texts written between 1320 and 1500. The study has two main goals: first, to determine what factors most significantly affect the distribution of various types of negation over time, and second, to define more clearly the relationship between the three different types as the system of negation in MLG passes through the stages of Jespersen's Cycle. To address this first issue, I present empirical findings from a statistical analysis of 527 diplomatic letters and excerpts from late 15th-century texts written in Lübeck. In the second portion of the study, I use the data to shed light on the question of whether the three forms of negation are mutually exclusive structural variants or whether they are redundant forms that overlap as functional variants of one another. Following a quantitative model of historical morphosyntactic change, I conclude that all three forms are not, in fact, as directly related to one another as previously assumed.

## 2. Negation and clause structure in MLG

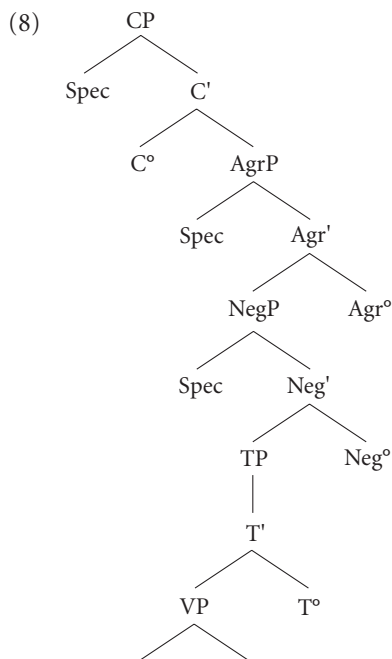
Although the position and structure of negation in MLG clause structure is not the central focus of this study, I will briefly outline some general assumptions. Following Pollock (1989), I assume a split-IP analysis in which agreement (AgrP), negation (NegP), and tense (TP) are each represented by their own separate projections, and following Haegeman (1995) and Zanuttini (1997) I assume that NegP dominates TP, which, in turn, dominates VP.<sup>3</sup> Moreover, I follow traditional assumptions about German clause structure in Koster (1975) and den Besten (1989) and assume that both the

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3. The question of the relationship between TP and NegP is beyond the scope of the present paper. Jäger (2004) finds no evidence in OHG that NegP dominates TP, placing it below the tense projection. For the present study, however, I follow Haegeman (1995) and Zanuttini (1997) and assume that cross-linguistic evidence from imperatives supports the contention that NegP dominates TP.



VP and other functional projections of the clausal domain are head-final.<sup>4</sup> This clause structure is represented below:



As indicated in (8), I follow Büring (1993) and Jäger (2002) and assume that NegP is head-final. Jäger (2004) provides convincing evidence that NegP is right-headed by citing examples from Old High German with the order verb particle-*ni/ne*- $V_{fin}$ :

- (9) *daz er siê fúrder ána ne-sêhe*  
 that he her further at NEG-look  
 “that he would not look at her anymore” (Jäger 2004:6)

The particle *ána* in (9) is stranded after  $V_{fin}$  moves to a higher position, where it attaches to the negative particle *ne*. Based on this ordering, we can assume that the head of NegP is located to the right of VP in German.

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4. As Haegeman (1995) points out, it is plausible to argue along the lines of Kayne’s (1994) proposal for a universal base structure to account for negation in Germanic SOV languages, assuming that all complement-head orders are derived from leftward movement. This view would require some accommodations to the structure and placement of NegP, or a proposal for the negative prefix *en* in MLG to be base-generated along with the verb. Although this approach, with some modifications, can equally account for the data here, I follow in the present study the traditional assumptions about German clause structure for simplicity’s sake.

Evidence from MLG sentences indicates that *ne/en* is a clitic that attaches to the finite verb through incorporation. As we see in examples (10) through (13), *en* occurs left-adjacent to the  $V_{\text{fin}}$ , regardless of its position:<sup>5</sup>

- (10) *he en kone syluen platen vnde wapenhanschen maken mit siner*  
 he NEG can same plates and weapon-gloves make with his  
*eghenen hant*  
 own hand  
 “he cannot make the same armored plates and gloves with his own hand”  
 (LB 1:M, 1325)
- (11) *en scal ik min sloth vorbescreuen den rathmannen*  
 NEG shall I my castle aforementioned the councilmen  
*voresproken... nummer vntuerren*  
 aforementioned... never take-away  
 “I will never take my aforementioned castle away from the aforementioned councilmen”  
 (LB 1:DCCLXXXVI, 1343)
- (12) *wente wanner de copman in den steden neringe en*  
 when at-any-time the merchants in the cities nourishment NEG  
*hadde*  
 have  
 “if the merchants do not have nourishment at any time”  
 (LB 5:CCCLXVI, 1411)
- (13) *de se en scholen ghesproken hebben*  
 which they NEG should spoken have  
 “which they should not have mentioned”  
 (LB 1:CMLXXXVI, 1350)

Whether the clause is embedded or main, or whether  $V_{\text{fin}}$  occurs in clause-initial (10), -medial ((11) and (13)) or -final position (12), *en* moves along with the verb, and no lexical content intervenes between the prefix and the verb.

On the other hand, the negative adverb *nicht* remains in a fixed position in the clause in MLG. Consider examples (14) through (17):

- (14) *dat dat in vnser macht nicht en is*  
 that that in our power NEG NEG is  
 “that that is not in our power”  
 (LB 8:CCXLIV, 1444)
- (15) *en vruchte dy nicht!*  
 NEG fear you NEG  
 “don’t be afraid!”  
 (L. *Passional* 192)

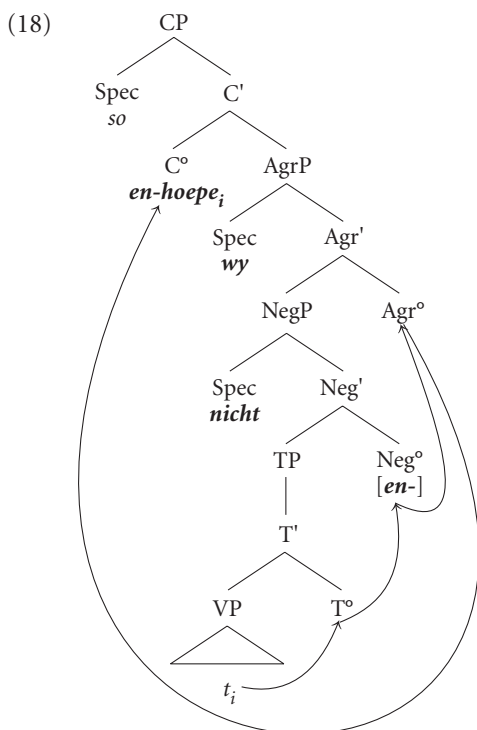
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5. Citations are listed according to their location in the *Lübeckisches Urkundenbuch*, including the volume number, letter number, and year.

- (16) *so en hoepe wy nicht*  
 so NEG hope we NEG  
 “we don’t hope (that) at all” (LB 5:DCXXXI, 1417)

- (17) *so en kan ik sin hir nicht vorkopen*  
 so NEG can I his here NEG sell  
 “I can’t sell his (goods) here” (LB 4:DLXXI, 1392)

In these examples with bi-partite negation, we see that, unlike *en* which moves along with the verb, *nicht* is not dependent on the verb for its position. It is clear that in examples with clause-final order like (14), with imperatives (15), or with subject-verb inversion ((16) and (17)), *nicht* remains fixed regardless of where  $V_{fin}$  occurs. As an example of this type of movement, I present the structure for sentence (16) below:



The verb moves from  $V^\circ$  through the tense node  $T^\circ$  to  $Neg^\circ$  where it joins the negative clitic *en*. The cliticized verb then moves to the agreement node  $Agr^\circ$  before landing in verb second position in  $C^\circ$ .

Based on these examples as well as recent cross-linguistic analyses, I assume that negation in MLG is best described as a separate projection  $NegP$  whose specifier and head positions may be filled by the negative adverb *nicht* and/or the negative particle

*en*, respectively.<sup>6</sup> Each of these two positions may or may not be phonologically realized in various contexts during the MLG period. In instances with the single marker *en*,  $V_{fin}$  moves to T to pick up tense inflection before moving to Neg where the head incorporates with it on its way to Agr for agreement features for person and number. In instances in which *nicht* expresses negation by itself, the head position is empty; while in the case of bi-partite negation, both positions are filled.

### 3. Empirical analysis: Variable use of negation in MLG

#### 3.1 Data collection and general frequencies

In order to analyze the three main types of negation in MLG and track their frequency and distribution over time, I examined a large, relatively homogenous set of texts whose provenance and date were identifiable. The corpus consists mainly of diplomatic letters recorded in volumes of the *Lübeckisches Urkundenbuch*, all written between 1320 and 1500 in the city of Lübeck. In addition to the 527 letters, I analyzed excerpts from the *Lübecker Passional* whose manuscript (f. 36<sup>b</sup> ff.) can be dated to 1492. In investigating the period between 1320 and 1500, I divided the general period into shorter 30-year periods, collecting approximately 75 tokens from each.<sup>7</sup>

In any empirical analysis of negation, one must be careful to separate sentential negation – the focus of this study – from other expressions with negative elements. As a result, I excluded examples with so-called quantitative negation, or constituent negation, as in (19) through (21):

- (19) *dat de vorscreuen vnse schedeslude... vppe de*  
 that the previously-written our arbiters at the  
*vorscreuen tijd nicht al to Wismer quemen*  
 previously-written time NEG all to Wismer come  
 “that our aforementioned arbiters... not all come to W. at the agreed-upon  
 time” (LB 5: CXV, 1404)

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6. As in other studies of negation in West Flemish, French, Italian, Old English, and Old High German, this analysis follows assumptions laid out in Haegeman (1995), Zanuttini (1997), as well as van Kemenade (1998, 2000) and Jäger (2002), who all suggest that the negative prefix in these languages is associated with the head of NegP and the negative adverb is associated with the specifier position of NegP.

7. I chose 1320 as the starting date for the period under investigation since this is the approximate date at which the diplomatic letters from Lübeck began to be written more consistently in the vernacular. Although more empirical analysis should be done with MLG texts written after the ending date of 1500 in this study, I used this year as a tentative stopping point in order to examine the texts at least to the point at which Pensel’s (1977) descriptive overview of negation in Low German begins.

- (20) *vnde welker iuwer stede... nicht genoch dede*  
 and which your city... NEG enough does  
 “and when your city... does not do enough” (LB 8:DCCXIX, 1450)
- (21) *vnde wernn wy in der betaling nicht eyn sunder*  
 and when we in the payment NEG united but-rather  
*twidrechtich syn*  
 in-disagreement are  
 “and when we are not in agreement about the payment” (LB 8:LXXXII, 1427)

Because these examples involve *nicht*, which negates a constituent and not the clause, I excluded them from the set of examples with sentential negation. In a similar way, examples such as (22) through (24) also exhibit a different type of negation that must be excluded in the empirical analysis of sentential negation:

- (22) *dat en schal nemanne to beyden syden to schaden komen*  
 that NEG shall no-one on both sides to injury come  
 “that no one from both parties shall be injured” (LB 4:DXXXVIII, 1391)
- (23) *darvan wy noch nyn antwrode en hebben*  
 there-from we still no answer NEG have  
 “from which we have not yet gotten an answer” (LB 8:CLXXVII, 1443)
- (24) *dat van en eder van erme slote en nen schade schen en*  
 that from them or from their castle them NEG injury befall NEG  
*scolde*  
 should  
 “that they or their castle should not cause any injury to them”  
 (LB 1:CMLXXXVI, 1350)

Examples with negative concord in which *en* occurs with some other negative element like *nemanne*, *nyn*, or *nen*, are not in line with other sentences from MLG in which *en* occurs by itself. I follow Frisch (1997) and assume that in sentences with negative concord, *en* has a different function as a necessary component of negative concord constructions rather than as a sentential negator.

After excluding these sets of problematic examples, I arrived at a total of 461 token sentences. I divided these examples into the three different types of negation in MLG represented by the samples below:

- (25) **Type 1: *en***  
*se en hebn de drehundert gulden betalt*  
 they NEG have the three-hundred gulden paid  
 “they have not paid the three hundred gulden” (LB 8:CCCLIX, 1446)
- (26) **Type 2: *en... nicht***  
*dat wy des also nicht en helden*  
 that we that therefore NEG NEG kept  
 “for that reason we did not keep that” (LB 7:DCCLVIII, 1437)

Table 1. Frequency of negation types in MLG (1320–1500)

| Period    | Type 1   | Type 2   | Type 3   | TOTALS |
|-----------|----------|----------|----------|--------|
| 1320–1349 | 24 (32%) | 23 (31%) | 27 (36%) | 74     |
| 1350–1379 | 19 (26%) | 30 (41%) | 24 (32%) | 73     |
| 1380–1409 | 21 (25%) | 28 (34%) | 32 (39%) | 81     |
| 1410–1439 | 11 (14%) | 39 (50%) | 27 (35%) | 77     |
| 1440–1469 | 9 (12%)  | 22 (29%) | 44 (58%) | 75     |
| 1470–1500 | 6 (7%)   | 23 (28%) | 52 (64%) | 81     |
| TOTALS    | 90       | 165      | 206      | 461    |

(27) Type 3: *nicht*

*dat scal men hir nicht sellen*

that should men here NEG sell

“that’s something that men should not sell here”

(LB 1:M, 1325)

The general frequency of these three types is presented in Table 1.

Adding in the portion of data on MLG from Pensel’s (1977) study of negation in German dialects from the period 1500 and 1530, we can augment the data in Table 1 to fit the graph in Figure 1 and get an idea of the overall trends in frequency beyond the period under investigation.<sup>8</sup>

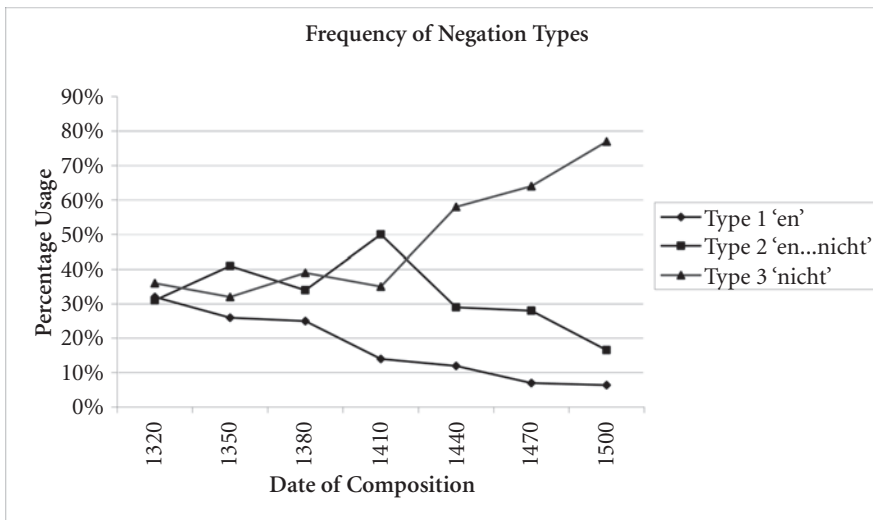


Figure 1. Percentage frequency of types of negation in MLG (1320–1530)

8. Because Pensel (1977) includes several types of negation that we have excluded in this analysis, it is necessary to modify his data on negation types to fit the system of classification in this study. Thus, we arrive at the following distribution of the three main types of sentential negation for the period 1500 to 1530: Type 1: 6.4%, Type 2: 16.6%, Type 3: 77%.

There are four general conclusions that can be drawn from the data here. First of all, there is relatively little change in the frequency of each type of negation between 1320 and 1380. Second, after this initial period of stagnancy, Type 2 (bi-partite negation) begins to increase in frequency over the next thirty years. Third, this trend appears to be short-lived, as Type 3 (*nicht*) begins to increase after 1410. Fourth, there is a gradual decrease in the frequency of Type 1 (*en*) from 1380 to the end of the period under investigation.

In the next section, I will present the findings of several quantitative tests on variation, analyzing the statistical inference of various factors that may have shaped these trends and affected the relative frequency of each type of negation.

### 3.2 Significant factors in variable use of negation

In descriptive work on negation in the earlier stages of German, scholars have provided helpful but general statements concerning the contexts in which the three different types of sentential negation may occur. For example, Ebert et al. (1993:426) states: “*En-* begegnet im aussagenden Hauptsatz bei *wissen*, *tun* und Modalverben” [*en-* occurs in predicative main clauses with *wissen* “to know”, *tun* “to do”, and modal verbs] in Early New High German, or as Behaghel (1924:73) points out, examples with bi-partite negation often include embedded clauses without a conjunction in Middle High German. Although these descriptions are helpful in giving a general idea of contexts in which some negation types might be more common, there is no specific evidence that these generalizations are valid over a long period of time or whether they affect one or all of the types of negation in a given period. Moreover, without a more careful quantitative analysis, it is difficult to determine whether variables act alone or work in combination with one another to cause fluctuations in frequency over a period of gradual change.

By means of logistic regression analysis, we are able to evaluate some of these possible factors, or combinations of factors, that have a statistically significant effect on the occurrence of each type of sentential negation.<sup>9</sup> For this study, I examine five factors, namely clause type, verb type, position of the verb in the clause, and date of composition. More specifically, I follow the generalizations in Behaghel (1924:71) and Ebert et al. (1993:426) that some types of negation may occur more often in embedded con-

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9. The program for statistical analysis used here, Goldvarb, allows us to conduct various tests of statistical variance in order to quantify the effect that a set of independent variables might have on a dependent variable. This measurement, known as a factor’s probabilistic weight, is a number that ranges from 0 to 1.0: anything below the threshold of significance of .50 has a disfavoring effect on the dependent variable, while a weight above .50 has a favoring effect. Goldvarb selects those factor groups for which the variables have a much wider range of probabilistic weight to be the most significant and deems other variables whose probabilistic weight hovers around .50 statistically insignificant. For more information on applications of Goldvarb, see Robinson, Lawrence & Tagliamonte (2001).

texts than in main clauses. Second, I use the generalization in Ebert et al. (1993:427) and Paul et al. (1989:399) that some types of negation occur more often with high-frequency verbs like *haben* “to have”, *sein* “to be”, and modal verbs than with any other verbs. Third, following Ebert et al. (1993:427), I examine whether one or another of three types occurs more often in embedded clauses in clause-medial rather than verb-final position. A fourth factor is the type of subject: from van Kemenade (1998, 2000), we know that, at least in Old English, some types of negation occur more frequently with pronominal subjects than with non-pronominal subjects. Lastly, I assume that the findings in Pensel (1997:310) are on track and that date of composition may to some extent play a role in the frequency of each type of sentential negation.

The results of the binominal regression analysis for Type 1 (with *en* by itself) are presented in Table 2 below. These figures include both the significant and insignificant factors and the probabilistic weight for each variable in the significant factor groups.

The results for Type 1 can be interpreted as follows: Goldvarb identified two of the five factor groups as significant, namely date of composition and type of clause. The earlier 30-year periods exhibit a favoring effect on the dependent variable, i.e., the occurrence of negation of Type 1, while the later periods have a very disfavoring effect (.37 and .26). In the same way, the probabilistic weights for variables of the type of clause have a wide range, as evidenced by the disparity between main clauses, which favor this type of negation (.71), and embedded clauses, which disfavor Type 1 with a probabilistic weight of .34. On the other hand, the analysis discarded type of subject, type of verb, and position of the verb in embedded clauses as insignificant factors over the entire period under investigation. In other words, there was no statistically significant difference between the various members of each of these factor groups.

The situation for the other two types of sentential negation in MLG is quite different. In the analysis of bi-partite negation, or Type 2, Goldvarb once again identified date of composition and type of clause to be significant factor groups. However, there

**Table 2.** Results of binominal regression analysis of factor groups and probabilistic weight for Type 1 negation (*en* by itself)

|                                     |                       |      |
|-------------------------------------|-----------------------|------|
| <b>Significant Factor Groups:</b>   |                       |      |
| <i>Date of Composition:</i>         | 1320–1349             | .67  |
|                                     | 1350–1379             | .63  |
|                                     | 1380–1409             | .62  |
|                                     | 1410–1439             | .45  |
|                                     | 1440–1469             | .37  |
|                                     | 1470–1500             | .26  |
|                                     | <i>Type of Clause</i> | Main |
|                                     | Embedded              | .34  |
| <b>Insignificant Factor Groups:</b> |                       |      |
| <i>Type of Subject</i>              |                       |      |
| <i>Type of Verb</i>                 |                       |      |
| <i>Position of Verb</i>             |                       |      |



**Table 3.** Results of binominal regression analysis of factor groups and probabilistic weight for Type 2 negation (bi-partite)

| Significant Factor Groups:   |                             |      |
|------------------------------|-----------------------------|------|
| <i>Date of Composition:</i>  | 1320–1349                   | .47  |
|                              | 1350–1379                   | .56  |
|                              | 1380–1409                   | .49  |
|                              | 1410–1439                   | .64  |
|                              | 1440–1469                   | .42  |
|                              | 1470–1500                   | .39  |
|                              | <i>Type of Clause</i>       | Main |
| Embedded                     |                             | .61  |
| <i>Type of Verb</i>          | Lexical verbs               | .61  |
|                              | <i>haben/sein</i> or modals | .45  |
| Insignificant Factor Groups: |                             |      |
| <i>Type of Subject</i>       |                             |      |
| <i>Position of Verb</i>      |                             |      |

is no consistent trend of increasing or decreasing probabilistic weight for the date of composition for Type 2 as we saw above for Type 1. Moreover, the results of analysis on the type of clause are the exact opposite of what we observed for Type 1: Goldvarb found that embedded clauses have a favoring effect (.61) on bi-partite negation while main clauses tend to disfavor this type (.35). The results for Type 2 are listed in Table 3.

The analysis of Type 2 also uncovered the fact that the type of verb is an additional factor in selection of this type of negation. There is a significant difference between lexical verbs, which favor Type 2 at a level of .61, and common verbs like *haben/sein* or modals, which disfavor this type with a probabilistic weight of .45. As in the analysis of Type 1, Goldvarb found both type of subject and position of the finite verb to be insignificant contributors to the variable use of Type 2 negation.

Type 3 with *nicht* by itself exhibits yet another pattern of variation, different from the other two types of negation. Consider the results in Table 4.

Date of composition was identified as a significant factor group, although the probabilistic weight increases over time (from .37 in 1350 to .71 in 1470) rather than decreases, as was the case in the other two tests. Furthermore, as far as the type of verb is concerned, Type 3 exhibits the exact opposite tendency from Type 2: Goldvarb found that modal verbs and *haben/sein* have a favoring effect (.55) while other lexical verbs have a disfavoring effect (.36) on the occurrence of Type 3 negation. In addition, unlike the analyses of Types 1 and 2 in which the difference between main and embedded clauses was found to be significant, the analysis of Type 3 reveals that there is no significant distinction with respect to clause type.

In sum, although there are some similarities across the three different types of negation in MLG, each type has its own unique set of significant and insignificant variables. Date of composition is significant to varying degrees for each type, and position of the finite verb and the distinction between pronominal and non-pronominal

**Table 4.** Results of binominal regression analysis of factor groups and probabilistic weight for Type 3 negation (*nicht* by itself)

| Significant Factor Groups:   |                             |     |
|------------------------------|-----------------------------|-----|
| <i>Date of Composition:</i>  | 1320–1349                   | .41 |
|                              | 1350–1379                   | .37 |
|                              | 1380–1409                   | .44 |
|                              | 1410–1439                   | .40 |
|                              | 1440–1469                   | .64 |
|                              | 1470–1500                   | .71 |
| <i>Type of Verb</i>          | Lexical verbs               | .37 |
|                              | <i>haben/sein</i> or modals | .55 |
| Insignificant Factor Groups: |                             |     |
| <i>Type of Subject</i>       |                             |     |
| <i>Type of Clause</i>        |                             |     |
| <i>Position of Verb</i>      |                             |     |

subjects were found to be insignificant in the variable use of all three negation types. Other than these similarities, however, none of the types of negation share a common set of contributing factor groups or exhibit the same tendencies among those few significant factor groups that they do have in common.

In the last section of this paper, I will discuss how these data might shed light on the relationship between the types of negation and how this relationship might change over time.

#### 4. The Constant Rate Effect and Jespersen's Cycle

Since Kroch (1989) and subsequent studies that follow a quantitative model of historical morphosyntactic variation and change, the so-called Constant Rate Effect has been useful in describing several aspects of the time-course of grammatical change.<sup>10</sup> In particular, proponents of this view claim that two grammatical options, or morphosyntactic doublets, compete against each other during times of gradual change. In the principles-and-parameters framework (Chomsky 1986; Chomsky & Lasnik 1993), this type of competition is often described in terms of competing grammars that differ in a particular parameter setting.<sup>11</sup> The Constant Rate Effect predicts that when

10. Although a detailed discussion of the Constant Rate Effect is not possible here, there are extensive overviews in Kroch (1989, 1994), Santorini (1992), Taylor (1994), Pintzuk (1999), and Pintzuk et al. (2000). For a more specific discussion of the Constant Rate Effect as it applies to negation in Germanic, see Frisch (1997) and his quantitative analysis of Middle English.

11. As Pintzuk et al. (2000: 12) point out, following Minimalist assumptions we could describe competing options in terms of the presence of various lexical items with contradictory features instead of contradictory parameter settings.

two structurally incompatible morphosyntactic variants are in direct competition with each other, they undergo change at the same rate over time. Because they are mutually exclusive structural options linked to the same underlying grammatical choice, one form will decrease at the same rate as the other increases. Even though one of the competing forms may be more frequent than the other in some contexts, these differences in frequency across contexts will remain constant as the two forms undergo change at the same rate.

In order to track the parallel rates of change for two competing options, this model uses a different set of equations, not only raw percentage frequencies. Instead, the logistic function is used to calculate the frequency of a form ( $p$ ) with a continuous variable like time ( $t$ ) and various constants like the slope ( $s$ ) of change at a given point in time ( $k$ ). For the purposes of analyzing the distribution of changing syntactic forms, an equivalent of the logistic function called the logit is often used to determine the values for the various parts of the equation. The logit is provided below:

$$(28) \quad \ln \frac{p}{1-p} = k + st$$

In the type of analysis at hand, we are primarily interested in the slope  $s$ , or the rate at which a form changes. Slope is measured in logit-units of the percentages of use of a form over time. Thus, if the slope in logit-units over time of an advancing form is the same as that of the inverse of a decreasing form, the two grammatical options are incompatible forms in competition with each other. Assuming the Constant Rate Effect, we would expect that one form directly and gradually replaces the other at the same rate in all contexts. Thus, the slopes of logit-units over time would be the same for both options. On the other hand, if the slope is different for the two forms, the Constant Rate Effect does not apply. The two forms are not mutually exclusive, and we must assume that changes in use of each form are not attributable to the same underlying grammatical change.

An analysis of the Constant Rate Effect using the logistic transform with data from sentential negation is included in Frisch's (1997) study of negation in Middle English texts written between 1150 and 1430. By means of detailed quantitative analysis, Frisch demonstrates that *not* is at first a regular sentence adverb with the same distribution as other adverbs like *never*, but it gradually shifts to become a sentential negator. The frequency of use of the negative marker *ne* by itself in Middle English gradually declines, a bi-partite system arises and becomes more common for a short period of time, and *not* eventually becomes the sole negator by the 15th century. Assuming that the bi-partite construction is a result of the overlap of two separate systems of negation, Frisch (1997) sets out to analyze the changes in frequency of *ne*, or Type 1 negation, and changes in *not*, or Type 3 negation. Based on evidence from regression analyses of negation data, he concludes that rates of change in Types 1 and 3 are different (1997:30). In other words, the increasing use of *not* and the decreasing use of *ne* run independent of each other: the gradual loss of one option does not structurally force a change in the other (1997:56).

Table 5. Comparison of slope for Type 1 and Type 3 negation (1410–1500)

| Negation Type                | Type 1 ( <i>en</i> ) | Type 3 ( <i>nicht</i> ) |
|------------------------------|----------------------|-------------------------|
| Slope (logit-units per year) | -.353                | .599                    |

I have undertaken a similar analysis of the data here in order to determine the nature of the relationship between the different types of negation in MLG. In particular, I focus on the period between 1410 and 1500 when the more dramatic changes in Types 1 and 3 negation occur, as we saw in Figure 1 in Section 3.1. I follow Frisch (1997) and assume that the use of bi-partite negation is more of an epiphenomenon and that the temporary rise in Type 2 occurs in a transition period as a result of the overlap of Types 1 and 3. Supporting evidence of this claim comes from the fact that the frequency of Type 2 negation does not follow the expected S-curve that occurs in most instances of syntactic change. The rate of increase in Type 2 negation is high for only a short period and the percentage frequency returns quickly to a stable level once the frequencies of Types 1 and 3 begin to diverge.

Limiting the analysis to data from Types 1 and 3 between 1410 and 1500, therefore, we are better able to evaluate whether the increase in use of one option is directly related to the decrease in use of the other option. By using the equation in (28) and by calculating the slope of logit-units per year, we arrive at the following rates of change for Types 1 and 3.<sup>12</sup>

From these figures we can conclude that slopes for Type 1 and Type 3 are not parallel. Because the frequency of Type 1 is decreasing and the slope of the logit is negative, it is necessary to use the negative slope of Type 1 (.353) for comparison with the upward, or positive, slope of Type 3. After allowing for this reversal, we can see from the slope of logit-units per year in Table 5 that Type 3 has a faster rate of change during the 15th century. On the other hand, Type 1 has a lower slope and slower rate of change – almost twice as slow as that of Type 3. To put it differently: the use of Type 3 during this time increases at a faster rate than the use of Type 1 decreases. These figures also corroborate the findings presented in Section 3.1 on the general percentage frequencies of the various types of negation in Figure 1. It is clear from the general data that the decline of Type 1 in the latter half of the 15th century is relatively flat compared to the more drastic increase in Type 3 during this time.

The MLG data lend support to the hypothesis that the rates of change in the use of negation with *en* by itself and the use of negation with the adverbial *nicht* are not the same. The results here corroborate findings in Frisch (1997) that these two types of negation are functional doublets rather than mutually exclusive grammatical options

12. Following Pintzuk (1999), I used a set of programs other than Goldvarb for this part of the analysis since Goldvarb does not allow the user to examine the effects of a continuous variable like time on the dependent variable. I used SPSS to fit the logistic curve to the data on both types of negation in separate logistic regression analyses, although similar results can be obtained through regression analyses in SAS.

in competition with each other. In other words, although both Types 1 and 3 serve the same purpose in expressing negation in MLG, Type 3 is not a direct structural replacement of Type 1. We can assume that whatever mechanism of change brought about the gradual loss of *en*, it did not directly cause the increased use of *nicht*.

## 5. Summary and conclusions

The evidence in this study suggests that each of the three types of sentential negation in 14th- and 15th-century MLG exhibits its own unique pattern of variation. These three types, namely negation with the negative particle *en* by itself, multiple negation with *en* and the sentence adverb *nicht*, and negation with *nicht* by itself, are each influenced by a different combination of factors and occur in various grammatical contexts at different rates. A quantitative analysis of factors such as clause type, type of subject, type of verb, date of composition, and position of the finite verb reveals significant differences between the major types of sentential negation. These data provide support for the analysis presented here in which *en* is a head of the projection NegP and *nicht* is a sentential adverb in the specifier position of NegP. The differences in the distribution of *nicht* and *en* as markers of negation can be attributed, in part, to their fundamental structural differences as a head versus specifier.

Moreover, in terms of Jespersen's Cycle outlined at the beginning of the paper, the evidence from MLG indicates that each type of negation is not merely a replacement of the previous type of negation as the cycle goes through each cyclic stage. Instead, quantitative analysis indicates that, although the three types serve the same purpose as expressions of negation in MLG, they have few syntactic properties in common. As a result, a system of redundancy and overlapping forms develops in which the various options are diachronically unstable even though they are not in direct competition with one another. The initial system with the negative marker *en* in MLG and the system in the final stage with the adverb *nicht* create functional variants for expressing negation, but these possible forms are not mutually exclusive grammatical options that are associated with a parameter setting. Bi-partite negation, although a third option during the MLG period, is the manifestation of the overlap between these two systems. Thus, contrary to evidence from most cases of morphosyntactic change that support Kroch's (1989) Constant Rate Effect, the data here indicate that some instances of grammatical variation and gradual syntactic change may, indeed, be the result of more superficial lexical differences rather than underlying structural differences.

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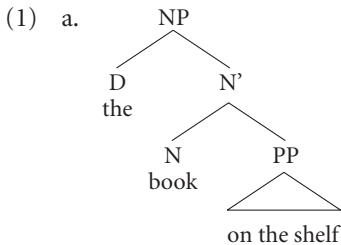
# Is there a DP in Old English?\*

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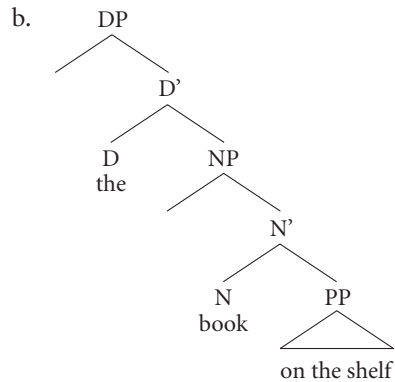
## 1. Introduction

Following the DP hypothesis (cf. Hellan 1986; Abney 1987) it has been widely assumed in the generative literature that noun phrases are projections of a higher functional category, DP. Nominals are no longer noun phrases (NPs) but determiner phrases (DPs), and  $D^0$  takes NP as a complement as shown in (1b) below:

Pre-1980s: A noun phrase is built around a noun; determiners are specifiers of NP



Post-1980s: Determiners are heads of DP



Despite the general acceptance of DP as a phrasal category, there is still much to examine concerning the nature, function and cross-linguistic applicability of DP. The

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universal base hypothesis (Kayne 1994), which suggests that all languages have the same underlying structure, i.e., the inventory and order of functional projections is determined by UG, would predict that DP is a universal category. There are, however, languages that do not have overt determiners. Do nominals in these languages still have structure preceding the noun, a DP with a null D, or are their nominals simply NPs? An increasing body of literature on Slavic nominals debates whether they are NPs, e.g. Corver (1989), Zlatić (1997), Bošković (2005); or DPs, e.g. Progovac (1998), Rutkowski (2002). In languages that have dedicated articles, words that function only as an article, it is not always clear what the role of D is. Longobardi (1994) proposes that DP makes nominal phrases referential, that nouns are predicates, and in order to function as arguments NPs must be DPs. This suggestion has been challenged by Chiercha (1998), for example, who suggests that NPs can be arguments in some languages.

Besides questions concerning the universality of DP and the status of null determiners, there is little agreement on which lexical items belong in D. The candidates for lexical items that have been claimed to be Ds include articles (definite and indefinite), demonstratives, possessive determiners, possessed nouns, quantifiers and numerals:

- (2) The/a/this/my/John's/any/one book(s)

This disagreement is partially due to a lack of consensus in the theoretical literature on what the function of DP might be, whether to signify definiteness, e.g. Lyons (1999), or referentiality, e.g. Longobardi (1994). Faarlund (2004) includes both DP and R(eference)P(hrase) in his structure for Old Norse. Recent research has suggested a plethora of categories that the DP may be split into (just as IP and CP in the clause are split), though there is little consensus on what these categories might be universally, and suggestions along these lines often tend to be fairly language-specific. Lexical items that are candidates for D may be generated in or might move to these other categories, e.g. Ritter (1991), Zamparelli (1995), Vangsnes (2001).

In this paper, I discuss mainly the definite article, demonstratives and possessive determiners. I assume, following Lyons (1999), that DP is the locus of definiteness and specifically do not posit a Poss(essive)P(hrase) for possessive determiners. Possessive determiners may be located either in DP if definite, as they always are in present-day English (PDE), or a lower agreement projection if indefinite. I assume that the definite article itself is the head of DP and that demonstratives are generated lower in the structure and may move to DP (Giusti 1997). Old English (OE) is a suitable language for investigating the nature of D and the possibility of null Ds as it does not have a dedicated definite or indefinite article. PDE, however, has developed both a definite and indefinite article. The question, then, is whether English also developed new functional structure in the course of its history, or whether DP is already present in OE. Yamamoto (1989) and Osawa (2000) are among those who argue that OE nominals are NPs, while Ackles (1997), Crisma (1999) and Wood (2003) argue for DP. In this paper, I assume that in PDE the definite article *the* is uncontroversially the head of DP and is generated there (but see Lyons [1999] who argues that free-form articles are specifiers), and I argue that OE has DP structure. This means that the development

of the definite article does not involve new functional structure, but a categorical and structural reanalysis from demonstrative to definite article and from specifier to head (cf. Giusti 1997; Philippi 1997; Wood 2003; van Gelderen 2004).

In Section 2 below, I briefly discuss the origin and development of the definite article, the head of D. Sections 3 and 4 consider evidence often invoked to claim that OE has no DP: in Section 3, attributive adjectives preceding the determiner, and, in Section 4, co-occurring possessive determiners and demonstratives. I will argue that neither of these sets of evidence is convincing. Section 5 looks at evidence in support of DP as a category in OE, head movement of proper nouns to D<sup>0</sup>.

## 2. Historical background

As can be seen in Table 1 below, in OE the demonstrative is declined for case and gender in the singular and for case in the plural. The collapse of the OE gender and case systems resulted in the development of the PDE definite article *the* (head of DP) from the masculine nominative demonstrative *se*, with the form developing in stages: *se* > *þe* > *the*.

In order to determine when the article develops from a demonstrative, it is necessary to be able to distinguish articles from demonstratives. Deciding whether a particular item is an article or a demonstrative in historical texts is not always straightforward; the functions of the demonstrative and article overlap due to their shared features. As Lyons' (1999) feature analysis notes, the definite article is (+Definite) whereas demonstratives are (+Definite), (±Proximal) and (+Demonstrative).<sup>1</sup> Regarding form, the OED notes that the Anglo-Saxon Chronicle changes from *se* for nominative masculine in the section for the years 1122–1131 to *þe* in the section 1132–1154. However, a change in form need not occur at the same time as a change in function. The OED

Table 1. Declension of the demonstrative in OE

|       | Masculine      | Singular<br>Neuter | Feminine       | Plural<br>All genders |
|-------|----------------|--------------------|----------------|-----------------------|
| NOM   | <i>se</i>      | <i>þæt</i>         | <i>seo sio</i> | <i>þa</i>             |
| ACC   | <i>þone</i>    | <i>þæt</i>         | <i>þa</i>      | <i>þa</i>             |
| GEN   | <i>þæs</i>     | <i>þæs</i>         | <i>þære</i>    | <i>þara þæra</i>      |
| DAT   | <i>þæm þam</i> | <i>þæm þam</i>     | <i>þære</i>    | <i>þæm þam</i>        |
| INSTR | <i>þy þon</i>  | <i>þy þon</i>      |                |                       |

1. I do not agree, however, that demonstratives are necessarily definite. In the following example, *this man* is referential but not definite:

*This man* with long greasy hair and a sleeping bag sort of rolled into a ball comes over and starts looking in the bins. (BNC A74 2276)

also gives examples of “abnormal uses of *se* in oblique cases, and of *sa* plural, *ses* genitive singular”, adding the parenthetical proviso: “In some of these, *s* may be a scribal error for *þ*”. If, however, as the OED suggests, *se* is being used with cases other than nominative, *se* need not be a result of scribal error but could be evidence that the form *se* is becoming fixed and more article-like before the written form becomes *þe*. That is, function changes before form. In Section 4 below, we will see more evidence that the demonstrative becomes syntactically more article-like (the head of DP) before the form changes.

In order to determine whether an article has developed, syntactic evidence is therefore more reliable than considering the form or attempting to work out the function. Two ways of syntactically determining whether an OE demonstrative has become an article are (i) to consider the case and number of its complement and (ii) to consider whether or not it takes a complement. That is, one indicator of the change is that writers start to introduce nouns other than masculine singulars with *se* or *þe* since the PDE article may be used with singular and plural nouns. Another syntactic indicator showing that *se* is an article is when it can no longer occur independently. The functional category DP, headed by the definite article, takes an obligatory NP complement, whereas a PDE demonstrative is a full DP and can occur independently as a pronoun as shown below:

- (3) a. I need that book. Give me that.  
 b. I need the book. \*Give me the.

A search of the York Corpus of Old English (YCOE) for *þe* reveals 22 examples of prenominal *þe* following a preposition. In this syntactic position a dative demonstrative, not a nominative, would be expected. When *þe* precedes masculine nouns as in (4), the examples are not unambiguous examples of the article, as they could merely show the form of the demonstrative changing but not its function. However, in (5)–(7) feminine and neuter nouns are also possible, showing that *þe* is becoming a fixed form:

- (4) *da cwom seo tid þe uplican dome*  
 then came that.NOM.F time that.NOM.M.SG upper judgment  
*stihtigende*  
 ruling  
 “then came the order from above” (Bede, 3.262.17, 850–950)
- (5) *on þe ea hi tugin up heora scipa*  
 on that.NOM.M.SG river.F they pulled up their ships  
 “on the river they towed their ships” (ChronE 892, Plummer [1892:85])
- (6) *mid his biscofes & mid þe lerede folc*  
 with his bishops and with that.NOM.M.SG learned folk.N  
 “with his bishops and with the educated people”  
 (ChronE 656, Plummer [1892:33])

- (7) & *draf ut þa clerca of þe biscoprice*  
 and drove out that.PL clerk.PL of that.NOM.M.SG diocese.N  
 “and drove those clerks out of the diocese”

(ChronE 963, Plummer [1892:115])

Examples (5)–(7), where *þe* is used with feminine and neuter nouns and where cases other than the nominative would be expected, show agreement breaking down and the article developing. Examples of *þe* with plural nouns are also found, as in (8) and (9):

- (8) & *þær begen ofslagene wæron þe ealdormen*  
 and there both slain were.3.PL that.SING ruler.PL  
 “and there both rulers were slain” (ChronE 800, Plummer [1892:59])

- (9) *þa þe munecas of Burch hit herdon*  
 when that.SING monk.PL of Burch it heard  
 “when the monks of Burch heard it” (ChronE 1114, Plummer [1892:245])

The examples above show that an invariable form, *þe*, is already starting to emerge in the OE period. However, the development of the invariable article takes several hundred years and is completed earlier in the north than in the south (OED s.v. *the*), and it could be argued that during the development period there are two competing grammars, one with a DP and one without. I am claiming that even before the invariable article emerges there is a DP in OE. Therefore, in the following sections I investigate whether there is prenominal structure in nominals involving demonstratives and quantifiers.

### 3. Adjective word order

The ‘no DP’ hypothesis predicts that there is free word order before the noun and that all prenominal elements are of the syntactic category adjective. Arguments along these lines were put forward in the pre-DP framework by Lightfoot (1979). Lightfoot proposes that in OE quantifiers and adjectives are of the same syntactic category (adjective) and that a new category, QP, emerges in ME, the change being completed with reanalysis in the 16th century. Prior to this, he argues, quantifiers could occur in the same positions as adjectives, e.g. they could ‘float’. Similarly, Corver (1989:38) reports that demonstratives and possessive pronouns in Czech exhibit “rather free order with respect to other adjectival modifiers” as shown in (10) below. If DP selects NP and its modifiers, D would be expected to occur to the left of adjectival modifiers. (10c) could be the result of noun movement, but (10b), which involves adjective extraction, is more difficult to explain within a DP framework.

- (10) a. *ta pěkná děvčata*  
 these pretty girls

- b. *pěkná ta děvčata*  
pretty these girls
- c. *děvčata ta pěkná*  
girls these pretty

In the following section, I will consider specific instances of so-called ‘free word order’ in OE and argue that they are dubious examples. Previous corpus work on OE makes the general observation that word order is fairly fixed, as reported in Carlton (1962) and Pilsbury (1967), although both were working with limited corpora. According to their data, the order of adjective, demonstrative, possessive and quantifier is similar to the order in PDE: attributive adjectives follow demonstratives, quantifiers and possessives as in (11a); possessives do not usually co-occur with demonstratives as in (11d) and (11e).

- (11) a. all these/some/my red books  
b. \*red these books  
c. \*red my/John’s book  
d. \*this my book  
e. \*my this book  
f. John’s red book

The only way in which OE differs significantly from PDE in this corpus data is that OE nouns in the genitive usually occur immediately before the noun, not before the adjective as in (11f). However, certain examples in earlier English corresponding to (11b)–(11e) have been cited as evidence of free word order and no structure. In Section 3.1 below, I will discuss examples of the type (11b) and (11c), and in Section 4 examples of the type (11d) and (11e). I will argue that the data reported in support of the ‘no DP’ hypothesis are not convincing and have other explanations.

### 3.1 Position of attributive adjectives

In this section, examples of attributive adjectives in first position preceding other determiners will be considered. According to Mitchell (1985:70), examples of adjectives preceding the demonstrative are rare in OE, and he quotes only two examples, one from Bede, and (12) below from the *Battle of Maldon*:

- (12) *on wlancaþ þam wicg-e*  
on splendid that.DAT horse-DAT  
“on that splendid horse” (Mald 240)

While example (12) is clearly a (rare) example of a prenominal demonstrative, what is often claimed to be an extracted or ‘floating’ adjective in OE might just as convincingly be an adverb. This is the case with both *soþ* and adjectives ending in *-ward*.

Yamamoto cites (13) below as evidence of free word order, and similar examples may be found, such as (14), in which the adjective *soþ* appears to modify the head noun.

- (13) *Halige men þonne ongeaton þæt he was soþ Godes sunu*  
 Holy men then knew that he was true God's son  
 "holy men then knew that he was truly the son of God"  
 (Bl. Hom. 29.26, Yamamoto [1989:3, ex. 4a])
- (14) *we witon þæt he is soþ middaneardes Hælynd*  
 we know that he is true earth.GEN savior  
 "we know that he is truly the savior of the world"  
 (Bl. Hom. 4.43, Wood [2003:82])

There are three possible explanations why OE constructions such as these are not convincing evidence of the 'no DP' hypothesis. First, these examples are identity statements, and the phrases *soþ Godes Sunu* and *soþ middaneardes Hælynd* follow main verb *be*. It will be recalled that Longobardi proposes that DP is obligatory only for verbal arguments; predicates and vocatives need not be DPs. Since the above phrases are not arguments, they are not required to be DPs under a Longobardian analysis of nominals. Second, *Godes* and *middaneardes* are inflected genitives, and it is well known that the syntax of the genitive group changes between OE and PDE, e.g. with the development of group genitives (cf. Allen 1997; Rosenbach 2002) and the replacement of morphological case by structural case. Although PDE genitive nouns such as *John's* are analysed with the 's as the head of DP, this need not be the structure of genitives in OE. Third, it is not clear that *soþ* is indeed an adjective; it could be an adverb. The gloss would then read: "he was truly the son of God". Of course, *soþ* does not have adverbial inflection. However, it is common to leave off adverbial morphology in PDE as (15) shows, and OE need not necessarily differ in this respect.

- (15) He told me the story about where he got it –; it was **real interesting**, and a true story –; not a made-up one. (BNC A74 998)

I conclude that *soþ* is ambiguous and can be analysed as an adverb, not an adjective.

Other cases in which the so-called adjective might be adverbial concern adjectives ending in *-ward*, as in (16), where *innewardre* precedes a possessive and (17), where *ufewardum* precedes a demonstrative.

- (16) *se abbod of inneward-re his heortan besceawode his agene*  
 that.M.NOM.SG abbot of within-F.DAT his heart surveyed his own  
*reðnysse & heardnysse*  
 cruelty.F and hardness  
 "the abbot reflected on his own cruelty and hardness" (GREGD 3,5.21.21)
- (17) *þreo stodon æt ufeward-um þæm muðan*  
 three stood at upward-DAT that.DAT mouth  
 "three (ships) stood beyond the estuary" (CHROA 2,90.897.30)

Both Yamamoto and Lightfoot report examples such as these, of adjectives preceding what would be a determiner in PDE. But again, it is not obvious that these are indeed adjectives. According to the OED (s.v. *-ward*), adjectives ending in *-ward* were used for movement towards something, or for designating relative position or aspect, and were used adverbially; *-ward* was originally only suffixed to an adverb. The conclusion for OE is that, apart from the two rare examples quoted by Lightfoot, there are no convincing examples of adjectives preceding determiners equivalent to examples (11b) and (11c).

Next, I will examine claims that adjectives may precede the determiner in Early Modern English (EModE) and in Middle English (ME). According to Lightfoot (1979: 175), Shakespearean vocatives are the last examples of ‘floating’ adjectives. That is, he claims that up until the 16th century, adjectives could occur in a variety of positions, finally becoming fixed in their prenominal position during the EModE period. Late 16th century examples of EModE vocatives are shown in (18)–(21) below:

- (18) sweet my child (Love 1 ii 68, Yamamoto [1989, ex. 4d])
- (19) a. my dread Lord (Q2) (Hamlet 1.2.50, Blake [2002])  
 b. dread my Lord (F1)
- (20) a. my deere brother (Q1) (Hamlet 1.3.46)  
 b. good my brother (F1)
- (21) a. my good Lord (Q1) (Hamlet 1.2.175)  
 b. my lord (F1)

As may be seen in (19) and (20) there is some variation between the quartos (Q) and the first folio (F1). The earlier quartos appear to have the usual PDE order while the first folio has the adjective-initial order. Assuming that the (a) and (b) examples are semantically equivalent, it appears that an adjective has been extracted from a DP in the (b) examples. This did not happen in all cases. In (21) an adjective in the quarto does not appear at all in the first folio. These 16th century examples are not convincing evidence that all prenominal elements are adjectives and have free word order. First, it can be seen that all these Shakespearean examples are first person vocatives. *My Lord* was a polite address form that developed under French influence, later becoming one word, *milord*, and could be a fixed idiom. Second, since these examples are vocatives they are not verbal arguments, and as has already been discussed, vocatives and predicates are not DPs under a Longobardian analysis. Third, these examples of adjectives preceding ‘determiners’ are of adjectives preceding the possessive determiner. As was mentioned earlier, there are many ‘candidates’ for the head of DP, only one of which, the definite article, is uncontroversially the head. While I am claiming that demonstratives are structurally in the DP, it is not clear whether possessives have similar status in OE as will be discussed further in Section 4.

Finally in this section, I will consider claims of free word order in ME and examples of attributive adjectives preceding the determiner. According to Fischer (1992:215), these are found only in poetry and are particularly frequent in the

13th century Layamon's *Brut*. Examples are found mostly in the more archaic Cotton Caligula manuscript, while the later Otho manuscript usually has the more modern order:

- (22) a. *mid godene heore worden* (Clg 334)  
 with good their words  
 b. *mid hire gode wordes* (Otho 334)  
 with their good words  
 "with their good words"

The Otho manuscript, which has less inflection than the earlier Caligula, apparently uses the construction only to fill out the meter, suggests Fischer.

- (23) a. *mid rich-ere strengðe* (Clg 384)  
 with great-F.DAT force  
 "with great force"  
 b. *mid rich-e his strengþe* (Otho 384)  
 with great-DAT his force  
 "with his great force"

Although all Fischer's examples are of adjectives preceding the possessive determiner, there are also examples of adjectives preceding the demonstrative in *Brut*. Lightfoot (1979:70) cites (24) below without indicating which manuscript it is from:

- (24) *mid sele þan king*  
 with noble that.DAT king  
 "with the noble king"

Example (24) is likely from Caligula (as shown in (25a)), in which case the equivalent passage in the Otho manuscript shown in (25b) is damaged. However, the edition uses '+' to indicate the estimated number of missing characters, and it would appear that there is some element preceding the demonstrative that might be an adjective:

- (25) a. *þa wes þer særinæsse; mid sele þan kinge* (Clg 14053)  
 then was there grief with noble the.DAT king.DAT  
 b. *þo was þar moche sorinisse; mid +++++r þ+n* (Otho 14053)  
 then was there much grief with ? the.DAT  
*kinge*  
 king.DAT  
 "then was there much grief about the noble king"

A similar example is (26) below:

- (26) a. *heom þuhte muchel seollic; of selen þan* (Clg 11490)  
 they.DAT seemed much strange of noble the.DAT  
*kinge*  
 king.DAT



- b. *heom þohte mochel wonder of sele þan* (Otho 11490)  
 they.DAT seemed much wonder of noble the.DAT  
*kinge*  
 king.DAT  
 “they wondered at the noble king”

Examples such as (26) need to be investigated further as they do indeed show adjectives preceding the demonstrative. However, if these 13th century examples are evidence of a lack of prenominal structure, one would expect such examples to be more frequent in OE and less frequent later on, in light of the data I discussed earlier that showed the emerging article starting to become fixed in the 10th century. It appears, however, that examples are rare in OE, that there are a few in 13th century poetry (according to my preliminary investigation) and that they are frequent in EMode as terms of address. Interesting though these data are, they are not consistent with an emerging DP. It is not even clear whether the examples in (18)–(26) are related to one other or to the rare OE examples. Further research is needed to establish this. Finally, it is apparent that these examples of adjectives preceding ‘determiners’, with the exception of (24)–(26), are of adjectives preceding the possessive, not the demonstrative. As was mentioned earlier, there are various ‘candidates’ for D, and possessives are not necessarily prime candidates. This will become apparent when co-occurring possessives and demonstratives are discussed in Section 4 below.

#### 4. Co-occurring possessives and demonstratives

In earlier English, possessive determiners and demonstratives could co-occur. Data showing the three orders in (27) below are often cited as evidence in support of the ‘no-DP’ hypothesis as they apparently involve the free ordering of determiners:

- (27) a. demonstrative possessive noun (this my book)  
 b. possessive demonstrative noun (my this book)  
 c. demonstrative noun possessive (this book my)

As Allen (2006: 152) points out, until recently the literature has assumed that co-occurring possessives and demonstratives are variations of the same construction. If different orders can occur during the same period, this could be evidence that there is no DP structure. However, Allen argues, as does Wood (2003, in press) that the constructions in (27) represent different structures with different histories and patterns of development. I will provide evidence in this section that co-occurring demonstratives and possessives do not represent free unordered adjunction to NP.

The (a) order, with the demonstrative first, is exemplified in (28):

- (28) *in þis            user cirlice        stær*  
 in this.ACC.N our ecclesiastical history.N  
 “in this, our ecclesiastical history” (Bede 282.23)

Examples such as these are found in OE and ME, are frequent in EModE, and are said to be ‘archaic’ or ‘non-standard’ in PDE (Rissanen 1999; Denison 1998). I argue (Wood 2007) that this word order represents three different constructions throughout the history of English. In OE, two structures are likely and could co-exist: either two nominals in apposition or a structure with an adjectival possessive (as in (33) below). Both these constructions die out by the late OE period. In PDE this word order represents a focus construction that emerges in the EModE period.

The (b) order, with the possessive first as in (29) and the (c) order with the possessive following the head noun as in (30) are not found outside the OE period.

- (29) *his þa            æfestan tungan*  
 his that.NOM.PL pious tongue.F.PL  
 “that pious tongue of his” (Bede 342.17)

- (30) *Ðone halgan his*  
 that.ACC saint his  
 “his saint”  
 Latin: *sanctum suum* (Vespasian Psalter)

Examples such as (29) are frequent in OE and will be discussed below. Examples such as (30) will not be discussed further. They only occur in interlinear glosses where the English syntax is heavily influenced by Latin. It is, however, interesting to note that the Latin glossator felt that an extra word, *ðone*, was required to translate the Latin *suum*, ‘his’; perhaps this was needed because in these constructions the possessive is not in DP and therefore not definite in OE as it is in PDE (see below).

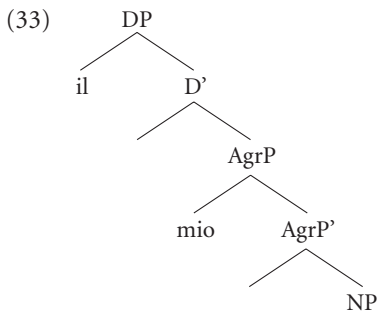
#### 4.1 The demonstrative-first order

There are two possible explanations within the DP framework for the demonstrative-first order in OE. The first explanation is that the OE DP has a similar structure to Romance DPs (cf. Wood 2003; Alexiadou 2004). It is well known in the literature that some languages permit determiners (articles and demonstratives) to co-occur with possessives. For example, Lyons (1986, 1999) distinguishes between DG (determiner-genitive) languages, e.g. English, and AG (adjective-genitive) languages, e.g. Italian (see also Giorgi & Longobardi 1991 and Schoorlemmer 1998). In the DG construction, a prenominal genitive forces a definite interpretation on the noun phrase, and the possessive may not co-occur with articles. In the AG construction, a possessive does not force a definite interpretation, and if the language has articles they co-occur with a possessive:

(31) *il mio libro*  
 the my book  
 \*mio libro  
 “my book”

(32) *un mio libro*  
 a my book  
 “a book of mine”

The structure would be then as in (33) below. As mentioned above, the assumption is that the definiteness of possessives is not inherent but comes from their position in the structure, and that they are only definite when they move to D.



The change here, then, would be that the possessive ceased to be an adjective, i.e., English changed in the course of its history from an AG language to a DG language. I will argue below that if such a change occurred it happened before the 11th century.

The second explanation within the DP hypothesis for the demonstrative-first order is that it represents a pronoun followed by a full DP. The literature that discusses expressions with the order [demonstrative possessive noun] gives the impression that the structure is confined to earlier English and that a change occurred in EModE when these constructions ceased to be grammatical. For example, Rissanen (1999:206) says the combination of *this* and the possessive pronoun is common, but that “[t]his combination of two pronouns was superseded by the end of the seventeenth century by the type ‘this X of mine (yours etc.)’”. According to Denison (1998:114–115), “Colloquial present-day English does not permit NPs \*\**this my chapter*, possible until the beginning of our period (1776–1997) and later still in literary and legal usage”. The expression is said to “only occur in non-standard varieties of present-day English” (Kytö & Rissanen 1993:258).

However, I claim that the construction is neither ‘non-standard’ nor ‘archaic’ in PDE. Data from the British National Corpus (BNC) show that the proximal demonstrative in both the singular and plural may be followed by a possessive determiner in spoken and written present-day texts as in (34) and (35) below:

- (34) A week and a half later you struck Ragansberg and shuttled to Africa. On the, **this your third mission** you won a distinguished unit citation.  
(K66 Suffolk Sound Archive: dedication of museum, 1981)
- (35) And it couldn't have come at a better time for the 29 year old bowler in **this his benefit season**.  
(K1V Central television news scripts. Abingdon: Central TV, 1993)

These PDE examples are not confined to formal language but come from a variety of spoken and written texts (for more examples see Wood in press). The PDE English examples cannot be analysed as AG constructions as we know that the possessive is always in DP in PDE because nominals with possessives are always definite. (Assuming, as was mentioned earlier, that that definiteness is not inherent in possessives.) PDE is uncontroversially a DG language, i.e., possessive determiners are definite and therefore in DP, not a lower adjectival position. A possible position for PDE possessive determiners is Spec, DP, where they must be if, in constructions such as (36) below from the BNC, the determiner *every* is in D (see, for example, Adger 2003:256–258):

- (36) From now on popes would be surrounded by men who would comment on **their every** dictum. (*Innocent III: Leader of Europe 1198–1216*. Jane Sayers)

Therefore, possessives and demonstratives compete for the same position and cannot both be Ds but must be in separate DPs. This means that the best analysis of the PDE examples involves two DPs in apposition.

If we now compare the modern examples with earlier ones, there appears to be no reason to give a different analysis for the modern examples than for the 19th century as in (37) and (38), quoted in Dennison (1998), the 16th century as in (39), the 15th century as in (40), or, indeed, the 9th century as in (41):

- (37) which have already been highly approved of in **this their** new form by my daughters  
(1864 Gaskell, *Letters* 134, p. 352 [1 July])
- (38) As brisk as bees ... did the four Pickwickians assemble on the morning of the twenty-second day of December, in the year of grace in which **these, their** faithfully recorded adventures, were undertaken and established.  
(1836–1837 Dickens, *Pickwick xxviii*. 408 [Poutsma], Denison's 66c)
- (39) And, I do not meene, by **all this my** taulke, that yong Ientlemen, should alwaies be poring on a booke. ([HC] Ascham, *The scholemaster* 1563–1568)
- (40) Knowen to alle maner men me Roberd C. of Norwiche in the comitye of Norfolk, barbour, to be holden and be **this my present obligacion** bounden to Richard N. of Yermothe, merchant.  
([HC] *The Commonplace Book of Robert Reynes* 1470–1500)
- (41) *Se heora cyning ongan ða singan*  
that.M.NOM.SG their.M.GEN.PL king began then sing  
“he, their king, then began to sing” (Or 56.31, from Traugott [1992])

In fact, Denison himself suggests such an analysis for (38) but rejects it for (37), possibly taking his cues from punctuation and style. He writes, “Notice how Dickens uses the locution in playfully bombastic style, and punctuating to suggest that *these* and *their* belong to parallel NP’s in apposition rather than jointly filling a single determiner slot. But Mrs. Gaskell’s looks more straightforward” (Denison 1998:115). Traugott (1992:173) suggests that *se* in (41) and similar OE constructions need not be “a demonstrative modifier” but “probably a pronoun in a topicalised construction”. Throughout the history of English, then, one possible analysis for this word order construction is two DPs. This does not necessarily mean that the OE and PDE appositional constructions are the same. Allen (2004) argues that the construction found in OE is absent from English in the two early Helsinki Corpus periods, 1150–1250 and 1250–1350, with examples found only in later ME, 1350–1420. This indicates that there might not be one construction with this word order but two. Wood (in press) argues that in EModE and PDE the construction is different from the OE construction as it is a focus construction, using only the proximal demonstrative. The main point, however, is that the co-occurrence of demonstrative and possessive does not mean that these elements are adjectives and freely adjoin to NP, but that examples with demonstratives followed by possessives are easily accommodated within the DP hypothesis.

#### 4.2 The possessive-first order

The possessive-first order, however, is a more ‘exotic’ construction. It differs from the construction discussed above in three ways. First, it never occurs without an adjective, second, it does not survive the OE period, and third, it only occurs with the distal demonstrative, not the proximal.

Although both Mitchell (1985) and Traugott (1992) note that the possessive-first order in OE is more frequent with an adjective, a stronger claim is made in Allen (2006) and Wood (in press) that it never occurs without an adjective. The demonstrative-first order, discussed above, occurs both with and without an adjective, though it is more frequent without, and it occurs with both distal and proximal demonstratives. Therefore, it is not just the variation in word order that makes these two constructions different. Heltveit (1977) reports 12 examples of the possessive-first order without an adjective, but my examination of these 12 examples (Wood in press) finds that in the 10 examples from the *Blickling Homilies*, what Heltveit reports as a noun is in fact a nominalised adjective, and that the two examples from *Orisius* involve elided nouns. The demonstrative-first order, discussed above, occurs both with and without an adjective, though it is more frequent without, and it occurs with both distal and proximal demonstratives.

A second way in which the possessive-first construction differs from the demonstrative-first one is that it is limited to OE. An interesting insight into the fate of the construction is revealed by comparing the C (Corpus Christi College, Cambridge 322) and H (Bodleian Library, Hatton 76 fols. 1–54) texts of Pope Gregory’s *Dialogues* (GD). The C text was translated from Latin into English by Bishop Wærferth of Worcester in

the 9th century, and the H text is a revision made 100 or 150 years later in which the reviser, working with the earlier version and the Latin original, systematically changed and updated the spelling, vocabulary and syntax (Yerkes 1979, 1982). There are 56 examples of possessive + demonstrative in the earlier text, but since the C and H texts do not overlap in their entirety, only 16 of the 56 examples are in both texts. The reviser has changed all 16 of these examples, in 11 of them removing the demonstrative and leaving the possessive as in (42):

- (42) a. *seo eorðe gehæfde his þone onfangenan lichaman*  
 that.FEM earth held his that.M.ACC accepted body  
 b. *geheold seo eorðe his underfanzenan lichaman*  
 held that.FEM earth his received body  
 “the earth held his received body” (GD: H 155.9)

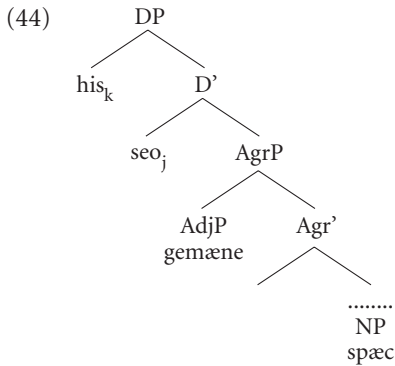
In one example the order is changed so that the possessive follows the demonstrative as in (43):

- (43) a. *his seo gemæne spæc*  
 his that.F false speech  
 b. *seo his gemæne spræc*  
 that.F his false speech  
 “that false speech of his” (GD: H 150.32)

Finally, in four examples the construction is reworded, and in only one of these (a vocative) does the demonstrative still follow the possessive. This revision shows that while possessive preceding demonstrative is grammatical in the grammar of the earlier scribe, a change occurred between the 9th and 10th or 11th centuries such that the possessive alone suffices in the grammar of the reviser. It is significant that the most frequent correction that the reviser made was not to reverse the orders but to remove the demonstrative completely, showing that the demonstrative-first construction is not a later development of the possessive-first one.

The third way in which the possessive-first construction differs from the demonstrative-first one is that, according to Allen (2006:158), the demonstrative in this construction is always the distal, never the proximal. Recall from Section 2 that the definite article develops from the distal demonstrative *se* and that I suggested that when the nominative *se* occurs where the oblique case is expected this may not be scribal error as the OED suggests, but examples of *se* becoming more article-like, i.e., the head of DP, before the form changes. I suggest that in the possessive-first construction the demonstrative is already being analysed as the head of DP and the possessive is in the specifier. Alexiadou (2004:43), who assumes that the demonstrative is the specifier of DP, suggests that the possessive has moved to a topic phrase, a projection to the left of DP. However, in that case there would be no explanation for why proximal demonstratives should not also occur in this construction.

Summarising, then, I conclude that the structure of the possessive-first construction is along the lines of (44) below:<sup>2</sup>



There are alternatives to the demonstrative-first construction. One is as in (33), with an adjectival possessive. The other is with two DPs in apposition as in (45):



I am claiming that the apposition option is available throughout the history of English for modern focus constructions such as (34) and (41). Direct evidence in support of the adjectival structure as in (33) has not been discussed. However, I claim that if English changed from an AG to a DG language, the change was completed by the 10th/11th century, not the EModE period when, as discussed above, according to Denison (1998) and Rissanen (1999) the demonstrative-first order is thought to have started its demise. While there is much yet to be established about these constructions, my main point in this section is that co-occurring possessives and demonstratives are not evidence that free adjectival word order is possible up until the 16th or 17th century.

## 5. Noun movement

So far I have discussed only word order evidence concerning DP, but evidence also comes from morphology and from movement within nominals (Wood 2003). In this section I will briefly mention one piece of movement evidence.

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2. Obviously some technicalities, beyond the scope of this paper, are being glossed over here, e.g. how exactly the reanalysis of the demonstrative takes place. Before the change, the demonstrative is merged low in the structure and moves to Spec, DP. When the change is completed, the article is merged as the head of DP.

Crisma (1999) reports the data below (from Ælfric's first series of *Catholic Homilies* and *Lives of Saints*), which she suggests is evidence of visible movement of nouns to D in OE:

- (46) a. *se Ælmihtiga God* argument (126) non-argument (1)  
 b. *God Ælmihtig* argument (28) non-argument (2)  
 c. *Ælmihtiga God* argument (0) non-argument (22)  
 d. \**se God Ælmihtiga* unattested

Crisma observes that noun-initial nominals, e.g. (46b), are in complementary distribution with those that are *se*-initial, e.g. (46a), and that both these constructions occur most frequently as arguments. If we assume Cinque's (1994) analysis of adjectives and Longobardi's suggestion that arguments must be Ds, the data may be explained by assuming that when *God* is modified by the adjective *almihtig* the noun moves to D in order to lexically realise D. (46d) is unattested because *se* and *God* both compete for the same position, D.

- (47) a. [DP *se* [NP [AP *Ælmihtiga*] *God*]]  
 b. [DP *God*<sub>k</sub> [NP [AP *Ælmihtiga*] *t*<sub>k</sub>]]  
 c. [NP [AP *Ælmihtiga*] *God*]

One question, of course, is what is special about *almihtig* such that there is movement only with this particular adjective. My search of the Helsinki Corpus reveals that in OE, *almihtig* is only used as an attribute for the deity and occurs only with nouns that are synonyms for God: *crist*, *cyning*, *scyppend*, *fæder*, *frea* and *wyrhta*. According to the OED, the earliest use of *almihtig* as a general adjective is by Chaucer in the 14th century. I suggest, then, that it is not the adjective that is special in this construction but the noun, and that *God* and its synonyms behave like proper names in OE.

As Fischer (1992:216) points out, in OE proper names usually preceded the rank or title as in (48) and (49):

- (48) *Her Gregorius papa sende Brytene Augustinum*  
 here Gregory pope sent Britain Augustine.DAT  
 "then Pope Gregory sent Augustine to Britain" (CHROA2, 20.595.1)
- (49) *on þam geare þe ælfred æðelincg an and twentig geara wæs*  
 on that year that Ælfred nobleman one and twenty year was  
 "in the year in which noble Ælfred was twenty-one" (AELIVE, IV, 316.36)

It appears here that proper names in OE behave like Italian proper names in that they move overtly to D in arguments (see Longobardi 1994), in contrast to the modern Germanic languages in which the movement is covert. *God Ælmihtig*, then, is an example of a proper name, and *almihtig* is being treated as a title or rank.

Of course, the type of movement here is head movement, and if the noun indeed competes with *se* it would mean that *se* is the head of DP. I suggested earlier in this paper that the development of the article is a change from the demonstrative as specifier



of DP to the article as head of DP, and here we have evidence that *se* is a head. Further work in this area, looking at possible noun movement with demonstratives other than *se* while paying close attention to the dating of texts, would possibly shed more light on the grammaticalisation of the definite article from the demonstrative.

## 6. Conclusion

In this paper I have argued that OE nominals are DPs, not NPs. I have provided examples of so-called free word order in the prenominal area and have argued that they are not convincing evidence that OE lacks structure. There are sporadic examples of adjectives preceding demonstratives, particularly in the ME period. However, if OE has no structure, we would expect to see examples of predeterminer adjectives becoming less frequent throughout the history of English, not more frequent in ME than in OE as appears to be the case. With respect to the examples of demonstratives co-occurring with possessive determiners, the situation is more complex, and two questions come into play: whether the possessive is always in DP and whether possessive and demonstrative are both in the same nominal.

I have focused mainly on word order and have left the focus on morphology for further work. For further research also remains the investigation of the examples of pre-demonstrative adjectives in *Layamon*, both their frequency and significance. The whole topic of left-branch extraction of adjectives from DP is still a poorly understood area. Although the correlation between languages that allow extraction and do not have overt determiners (e.g. the Slavic languages) has long been known, satisfactory explanations have not been found as Bošković (2005) shows. In the *Layamon* data we have possible examples of extraction in the 13th century at a time when the article is emerging, but no clear examples in OE when there is no article. How these data compare with adjectival extraction data in other languages is an interesting avenue to pursue.

I acknowledge use of the *British National Corpus* (on-line), the *Helsinki Corpus* (HC) and the *York-Toronto-Helsinki Parsed Corpus of Old English Prose* (YCOE) (Taylor et al. 2003).

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PART III

## Morphology



# Some semantic and pragmatic aspects of case-loss in Old French

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## 1. Preliminaries

The relatively rich nominal case-system of Latin had been reduced by the Old French period to a binary opposition between a nominative and an oblique form.<sup>1</sup> Thus, a noun such as *murs* “wall” had the following forms: NOM.SING *murs*, OBL.SING *mur*, NOM.PL *mur*, OBL.PL *murs*. In most nouns, the morphophonemic realization of the case-system was nugatory; in most feminines it was non-existent. The fact that the only inflection was *-s*, that it served as a case-inflection in only a subset of masculine nouns, and that, even here, it could mark either case (nominative in the singular, oblique in the plural), ensured hesitation and confusion through most of the Old French period, and led to the ultimate demise of the system. The progressive disappearance of final */-s/* and */-z/* increasingly left the inflection as a purely orthographic device and may have sealed its fate.<sup>2</sup> The existence of a small imparisyllabic declension, in which the exponence of morphological case (albeit only in the singular) rested on something more substantial (compare NOM.SING *empereor*, OBL.SING *emperedre* “emperor”), did not prevent the system from being lost. The decline of the Latin case-system is

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2. However, we should note that the disappearance of final */-s/* and */-z/* was highly differential, occurring first of all in preconsonantal position and spreading later to other contexts (Pope 1934: §§613–624). (Modern French liaison with */-z/* can be regarded diachronically as a residue of the original realization of this consonant in word-final position, although most synchronic accounts of the phenomenon would not recapitulate its historical origin.) Zink (1997: 36) estimates that at least one in three instances of inflectional *-s* was not realized phonetically in the spoken French of the thirteenth century.



dealt with by Väänänen (1981:110–115), Zink (1997:27–31), and Herman (2000:49–63). Descriptions of case in Old French are given by Nyrop (1924:174–209), Pope (1934:§§794–807), Zink (1997:27–38), and Buridant (2001:62–104), and case-loss is dealt with by Laubscher (1921). A more detailed discussion of these phenomena can be found in Schøsler (1984).

Case-loss took place gradually. Before disappearing completely, the nominal case-system went through a period of instability, with the form – function relationship showing signs of collapse before any reduction in morphological case-marking. (Of the two cases, nominative and oblique, it is normally the latter form that survives into the modern language, although a small number of nouns in contemporary French continue the original nominative, and we find occasional doublets, where both case-forms survive, but as distinct lexical items – see Smith 2005). A parallel might be drawn here with syntactic change, in which a distinction is often drawn between “reanalysis – the formulation of a novel set of underlying relationships and rules – and actualization – the gradual mapping out of the consequences of the reanalysis” (Timberlake 1977: 141; see also Langacker 1977:58 and Harris & Campbell 1995:61, 97). The loss of the form – function relationship – the reanalysis – is difficult to date, although there is evidence for it in texts at least as early as the twelfth century (Schøsler 1984:171–176; Buridant 2001:75). However, the distinct case-forms remained but were used in a less and less systematic way, until finally, in most instances, the formal distinction was lost, too (the actualization). By the mid-fifteenth century, awareness of the distinct case-forms was limited to the fact that they had once existed, and, if they were used at all, it was as a grammatically unmotivated marker of archaism. For instance, as part of his *Testament*, most of which was composed in 1461–1462, the poet François Villon wrote a ‘Ballade en vieil langage françoys’ (see Longnon 1977:24–25), in which he simply adds a final -s to a variety of nouns, regardless of their identity or function. Pope (1934:§806) observes that this attempt at pastiche “shows clearly that he had no understanding of the rules at all” (see also Marchello-Nizia 1997: 122).

Schøsler (2001:172–176) finds that the loss of case in Old French is differential, according to a number of parameters, as set out below:

|                         | <i>case loss <u>earlier</u></i>              | <i>case loss <u>later</u></i>           |
|-------------------------|----------------------------------------------|-----------------------------------------|
| <i>lexical-semantic</i> | human proper nouns<br>non-human nouns        | common nouns<br>human nouns             |
| <i>morphological</i>    | feminines<br>plurals                         | masculines<br>singulars                 |
| <i>categorial</i>       | adjectives<br>nouns<br>nouns and determiners | substantives<br>determiners<br>pronouns |
| <i>syntactic</i>        | main clauses                                 | subordinate clauses                     |
| <i>discoursal</i>       | direct discourse                             | narration                               |
| <i>geographical</i>     | western dialects                             | eastern dialects                        |

The ‘work in progress’ reported in this paper is based on the hypothesis that an even greater degree of magnification could be applied to this process if it were examined in further detail from two perspectives – lexical-semantic and discourse-pragmatic.

### 1.1 Lexical semantics

The inherent semantic identity of a noun has consequences for the thematic roles it is likely to assume, and hence for the probability of its appearing in a given grammatical function, such as subject or object. The functional load of morphological case-marking on a given noun should therefore show a correlation with its inherent semantic identity, and this fact, in turn, may be reflected in the robustness or otherwise of case-marking for that item. For instance, Schøsler (2001:176) observes that the oblique form spreads from [–human, –definite] contexts to [+human, +definite] ones “with the outstanding exception of human proper nouns”. This apparently odd pattern could be accounted for in terms of inherent semantic identity. Items that are [–human, –definite] and human proper nouns lie at opposite ends of the agentivity spectrum. The former are quasi-prototypical objects, the latter quasi-prototypical subjects. Case-marking might therefore be less functional for these items than for nouns that lie in the middle of the spectrum and are not prototypically one thing or the other.

### 1.2 Discourse pragmatics

Case-marking might also prove more functional when an item has been topicalized or focused and therefore appears on the surface in a position that may not be canonically associated with its grammatical function. Smith (1995) demonstrated that agreement between past participle and direct object was more resilient in a variety of Romance languages when the object was in a non-canonical position and used these data to argue that functional considerations of sentence-processing could act as a brake on an independently motivated decline in morphological marking. Although we are here dealing with a different type of morphological marking, it is worth investigating whether a similar principle might be at work.

## 2. A case study

As a first attempt at testing the hypotheses outlined above, a pilot study was carried out, based on a single text. The principal aims were twofold: (a) to explore methods of data collection and analysis in relation to the hypotheses, as the basis for a more substantial study of a larger, geographically and chronologically more diverse corpus of text, and (b) to see whether even from a relatively small sample there is *prima facie* evidence to justify the hypotheses.

## 2.1 The text

The text chosen for analysis was the *Vie de Saint Gilles* composed by Guillaume de Berneville in England around 1170. It is an Anglo-Norman adaptation of a Latin version of the life of St. Giles and consists of approximately 22,000 words in just under 3,800 lines; the verse form is octosyllabic rhyming couplets.

The surviving evidence for this text is limited to a single manuscript from the first half of the thirteenth century and a few very limited fragments (Laurent 2003: lii–liv). Whilst recognizing the issues that arise out of working from an edition rather than from the manuscript itself, we have for practical reasons based our analysis on the text established in Laurent’s edition. In fact, the differences between the two are relatively minor adjustments for the sake of metre (see Laurent 2003: lv, 237–241). It is not obviously the case that these emendations should affect some semantically or pragmatically determined classes of noun phrases more than others; we can therefore be reasonably sure that they do not disrupt or distort any patterns of case-marking.

## 2.2 Selection of text

Before presenting our results, we should discuss some of the issues affecting the selection of a corpus for the investigation of case usage in Old French. For this kind of study, we require texts that show ‘variable consistency’ in the use of case. As we have seen, the case-system began to break down or was lost earlier in some areas and dialects than in others;<sup>3</sup> by contrast, it survived in generally consistent and accurate use in the work of some authors (even some who are relatively late), despite being absent from the work of earlier authors in the same genre and geographical area. But this kind of variation, whilst important and interesting, is not the focus of our work – we are concerned with variation *WITHIN* individual texts. Consequently, it is crucial to identify a text or texts in which the case-forms appear not to be used with total consistency, in order to establish whether the degree of consistency can be correlated with lexical semantics (which might suggest that related functional factors, such as an item’s potential to be a subject, a complement or an adjunct, play a role in the gradual demise of the system) and/or with discourse pragmatics (which might signal that another functional factor is at work – namely the relatively greater processing ‘load’ that arises when items appear in a non-canonical position for their grammatical function).

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3. Moreover, Anglo-Norman was arguably the earliest dialect to exhibit breakdown of the case-system – see Pope (1934: §1246).

Preliminary studies were carried out on samples from modern reliable editions<sup>4</sup> of over a dozen candidate texts (predominantly prose, where the demands of metre and, more crucially, rhyme cannot be alleged to influence the choice of morphological marking). However, despite a wide-ranging search, no suitable prose text was identified as containing sufficient examples of inconsistent case usage to be of statistical value: all showed either complete absence of case-distinctions or else fairly accurate and consistent use of the case-forms (even texts from as late as the fourteenth century, in keeping with the observations made by Pope 1934: §806; Zink 1997: 31, 36–37; Marchello-Nizia 1997: 121–125; and van Reenen & Schøsler 2000, on the longevity and consistency of case-usage amongst many authors and scribes, especially those from northern regions). The reasons for this sharp dichotomy between absence of case-marking and consistent use of case-marking are themselves not entirely clear and merit further research.<sup>5</sup> Its very existence might lead us to reconsider Bédier's famous remark (Bédier 1927: 248) that “si l'on met à part les plus anciens textes, ceux du IX<sup>e</sup> et du X<sup>e</sup> siècle, comme *Sainte Eulalie* ou *Saint Léger*, les règles de la déclinaison n'apparaissent dans toute leur pureté que dans les grammaires modernes de l'ancien français” (“If we set aside the oldest texts, those which date from the ninth and tenth centuries, such as *Sainte Eulalie* and *Saint Léger*, the rules governing declension manifest themselves in their purest form only in modern grammars of Old French”).

A verse text was therefore selected. Such a choice, though not ideal, none the less provides a valid test of our hypothesis, since if the degree of inconsistency in case usage is indeed distributed on some functional basis, the type of text chosen (as well as its date and origin) should be of no consequence, PROVIDED THAT the text does show inconsistent case usage. There is no reason to suppose that random slips of the pen made by an error-prone copyist will affect one semantic or pragmatic class more than another, so any pattern of correlation is unlikely to be disrupted by scribal incompetence. Similarly, the fact that consistent use of the case-system survives longer in some texts, especially prose, than in others, is not an issue; our hypothesis is that

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4. It is well-known that some older editions of texts (from the early twentieth century and before) contain editorial ‘corrections’ of supposed errors in the use of the case-forms, often made without comment. Even very recent editions of Old French texts can be vague as to how expansions of abbreviations in the underlying manuscript have been handled: common proper names are very frequently abbreviated, and such editions may leave it somewhat unclear what the evidence is for the *ending* of the form printed – if indeed there is any. For some discussion of relevant issues, see Cerquiglini (1989), Fleischman (2000), and Busby (2002).

5. In lieu of an explanation we can offer no more than a suggested direction for such research, namely to consider the effect of scribal training and education: being able to write is evidence of a certain level of education, and this fact may have polarized the character of the written language with respect to case-usage (and other grammatical phenomena). A scenario worth exploring is that scribes were thus able to use the case-system accurately, according to what they had been taught, until some point beyond the total disappearance of case-distinctions from the spoken language, at which stage they stopped employing the system completely.

ANY variation in degree of consistency within a text will conform to the suggested pattern – the relative ordering of items or classes of item by degree of consistency should be the same. Finally, although this is a verse text, and we must therefore be aware of the potential problems posed by considerations of metre and rhyme, these are most unlikely to have any impact on the issues we wish to examine. Rhyme has an effect primarily at line-end; here, too, there is no particular reason to suppose a skewed distribution in which some semantic or pragmatic classes are more likely to appear at the end of a line and therefore distort our results. Likewise, any effect of metre is determined by the phonological shape of an item, which again is normally independent of its lexical-semantic or discourse-pragmatic identity.

The subject matter and genre of the *Vie* also make it a suitable text for our purposes. It includes both narrative and direct speech, as well as a range of different kinds of scene with correspondingly varied vocabulary – such breadth is required if the figures obtained are to be useful. Moreover, the principal characters are male and there is a broad range of masculine nouns used. We therefore avoid too great a preponderance of feminine nouns, in most of which, as we have already noted, the case-system was completely lost before the Old French period.

### 3. Method

Noun-phrases containing nouns known to exhibit case-marking in this or other texts, or whose etyma indicate that they can be expected to have inherited a morphological distinction between nominative and oblique in either or both singular and plural, were collected and classified according to their apparent morphological form (nominative or oblique) and their syntactic function (i.e., functions for which the nominative is expected – essentially, the subject, that which is predicated of the subject, and items in apposition to either – and those for which the oblique is expected – essentially complements, adjuncts, and items in apposition to these). Forms of address (so-called ‘vocative’ uses of nouns for the purposes of seeking attention or maintaining contact) were collected separately and do not appear in the figures presented in this paper. Such items are widely agreed to show considerable formal variation from an early stage (see, for instance, Foulet 1930:8 and Ménard 1994:20, who stress that the oblique case is used as a form of address in many texts that observe a scrupulous division of labour between nominative and oblique elsewhere in their syntax), and are usually members of a limited range of semantic classes (being typically [+human]). They are therefore unlikely to show the kind of gradation that we hope to find. Moreover, if included, the figures for those items that do happen to be used in address would then not be comparable with those for other items which, despite being UNLIKELY to appear as subjects, could plausibly do so, although they would NEVER be plausible candidates for address use (e.g. *drap* ‘curtain’).

Table 1. Correlation of form and function in nouns used in both functions more than once

| Lexical item<br>(OBL.SG form <sup>6</sup> ) | 'Nominative' function <sup>7</sup> |                  | 'Oblique' function |                  | %ge                               | %ge                               |
|---------------------------------------------|------------------------------------|------------------|--------------------|------------------|-----------------------------------|-----------------------------------|
|                                             | non-NOM<br>forms                   | total for<br>fn. | non-OBL<br>forms   | total for<br>fn. | unexpected<br>forms in<br>NOM fn. | unexpected<br>forms in<br>OBL fn. |
| drap                                        | 2                                  | 2                | 0                  | 15               | 100                               | 0                                 |
| oil                                         | 5                                  | 5                | 0                  | 6                | 100                               | 0                                 |
| valet                                       | 2                                  | 2                | 0                  | 3                | 100                               | 0                                 |
| chevalier                                   | 4                                  | 5                | 0                  | 4                | 80                                | 0                                 |
| malade                                      | 3                                  | 4                | 0                  | 8                | 75                                | 0                                 |
| barun                                       | 2                                  | 3                | 0                  | 5                | 67                                | 0                                 |
| seignur                                     | 13                                 | 22               | 6                  | 35               | 59                                | 17                                |
| angele, archangele                          | 3                                  | 7                | 0                  | 2                | 43                                | 0                                 |
| pere                                        | 3                                  | 7                | 0                  | 4                | 43                                | 0                                 |
| ami                                         | 2                                  | 6                | 0                  | 11               | 33                                | 0                                 |
| vin                                         | 1                                  | 3                | 0                  | 7                | 33                                | 0                                 |
| home                                        | 11                                 | 33               | 1                  | 30               | 33                                | 3                                 |
| enfant                                      | 1                                  | 3                | 1                  | 2                | 33                                | 50                                |
| eveske                                      | 2                                  | 7                | 0                  | 7                | 29                                | 0                                 |
| liu                                         | 1                                  | 4                | 0                  | 13               | 25                                | 0                                 |
| moine                                       | 1                                  | 4                | 0                  | 3                | 25                                | 0                                 |
| vent                                        | 1                                  | 4                | 0                  | 3                | 25                                | 0                                 |
| <i>fiz</i>                                  | 1                                  | 4                | 7                  | 7                | 25                                | 100                               |
| chamberlenc                                 | 1                                  | 5                | 0                  | 2                | 20                                | 0                                 |
| villain                                     | 1                                  | 5                | 0                  | 2                | 20                                | 0                                 |
| Deu                                         | 11                                 | 56               | 2                  | 71               | 20                                | 3                                 |
| chen                                        | 1                                  | 7                | 0                  | 12               | 14                                | 0                                 |
| Gire                                        | 7                                  | 72               | 3                  | 18               | 13                                | 17                                |
| rei                                         | 10                                 | 87               | 0                  | 33               | 11                                | 0                                 |
| abbé                                        | 5                                  | 51               | 2                  | 9                | 10                                | 22                                |
| dol                                         | 0                                  | 2                | 0                  | 8                | 0                                 | 0                                 |
| serf                                        | 0                                  | 2                | 0                  | 4                | 0                                 | 0                                 |

#### 4. Results

We present our numerical data in two tables. Table 1 lists nouns that occur more than once AND do so in both 'nominative' and 'oblique' functions. Table 2 contains nouns for which the data are less extensive because they occur less frequently. The latter data,

6. Here, and throughout the tables, we cite lexical items in their oblique singular form, except where the lexical item is attested in the text only in some other form, where we cite that instead. Note here that *fiz* 'son' is the inherited NOM.SING and that the expected OBL.SING form *fil* does not occur in this text. In Table 2, *sens* is the expected form for both NOM and OBL (< Latin SENSVS and SENSVM respectively), which we italicize because the figures for the oblique function refer to two attestations each of etymologically correct *sens* and analogical *sen*. Assuming that the latter form has supplanted the former, we should regard *sens* in oblique function as an unexpected NOM.

7. These figures exclude address usage: see §3.

Table 2. Correlation of form and function in other nouns used in both functions

| Lexical item | 'Nominative' function |               | 'Oblique' function |               | %ge                         | %ge                         |
|--------------|-----------------------|---------------|--------------------|---------------|-----------------------------|-----------------------------|
|              | non-NOM forms         | total for fn. | non-OBL forms      | total for fn. | unexpected forms in NOM fn. | unexpected forms in OBL fn. |
| archer       | 1                     | 1             | 0                  | 1             | 100                         | 0                           |
| buissun      | 1                     | 1             | 0                  | 4             | 100                         | 0                           |
| cheitif      | 1                     | 1             | 0                  | 12            | 100                         | 0                           |
| cheval       | 1                     | 1             | 0                  | 12            | 100                         | 0                           |
| diable       | 5                     | 7             | 0                  | 1             | 71                          | 0                           |
| apostle      | 1                     | 4             | 0                  | 1             | 25                          | 0                           |
| frere        | 0                     | 2             | 0                  | 8             | 0                           | 0                           |
| <i>sens</i>  | 0                     | 1             | (2)                | 4             | 0                           | (50)                        |
| compaignun   | 0                     | 1             | 2                  | 3             | 0                           | 67                          |
| felun        | 0                     | 2             | 1                  | 1             | 0                           | 100                         |

although interesting, we set aside for the time being, together with items for which only one of the two functions is represented.

## 5. Testing the lexical-semantic hypothesis

The data in Table 1 can be represented on a graph that plots the percentage of non-oblique forms in oblique function against the percentage of non-nominative forms in nominative function. An idealized version of such a graph is given in Figure 1.

In a text showing inconsistent use of case we expect different nouns to fall in different positions on this graph. Some will show consistently correct use of the cases and be close to the diamond (bottom left), whilst others will already show complete loss of case-marking, with the survival of either only the nominative or only the oblique form, and thus be at or close to the position of the triangle (top left) or square (bottom right) respectively. The remainder are expected to lie somewhere between these two extremes (complete consistency or complete loss); and so, by plotting our data on the graph, we aim to identify different semantic classes behaving in similar ways.

## 6. Analysis of the data – lexical semantics

Figure 2 illustrates the results for the consistency of case usage in this text. Each relevant noun was assigned to one of nine lexical-semantic categories and is identified on the graph by the corresponding symbol. (Note that symbols that appear at the same point on the graph are, in consequence, superimposed.) Little evidence emerges of coherent patterning amongst items with similar semantic features. However, for serious work to be carried out, a much more substantial corpus will be required, perhaps ten

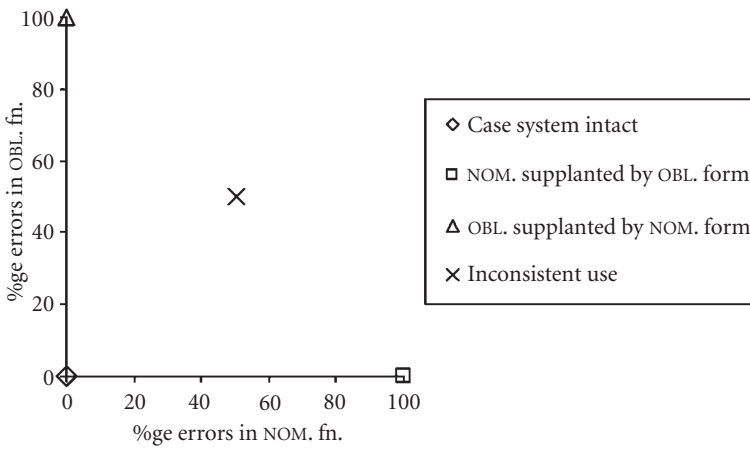


Figure 1.

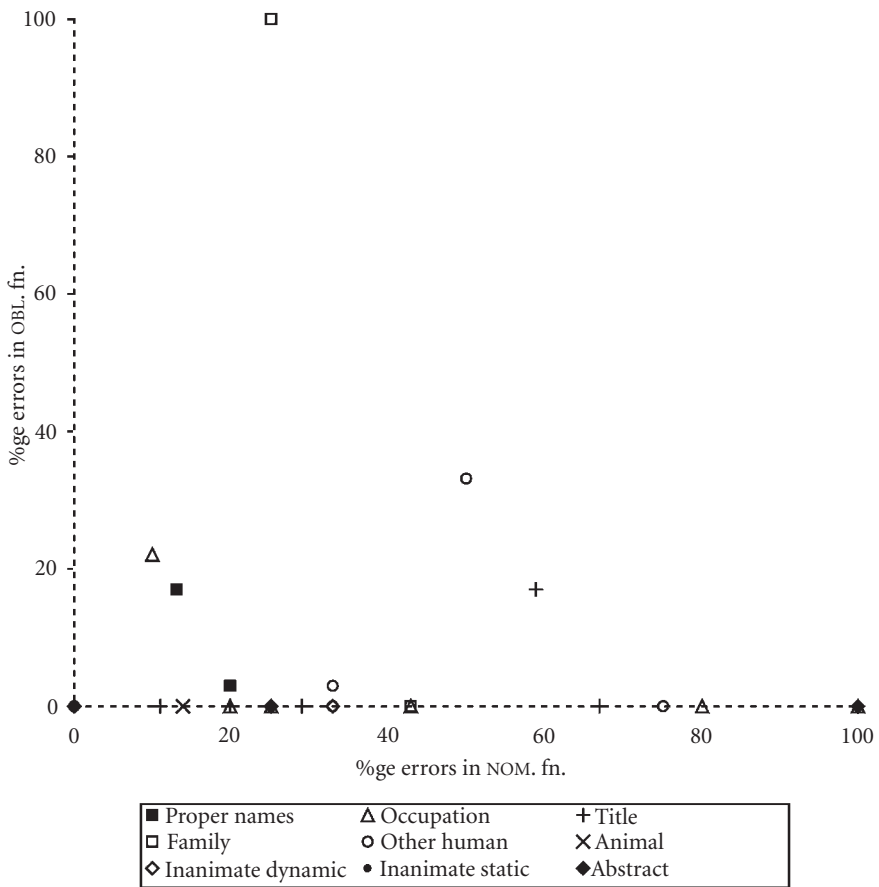


Figure 2.



or twenty times larger than that used in this pilot study. The *Vie de Saint Gilles*, which is a text showing considerable variation and is over 20,000 words long, none the less furnished only very limited evidence against which to judge our hypothesis. We found just 27 suitable lexical items that could be expected to show case use and that occur with reasonable frequency. These items, moreover, are not evenly distributed amongst semantic groups such as human, animal, dynamic inanimate or static inanimate, and none of them really has sufficiently high token-frequency in both nominative and oblique functions to shed significant light on the hypothesis. Given the difficulty we experienced in finding suitable texts for this pilot study, establishing a corpus of sufficient size for a single region and period (ideally for a single author) may in practical terms be impossible. The problem would be compounded by the necessity of constituting such a corpus for each of several periods in order to assess how patterns changed over the whole length of time when the case-system was in flux. These diachronic data would enable us to ascertain whether case-loss spread by diffusion from items that are prototypically animate or inanimate to items that are less so.

## 7. Analysis of the data: Discourse pragmatics

Our study suggests that there may indeed be a correlation between discourse-pragmatic functions, as encoded in word-order, and the resilience of case-marking. For example, if we take the eponymous noun *Gires* ‘Giles’, it seems that the ‘errors’ in case usage are not distributed proportionately according to position in the clause (excluding unexpected oblique forms found in address).<sup>8</sup> Although this item appears in both nominative and oblique functions both clause-initially and elsewhere,<sup>9</sup> the unexpected forms are almost exclusively confined to non-clause-initial positions, a pattern that is all the more surprising, given that this item often appears clause-initially and in that position is usually in a function where the nominative form is expected (i.e., the function in which the greater number of unexpected forms is found). Of the twelve instances where the form found is not as expected – we give examples below, marking what we take to be the start of the relevant clause with a vertical bar – only one (2) is clause-initial:

- (1) cil sunt fors de la nef issu,  
     gardent, | si unt **Gires** veü,  
     ki pur els ert en oreisun . . . (G. 807–809)

8. It is well known that postverbal subjects are an early locus of case-loss (see, for instance, Pope 1934: §806). However, this is only one aspect of the more general phenomenon to which we draw attention in this section.

9. We can, however, see from Table 2 that this item appears more commonly in the functions where the nominative is expected than in those where the oblique is expected.

- they disembarked from the ship  
look around and saw Giles.NOM  
who was at prayer for them*
- (2) | Gire ad premerement parlé (G. 1022)  
*Giles.OBL spoke first*
- (3) | un jur fud Gire levet mein (G. 1319–1320)  
*pur sei ebatre fors el plein . . .*  
*one day Giles.OBL got up early  
to take a walk in the valley*
- (4) . . . en cel parfunt,  
la | u Gire e sa bisse sunt. (G. 1917–1918)  
*into the ditch,  
there where Giles.OBL and his doe are*
- (5) | li reis aimet Gires forment (G. 2155)  
*the king likes Giles.OBL greatly*
- (6) | quant li abbes Gire ad chanté,  
devotement l'unt escuté . . . (G. 2783–2784)  
*when the.NOM priest.NOM Giles.OBL sang [sc. mass]  
[they] listened devoutly*
- (7) le miracle | ke Gire out fait (G. 2966)  
*the miracle which Giles.OBL had worked*

In (1), (3), and (5) the instance of *Gires* is clearly post-verbal and not clause-initial; in (4), (6), and (7) we take the relative conjunction (pronoun or adverb) to be in first position in its clause. In (2) we find a possible exception, which might lead us to conclude that the use of the expected case in clause-initial position occurs with overwhelming frequency, but is not absolute. Nonetheless, we note from the *apparatus criticus* that the MS at this point reads *Gires* and that *Gire* is an editorial emendation (presumably *metri gratia*, although the discourse-pragmatic principle that we propose may indicate that the textual problem here is one of substance rather than scansion).<sup>10</sup>

The striking pattern of sentence position for morphologically unexpected forms of *Gires* is not limited just to *Gires*, but can be seen for other items that we have found to exhibit some degree of inconsistent case usage. For *reis*, there are no exceptions to the apparent principle that inconsistency of case usage is confined to non-initial sentence position.<sup>11</sup>

10. Metrical considerations demonstrably do not condition this clause-initial/non-clause-initial distribution: the forms with unexpected *-s* and without expected *-s* are found indifferently before vowels and consonants in the non-clause-initial examples, so that selecting the 'expected' form for many of them would have no effect on the syllable-count (and hence on the metre).

11. It should be noted that, in examples (8)–(21), there are sometimes discrepancies between the case of the noun and the case of the article. For the purposes of this paper, we are considering

- (8) | ‘Bel sire eveske,’ feit **li rei**, (G. 1807)  
*my lord bishop says the.NOM king.OBL*
- (9) Al bel matin, quant l’aube neist,  
s’en est Flovenz **li rei** levez (G. 1820–1821)  
*early in the morning, as dawn is breaking*  
*Florent.NOM the.NOM king.OBL got up*
- (10) | A un triste s’estut **li rei**, (G. 1855)  
*the.NOM king.OBL was in a hide*
- (11) | mais **li rei** est avant venu: (G. 1948–1949)  
*but the.NOM king.OBL came forward*
- (12) | Respunt **li rei**: ‘Ço frai jo ben. . .’ (G. 2191)  
*the.NOM king.OBL replies I willingly consent*
- (13) | ja ne me conuist pas **li rei** (G. 2443)  
*now the.NOM king.OBL does not know me*
- (14) | numeement **li rei** de France (G. 2578–2579)  
nus pot sur tuz homes valeir  
*of course the.NOM king.OBL of France*  
*can defend us against everyone*
- (15) | ‘Bel sire duz cher,’ feit **li rei**, (G. 2701)  
*my dear lord says the.NOM king.OBL*
- (16) Si me volsit creire **le rei**, (G. 2933–2934)  
il n’enveast uan pur tei.  
*if the.OBL king.OBL had been willing to believe me*  
*he would not have sent out a search for you so soon*
- (17) | ‘Vostre merci,’ **li rei** respunt, (G. 3175)  
*thank you the.NOM king.OBL replies*

Likewise for *abbes* there are no exceptions:<sup>12</sup>

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only the case of the noun, particularly in the light of Schøsler’s finding (Schøsler 2001: 172–176 – see §1 above) that case is lost later from determiners than it is from nouns.

12. The only dubious instance for this noun does not primarily involve word-order, but rather hinges on a possible structural ambiguity:

- (i) | meis unkes hom mortel le vit  
fors **li abbes** ki dignes fud (G. 3022–3023)  
*but no mortal man saw him*  
*except the.NOM priest.NOM, who was worthy*

If we take *fors* as a preposition (“except for”), we expect the oblique case, but it is here clearly functioning very much like a conjunction (“other than”) introducing an alternative subject for *vit*. In any event it would not constitute an exception to the apparent word-order pattern.

- (18) ‘Sire,’ funt il, ‘| u est l’abbé?...’ (G. 2416)  
*my lord they say where is the.OBL priest.OBL*
- (19) | e sis meine dreit a l’abbez  
 ki les atent en la chapele. (G. 2464–2465)  
*and he brings them to the.OBL priest.NOM*  
*who is awaiting them in the chapel*
- (20) | ‘Ço peisse mei,’ feit li abbé, (G. 2877)  
*that distresses me says the.NOM priest.OBL*
- (21) | ‘Sire, merci,’ feit li abbé, (G. 3223)  
*my lord thanks says the.NOM priest.OBL*
- (22) | ‘La merci Deu,’ feit lur abbé. (G. 3258)  
*thanks be to God says their priest.OBL*

The absence of unexpected forms in clause-initial position is also found for *hom* (G. 241, 759, 1178, 1201, 1258, 1267, 1758, 1872, 2059, 2158, 2446, 2480, 2529), *eveskes* (G. 2018, 2049) and *pere* (G. 67, 255, 3620), for which we find no exceptions.

What are we to make of these data? We suggest that discourse-pragmatic factors may indeed be playing a role here. It is generally acknowledged that first position in Old French clauses was very often occupied by topicalized or focused items, which are ‘highlighted’ by this position (see, for instance, Buridant 2001:741–757). It seems that an item that has topic or focus status and hence appears in this position is less likely to appear in a form that does not correspond to its grammatical function – its case-marking is to some degree ‘protected’. As suggested earlier, functional factors may well be at work here – an item appearing in a position that canonically encodes discourse prominence rather than grammatical function may well be more likely to show reliable case-marking as an aid to interpretation of the latter.<sup>13</sup> Once again, the constitution of a larger corpus will enable this hypothesis to be tested more meaningfully.<sup>14</sup>

13. Many languages without nominal case-marking (such as contemporary French or English) allow topicalized or focused NPs to appear in a position (usually sentence-initial) that is non-canonical for their grammatical function, and yet such sentences present no insurmountable parsing problems. It could therefore be objected that the functionality of case-marking in the instances under discussion is marginal. Whilst this is undoubtedly true, we are not, of course, claiming that case-marking was *introduced* in order to assist the parsing of the sentence, but rather that the residual functionality of case-marking in these circumstances may have been a factor in its differential disappearance – that is, given a tendency for case-marking to disappear, it might well be lost first where it is least functional. As noted in §1.2 above, similar arguments concerning past participle agreement are put forward in Smith (1995).

14. From our data, it seems to us that there are multiple interacting factors at work conditioning these distributions, and they may be far from straightforward to separate or control for. Indeed, whilst *Gires*, *reis*, *abbes*, *hom*, *eveskes* and *pere* conform to our descriptive generalization, *Deus* and *sire* (*seigneur*) do not (apparent counterexamples at, e.g., G. 37, 52 and 1053, 3017 respectively). The latter two items in our view do not so much undermine the pattern we have

## 8. Conclusions

In this paper, we have suggested that considerations of lexical semantics and discourse pragmatics may have played a role in the differential disappearance of nominal case in Old French, and have sought to demonstrate how such a hypothesis might be tested. For the moment, the conclusions that we can draw are necessarily limited; none the less, this preliminary study has identified a number of interesting avenues for further research. We hope to return to these issues in a subsequent paper.

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described (insofar as it is surely not a chance distribution in the six items in which we find it) as complicate it, providing a second set of data that requires explanation. The high frequency of *Deus* and *sire* in address may well be relevant here. Address forms very often come first in a sentence (Ashdowne 2002, for instance, found that over 70% of addresses in the *Vie de Saint Alexis* and the first half of the *Chanson de Roland* are sentence-initial, and of these the majority are also utterance-initial); they are also acknowledged to show a higher than expected number of OBL forms in a supposedly nominative function (see §3 above). This pattern may have provided a model whereby such items occupying first position in a sentence, but *not* encoding address, might none the less be acceptable in a morphosyntactically unexpected form.

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# The final stages of deflection

## The case of Afrikaans *het* “have”

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### 1. Introduction

In the development of the Dutch verb system as employed at the Cape of Good Hope to that of modern Afrikaans, from the late 17th century till the present, two global processes of change were in evidence, viz. (i) an early period (up to about 1800) of deflection brought on by factors such as creolization and imperfect learning, and (ii) a later period (from the second half of the 19th century) of language standardization which necessitated, inter alia, the preservation and adaptation of complex verb clusters. While, on the one hand, inflection was reduced to a minimum, on the other hand the order of verbs, as they appear clause-finally, was fixed as (a) modal verbs, (b) lexical verbs assembled through verb raising and (c) auxiliaries. This is exemplified by (1).

- (1) *Hulle beweer dat die voorrade moes gelaat haal gewees het.*  
they maintain that the supplies must-PRET let-PP fetch be-PP have  
“They maintain that the supplies should have been fetched.”

Deflection in the present-day standardized form of the language was arrested at a point at which only a small number of irregular forms were retained as marked preterites, and *wees* “be” and *hê* “have” as marked infinitives. While in the general typological development of languages towards more analytic forms, morphological simplification generally takes place at the expense of syntactic complexification, the remnants of inflection have in fact contributed to a more versatile and cohesive complex verb cluster.

The purpose of this paper is to show that:

- the formal relationship between finite and non-finite forms has changed;
- the formal relationship between the “have” auxiliary and other auxiliaries has changed substantially;
- inflectional residues have been and are still being put to new uses;



- change in the verb system not only went in the analytic but also in the synthetic direction, the latter enhancing economy and cohesion;
- while certain functional contrasts have been lost, others have been strengthened.

This will be done with reference to the preterite modals and the most important auxiliaries, with special attention to the structural innovations in connection with the auxiliary *het* “have”, and the relationship between *het* perfects and preterite modals. But first of all a brief chronological survey of the changes discussed below, will be given.

## 2. Chronological survey

The loss of person and number distinctions – one of the earliest changes to become evident in the Cape Dutch texts and other sources – was completed by 1750 (Scholtz 1980:80; Ponelis 1993:410). The loss of the infinitive as a verbal category, though observable in the texts of French speakers as far back as the late 17th century, is clearly manifested in Cape texts only around 1830 (Conradie 1979:172–173). *Wees* “be” (cf. Dutch *wezen*) and *hê* “have” (via *hewwe*, cf. Dutch *hebben*) are still employed as infinitives. The verb form *het* “have”, originally a 3rd person singular which later generalized to the whole singular, replacing finite forms such as *heb(t)*, *heeft* and *hebben*, derives from dialectal Dutch (Scholtz 1965:84).

The regularization of the past participle to verbal base plus prefixed *ge-* was a lengthy process coinciding with the infinitival loss of *-e(n)* in the case of strong verbs and the apocope of *t/d* in the case of weak verbs (Conradie 1979). Scholtz (1980:82) considers the process to have been completed by 1800. Irregular *gehad* “had” remains to the present a notable exception in purely verbal usage, as does *gedog* “thought (mistakenly)”. *Gewees* (Dutch *geweest*) may be considered regular in view of the extant infinitive *wees*. The usage of the synthetic preterite in Cape Dutch documents of L1 speakers clearly began to deteriorate in the first quarter of the 19th century, while preterites are absent from texts representing L2 speakers much earlier (Abraham & Conradie 2001:50–51).

At the time when writers began to represent the vernacular more freely, i.e. the early 19th century, deflection of Cape Dutch had therefore reached an advanced stage. Other changes are more difficult to pinpoint. The replacement of “be” by “have” as auxiliary with mutative verbs seems to have taken place gradually in the course of the 19th century. In his early 20th century grammar of Afrikaans, Malherbe (1918:60) still considers perfects such as *is aangekom* “is arrived” as alternatives to forms with *het*. The intrusion of historically finite *het* in previously infinitive contexts, such as finite verb + past participle + *het* (e.g. *kan gedoen het* “could have done”), occurring around the mid 19th century, is described by Malherbe (1918:63–64) as much more common than the cluster with *hê*, i.e. the infinitive. Similarly, *te gedoen het* “to have done” was much more common than *gedoen te hê*, the construction consciously used in the last part of the 19th century. After the infinitive particle *te* “to”, finite *kan* “can” is already

attested in a letter from 1766 (see example (7) below); it is not clear when *te* + preterite, as in *te kon werk* “to have been able to work” emerged. *Kon* “could” in *had* + *kon* + verb, another infinitive context, as well as *kon* “could” after *sou* “would” are found in a novel from 1879 (see examples (5) and (13) below). Malherbe (1918:63) describes *sou wou/kon/moes* + verb and *het moes* + verb as very common in the conversational speech of the educated (“omgangstaal van ontwikkelde mense”).

The preterite modals are dealt with in the next section.

### 3. Preterite modals

Modal verbs form a special morphological class in Afrikaans, as – unlike in Dutch – they have no past participles (apart from *gewil* “willed” used as main verb). Moreover, apart from *was* “was” and *dog* “thought (mistakenly)”, it is the only class still employing preterites, viz. *sou* “would”, *wou* “wanted to”, *kon* “could” and *moes* “had to”, in frequent usage in the standard language. These preterites may express the past tense or other values such as hypothetical modality or the irrealis. The functional relationship between the members of each pair is, however, still closer than for instance in the case of English. Regarding the expression of past tense, the clusters *kon swem*, *wou swem* and *moes swem* may for instance refer to former ability, desire and obligation to swim, respectively.

When a modal lacks a preterite, as in the case of *mag* “may” (since *mog* has become obsolete), past tense may be expressed through a main verb in the perfect, as in:

- (2) *Ek mag nie in die kring van die manne gekom het*  
 I may not in the circle of the men come-PP have  
*nie* (Matthee 2000:518)  
 not  
 “I was not allowed to enter the circle of the men.”

In the same way past tense is expressed by the present forms *sal/moet/kan/wil* + past participle + *het* instead of the preterites *sou/moes/kon/wou* + base form in certain varieties of Afrikaans.

In combination with the perfect, preterite modals also commonly express the irrealis, as in:

- (3) *Totdat dit wat oopgebreek kon gewees het,*  
 until that which open.break-PP can-PRET be-PP have  
*verdroom* (Murray-Theron 2001:121)  
 dry.up  
 “Until that which could have been broken open, withers.”

In polished style, the replacement of the preterite with its present counterpart indicates an epistemic interpretation, as in

- (4) *Die halfoop deur aan die punt van die gang moet beweeg*  
 the half.open door at the end of the passage must move-PP  
*het.* (Fouché 2005: 17)  
 have  
 “The half open door at the end of the passage must have moved.”

Preterite modals may, however, also occur in grammatical contexts which would be reserved for an infinitive in Dutch, viz. after another preterite or the auxiliary *het* in a verb cluster, and after the verbal particle *te* “to”. Possible functions of preterites in these contexts are (i) to enhance the cohesion of the modal substring of a verb cluster (and perhaps raising the ‘hypothetical’ quality of the utterance), (ii) to signal past tense, and (iii) to create a “sequence of tenses”, as will be demonstrated below.

### 3.1 Preterite agreement after modal

In what may be referred to as “preterite agreement” or “preterite assimilation” (Ponelis 1993: 439), modals which would have been infinitives in Dutch (e.g. *zou gezegd moeten kunnen worden* “should by rights be possible to be said”), are replaced by preterites, i.e. previously finite forms, after an initial preterite. (Note that when the string contains modal verbs, the order of verbs is not affected by the absence or presence of V2.) An early example is:

- (5) *Ik sou nooit geen gelukkig uur weer op die wêreld kon*  
 I will-PRET never no happy hour again on the world can-PRET  
*hê nie.* (Waarzegger 1879: 103)  
 have not  
 “I would never have been able to experience any happiness on earth.”

The following quote contains two recent examples:

- (6) *Hy is my pa, hy sou iets moes kon doen.*  
 he is my father he will-PRET something have.to-PRET can-PRET do  
*Ek sou by hom kon gaan bly.* (Lötter 2004: 49)  
 I will-PRET by him can-PRET go stay  
 “He is my father; he should be able to do something. I could go and stay with him.”

Apart from strengthening cohesion in the verbal cluster, the repeated preterites *moes* and *kon* render the utterances slightly more hypothetical than would have been the case with *moet* and *kan*. To the extent that a new function is introduced, this may be considered an instance of exaptation.

### 3.2 Preterite after *te* “to”

Present tense *kan* “can” instead of the Dutch infinitive *kunnen* after the verbal particle *te* “to” is already in evidence in a letter from 1766, viz.:

- (7) *om de velt vrij te kan vegten* (Van Oordt 1956, no. 294)  
 the field free to can fight  
 “to be able to open up the area by fighting”

When a preterite modal appears after the verbal particle its function may be to uphold the sequence of tenses, as in:

- (8) *Uiteindelijk het dit net te veel kere gebeur*  
 eventually have it simply too many times happen-PP  
*om toeval te kon wees.* (Brink 2005:35)  
 coincidence to can-PRET be  
 “In the end it simply happened too often to have been coincidence.”
- (9) *die twee families moes mekaar goed verstaan het*  
 the two families must-PRET each.other well understand-PP have  
*om so saam te wou bly* (Haasbroek 2001: 108)  
 thus together to want.to-PRET live  
 “The two families must have understood each other well to have wanted to live together like that.”
- (10) *sodat hulle op baie plekke moes vestig om spoedig maar weer*  
 so.that they on many places must-PRET settle soon but again  
*te moes versit* (Bakkes 2005:99)  
 to must-PRET move.on  
 “so that they had to settle in many places only to have to move on again after a short while”

In (11), the preterite form *kon* is the only mark of the past tense.

- (11) *Om so saam te kon bly, is 'n voorreg.*  
 thus together to can-PRET stay is a privilege  
 “To be able to live together like that is a privilege.”

This represents a gain in economy vis-à-vis Dutch, where the perfect would be required, viz. Dutch *te hebben kunnen wonen*.

Even the preterite *dog* (past participle *gedog*) from *dink* “think”, with a connotation of “to think mistakenly”, sporadically appears in an “infinitival” context, e.g.:

- (12) *Dis net ons spulletjie wat dom genoeg was om te dog*  
 it.is only our little.lot that stupid enough is-PRET to think-PRET

*'n gesellige vuur is 'n onmisbare deel van enige*  
 a companionable fire is an essential part of any  
*buitelugvakansie.* (Van der Vyver 2004: 205)  
 open.air.holiday  
 "It is only our little lot who were stupid enough to have entertained the idea  
 that a companionable fire was an essential part of any open air holiday."

### 3.3 Preterite agreement after *het*

Preterite modals also occur in verb clusters consisting of *het + sou/moes/kon/wou +* basic verb, in a construction which has become atrophied, is limited to main clauses and only forms part of the competence of a restricted set of speakers (Ponelis 1993: 438 refers to it as "recessive"). The first example below is from 1879 and has *had* "had" as finite verb:

- (13) *Wat 'n besorgdheid had jy myn huisgesin kon*  
 what an anxiety have-PRET you my family can-PRET  
*bespaar.* (Waarzegger 1879: 92)  
 save.from  
 "What an anxiety you could have saved my family from."
- (14) *Sedert dié dag het jong Abraham nie weer 'n verstaanbare*  
 since that day have young Abraham not again a comprehensible  
*sin kon sê nie.* (Winterbach 2002: 13)  
 sentence can-PRET say not  
 "Since that day young Abraham was not able to utter one comprehensible  
 sentence."
- (15) *en so het die inwoners hulleself moes*  
 and so have the inhabitants themselves have.to-PRET  
*tuismaak* (Nataniël 2001: 153)  
 at.home.make  
 "and so the inhabitants had to make themselves at home"

Thus we may observe that new semantic contrasts can be expressed and greater economy of expression achieved through employing preterites in contexts previously reserved for the infinitive. In as far as the preterite, a synthetic verb form, is employed in new contexts and put to new uses in the Afrikaans verb cluster, movement in a synthetic rather than analytic direction is in evidence.

It has already been suggested above that there is a relationship between modal verbs and what has been referred to as the "perfect". Next we will have a look at the auxiliaries in the Afrikaans verb system, and afterwards focus on the auxiliary *het* in particular.

#### 4. Afrikaans auxiliary verbs

The three auxiliaries most commonly used in Afrikaans verb clusters are *word* “become”, *wees* “be” and *het* “have”. After the loss of agreement in person and number on finite verbs during the early 18th century and the subsequent loss of the distinction between finite forms and infinitives, only these auxiliaries (apart from a few athematic verbs) maintained something of a distinction between finite form and infinitive.

By the end of the 19th century *worde* or *worre* “become” (Dutch *worden*) was still written in contexts calling for an infinitive (as against *word* elsewhere), e.g.

- (16) *om dit te doen sonder opgemerk te worde* (Du Toit 1898:66)  
 in.order this to do without notice-PP to become  
 “in order to do this without being noticed”

This distinction was soon to disappear in favor of *word* (past participle *geword*), as was the preterite form *werd*.

As far as the verb “be” is concerned, the form *wees* “be” – cf. Dutch *wezen*, an informal copular variant of *zijn* – serves as the infinitive of the copula and auxiliary. *Wees* is the imperative in both Dutch and Afrikaans. The Dutch present 3rd person singular, *is*, has been generalized to all persons and numbers, and *was*, the Dutch preterite singular, to the plural as well. The infinitive *wees* appears in all contexts where Dutch *zijn* would have been appropriate, and has even found new exhortative or subjunctive-like applications in what may be recent instances of exaptation:

- (17) *Maar kom ons wees nou nie morbied nie.* (Greeff 2002:319)  
 but come we be now not morbid not  
 “But let’s not be morbid now.”
- (18) *Moenie dat sekularisasie al eerbare uitweg vir*  
 must.not that secularization only honorable way.out to  
*denkendes wees* (caption in *Beeld*, 21/2/02)  
 thinking.people be  
 “Don’t let secularization be the only honorable alternative to intellectuals.”

The Afrikaans infinitive *hê* “have” which derives via *hewwe* (cf. Dutch *hebben*) is only employed as infinitive of the main verb; *het* is used elsewhere. An asymmetrical paradigm with *het* as the unmarked member is the result:

|             | Main verb  | Auxiliary  |
|-------------|------------|------------|
| Infinitive  | <i>hê</i>  | <i>het</i> |
| Finite form | <i>het</i> |            |

Though *hê* is encountered as imperative, Van Schoor (1983:142) describes it as being uncommon. (*Het* is never used in this function.)

## 5. The auxiliary *het* “have”

In the course of the 19th century, when the first attempts were being made to express the vernacular in written form, *het* replaced other finite forms of the Dutch auxiliary *hebben* “have” as well as *hebben/hewwe/ hê* as infinitive of the auxiliary (§5.1 below). The increase in *het*’s functional load (§5.2) gave rise to a token frequency surpassing that of all other auxiliaries. Structural changes the verb cluster has undergone caused *het* to become a clitic (§5.3). Let us first of all look at the diachronic development of *het*.

### 5.1 *Het* substituted for infinitive

In the course of the 19th century *het* replaced the infinitive in verb clusters containing modal verbs and ending in past participle + “have”, which was becoming established as the only permissible order in clause-final verb clusters. In his study of the syntax of the 17th century diary of Jan van Riebeeck, first commander of the Dutch East India Company at the Cape, Verhage (1952:59) points out that in final verb clusters Van Riebeeck preferred auxiliaries such as *worden* “become” and *hebben* “have” in final position, e.g.:

- (19) *den steenoven, die wij laten metselen hebben*  
 the brick-kiln that we let build have  
 “the brick-kiln, which we have had constructed”

This order, also exemplified in *die ik u laten zien heb* “that I have showed you”, is still common in the spoken variant of present-day central and southern Dutch (Stroop 1983:259).

The appearance of verbal strings containing modal verbs and final *het* – therefore with two former finite forms in the same cluster – is exemplified by alternations such as the following in a lengthy letter written to a newspaper in 1851 by one Field Cornet Bezuidenhout (in Nienaber 1971:171–174):

|                          |                                            |
|--------------------------|--------------------------------------------|
| <i>mag gezeg het</i>     | <i>zal geleest hebbe, ... gedink hebbe</i> |
| may say-PP have-fin      | will read-PP have-INF think-PP have-INF    |
| <i>moet gezien het</i>   | <i>zou geschreef hebbe</i>                 |
| must see-PP have-fin     | will-PRET write-PP have-INF                |
| <i>kon gewees het</i>    | <i>zou geneem hebbe</i>                    |
| can-PRET be-PP have-fin  | will-PRET take-PP have-INF                 |
| <i>zou gewees het</i>    | <i>zou gevra hebben</i>                    |
| will-PRET be-PP have-fin | will-PRET ask-PP have-INF                  |

Slightly earlier examples, in texts reproduced by Nienaber (1971), are:

- (20) *ons moet maar geluister het* (1844) (p. 89)  
 we shall but listen-PP have  
 “We should only have listened.”
- (21) *jy moet tog zyn gezig gezien het* (1846) (p. 118)  
 you shall his face see-PP have  
 “You should have seen his face.”
- (22) *dan zou hy netter geschiet het* (1850) (p. 169)  
 then will-PRET he more.accurately shoot-PP have  
 “then he would have shot more accurately”

A hypercorrect version from 1861 has *heeft* instead of *hebben* (Nienaber 1982:68):

- (23) *gy moet zekerlyk gedag heeft dat hy...*  
 you must certainly think-PP have-PRES that he  
 “you must certainly have thought that he ...”

## 5.2 *Het*'s increase in functional load

Structurally and functionally *het* extended its functions or adopted new functions in the course of the 18th and 19th centuries. The following may be mentioned:

- As was the case in English, verbs expressing change or movement from one place to another no longer selected “be” as auxiliary, but only “have”, *in casu het*. *Het* was thus also selected for the past participles of the other auxiliaries, *wees* and *word*, and would therefore always be the final auxiliary in any verbal cluster in which it appeared.
- The functional deficiency caused by the loss of the preterite as synthetic tense form during the 19th century was made good, *inter alia*, by an increased use of the perfect as tense form – where *het* is the auxiliary par excellence in the active voice. (Loubser 1961 shows how the perfect gradually increased its scope to express the simple past.)
- The across-the-board regularization of weak and, in particular, strong past participles in purely verbal function to *ge-* + verb base, e.g. Dutch *gebroken* “broken”, Afrikaans *gebreek*, for the verb *breek*, rendered the perfect a convenient replacement of the preterite in everyday speech.
- As a result of the loss of *had* as preterite form (except in literary usage) the explicit pluperfect, formed by *had* + past participle, was lost. It is generally replaced by *het* + past participle.

The increase in the functional load of *het* is probably the reason why its token frequency exceeds that of the other auxiliaries, such as *word* “become” and *is* “is”/was “was”, by far. This is evident, for example, in a frequency count based on three corpora of late 20th century Afrikaans (Kroes 1982):



| Afr. auxiliary verb          | Main Corpus       | SABC Corpus       | Spontaneous Corpus |
|------------------------------|-------------------|-------------------|--------------------|
| <i>het</i>                   | 7229              | 1391              | 1146               |
| <i>is, was</i>               | 466               | 87**              | 35                 |
| <i>word</i>                  | 791*              | 125*              | 63*                |
| <i>het</i> / all auxiliaries | 7229/ 8486<br>85% | 1391/ 1603<br>87% | 1146/ 1244<br>92%  |

\*Includes copulas.

\*\*Figures for copula and aux. interchanged in data list.

### 5.3 *Het* as clitic

As an auxiliary, Afrikaans *het* behaves idiosyncratically in comparison not only to other Afrikaans auxiliaries, but also auxiliaries in other Germanic languages. Four of its characteristics may be singled out:

(a) As already mentioned, while *hê* is available as infinitive form, it is only employed as such in the case of the relatively infrequent main verb and not as infinitive of the auxiliary.

(b) When the verbal particle *te* “to” is followed by the auxiliary *het*, the past participle associated with *het* obligatorily intervenes, creating a sequence not found with other verbs or in Dutch – schematically:

|               |                         |                |                                |                    |
|---------------|-------------------------|----------------|--------------------------------|--------------------|
| (24)          |                         |                |                                |                    |
| Du. copula:   | <i>ziek te worden</i>   | Afr. copula:   | <i>om siek te word</i>         | “to become ill”    |
| Du. aux.:     | <i>gezien te worden</i> | Afr. aux.:     | <i>om gesien te word</i>       | “to be seen”       |
| Du. copula:   | <i>gezond te zijn</i>   | Afr. copula:   | <i>om gesond te wees</i>       | “to be healthy”    |
| Du. main vb.: | <i>af te hebben</i>     | Afr. main vb.: | <i>om klaar te hê</i>          | “to have finished” |
| Du. aux.:     | <i>gezien te hebben</i> | Afr. aux.:     | <u><i>om te gesien het</i></u> | “to have seen”     |

(c) Scholtz (1963: 164) comments on the inseparability of what he refers to as a “past infinitive”. *Het* never allows an adjacent past participle to scramble away from it, while the scrambling of past participles is possible with all other governing auxiliaries (and in Dutch with all auxiliaries). In (25) *gezien/gesien* “seen” is the past participle.

|      |                                       |                                   |                               |
|------|---------------------------------------|-----------------------------------|-------------------------------|
| (25) | Du. <i>om gezien te willen worden</i> | Afr. <i>om gesien te wil word</i> |                               |
|      | Du. <i>om gezien te willen zijn</i>   | Afr. <i>om gesien te wil wees</i> |                               |
|      | Du. <i>om gezien te willen hebben</i> | Afr. <i>om gesien te wil hê</i> – | * <i>om gesien te wil het</i> |
|      |                                       | but:                              | <i>om te wil gesien het</i>   |

To quote example (3) again, note that only *oopgebreek* may move to the left – the position of *gewees* is fixed.

|      |                                                          |                           |
|------|----------------------------------------------------------|---------------------------|
| (26) | <i>Totdat dit wat oopgebreek kon gewees het,</i>         |                           |
|      | until that which open.break-PP can-PRET be-PP have       |                           |
|      | <i>verdroog</i>                                          | (Murray-Theron 2001: 121) |
|      | dry.up                                                   |                           |
|      | “Until that which could have been broken open, withers.” |                           |

In contrast, there is no constraint on scrambling with *hê*:

- (27) *dan sorg jy tog dat hulle net sien wat jy gesien wil*  
 then make.sure you that they only see what you see-PP want.to  
*hê* (Brink 1998:236)  
 have  
 “then you see to it that they only see what you want seen”

The contrast between *om iets gedoen te hê* and *om iets te gedoen het* forms a parallel with English *to have something done* and *to have done something* – the first past participle being adjectival and the second verbal, in both cases. The difference between Dutch *om iets gedaan te hebben* and *om iets te hebben gedaan* is mainly stylistic in nature, though the second has the more verbal interpretation. De Sutter et al. (2005) attribute the variation between past participle + auxiliary and auxiliary + past participle in Dutch to factors such as spoken vs written language, presence vs absence of personal interaction and editorial control, the region, etc., rather than to a semantic difference.

(d) While the past participle of “have” always associated with *het* is the irregular form *gehad*, the form of the past participle associated with *word* “become” – almost exclusively in evidence in the verb *liefhê* “love” – is *-gehê*, suggesting that *hê* is perceived to be the basic form of the main verb. This is corroborated by exhortative utterances such as the following from the spoken language:

- (28) *Kom hê lekker pret saam met die Stranddienste!*  
 come have good fun together with the beach.services  
 “Come and have good fun with the Beach Services!”
- (29) *Kom ons leef; kom ons hê lief.*  
 come we live come we have dear  
 “Let us live; let us love.”

The following are examples with *-gehê* (see also Ponelis 1993:420):

- (30) *Solank mens bereid is om te aanvaar dat die paradys nodig*  
 as.long.as one prepared is to accept that the paradise necessary  
*is – maar dat dit nooit gehê kan word nie.* (Brink 2004:199)  
 is but that it never have-PP can become not  
 “As long as one is prepared to accept that paradise is necessary – but that it can never be had.”
- (31) *Onsterflikheid beteken om liefgehê te word deur baie*  
 immortality mean dear.have-PP to become by many  
*naamlose mense.*  
 nameless people  
 (attributed to Sigmund Freud, translated in *Rapport*, 28/6/98)  
 “Immortality means to be loved by many nameless people.”

- (32) *Die geskiedenis moet liefgehê word, sê Roodt. (Beeld, 10/3/01)*  
 the history should dear.have-PP become say Roodt  
 “History should be loved, says Roodt.”

This seems to suggest that the irregular form *gehad* is maintained through its juxtaposition with *het* before *het* is moved to V1/2 in main clauses – where *het ... gehad* is found.

These idiosyncrasies are easily captured by the assumption that a past participle + *het* string is formed from a verbal base only after the derivation of the sentence – including the placement of *te*, the licensing of *wees/is/was* and *hê*, and scrambling – has been completed, but before verbs are moved to V1 or V2. If past participles are created to the left of auxiliaries, as can be assumed for Afrikaans, an unmarked *het* will be able to create an irregular past participle – to the right of *te*, if this particle is present – which will not be able to scramble to the left.

From a morphological point of view, *het* may be considered to be at least a clitic and perhaps a suffix in the making. (Its suffixal nature is corroborated by non-standard varieties of Afrikaans in which the past participle of *hê* + *het* is rendered as [xəhɛ:rət], sometimes with a duplicated *het* in V2.) Zwicky characterizes clitics as being “obligatorily adjacent to ... their host constituent” (1994:574), which among auxiliaries is only true of *het*. Furthermore, clitics are “words from the syntactic point of view but form morphological, and therefore phonological, units with adjacent syntactic words” (575) *Het* is frequently reduced to [ət], as in *geland het* “has landed” as [xəlantət], while the *e* in *landswet* “law of the land”, also with main stress on *land*, cannot be reduced to schwa. (The only other verb that is subject to phonological reduction, is the auxiliary and copula *is*.)

The morphological status of *het* as on the one hand a full word and on the other a clitic/suffix, does not seem to be problematical. The definite article in the Scandinavian languages forms a close parallel. While it typically appears as a clitic after the noun in Old Norse and as a suffix in modern Norwegian, it may still appear as an independent article at the beginning of the noun phrase containing an adjective in both varieties (Faarlund 2004:57–58). *Het*, however, differs from the Norse article in as far as cliticization/affixing is not as rigidly determined by syntax: on the one hand, *het* – perhaps because of the writing tradition – may at all times receive its full pronunciation as [het]; on the other hand, it may (e.g. in V2) also be affixed to a preceding non-participial constituent, e.g. *Hy’t gister ...* “He ... yesterday”, *Gister’ət hy ...* “Yesterday, he ...”

The author Ferdinand Deist (1988:77), in his dialectally tinted stories from the Sandveld area to the north of Cape Town, often explicitly represents enclitic *het* as ’t:

- (33) *Innie koshuis waar ons kleintyd gebly’t, wassit Hansie se*  
 in.the residence where we small.time stay-PP.have was.it Hansie’s  
*werk gewees om Woensdae en Saterdag die donkie te*  
 work be-PP Wednesday-PL and Saturday-PL the boiler to

*gestook't solat die seunskinders kan gebad't as hulle*  
 fire-PP.have so.that the boys.children can bath-PP.have when they  
*vannie sportsoefeninge ennie wedstryde af gekom't.*  
 from.the sports.exercise-PL and.the match-PL from come-PP.have  
 “In the residence where we stayed in our youth it was Hansie’s job to fire the boiler on Wednesdays and Saturdays so that the boys could take a bath when they came from sports practice and matches.”

Phonologically, this would be a fair representation of the standard language as well. To take a very early example, *geweest* in the verbal string *sou siek geweest* in a letter from 1812 is construed by Van Oordt (1952, no.224) as containing an enclitic *het*:

- (34) *seijn vrouw sou siek geweesst* (sic)  
 Du. zijn vrouw zou ziek geweest hebben/zijn  
 his wife will-PRET ill be-PP have  
 “his wife would have been ill”

While *geweesst* may represent the Dutch past participle *geweest* with the auxiliary omitted, several instances of the apocope of *t* in the letter (e.g. *heef*, *koms*, *dag* (for *dacht*) and *moes*) render an interpretation of *gewees het* more likely.

## 6. Deflection and the Afrikaans verb cluster

As a result of the loss of the distinction between finite and infinitive functions during the development of the language, previously finite forms such as preterite modals and the auxiliary *het* – a clitic on its way to becoming a suffix – seem to appear in positions in the verb cluster reserved for infinitive forms in the Dutch cluster, as in *sou kon gesing het* “would have been able to sing” (Dutch *zou hebben kunnen zingen*) and *om te kon sing* “to have been able to sing” (Dutch *om te hebben kunnen zingen*). This utilization of old inflectional material (such as the modal preterites) for new purposes and the creation of new morphological units out of separate words (such as past participle + *het*) – a movement in the synthetic rather than analytic direction – represent new ways of organizing complex verb clusters as well gains in cohesion and economy.

The use of a previously finite form is only inhibited by the availability of an infinitive, *in casu wees* and *hê*. Therefore, *\*beroemd wil is* “want to be famous”, *\*iets klaar moet het* “must have something finished”, *\*om beroemd te was* “to have been famous” and *\*om iets klaar te het* “to have something finished” are blocked in the standard language. However, though the marked infinitives *hê* and *wees* have dropped out of some non-standard varieties of the language, they seem to be assuming new functions in the standard language – another instance of the reutilization of inflectional, i.e. synthetic, material.

Not only have finite and infinitive forms become interchangeable (except when blocked by the vestiges of infinitive marking), but synthetic and analytic structures as

well, if one considers past participle + *het* in a structure such as *om te gesing het* “to have sung” as the replacement of an infinitive, and *kon sing* × *kan gesing het* “was able to sing” as functional equivalents in past tense marking.

In sum: Against the background of the fixation of order in the Afrikaans verbal cluster as modals + lexical verbs + auxiliaries, a more flexible system has arisen enabling the speaker to handle complex verbal clusters with ease, rendered more economical by new applications of the preterite in the modals (a form of exaptation, and representing a movement in the synthetic direction). While certain functional distinctions, such as that between the perfect and the pluperfect, and that between realis and irrealis, have been lost as a result of deflection (*in casu* the disappearance of *had* as preterite of the auxiliary), others have been gained – the relative value of which is difficult to assess. Employing only two marked infinitive types is taxing to speakers; production errors are made by speakers of the standard language (replacing *hê* by *het*, in particular), and *hê* and *wees* have been eliminated from certain varieties of Afrikaans. In as far as these varieties may in the future have a greater impact on the standard because of the changing sociolinguistic dynamics of the new South Africa, an even more streamlined and versatile verb cluster may result.

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# Demonstrative paradigm splitting in the Pilbara languages of Western Australia\*

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## 1. Introduction

This paper compares forms of mid-distal demonstratives and third person singular pronouns across a set of 18 languages of the Pilbara and Western Desert regions of Western Australia. Comparison allows reconstruction of a simple paradigm of case-inflected stems. However, the histories of these forms across the region are particularly varied and include the splitting of the original paradigm into as many as three distinct paradigms. An original accusative is retained as the stem for a simple mid-distal demonstrative, original ergative and genitive stems form the basis for a new third person singular pronoun paradigm, and an original locative stem may also develop a distinct paradigm, or paradigms, of demonstrative forms.<sup>1</sup> The paper summarizes the reconstruction, describes these historical developments and seeks to explain how, from their original functions, different case forms came to be grammaticalized as lexical items with different pragmatic functions.

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1. In some languages, members of the original paradigm may surface as non-inflecting particles with a range of functions. I do not discuss this here, given space limitations.



Comparison of pronoun and demonstrative systems in the languages of the Pilbara region<sup>2</sup> yields a reconstruction of the following general shape – a paradigm of pronouns with three persons (with an inclusive/exclusive distinction for non-singular first persons), three numbers (singular, dual and plural) but with a gap in the third person singular (Dench 1994). The functions of a third person singular pronoun (3SG) may be carried by the demonstrative system, and in those languages having a distinct 3SG the form is related to a more widespread mid-distal demonstrative. The range of forms and functions suggests that the modern 3SG forms developed from the mid-distal rather than vice versa, and this paper discusses this evolution. The paper leaves open the question of whether the original pronoun paradigm had a distinct 3SG form.

Beyond the immediate concerns of the reconstruction of the morphological systems of the languages in question, the paper addresses some general methodological points. The reconstruction of demonstrative systems presents special problems in comparison with the reconstruction of pronoun systems, despite the fact that the two are often, as is illustrated here, closely connected. The categories of pronoun systems (person, number, etc.) remain relatively stable and allow that reconstructions of such systems can in practice rely on what is essentially a comparison of forms. Demonstrative categories are more flexible. For example, the basic contrast in three term systems may be characterized as distance-based or person-based, subsets of forms within demonstrative paradigms may have specialized endophoric functions in addition to primary exophoric functions, and the categorial status of particular forms as pronominal, adjectival or adverbial may be variable. A detailed comparative reconstruction of the history of demonstrative systems within a group of languages should ideally recognise the potential for complex shifts in the meaning and function of forms and sets of forms. But this is especially difficult, if not impossible, in cases where the languages are no longer in use or the documented materials do not include the kinds of texts that would allow a characterization of the discourse functions of different forms. For many of the languages of Australia, we are faced with exactly this problem. Not surprisingly, pronoun reconstructions figure prominently in the comparison (and classification) of Australian languages, but by contrast there are very few comparative discussions of demonstrative systems.

Where detailed reconstruction of the semantics and pragmatics of demonstratives is made difficult by the paucity of data or clear description, an alternative approach to the problem is to consider, more generally, the semantic/pragmatic functions of different forms and generate hypotheses from there. For the specific example described in this paper, hypotheses are made about the original syntactic-pragmatic functions of different case-inflected forms of a mid-distal demonstrative. That is, a general typological understanding of case systems and of demonstrative functions guides the comparative reconstruction.

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2. For a discussion of language relationships within the Pilbara region and a summary of the historical changes affecting these languages see Dench (2001). For discussion of language classification in this area, and more generally in Australia, see Koch (2004) and Dixon (2002).

This approach is combined with the mapping of possible paths of development for inflected forms in the different paradigms across the set of languages. That is, the reconstruction makes judicious use of Occam's Razor. Paths of paradigm development are proposed which favour the fewest historical steps and the simplest changes in form.

The paper is organized as follows. First, reconstructions of the distal and proximal demonstratives are summarized before a consideration of the range of mid-distal and 3SG forms. Comparison with the distal and proximal forms suggests the reconstruction of an original mid-distal demonstrative paradigm. The reconstruction of a single paradigm allows the investigation of clear splits in this original paradigm, and the remainder of the paper describes these and suggests paths of development.

## 2. A reconstruction of the distal and proximal demonstratives

Demonstratives systems in the Pilbara and Western Desert languages minimally involve two terms, a distal and proximal, while some languages have a third, 'mid-distal' term. Descriptions of the languages vary on whether they describe the three-term systems as distance-based (proximal, distal, mid) or person-based (near speaker, near addressee, not near). In discussion here, the label 'mid-distal' is used for the third term regardless of the ultimate semantic basis of the system. Demonstratives may have a range of functions in these languages. Some languages make a formal distinction between pronominal demonstrative forms ("this", "that") and adverbial demonstratives ("here", "there"), while others employ locative case forms of the otherwise pronominal demonstratives in adverbial functions. In all languages the pronominal demonstrative forms are used in both adnominal and pronominal functions, though the frequency of use of particular forms in these two functions varies both within and across languages. This paper restricts discussion to the pronominal forms only. Like other nominals in these languages, the pronominal demonstratives inflect for case and for number. In languages with a nominal based split-ergative case marking pattern the demonstratives typically pattern with nominals rather than with pronouns.

Table 1 presents the forms of the distal in a representative selection of the languages showing case syncretisms within the different languages. The last row of the table presents a summary reconstruction of the distal paradigm. At this stage it is not useful to speculate on the level within any group of languages at which this reconstruction might be situated.

The general changes affecting the distal include; the leveling of the paradigm on the nominative stem (Ngarla, Nyamal, Nyiyaparli, Panyjima and Nyangumarta), the innovation of a distinct accusative form based on the nominative (Thalanyji, Payungu, Purduna), and a general alignment shift to nominative-accusative in Panyjima, Yindjibarndi, Ngarluma and Martuthunira resulting in the syncretism of accusative and original dative, and the restriction of the old ergative form to the marking of agents in passive clauses (Dench 1982, 2001). The Nyangumarta nominative stem, *ngurnungu*,

Table 1. Comparison and reconstruction of distal demonstrative forms<sup>3</sup>

|              | (*)Ergative         | Nominative       | Accusative       | Dative/Oblique      | Locative           |
|--------------|---------------------|------------------|------------------|---------------------|--------------------|
| Ngarla       | <i>ngunyi-ngku</i>  | <i>ngunyi</i>    |                  | <i>ngunyi-rra</i>   | <i>ngunyi-ngka</i> |
| Nyamal       | <i>ngunya-ngku</i>  | <i>ngunya</i>    |                  | <i>ngunya-yu</i>    | <i>ngunya-ngka</i> |
| Niyiyaparli  | <i>ngunya-ngku</i>  | <i>ngunya</i>    |                  | <i>ngunya-yu</i>    | <i>ngunya-ngka</i> |
| Panyjima     | <i>ngunha-ngku</i>  | <i>ngunha</i>    | <i>ngunha-yu</i> |                     | <i>ngunha-ngka</i> |
| Ngarluma     | –                   | <i>ngunhu</i>    | <i>ngurna</i>    |                     | <i>ngula(ngka)</i> |
| Yindjibarndi | <i>ngulu</i>        | <i>ngunhu</i>    | <i>ngurnu</i>    |                     | <i>ngula</i>       |
| Martuthunira | <i>ngulu</i>        | <i>ngunhu</i>    | <i>ngurnu</i>    |                     | <i>ngula</i>       |
| Thalanyji    | <i>ngulu</i>        | <i>ngunha</i>    | <i>ngunhanha</i> | <i>ngurnu</i>       | <i>ngula</i>       |
| Payungu      | <i>ngulu</i>        | <i>ngunha</i>    | <i>ngunhanha</i> | <i>ngurnu</i>       | <i>ngula</i>       |
| Jiwarli      | <i>ngulu</i>        | <i>ngunha</i>    |                  | <i>ngurnu</i>       | <i>ngula</i>       |
| Nyangumarta  | <i>ngurnungu-lu</i> | <i>ngurnungu</i> |                  | <i>ngurnungu-ku</i> | –                  |
| W. Desert    | <i>nyarra-ngku</i>  | <i>nyarra</i>    |                  | <i>nyarra-ku</i>    | <i>nyarra-ngka</i> |
|              | *ngulu              | *ngunha          |                  | *ngurnu             | *ngula             |

is most likely a reanalysed locative (cf. the locative proximal, *nyungungu*) ultimately built on the dative/oblique stem, \*ngurnu-. The Western Desert distal is not related.

Table 2 presents the forms of the proximal, again with a proposed reconstruction. There is clearly much greater variation in the forms of the proximal than of the distal, and the reconstruction cannot be defended in detail here. The general changes of levelling and alignment already noted in relation to the distal also affect the proximal.

The greater variation is more a result of changes involving remodelling of the nominative/accusative stem. There appear to be (at least) two roots represented in the different paradigms. The first of these, a monosyllabic root with an initial laminal nasal (*nhV-*) appears in 12 of the 18 languages compared here. A second root, *yi-* or *yu-*, occurs in six languages. Both roots are present in Thalanyji and Martuthunira. The Yingkarta root, *thii-*, is likely to be related to a demonstrative *jii-* occurring in western dialects of the Western Desert language and which exists alongside the proximal, *ngaa*, identified in Table 2. It is possible that the *yi-* forms are also related to this. Alternatively, the *yi-* forms, in particular the *yinha* nominative(/accusative), arise from a clipping of an innovated accusative, \*nhayinha, and subsequent analogical changes within the paradigm.

Whether or not two proximal roots should be reconstructed is not critical for the argument here. More important is the range of inflected forms. Forms involving both apparent monosyllabic roots show evidence of case formatives that are consistent with the reconstructed forms of the distal: *-lu*, ergative; *-rnu*, dative/oblique; *-la*, locative; and *-nha* accusative. This serves as a basis for comparison of mid-distal and 3sg forms.

3. The sources for the languages are not listed separately here but are included in the references list.

Table 2. Comparison and reconstruction of proximal demonstrative forms

|                 | (*)Ergative        | Nominative    | Accusative       | Dative/Oblique   | Locative            |
|-----------------|--------------------|---------------|------------------|------------------|---------------------|
| Ngarla          | <i>nyayi-ngku</i>  | <i>nyayi</i>  |                  | <i>nyayi-rra</i> | <i>nyayi-ngka</i>   |
| Nyamal          | <i>nyaa-ngku</i>   | <i>nyaa</i>   |                  | <i>nyaa-yu</i>   | <i>nyaa-ngka</i>    |
| Niyiyaparli     | <i>nyiya-ngku</i>  | <i>nyiya</i>  |                  | <i>nyiya-yu</i>  | <i>nyiya-ngka</i>   |
| Panyjima        | <i>nyiya-ngku</i>  | <i>nyiya</i>  | <i>nyiya-yu</i>  |                  | <i>nyiya-ngka</i>   |
| Yinhawangka     | <i>nhanha-ngku</i> | <i>nhanha</i> | <i>nhanha-yu</i> |                  | ?                   |
| Ngarluma        | –                  | <i>nhurtu</i> | <i>nhurna</i>    |                  | <i>nhula</i>        |
| Yindjibarndi    | <i>nhulu</i>       | <i>nhaa</i>   | <i>nhurnu</i>    |                  | <i>nhula</i>        |
| Martuthunira    | <i>yilu</i>        | <i>nhiyu</i>  | <i>yirna</i>     |                  | <i>yila-</i>        |
| Thalanyji       | <i>yulu</i>        | <i>nhaa</i>   | <i>yinhanha</i>  | <i>yurnu</i>     | <i>yula</i>         |
| Payungu         | <i>yulu</i>        | <i>yinha</i>  | <i>yinhanha</i>  | <i>yurnu</i>     | <i>yula</i>         |
| Jiwarli         | <i>yulu</i>        | <i>yinha</i>  | <i>yurnu</i>     | <i>yula</i>      |                     |
| Yingkarta       | <i>thiilu</i>      | <i>thinha</i> | <i>thinhanha</i> | <i>thinhawu</i>  | <i>thiila</i>       |
| Wajarri         | <i>nhanha</i>      |               | <i>nhanhanha</i> | <i>nhanha-wu</i> | <i>nhanha-wu-la</i> |
| Nyangumarta     | <i>nyungu-lu</i>   | <i>nyungu</i> |                  | <i>nyungu-ku</i> | <i>nyungu-ngu</i>   |
| Yankunytjatjara | <i>nyanga-ngku</i> | <i>nyanga</i> |                  | <i>nyanga-ku</i> | <i>nyanga-ngka</i>  |
| Mantjiltjara    | <i>ngaa-lu</i>     | <i>ngaa</i>   |                  | <i>ngaa-ku</i>   | <i>ngaa-ngka</i>    |
|                 | *nhulu             | *nhayi        |                  | *nhurnu          | *nhula              |

### 3. Reconstructing the mid-distal demonstrative

Mid-distal demonstratives across the range of languages usually involve forms based on an apparent monosyllabic root, *pa-*.<sup>4</sup> As noted earlier, the mid-distal demonstrative forms bear clear resemblances to the third person singular pronouns in those western languages that have a distinct third person singular pronoun. Western Desert varieties have a particular form, *palu*, functioning sometimes like a demonstrative though inflecting like a pronoun, and described by different authors as a 3SG (Trudinger 1943), as a ‘definite nominal’ (Goddard 1985), or simply listed as a member of a larger combined set of pronouns and demonstratives. Marsh (1976:71) for example, describes the Mantjiltjara form as follows: “The demonstrative *palu* is a very general term and is non-committal in regard to distance. It is glossed with the pronominal referents ‘he/she/it’”. In keeping with Goddard’s more detailed description of the Yankunytjatjara dialect, I will refer to the Western Desert *palu* form as a ‘definite nominal’ here. Table 3 lists the range of forms based on *pa-*. The second column shows the categorial status of the paradigm of forms identified in the original source; demonstrative (DEM), 3SG, or ‘definite nominal’ (DEFN).

Comparison between the set of forms in Table 3 and the reconstructed distal and proximal paradigms yields the reconstruction in Table 4. The mid-distal shows a much

4. In a number of languages there are demonstratives in *pa-* that are not immediately characterisable as ‘mid-distals’ in contrast to proximals and distals. It is assumed here that these have the ‘mid-distal’ as their source.

Table 3. Comparison of demonstrative and 3SG forms built on \*pa-

|                 | (*)Ergative              | Nominative         | Accusative         | Dative,<br>(Genitive)               | Locative               |
|-----------------|--------------------------|--------------------|--------------------|-------------------------------------|------------------------|
| Yankunytjatjara | DEFN <i>paluru</i>       | <i>paluru</i>      | <i>palunya</i>     | <i>palumpa</i>                      | <i>palula</i>          |
|                 | DEM <i>panya-ngku</i>    | <i>panya</i>       | <i>panya</i>       | <i>panya-ku</i>                     | <i>panya-ngka</i>      |
|                 | DEM <i>pala-ngku</i>     | <i>pala</i>        | <i>pala</i>        | <i>pala-ku</i>                      | <i>pala-ngka</i>       |
| Mantjiltjarra   | DEM <i>palu-lu</i>       | <i>palu</i>        | <i>palu</i>        | <i>palu-ku</i>                      | <i>palu-ngka</i>       |
|                 | DEM <i>pala-lu</i>       | <i>pala</i>        | <i>pala</i>        | <i>pala-ku</i>                      | <i>pala-ngka</i>       |
| Pintupi         | DEM <i>palunya-lu</i>    | <i>palunya</i>     | <i>palunya</i>     | <i>palunya-ku</i>                   | <i>palunya-ngka</i>    |
|                 | DEM <i>pala-lu</i>       | <i>pala</i>        | <i>pala</i>        | <i>pala-ku</i>                      | <i>pala-ngka</i>       |
|                 | 3SG <i>palu</i>          | <i>palu</i>        | <i>palunha</i>     | <i>palungu</i>                      | <i>palula</i>          |
| Wajarri         | DEM <i>panha</i>         | <i>panha</i>       | <i>panhanha</i>    | <i>panhawu</i>                      | <i>panhawula</i>       |
|                 | DEM <i>pala</i>          | <i>pala</i>        | <i>palanha</i>     | –                                   | –                      |
| Nyangumarta     | 3SG <i>paliny-ju</i>     | <i>paliny</i>      | <i>paliny</i>      | <i>paliny-ku</i>                    | <i>paliny-ja</i>       |
|                 | DEM <i>pala-ngku</i>     | <i>pala(ma)</i>    | <i>pala(ma)</i>    | <i>pala-ku</i>                      | <i>pala-nga</i>        |
| Ngarla          | 3SG <i>palura</i>        | <i>palura</i>      | <i>parnunya</i>    | <i>para,</i><br>( <i>parnunga</i> ) | <i>parnula</i>         |
|                 | DEM <i>palakarni-lu</i>  | <i>palakarni</i>   | <i>palakarni</i>   | <i>palakarni-rra</i>                | <i>palakarni-ngura</i> |
|                 | 3SG <i>palura</i>        | <i>palura</i>      | <i>parnunya</i>    | <i>para,</i><br>( <i>parnunga</i> ) | <i>pulara</i>          |
| Nyamal          | DEM <i>pala-ngku</i>     | <i>pala</i>        | <i>pala</i>        | <i>pala-yu</i>                      | <i>pala-ngka</i>       |
|                 | DEM <i>palangunya-lu</i> | <i>palangunya</i>  | <i>palangunya</i>  | <i>palangunya-ku</i>                | <i>palangunya-la</i>   |
| Niyaparli       | 3SG <i>paluwa-lu</i>     | <i>paluwa</i>      | <i>paluwa</i>      | <i>paluwampa</i>                    | <i>paluwala</i>        |
|                 | DEM <i>palangunya-lu</i> | <i>palangunya</i>  | <i>palangunya</i>  | <i>palangunya-ku</i>                | <i>palangunya-la</i>   |
| Yindjibarndi    | DEM <i>walaartu</i>      | <i>wala</i>        | <i>walaaku</i>     | <i>walaaku</i>                      | <i>walaarta</i>        |
| Ngarluma        | 3SG –                    | <i>palu</i>        | <i>parnumpangu</i> | <i>parnumpangu</i>                  | <i>palula</i>          |
| Jurruru         | 3SG <i>palu</i>          | <i>palu</i>        | <i>palunha</i>     | <i>parnumpa</i>                     | ?                      |
|                 | DEM ?                    | <i>panha</i>       | <i>panha</i>       | ?                                   | ?                      |
| Panyjima        | DEM <i>panha-ngku</i>    | <i>panha</i>       | <i>panha-yu</i>    | <i>panha-yu</i>                     | <i>panha-ngka</i>      |
| Yingkarta       | 3SG <i>pinyilu</i>       | <i>pinya/panya</i> | <i>pinyanha</i>    | <i>pinyawu</i>                      | <i>palawu</i>          |
| Jiwarli         | 3SG <i>panhaluru</i>     | <i>panhalu</i>     | <i>panhalunha</i>  | <i>parnumpa</i>                     | <i>panhalura</i>       |
| Payungu         | 3SG <i>palalu</i>        | <i>panha</i>       | <i>panhanha</i>    | <i>palama</i>                       | <i>palala</i>          |
| Thalanyji       | 3SG <i>palalu</i>        | <i>pala</i>        | <i>palanha</i>     | <i>palama</i>                       | <i>palala</i>          |

Table 4. Reconstructed \*pa- 'mid-distal' stem forms

|                       |        |
|-----------------------|--------|
| Ergative              | *palu  |
| Nominative/Accusative | *panha |
| Dative/Oblique        | *parnu |
| Locative              | *pala  |

greater degree of historical change than occurs for either the proximal or distal demonstratives. There is no language in which the full set of reconstructed forms is reflected in a single modern paradigm. At most, just two of the four reconstructed stems are found in the same paradigm in a modern language. In some languages the original

|                    | *palu | *parnu | *panha | *pala |
|--------------------|-------|--------|--------|-------|
| Yankunytjatjara    | DEFN  | ∅      | DEM    | DEM   |
| Wajarri            | 3SG   |        | DEM    | DEM   |
| Nyiyaparli         | 3SG   | ∅      | ∅      | DEM   |
| Nyangumarta        | 3SG   | ∅      | ∅      | DEM   |
| Ngarla, Nyamal     | 3SG   |        | ∅      | DEM   |
| Ngarluma           | 3SG   |        | ∅      | ∅     |
| Jurruru            | 3SG   |        | DEM    | ?     |
| Panyjima           | ∅     | ∅      | DEM    |       |
| Yindjibarndi       | ∅     | ∅      | ∅      | DEM   |
| Thalanyji          | ∅     | ∅      | ∅      | 3SG   |
| Yingkarta, Payungu | ∅     | ∅      | 3SG    |       |
| Jiwarli            | ∅     | 3SG    |        | ∅     |

Figure 1. Paradigm reflexes of the \*pa- mid-distal

paradigm forms are distributed among 3SG and one or two demonstrative paradigms. A summary of the splits is given in Figure 1.

The clearest split into separate paradigms is found in Yankunytjatjara (Western Desert) and in Wajarri. In Yankunytjatjara, the original ergative/nominative form, \*palu, serves as the stem for the ‘definite nominal’ while the original nominative/accusative, \*panha, is the stem for what Goddard (1985) describes as the ‘anaphoric demonstrative’ and the locative, \*pala, is the stem for the ‘mid-distant’ demonstrative. Though the categories are different, essentially the same patterns hold in Wajarri: The original ergative serves as the stem for the 3SG, the nominative/accusative for the ‘anaphoric’ distal, and the locative for the ‘plain’ distal (Marmion 1996). More generally, where a language has reflexes in more than one paradigm of forms then the original ergative, in some cases together with the genitive, forms the basis for a new 3SG paradigm while the accusative and locative surface as demonstratives.

How did an original paradigm of mid-distal forms split into as many as three distinct paradigms, each with a different function, and why do particular inflected forms occur in particular paradigms? There are a number of ways to proceed towards answers, as discussed in §1. Ideally, the range of functions of the different reflexes in the modern languages should be considered and functions, as well as forms, reconstructed from these. But unfortunately, there is very little detailed information about the functions of the different demonstratives or of the 3SG for the majority of languages in the region. Thus it is possible to make only very limited progress using this approach. Two examples are presented here, using two of the better understood languages of the area, Yankunytjatjara and Nyamal.

Goddard’s (1985) description of Yankunytjatjara is the clearest of the accounts we have of any of the Western Desert varieties. The Yankunytjatjara ‘definite nominal’ *palu(ru)* can be used to modify a pronoun or noun, and Goddard (1985:59) paraphrases its meaning as, “the same X” – the referent of the definite nominal is the same

as one already established in the discourse.<sup>5</sup> Thus the definite nominal relies on established reference and could be understood to make explicit that the information is old and unchanged. By contrast, the ‘anaphoric demonstrative’, *panya*, does not present old information. Goddard writes, “*panya* calls the listener’s attention to the fact that he or she is already familiar with a referent. It is not usually used about things which are fully topical . . . but rather to reintroduce something into the conversation” (1985:54). He notes also that the form may be used clause initially as a ‘presentational particle’, “introducing a proposition that the speaker assumes the listener will readily accept.” The ‘anaphoric demonstrative’ is thus not strictly anaphoric in the same way as is the definite nominal. The information is retrievable, and in that sense is not new, but the form does not link as directly to some previously established referent.

Goddard’s description invokes the notion of topicality in distinguishing *panha* from *palu(ru)*. Where *palu(ru)* makes reference to established ‘topics’, *panha* might be seen as relating more directly to new information. In crude terms we can characterise the Yankunytjatjara split as follows: The reflex of the old ergative stem, \**palu*, is most closely associated with clear topics, the reflex of an old nominative/accusative stem, \**panha*, is associated with a new information focus. It is possible that this distinction underlies the more general splits found across the area.

The formal split between 3SG and demonstrative is clearer in Nyamal, though the functional split is not perhaps as clearly drawn as in Yankunytjatjara. The Nyamal 3SG inflects on a nominative-accusative pattern like other pronouns and in contrast to demonstratives and other nominals which inflect on an ergative-absolutive pattern. Pronouns also have distributional tendencies that distinguish them from ordinary nominals: Finite verbs bear suffixes marking the person and number of the subject and while there is no object agreement, non-subject pronouns are typically found in an immediate post-verbal position. Arguments marked by a third person pronoun in this position may also be elaborated in a noun phrase later in the clause. In non-finite verbal and non-verbal clauses, the subject pronoun may immediately follow the predicate. Third person singular subject ‘agreement’ on the verb is zero and the 3SG.NOM pronoun is occasionally found immediately following the verb to emphasise a known referent. The patterns suggest an early step in the grammaticalization of free pronoun forms as bound agreement suffixes to the verb; a pattern that is further advanced in neighbouring Nyangumarta (Sharp 2004).

Nyamal has two separate demonstratives descended from the original mid-distal paradigm, both built on the original locative stem. The ‘definite demonstrative’, *pala*, is used to denote a referent that has already been identified in the discourse and which the speaker assumes the addressee has in mind. The ‘near you’ form, *palangunha*, is used to indicate something that the speaker assumes the addressee is able to identify but which the speaker is not necessarily able to identify themselves. That is, the referent

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5. Goddard also notes (1985:60) that the form *palu* (identical to the bare stem of definite nominal) is used as a clause-initial particle which signals that the proposition expressed by the clause “is regarded as already established.” He glosses the particle as “but of course”.

is specific from the addressee's point of view, but not from the speaker's. It is likely that the 'near you' form is built on an old mid-distal adverbial demonstrative, \*palangu (which survives in Panyjima). Thus the original sense for the 'near you' form may have been something like, "that one there near you". This development suggests the possibility of a similar, earlier, history for the 'definite demonstrative', *pala*. The originally locative form, used as an adverbial modifier ("there near you") was ultimately reanalysed as a pronominal demonstrative stem ("that there near you") with its own inflectional paradigm. The reanalysis of an adverbial, used as an adnominal modifier, may be the basis for the splitting of the locative stem from the rest of the mid-distal paradigm more generally across languages of the area.<sup>6</sup>

Nyamal demonstratives can function either as modifiers within phrases, in either initial or final position, or as single word phrases. The two demonstratives based on *pala* are more likely to occur as the sole constituent of a phrase (66%) than are the distal (45%) or proximal (41%). In part this may be explained by the different referential properties of the two sets. The proximal and distal do not assume that the addressee can uniquely identify the referent of the term and are thus more likely to occur with additional descriptive information. If the mid-distal, more generally across the languages, was more specifically a 'near addressee' form, then its particular semantics and addressee-focussed pragmatic functions may explain why it, rather than the proximal or distal, develops into a third person pronoun.

We can do little more with the available data and need to consider other approaches to the problem. As noted in §1, one approach is to consider the semantic/pragmatic functions of different case forms, from general typological principles, and use this as a guide in developing specific diachronic hypotheses.

The primary split to be explained is that between a paradigm built on the original ergative form, \*palu, and a paradigm built on the original nominative/accusative, \*panha. The explanation for the split must lie in the more common functions of the original forms. That is, it can be assumed that the two different case forms of an earlier paradigm had different discourse functions and the distinct inflectional forms eventually became lexicalized in these functions, developing new paradigms. For any language in which there is more than one paradigm built from the reconstructed forms of Table 4, that paradigm involving reflexes of the original ergative form, \*palu, is closest to a 3sg. The apparent exceptions, in this set of languages, are the different varieties of the Western Desert language. Yet as we have seen, while the relevant forms are labelled as either demonstratives or as the 'definite nominal', the glosses and range of functions described suggest that these are the closest in function to third person pronouns of any of the set of demonstratives in these varieties. Thus we are looking for an explanation of split that assigns pronoun-like functions to the old ergative.

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6. Recall from earlier discussion (§2) that in Nyangumarta the modern distal stem appears to be a reanalysed locative form.



Table 5. Yingkarta case marking patterns

|     | 1SG   | 1DU   | 1PL   | 2SG   | 3SG   | “this” | “that” | “who” | “what” | nominals |
|-----|-------|-------|-------|-------|-------|--------|--------|-------|--------|----------|
| ERG | NOM   | (ERG) | (ERG) | (ERG) | ERG   | ERG    | ERG    | ERG   | ERG    | (ERG)    |
| NOM | NOM   | NOM   | NOM   | NOM   | NOM   | NOM    | ABS    | ABS   | ABS    | ABS      |
| ACC | (ACC) | ACC   | ACC   | ACC   | (ACC) | (ACC)  | ABS    | ABS   | ABS    | ABS      |

What are the special functions of ergative (demonstrative) forms? Ergative forms have as their primary function the marking of subjects of transitive verbs. However, there is evidence that ergative forms have a special discourse prominence in a number of languages. For example, while Nyamal has a clear split-ergative case marking pattern with pronouns inflecting on a uniform nominative-accusative basis, ‘emphatic ergative’ forms of the first and second person singular pronouns are used to emphasise that an action is performed by the speaker or by the addressee in contrast to some other person who might have performed the action. In the following examples, the regular 1SG and 2SG forms occur alongside the (underlined) emphatic forms.<sup>7</sup>

- (1) *Ngaja wanyja-nya-rna wangka, Nyamal-pa, ngajalu.*  
 1SG.NOM put-CPAST-1SG word Nyamal-Ø 1SG.EMPH  
 “I was putting down the language, Nyamal, it was *me*.”
- (2) Well *nyuntalu, nyunta kijikijima-la-ngka-mu.*  
 well 2SG.EMPH 2SG.NOM tickle-ANT-2SG-ANT  
 “Well *you*, you are going to tickle him.”

There is evidence of similar emphatic functions for ergative suffixes in Yingkarta. The inflectional patterns in the (albeit limited) Yingkarta materials reveal a degree of optionality in the choice of ergative marking (Dench 1998:62–63). Table 5 shows the range of case marking patterns in Yingkarta with optional marking indicated by parentheses. The system is essentially a split-ergative type with nominals inflecting in an ergative-absolutive pattern and pronouns typically inflecting in a nominative-accusative pattern.

Ergative marking on pronouns serves either to signal a change of subject from matrix to subordinate clause (3), or to signal a contrastive topic (4).

- (3) *Pinyilu thalamarla ngalilu jarti-lpuka.*  
 3SG.ERG bread 1DU.ERG eat-PURP  
 “He (made) bread for us two to eat.”
- (4) *Nyinta wanti-ya! Nyintalu wangka-ya! Nyinta wangka-ya*  
 2SG.NOM arise-IMP 2SG.ERG tell-IMP 2SG.NOM tell-IMP  
*wanti-wura!*  
 arise-PURP  
 “Get up you<sub>a</sub>! You<sub>b</sub> tell him<sub>a</sub>! You<sub>b</sub> tell (him<sub>a</sub>) to get up!”

7. Abbreviations used in examples, tables and figures follow the Leipzig glossing rules, with the following additions: CPAST, continuous past; EMPH, emphatic; MID, mid-distal.

In a system in which ergative marking is optional, and where explicit ergative forms are used to mark contrastive topics, it is conceivable that ergative forms of a demonstrative might take on special topic marking functions. The introduction of a contrastive topic relies on a clearly identifiable referent either in the preceding discourse or in the speech act context. Where a deictic form such as the ergative mid-distal, \*palu, might serve as a contrastive topic, it would need to find a definite antecedent, unlike a first or second person singular pronoun whose referents are implicit in the speech act itself. Out of such uses, \*palu might reasonably develop as a third person pronoun.

Reflexes of \*palu sometimes survive in the same paradigm as the old dative/oblique stem, \*parnu. The retention of \*parnu as a paradigm mate of the original ergative probably relates specifically to its role as a stem for the genitive. A number of languages show patterns in which the usual possessive construction for third persons involves a resumptive genitive pronoun or demonstrative rather than a genitive marked noun phrase.<sup>8</sup> This genitive anaphor typically finds its antecedent in the immediate linguistic context – as in the following Nyamal example (5):

- (5) *Nyaa para, yukurru-ku mantu. Kanyi-lka-rna para. Kanyi-lka-rna*  
 this 3SG.DAT dog-DAT meat keep-PRS-1SG 3SG.DAT keep-PRS-1SG  
*para yukurru-ku, parnunga mantu.*  
 3SG.DAT dog-DAT 3SG.GEN meat  
 “This is for him, meat for the dog. I’m keeping it for him.  
 I’m keeping (it) for him<sub>i</sub>, the dog<sub>i</sub>, his<sub>i</sub> meat.”

It is understandable then, that the original ergative form and the dative/oblique stem might survive in the same paradigm: The former played a role in signalling topic prominence, the latter functioned as a stem for a third person possessive anaphor also relying on an established referent. It is likely that in both cases the referent was most often human. It is thus possible to propose a plausible account of how the ergative and dative/oblique stems of the mid-distal might have taken on strongly anaphoric functions, extending so far as to become a third person pronoun in some languages. However, this does not yet explain how the \*panha form survives in a separate paradigm in some of the languages showing this development.

The critical factor here is the existence of a split-ergative case system together with the sometimes flexible case marking patterns of these languages. A developing functional distinction between the original ergative, \*palu, and the nominative/accusative, \*panha, allowed for these two forms to come to be associated with different sides of the split-ergative divide. Assuming a stage in which there was a primary split between nominative-accusative pronouns and ergative-absolutive demonstratives and nominals, the identification of the \*palu form with the pronoun paradigm and hence its

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8. Because the regular nominal genitive suffix is often identical to the dative, the use of a distinct third person genitive form avoids the possibility of double marking of a nominal with successive instances of the same suffix (in languages with complete case concord).

|                  | 1ST | 2ND | 3DU | 3PL | 3SG | MID          | PROX | DIST | nominals |
|------------------|-----|-----|-----|-----|-----|--------------|------|------|----------|
| TRANSITIVE SBJ   | NOM | NOM | NOM | NOM |     | <i>palu</i>  | ERG  | ERG  | ERG      |
| INTRANSITIVE SBJ |     |     |     |     |     |              | ABS  | ABS  | ABS      |
| TRANSITIVE OBJ   | ACC | ACC | ACC | ACC |     | <i>panha</i> |      |      |          |

|                  | 1ST | 2ND | 3DU | 3PL | 3SG         | MID          | PROX | DIST | nominals |
|------------------|-----|-----|-----|-----|-------------|--------------|------|------|----------|
| TRANSITIVE SBJ   | NOM | NOM | NOM | NOM | <i>palu</i> |              | ERG  | ERG  | ERG      |
| INTRANSITIVE SBJ |     |     |     |     |             | <i>panha</i> | ABS  | ABS  | ABS      |
| TRANSITIVE OBJ   | ACC | ACC | ACC | ACC |             |              |      |      |          |

Figure 2. Split in the mid-distal resulting in a new 3sg

generalization to nominative function would have introduced a contrast with \**panha* in the marking of the subjects of intransitive verbal clauses and non-verbal clauses. The appearance of both forms in the same case frame allowed their reinterpretation as distinct lexemes. The splitting of the paradigms is a result of that reanalysis. At an early stage the two developing paradigms were incomplete, and gaps were filled by new forms built on one or other of the available stems. Figure 2 diagrams the development of the split between ergative/(nominative) and nominative/accusative forms of the mid-distal.

We can now return to a consideration of the paths of development in the different languages. Figure 3 shows the simplest paths of diachronic development of those forms and paradigms which surface as 3sg pronouns across the group. The initial division closely resembles the internal paradigm splits between 3sg and demonstrative proposed above and summarized in Figure 2. The diagram is not, of course, complete and needs to be compared with the fuller set of reflexes set out in Table 3 and the summary of paradigm reflexes in Figure 1. With the exception of Ngarluma, each of the languages in the primary left branch of Figure 3 has more than one paradigm descended from the original mid-distal, while those in the two right branches have just the one paradigm. Where languages of the left branch retain demonstrative paradigms alongside the innovated 3sg, then those paradigms are similar to paradigms appearing in the right branches of Figure 3.

Figure 3 is not to be taken as a representation of genetic connections among these languages, and in fact it does not confirm particularly closely to received groupings of these languages (see Dench 2001; Koch 2004). Further comparative reconstruction will be needed to determine whether shared paths are the result of genetic inheritance, diffusion of form and/or pattern, or convergent evolution. While the issue cannot be explored further here, the complexity of the question can be appreciated through a brief consideration of the Jiwari developments shown in Figure 3. Note that the distribution of forms in the Jiwari paradigm, as shown most clearly in Figure 1, sets it apart from the other languages. It is exactly this distribution of forms that leads to its separate branch in Figure 3. However, developments in that branch parallel the defining change in the left-most branch – the ergative form extends to nominative function. In Jiwari the ergative form is an innovation following the loss of the original ergative,

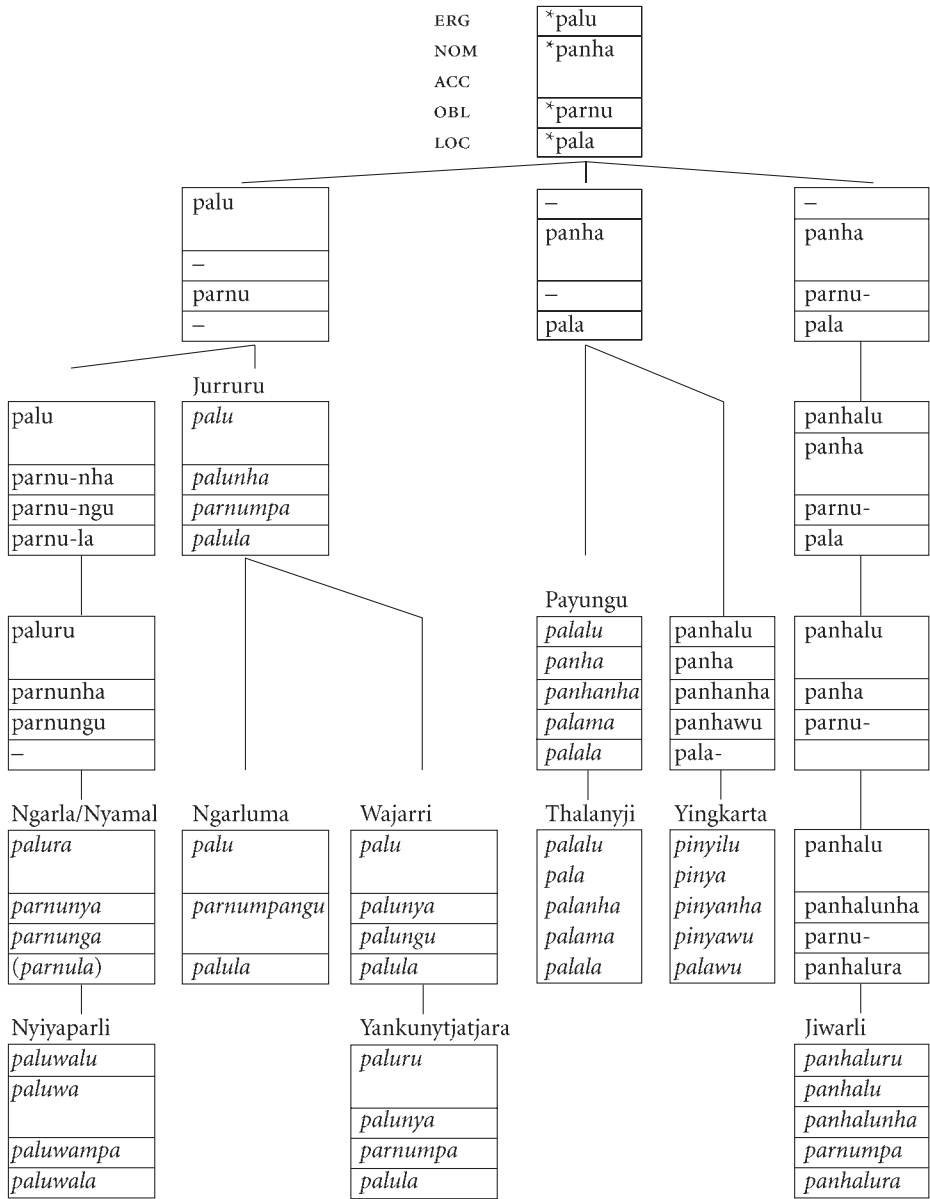


Figure 3. Simplest paths of diachronic development of 3sg paradigms

\*palu, from the paradigm. Apart from that early change, and the late re-innovation of a distinct ergative form, the Jiwarli paradigm closely resembles that in Jurruru. The similarities can be considered to be the result of either parallel development (drift), or

of pattern diffusion. In either case, the parallel reinforces the strength of the functional account given for the split in the paradigm and the development of a distinct 3sg.

#### 4. Conclusion

This paper has provided a brief description of the splitting of an original demonstrative paradigm into as many as three distinct paradigms of forms. In the account developed here, an original 'mid-distal' demonstrative is reconstructed as the addressee-oriented term in a person-based three term demonstrative system. This term had referential and pragmatic properties – by virtue of its addressee orientation – that allowed it to be specialized as a third person singular pronoun. In particular, an ergative form of the demonstrative was used to refer to highly topical participants in the discourse, the speaker assuming the addressee could identify these successfully. Similarly, a dative/oblique stem serving as the base for the genitive form of the demonstrative acquired a primary function as a third person singular possessive anaphor. The use of the ergative form as a marker of topics and its increased function as a definite anaphor led to its use in nominative case frames, where it contrasted with the regular nominative/accusative form of the mid-distal demonstrative. In the context of the particular split-ergative case marking system prevailing in the protolanguage, the ergative form thus came to be patterned very much like a pronoun, was eventually reanalysed as a pronoun, and ultimately developed a complete paradigm. In some languages this paradigm includes the original dative/oblique.

The nominative/accusative form was retained as a demonstrative in a number of languages, sometimes together with the locative form. In some languages, the original locative form serves as the unmarked stem of a further distinct demonstrative paradigm. It is suggested here that this development follows the use of the old locative as an adverbial ("there"), used as a phrasal modifier and then reanalysed as an adnominal demonstrative.

For most of the languages considered in this study we have labelled paradigms of demonstratives, but there is almost no information on the range of functions of demonstrative forms nor text materials from which such functions might be discovered. In the absence of this information, the approach adopted here has been to seek to develop scenarios for change based on the more general functions of particular inflected forms across the languages, and with a view to the broad typological characteristics of case and demonstrative systems. In addition, possible paths of development of the specific paradigms have been proposed while appealing to formal and diachronic simplicity. The two paths of investigation are seen to be mutually supportive and result in a plausible diachronic account.

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# Infinitival forms in Aramaic\*

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## o. Introduction

Aramaic is first attested in inscriptions from the 10th–9th centuries B.C.E.<sup>1</sup> and has been spoken uninterruptedly down to the present. For over a thousand years, it was the lingua franca of the Near East. Beginning in the Neo-Assyrian and Neo-Babylonian periods of the 1st millennium B.C.E., it was gradually adopted by non-Arameans in Mesopotamia and Syria. Aramaic spread with the movement of Aramean tribes to such an extent that when the Persians conquered the Babylonians in 550 B.C.E. they adopted it as an official language of communication and administration. It was displaced as a lingua franca only when Islam swept over the Near East at the end of the 7th century C.E., bringing with it the Arabic language of the conquerors. Since then, the number of Aramaic speakers has dwindled consistently, and until recently speakers lived in isolated pockets in Syria and Kurdistan. Today, the majority of native speakers of Aramaic are dispersed over the globe because of a century of persecution and upheaval in Kurdistan: Jewish speakers of Aramaic immigrated to Israel en masse during the early 1950s; sizeable communities of Christian speakers have immigrated to the United States (e.g. Chicago and Detroit) and Europe (Sweden and Germany).

A salient feature of Aramaic that should be discussed in light of advances in Aramaic dialectology is the morphology of infinitival forms. The comprehensive treatment by Solá-Solé (1961:127–154) and the short sketch by Boyarin (1981:619–623) are in need of revision in light of new data from all periods of Aramaic, in par-

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1. The earliest mention of Arameans are in the Assyrian annals of Tiglath-Pileser I (1112 B.C.E.). See Lipiński (2000) on the early history of the Arameans.



ticular Old Aramaic and Neo-Aramaic. Other scholars have also discussed the morphology of infinitival forms, focusing on individual dialects, periods, or regions, e.g. Muraoka (1983:75–79, 1983–1984:98–101) on Old Aramaic and Jewish Palestinian Aramaic, Folmer (1995:189–198) on Official Aramaic, Greenfield (1990:77–81) on Aramaic documents from the Judean Desert, and Tal (1983:210–218) on Palestinian Aramaic dialects.

Archaeological finds of the past few decades have uncovered unexpected linguistic diversity already in the earliest Aramaic inscriptions. These new data challenge the assumed uniformity of infinitival forms in the oldest historical period of Aramaic. At the other end of the chronological continuum, recently discovered dialects of modern spoken Aramaic provide additional evidence of diversity in the latest phases of the development of Aramaic, revealing previously unknown forms as well as some forms known from the most ancient inscriptions but poorly attested in the intervening millennia. The enlarged inventory of infinitival forms calls for a reexamination of the development of the infinitive. Accordingly, this paper seeks to trace and analyze the morphology<sup>2</sup> of infinitival forms from Proto-Aramaic to the present.<sup>3</sup> The infinitival system will be shown to be marked by two salient phenomena throughout its

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2. For lack of space, the syntax of infinitival forms will not be discussed. Infinitival forms function mainly as verbal nouns in Neo-Aramaic (Sabar 2002:48–49); the increased use as verbal nouns can be found already in Late Aramaic dialects.

3. Words of caution are called for in any diachronic investigation of Aramaic: (1) The evidence for many Aramaic dialects is purely consonantal, and the only traces of vocalization are to be found in the use of certain weak consonants (*ʿ, h, w, y*) known as *matres lectionis*. These consonants are used to represent phonetically similar vowels; they are rare in the oldest texts but increase over time. Fully developed pointing systems appear in the latter half of the 1st millennium C.E., first in Syriac and then in Biblical Aramaic (and Biblical Hebrew). Less developed pointing systems appear in late texts of Samaritan Aramaic (10th century C.E.) and Christian Palestinian Aramaic (13th century C.E.), long after the two dialects ceased to be spoken. Reconstructions of the vocalization in earlier periods is based perforce on later evidence. (2) Some dialects and periods of Aramaic are poorly attested. In Old Aramaic, for example, the lengthiest fully-preserved continuous passage (from the Sefire inscription) is only 26 lines long. (3) At times dialects are known from one type of genre alone, e.g. the Middle Aramaic dialect of Hatra, which is preserved in temple dedicatory inscriptions. (4) Evidence for Aramaic dialects often comes from different locales and from different periods. For example, Aramaic is attested at Tell Fekherye in Syria for the first time in the 10th or 9th century B.C.E., but there are no inscriptions from that tell in succeeding centuries. Similarly, the modern Aramaic dialect spoken at Ma'lūla, located 60 kilometers northeast of Damascus, is unknown prior to its mention by 19th century travelers. (5) With the exception of the Neo-Aramaic dialects, all records of Aramaic are written and thus reflect to various degrees literary language, be they monumental inscriptions, funereal inscriptions, votive inscriptions, legal documents, legends, translations of biblical and intertestamental literature, or legal documents. In the case of Neo-Aramaic, almost all of the evidence is oral, with the exception of a few written texts (Sabar 1984) of *midrashim* (legends) from 17th century Nerwa, a village in northern Iraq. (6) The continual migration of populations in the Near East, both in ancient and modern times, poses problems in drawing diachronic isoglosses.

history: continuous morphological diversity and remarkable tenacity of forms. These two features of the system have implications for the history of the Aramaic language, in particular, for the reconstruction of Proto-Aramaic. I shall follow the periodization of Aramaic proposed by Fitzmyer (1979).

## 1. The evidence

Infinitives in Aramaic are nominal patterns, some of which contain a prefixed *m-*, some the suffixes *-ā(t)*, *-ū(t)*, or *-ē*, and some a prefixed *m-* and suffixes. Each verbal stem (*binyan*)<sup>4</sup> has associated with it a different nominal pattern or patterns.<sup>5</sup> The following are representative infinitival forms with prefixes and suffixes marked in bold: a hyphen indicates that the form occurs when bound by another noun or pronominal suffix; *h/* indicates that the form<sup>6</sup> may occur with either an initial *h* or glottal stop.

G *miqta*l, *qtā*la  
 D *qattā*lā, *qattālūt-*, *məqattā*lā, *qattō*lē  
 C *h/aqtā*lā, *h/aqtālūt-*, *maq*tālā, *maq*tālū, 'aq<sup>7</sup>tōlē, *maq*tōlē  
 Gt *h/itqatā*lā, *h/itqātālūt-*, *metqatā*lā, *metqatā*lu, *metqatālūt-*, 'itqatōlē  
 Dt *h/itqattā*lā, *h/itqattālūt-*, *metqattā*lā, *metqattā*lū, *metqattālūt-*, 'itqattōlē  
 Ct *mettaqtā*lu, 'ittaq<sup>7</sup>tōlē

For a complete inventory of infinitival forms, see the chart in Section 3.

Infinitives in Aramaic, like the Hebrew infinitive construct,<sup>7</sup> may occur with or without a proclitic preposition *l-* “to”. This is in contrast to infinitival nominal patterns that function as verbal nouns and may follow any preposition. There are also infinitival nominal patterns in Aramaic that are used tautologically with a finite verb to express

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Wars, famines, and intentional transfers of population have been the fate of Aramaic speakers since the first half of the first millennium B.C.E.

4. Semitists use the letter G to represent the basic stem or ‘Grund’ form; D the intensive stem with geminated ‘doppelte’ middle radical; C the causative stem; Gt the passive-reflexive stem of G with affix *t-*; Dt the passive-reflexive stem of D with affix *t-*; Ct the passive reflexive of C with affix *t-*; L the stem with lengthened internal vowel; Š the causative stem with prefix *š-*; N a passive-reflexive stem with prefix *n-*. Additional abbreviations used in this paper include the following: CST ‘construct’; FS ‘feminine singular’; INF ‘infinitive’; INF ABS ‘infinitive absolute’; MS ‘masculine singular’; PL ‘plural’.

5. The consonants *qtl* (=C<sub>1</sub>C<sub>2</sub>C<sub>3</sub>) represent the triconsonantal Semitic root.

6. *h/* reflects the original *h* prefix in the C, Gt, and Dt stems, weakened in later periods to the glottal stop ‘.

7. Hebrew has two infinitival types represented by different nominal patterns: (1) the infinitive construct, which functions like infinitives and verbal nouns in modern European languages, and (2) the infinitive absolute, which is primarily a verbal noun.

emphasis, similar to the infinitive absolute of Hebrew and other Semitic languages. In those Aramaic dialects that were in contact with Hebrew, it has been argued that the use of a special nominal pattern as an infinitive absolute is a Hebraism (Dalman 1905:280); the existence of a special nominal pattern as an infinitive absolute in Old Aramaic has similarly been attributed to Canaanite influence (Fitzmyer 1979:67). The tautological use, however, is also well established in Aramaic dialects that had little or no contact with Hebrew, e.g. Syriac and Mandaic, and thus should be viewed as a general Semitic feature.

### 1.1 Old Aramaic (925? B.C.E. – 700 B.C.E.)

The oldest inscriptions written in Aramaic come from northern Syria, northern Israel, and Upper Mesopotamia. Already in these inscriptions one finds varied infinitival forms. Because of the limited number of occurrences of infinitives, I cite all examples (according to Donner & Röllig 2002):

- Tell Fekherye **G** *mqtł*: *l=m'rk* “lengthen” (309:7), *l=mld* “avert” (309:9), *l=mlqḥ* “take” (309:10), *l=mšm'* “hear” (309:9); **D** *qtl?*: *l=kbr* “increase” (309:8), *l=šlm* “make well” (309:8), *l=ḥyy* “keep alive” (309:7), *l=trš* “set up” (309:13; this reading is based on an emendation [Greenfield 2001:223, 253]);
- Sefire **G** *qtl*: [*l?*]*prq* “destroy” (222B:34), *b=št* “in searching” (222A:24), *ld* “efface” (223C:6); INF ABS *qtl*: *'gr* “reward” (223C:8), *nkh* “strike” (224:12,13); **D** *qtlh/qtlh-*: *l='bdt* “destroy” (222B:36, 223B: 7), *l=ḥbzt=hm* “destroy them” (223B:7), *l=ḥzyh* “see” (222A:13; or G? [Hoftijzer & Jongeling 1995: 358]); *qtl?*: *l=šgb* “strengthen” (222b:32; G? [Hoftijzer & Jongeling 1995: 1109]); INF ABS *qtl*: *rqh* “please” (224:6,18; G? [Hoftijzer & Jongeling 1995: 1083]); **C** *hqtlh/hqtlh-*: *hmtt* “put to death” (224:11,16), *l=hmtt=y* “put me to death” (224:15), *l=hldt* “efface” (223C:2); INF ABS *hqtl*: *hskr* “hand over” (224:2);
- Sam'al **G** *qtl*: *l='kl* “eat” (215:23), *l=nšb* “set up” (215:10), *l=bn'* “build” (214:13,14), *l=hrg=h* “kill him” (214:34; Solá-Solé [1961: 124], but usually taken as imperfect with jussive prefix *l-*), *l=mn'* “withhold” 215:24; also imperfect with jussive prefix *l-?*);
- Tel Dan **Gt** *htqtl*: [*b=h*]*tlḥm=h* “his fighting” (310:2)

In this earliest attested stage of Aramaic one finds two G infinitival forms, *qtl* and *mqtł*. At Sefire (northern Syria) and Sam'al (modern day Zinjirli in Turkey) only *qtl* is attested; at Tell Fekherye (northern Syria) only *mqtł* turns up. As for the derived stems, the D and C forms at Sefire end in *-ā* when unbound, as reflected by the *mater lectionis* *h*, and in *t-* when bound. The vowel preceding *t-* of the bound form, based

on the evidence of later corpora of Aramaic, may be either *ā* or *ū*. In addition, there may be four D forms without a suffix at Tell Fekherye, as suggested by the parallel forms in the Akkadian text of this bilingual inscription, though it is possible that the Aramaic forms are abstract nouns (realized as *kubr* “greatness”?, *šalām* “well-being”?, *hayay* “life”?, *tarṣ* “health”?). If these are D forms, they are striking since, with the possible exception of one form in Sefire, *l=šgb* (*li=šaggāb?*, *li=šaggub?*), in almost all other pre-modern Aramaic sources the forms of derived stems<sup>8</sup> end with a suffixed *-ā(t)* or *-u(t)*. Nonetheless, the Tell Fekherye forms together with *l=šgb* from Sefire, whose context demands a D factitive verb, suggest that in Old Aramaic there were D forms without a suffix.

## 1.2 Official Aramaic (700 B.C.E. – 200 B.C.E.)

### 1.2.1 Biblical Aramaic

The Aramaic of this period provides a wealth of forms showing dialectal variation. Unlike in Old Aramaic, in this period there is a fully vocalized corpus, viz. the Biblical Aramaic passages from the Books of Ezra and Nehemiah:<sup>9</sup>

G *miq̄tal*, *miq̄tālā* (*l̄=mivn̄yā* “build” Ezra 5:9), *q̄tl?* (*li=bb̄nē* “build” Ezra 5:3,13); D *qattālā*, *qattālūt-*; C *haqtālā*, *haqtālūt-*, *’aq̄tālā*, *’aq̄tālūt-*; Gt *hit̄q̄tālā*, *hit̄q̄tālūt-*, *’it̄q̄tālā*, *’it̄q̄tālūt-*; Dt *hit̄qattālā*, *hit̄qattālūt-*, *’it̄qattālā*, *’it̄qattālūt-*, *’it̄qattul?* (*’ēštaddūr* “insurrection” Ezra 4:15)

In Biblical Aramaic (Bauer & Leander 1927:127; Rosenthal 1995:49) the G infinitive has a prefixed *m-*, *miq̄tal*, and the infinitival forms in the derived stems end in *-ā* when unbound and *-ūt* when bound. There are traces of additional infinitival forms in Biblical Aramaic. In III-weak verbs,<sup>10</sup> in addition to the frequent G infinitival form *miq̄tē*, e.g. *l̄=mivnē* “build” (Ezra 5:2), one finds an attestation of the same verb in the G stem with the suffix *-ā* that is derived from either the feminine morpheme (\*-at) or the definite article (\*-ā’), *l̄=mivn̄yā*, as well as a form *li=bb̄nē*. The last form has been explained in various ways (Lerner 1983): a G infinitival form with ad hoc assimilation of *m-*, a scribal mistake for *l̄=mivnē*, a Gt infinitive or imperfect with assimilated *t-*, and in light of the Old Aramaic infinitival form *q̄tl*, an archaic G infinitive. Based on Late Aramaic infinitival forms (see below 1.4), it has been suggested that *’ēštaddūr*

8. The term ‘derived stem’ refers to all stems but the basic stem G. It reflects the view that all stems are modifications of the basic stem, G.

9. The pointing of the corpus, however, is first attested only in manuscripts a millennium after the assumed composition of the passages.

10. ‘Weak’ verbs in the Semitic languages are verbs whose inflection is irregular as a result of sound changes involving one or more of the following root semi-vowels and consonants: *w*, *y*, or *’* as *C*<sub>1</sub>, *C*<sub>2</sub>, or *C*<sub>3</sub>; *n* as *C*<sub>1</sub>; or *C*<sub>2</sub> = *C*<sub>3</sub> (‘geminate’ verbs).

“insurrection” is a Dt infinitive (Nöldeke 1875:143; Brockelmann 1908:580), though more recently the form has been taken as a Persian loanword (Rosenthal 1995:63).

### 1.2.2 Egyptian Aramaic

G *mqtł*, *qtl* (*l=’mr*); D *qtlh* and *qtl(w)t-* (Elephantine and Saqqara), *mqtłh* and *mqtł(w)t-* (Hermopolis and Aḥiqar proverbs); C *hqtlh* and *hqtl(w)t-* (Elephantine), *mqtłh* and *mqtł(w)t-* (Hermopolis and Aḥiqar proverbs)

G infinitival forms found in documents from Egypt (Muraoka & Porten 2003:108; Folmer 1995:189–197) overwhelmingly occur with a prefixed *m-*, *mqtł*. A form without the prefix also occurs; it is limited, however, to the root *’mr* “say” (*l=’mr*), alongside the expected form of the root with *m-*, *l=mmr*. The former turns up in the Ashur ostrakon as well. In the case of D and C verbs, one finds a difference between the Elephantine documents, on the one hand, which lack prefixed *m-*, and the Hermopolis documents and the Aḥiqar proverbs, with prefixed *m-*.

### 1.2.3 Ashur Ostrakon

The Ashur Ostrakon (Donner & Röellig 2002: inscription 233), which was composed in Babylonia, contains two infinitival forms: G *qtl*: *l=’mr* “say” (lines 8,10); INF ABS *qtl*: *q[r]q* “flee” (line 9).

## 1.3 Middle Aramaic (200 B.C.E – 200 C.E.)

### 1.3.1 Targums Onqelos and Jonathan

Manuscripts of Targums Onqelos and Jonathan<sup>11</sup> provide evidence of vocalization for Middle Aramaic. The earliest manuscripts of the targums that have survived, however, are from the Cairo Geniza and pointed with Babylonian supralinear signs; like the vocalized manuscripts of Biblical Aramaic, they, too, postdate the consonantal text by centuries. The main forms (Dalman 1905:278–282; Tal 1975:72, 76) are the G infinitive with prefixed *m-*, and the derived infinitives without a prefix but with the suffix *-ā*.

G *miqtal*; INF ABS *miqtāl*; D *qattāla*, *qattālūt-*; C *’aqtālā*, *’aqtālūt-*; Gt *’itqātālā*, *’itqātālūt-*; Dt *’itqattālā*, *’itqattālūt-*; Ct *’ittaqtālā*, *’ittaqtālūt-*

In addition, there are infrequent examples of another series of infinitives in the derived stems, which is marked by an internal *ō* vowel and a final *-ē*: D *qattōlē*; C *’aqtōlē*; Gt *’itqtōlē*; Dt *’itqattōlē*. This series, which is the norm in later Jewish Babylonian and Mandaic Aramaic, and shows up partially also in Neo-Aramaic, is usually

11. Targum Onqelos is the Aramaic translation of the Pentateuch; Targum Jonathan is the Aramaic translation of the Prophets. The language of the two translations is similar and reflects a Palestinian provenance.

attributed in Targums Onqelos and Jonathan to copyists influenced by the language of the Babylonian Talmud (Dalman 1905:279). Some have argued, however, that the forms genuinely existed in the language of Targums Onqelos and Jonathan, and that they, together with others, point to a linguistic position between east and west on the dialectal continuum (Cook 1994). Targums Onqelos and Jonathan evidence an infinitive absolute form *miqtāl*, which occurs whenever there is an infinitive absolute in the underlying Hebrew text.

### 1.3.2 *Uruk Incantation Tablet*

More evidence of vowel quality is provided by the Uruk incantation tablet written in cuneiform, which is generally assigned to the Middle Aramaic period, though some have argued for an earlier date. According to the most recent treatment of the tablet by Geller (1997–2000), there are two infinitival forms: the difficult to analyze *mé-ḥa-āš-še-e* (D stem, root *ḥšš* “to suffer” with 3MS suffix?; line 28), and C *maḥ-ḥe-te-e* (“to place him”; root *nḥt* with 3MS object suffix; line 3).

### 1.3.3 *Documents from the Judean Desert*

In the Aramaic Dead Sea Scrolls found in the caves at Qumran, one finds G forms with prefixed *m-* as well as forms of derived stems without initial *m-* but with final *-h* (reflecting *ā*) when unbound and *-t* (*-ūt*) when bound. The vowel of the bound form is revealed by occasional *plene* orthography with *w*: *-wt*. The attested forms (Beyer 1984:461–469) are: G *mqtł*, *mqtwl* (*b=m'wl* “enter” 1QapGen 6:4); D *qtlh*, *qtl(w)t-*; C *hqtlh*, *hqtl(w)t-*, *'qtlh*, *'qtl(w)t-*; Dt *htqtlh*, *'tqtlh*. In the two most important Aramaic documents from Qumran, the Targum to Job (11QtgJob) prefers the older stem prefix with *h-*, whereas the Genesis Apocryphon (1QapGen) prefers the younger form with *'*. At times the final *mater lectionis h*, reflecting *-ā*, is replaced by another *mater lectionis*, *'*. There is an isolated form of the G infinitive at Qumran written with *w*: *b=m'wl* “enter”, which is the earliest appearance of an infinitival form with an *ō* vowel, *miqtōl*, one of the salient features of later Palestinian Aramaic.

Elsewhere in the Judean Desert, at Wadi Murabba'āt and Naḥal Ḥever, one finds legal documents that exhibit older looking forms in the derived stems without prefixed *m-* alongside newer looking forms with *m-* (Greenfield 1990): D *qtlh* and *mqtłh*. Moreover, one finds a third form for D and C with final *-w*, *mqtłw*, which is well-attested in later Syriac. In addition to the regular G infinitival form *mqtł*, like at Qumran, there are two occurrences of the newer G infinitival form with an *ō* vowel in one legal document (*l=mprw'* “pay” Papyrus Yadin 7:17,57; Yadin et al. 2002). The newer looking form is surprising in these legal documents since such texts tend to be linguistically conservative.

### 1.3.4 *Palmyrene and Nabatean*

Infinitival forms are poorly attested in two other Middle Aramaic corpora. One finds in Palmyrene (Cantineau 1935:78–91; Rosenthal 1936:60–70) G *mqtł*; C *'qtwl'* (*l='ḥbwr'* “make a partner” CIS 4214:1), *mqtłw/mqtłwt-*; Gt *mtqtłw*. In addition to the forms

of the G, C, and Gt with prefixed *m-*, the form *l=ʿhbwrʿ* appears to be a C infinitive without *m-* (realized *lə=ʿahbōrē*) of the type attested in Targums Onqelos and Jonathan and later in Jewish Babylonian, Mandaic, and Neo-Aramaic. In Nabatean (Cantineau 1930: 80; Greenfield 1990) one finds G infinitival forms with *m-* and D forms without: G *mqtł*, D *qtłh*.

#### 1.4 Late Aramaic (200 C.E. – 700 C.E.)

Late Aramaic is marked by a division into three eastern dialects from the area of Syria, southeastern Turkey, Iraq, and Iran, and three western dialects from Syria-Palestine, each associated with a different religious community.<sup>12</sup>

##### 1.4.1 Late Eastern Aramaic

In the east one finds the Jews writing and speaking Jewish Babylonian, the Mandaeans Mandaic, and the Christians Syriac:

|                   |                                                                                                                                                                                                                                                           |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Jewish Babylonian | G <i>miqtal</i> ; D <i>qattōlē</i> ; C <i>ʿaqtōlē</i> ; Gt <i>ʿitqətōlē</i> ; Dt <i>ʿitqattōlē</i> ;<br>Ct <i>ʿittaqtōlē</i>                                                                                                                              |
| Mandaic           | G <i>myqtʿl</i> ; D <i>qʿtwlyʿ</i> , <i>mʿqʿtwlyʿ</i> ; C <i>ʿqtwlyʿ</i> , <i>mʿqtwlyʿ</i> ;<br>Gt <i>ʿtyqtwlyʿ</i> , <i>myqtwlyʿ</i> ; Dt <i>ʿtqʿtwlyʿ</i> , <i>mytqʿtwlyʿ</i>                                                                           |
| Syriac            | G <i>meqtal</i> ; D <i>mqattālū</i> , <i>mqattālūt-</i> , <i>quttōlā</i> ; C <i>maqtālū</i> ,<br><i>maqtālūt-</i> ; Gt <i>metqətālū</i> , <i>metqətālūt-</i> ; Dt <i>metqattālū</i> ,<br><i>metqattālūt-</i> ; Ct <i>mettaqtālū</i> , <i>mettaqtālūt-</i> |

Jewish Babylonian (Epstein 1960: 38–104) has a prefix *m-* only in the G stem, whereas Mandaic (Nöldeke 1875: 233–268) and Syriac (Nöldeke 1904: 108–110) have forms with prefixed *m-* in the G and derived stems. Syriac also has a verbal noun *quttōlā* without prefixed *m-*, which shows up later in Maʿlūla. As noted above, the forms of the derived stems in Jewish Babylonian are attested sporadically in the previous period of Aramaic. In the Yemenite tradition of Babylonian Talmudic Aramaic one finds the diphthong *aw* in place of *ō* (Morag 1988: 110–112): *qattawlē*, *ʿaqtawlē*, *ʿitqətawlē*, *ʿitqattawlē*, *ʿittaqawlē*. In Mandaic, the forms with *m-* in the derived stems are less common than those without the prefix.

12. Boyarin (1981) points out the schematic and imprecise nature of this division. Until the middle of the 20th century, it was generally accepted that clear dialectal divisions appeared first during this period. The old view assigning an east-west dichotomy to the Late Aramaic period, however, has been modified by the studies of Ginsberg (1933), Kutscher (1977: 3–55), and Greenfield (2001: 1–343), who have isolated dialectal differences already in Old and Official Aramaic. As seen above, the dialectal diversity reveals itself, together with other phenomena, in the morphology of infinitives.

### 1.4.2 Late Western Aramaic

In the west one finds Jewish Palestinian (also known as Galilean), Christian Palestinian (also known as Palestinian Syriac), and Samaritan:

|                       |                                                                                                                                                                                                          |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Jewish Palestinian    | G <i>meqtal</i> , <i>meqtol</i> , <i>maqtal</i> ; D <i>mqattala</i> , <i>qattalut</i> ;<br>C <i>maqta</i> la, <i>'aqtalut</i> ;<br>Gt <i>metqata</i> la; Dt <i>metqatta</i> la;<br>Ct <i>mettaqta</i> la |
| Christian Palestinian | G <i>mqtl</i> , <i>mqtwl</i> , <i>qtl</i> ?; D <i>mqtlw</i> , <i>qtwl</i> ; C <i>'qtlw</i> , <i>mqtlw</i>                                                                                                |
| Samaritan             | G <i>mqtl</i> , <i>qtwl</i> ; D <i>mqtlh</i> , <i>qtwl</i> ; C <i>mqtlh</i> ; Gt <i>mqtlh</i> ;<br>Dt <i>mqtlh</i> ; Ct <i>mtqtlh</i>                                                                    |

Unlike the eastern dialects, the western dialects exhibit the prefix *m-* in all stems. G infinitives in Jewish Palestinian (Muraoka 1983) have the form *meqtal* or *meqtol*, but verbal nouns take the form *maqtal*; in the derived stems the older infinitival forms without *m-* function as verbal nouns. In the most reliable of Samaritan (targum) manuscripts, one finds prefixed *m-* in all stems; forms without prefixed *m-* function as verbal nouns (Macuch 1982:151–163; Tal 1983, 1995), e.g. *qtwl*, which appears to be the Hebrew verbal noun *qittūl* and in later manuscripts also functions as an infinitive. In Christian Palestinian (Schulthess 1924:64–77; Bar-Asher 1977, *passim*; Tal 1983, 1995; Müller-Kessler 1991:162–177) G infinitival forms have *m-*, as does the D form; there are a few questionable examples of a G infinitival form *qtl* without prefixed *m-* (Schulthess 1924:64).<sup>13</sup> The C form with *m-* is attested only in late manuscripts exhibiting clear Syriac influence (Bar-Asher 1977:311–312). The D form *qtwl* in Christian Palestinian may be a Hebraism (< *qittūl*?), as in Samaritan Aramaic.

### 1.5 Neo-Aramaic (700 C.E. –)

The dialects of Aramaic that have survived until the present fall into four general geographical and linguistic groupings:

(1) Western Neo-Aramaic (Spitaler 1938; Arnold 1990), which is attested in three villages whose speakers just a few generations ago were still entirely Christian. In the villages of Ma'lūla, Bax'a, and Jubb'adin in the Antilibanon mountain range in Syria, one finds G *qtōla*; D *quttōla* (Jubb'adin *qattōla*); C *maqtoḷta*. An additional G infinitival form, *mēqṭla*, is attested with verbs of motion.

(2) Central Neo-Aramaic, of which there are two attested subgroups in southeastern Turkey: Tūrōyo (Jastrow 1985) and Mlaḥsō (Jastrow 1994). In Tūrōyo one finds G *qtōlō*, D *qētōlō*, L *taqtōlō*. *maqto* is also attested as a G infinitive, but is restricted to five I-' verbs.

(3) Northeastern Neo-Aramaic, which is the best attested and most diverse branch. It contains considerable variation based on geography (Turkish, Iraqi, and Iranian

13. According to M. Bar-Asher (personal communication), none of the examples are certain.



Kurdistan) and religion. Jewish and Christian varieties of Aramaic in the same village tend to become mutually unintelligible the further east one goes (Hopkins 1993:64–65; Jastrow 1997:348; Mutzafi 2004:10–12). The Northeastern Neo-Aramaic dialects show the closest affinities to older Eastern Aramaic dialects of the Jewish Babylonian and Syriac type. The following are a few examples of Jewish Northeastern Neo-Aramaic dialects. Note that many of the classical stems have disappeared:

|                               |                                                     |
|-------------------------------|-----------------------------------------------------|
| Čalla (Turkish Kurdistan)     | G <i>qtāla</i> ; D <i>mqatōle</i> ; C <i>maqōle</i> |
| Koy Sanjaq (Iraqi Kurdistan)  | G <i>qtāla</i> ; C <i>maqōlē</i> , <i>maqōla</i>    |
| Sulemaniyya (Iraqi Kurdistan) | G <i>qatōlē</i> ; C <i>maqōlē</i>                   |
| Urmia (Iranian Kurdistan)     | <i>qatōlē/qtālā</i>                                 |

In the case of Koy Sanjaq (Mutzafi 2004:72–75) and Sulemaniyya (Khan 2004:80–82), the D stem has merged with both the G and C stems. In the case of Urmia (Garbell 1965:50), all the stems have merged. The difference between the *qatōlē* and *qtālā* infinitival forms in Urmia lies in the verbal root: the former occurs with strong verbs and the latter with initial (I-’/w/y) and medial (II-w/y) weak verbs. Koy Sanjaq distinguishes between the infinitive and verbal noun in the C stem by means of the final vowel: with *ē* it functions as an infinitive and with *a* it functions as a verbal noun.

(4) Neo-Mandaic (Macuch 1965:284, 435–436). The classical Mandaic infinitival forms do not occur in Neo-Mandaic.

## 2. Discussion

### 2.1 G stem

The evidence from the earliest Aramaic inscriptions shows two different nominal patterns for the G stem: one with a prefixed *m-*, *mqt*, and the other without, *qt*. Some scholars have derived one form from the other suggesting that the older was *qt*, to which *m-* was prefixed, whereas others have reconstructed an original *mqt* from which the prefix *m-* was elided (for bibliography see Muraoka 1983–1984:98–99).

#### 2.1.1 *qt*

To judge from later realizations of the form and comparative Semitic evidence, the infinitival form *qt* is related to the \**qatāl* form that functions as an infinitive in Akkadian (*qatālum*) and the El-Amarna letters (*qatāli*); the infinitive absolute in Hebrew (*qatōl*), Phoenician (*qt* = *qatōl*), and Ugaritic (*qt* = *qatāl*); as well as a verbal noun in Arabic (*qatāl*). The Proto-Aramaic realization was \**qatāl* with the initial short vowel of \**qatāl* reduced according to the Proto-Aramaic rule of reduction of short vowels in open pre-tonic syllables. *qt*, which is attested in the inscriptions of Sefire and Sam’al in Old Aramaic, is poorly attested in Official Aramaic, and may occur in one verb in the Biblical Aramaic corpus, *lbn’* (*li=bbənē* “build”), and one verb in Egyptian Aramaic and the Ashur ostrakon, *l’mr* “speak” (*le=’mar*). This form may possibly be attested also

in the Late Aramaic dialect of Christian Palestinian, though the few occurrences are problematic. Surprisingly, *qtl* suddenly shows up as the dominant form of the G stem in almost all varieties of Neo-Aramaic, a phenomenon that can only be explained by assuming that the form disappeared from the literary language of the different dialects, but never from the spoken language.

The final *a* vowel suffixed to the form in Neo-Aramaic, *qtāla*, may have been transferred already in the Middle Aramaic period to the G infinitival form from the final *-ā* of the derived stems (e.g. *qattālā*, *'aqtālā*). This process must have taken place prior to the Late Aramaic period since in Late Eastern Aramaic dialects as well as Central and Northeastern Neo-Aramaic the forms of the derived stems end in *-ē* or *-ū*. In theory, one could also derive the final *-a* of the G infinitival form from an original definite article or feminine suffix appended to the noun early in Aramaic, though there is no evidence of such a suffixing on *qətāl* as an infinitive before Neo-Aramaic. The formation of the G infinitival form *qatōlē* found in Iraqi and Iranian Kurdistan is not a linear development from the older G form *qətāl*, but rather has developed from an earlier stage of the Neo-Aramaic D form *mqattōlē* with elision of the prefixed *m-* and degemination. As for the *ō* in the form *qtōla* in Western and Central Neo-Aramaic, it is the result of an areal shift of stressed *ā* > *ō*, a remnant of the old Canaanite shift that has survived in Arabic and Aramaic dialects in the Qalamun area of Syria (Arnold & Behnstedt 1993:67–68).<sup>14</sup>

### 2.1.2 *miqtal*

The G infinitival form with prefix *m-* was probably realized in Old Aramaic, on the basis of evidence from later Aramaic dialects and Biblical Hebrew, as *miqtal*. This noun class may be Proto-Semitic, though most reconstructions derive *miqtal* from an original verbal noun *maqtal*, the latter of which is viewed by some as a contraction of the interrogative/relative pronoun *\*mā* and a nominal or verbal form (Brockelmann 1908:375; Solá-Solé 1961:128; Kienast 2001:108–109).<sup>15</sup> The shift from *maqtal* to *miqtal* is explained by many as the result of the so-called Law of Attenuation (*\*a* > *i* in a closed, unaccented syllable).

*Miqtal* is the dominant form in Official, Middle, and Late Aramaic. In Neo-Aramaic its distribution is severely restricted. In Biblical Aramaic there is also a biform in the III-y weak verb with what is either the definite article or the feminine suffix, *lā=mivnāyā*, though some have argued that the form is misvocalized and that the orthography reflects *-ah*, a 3FS object suffix (Bauer & Leander 1927:156).

14. The Canaanite shift is believed by some to have been originally a conditioned shift (stressed *\*ā* > *ō*) and by others to have been unconditioned (stressed and unstressed *\*ā* > *ō*). This sound change is one of the features that distinguishes the Canaanite branch of Northwest Semitic, in which the shift took place, from the Aramaic branch, in which it did not.

15. Cross linguistically, infinitives develop from grammaticalized allatives or purpose clauses (Heine & Kuteva 2002).

## 2.2 Derived stems

In the derived stems the same nominal patterns are preserved throughout the different periods of Aramaic with some variation in the prefixing and suffixing of morphemes. One finds the first attestations of the prefixing of *m-* in the Hermopolis letters and in the proverbs of Aḥiqar from Elphantine during the Official Aramaic period. The prefix *m-* may have been extended from the G infinitival form *miqtal* to the derived stems or from the *m-* of the other non-finite form of the verbal system, viz. the participle (e.g. D *maqattēl*, C *maqtēl*). Middle Aramaic sources reveal a preference for the older forms without *m-*, though there are a few forms with the prefix in Palmyrene and in the legal documents from the Judean Desert. In Late Aramaic the *m-* is ubiquitous, and older forms without it are preserved only as verbal nouns with subject suffixes, as can be clearly seen in Jewish Palestinian Aramaic. The forms with *m-* are preserved in Neo-Aramaic, though in some dialects *m-* is lost in the D stem (Mutzafi 2004: 76).

In the oldest periods of the language, the vowel of the suffixes in the derived stems is not always clear because of the absence of *matres lectionis*. In later Aramaic sources we find two feminine suffixes: *-ā(t)* (feminine ending) and *-u(t)* (abstract ending). At Sefire in Old Aramaic there is only one form that is not in construct, *lhzyh*, whose orthography with final *h* suggests a realization of *-ā* (*lā=ḥazzāyā*). The bound forms written *defective* with *t* at Sefire, however, could reflect *-at* or *-ūt*. In Official Aramaic, as reflected in Biblical Aramaic, and in Middle Aramaic, as reflected in Targums Onqelos and Jonathan, one finds a suppletive paradigm with *-ā* when unbound and *-ūt* when bound, with a few exceptions (Biblical Aramaic *lā=hanzāqāt-* “damage”, *’aḥāwāyat-* “tell”). In Late Aramaic, some dialects prefer *-ā*, generally in the west where forms with *-ū* function as verbal nouns; in Syriac, however, *-ū* obtains. It is in Late Aramaic in two eastern dialects, Jewish Babylonian and Mandaic, that one finds the widespread use of another suffix, *-ē*, which may be a reflex of either an old abstract suffix *\*-ay* or the PL (originally dual?) CST ending *\*-ay*.

## 3. Conclusion

There is a diversity of infinitival forms in Aramaic, beginning in the earliest attested phase of the language and continuing into the modern period. Yet, at the same, many forms have been tenaciously preserved, often with some modification, for more than three millennia over a wide geographical area. Nominal patterns and affixes have survived, though dialects have often combined the patterns and affixes differently. Despite intimate contact with other languages, infinitival forms have remained impervious to outside influences,<sup>16</sup> as is true in general for the morphology of the verbal system.

16. A possible exception is the form *qtwl* found in Samaritan Aramaic and Christian Palestinian Aramaic, which may have its source in the contemporaneous Hebrew *qittūl*. Both Aramaic dialects betray considerable Hebrew contact.

The following chart presents the inventory of infinitival forms attested throughout Aramaic's long history.

In unvocalized corpora:<sup>17</sup>

G *qtl*, *mqtł*, *mqtwl*  
 D *qtlh*, *qtl(w)t-*, *mqtłh*  
 C *hqtłh*, *hqtł(w)t-*, *'qtlh*, *'qtl(w)t-*, *'qtwł'*, *mqtłh*, *mqtł(w)t-*  
 Gt *htqtłh*, *htqtł(w)t-*, *'tqtłh*, *'tqtł(w)t-*  
 Dt *htqtłh*, *htqtł(w)t-*, *'tqtłh*, *'tqtł(w)t-*, *mtqtłw*, *mtqtłwt-*

In vocalized corpora:

G *miqtal*, *meqtol*, *meqtal-*, *miqtāl*, *mēqtla*, *maqtlō*, *qtāla*, *qtōla*, *qtōlō*, *qatōlē*  
 D *qattālā*, *qattālāt-*, *qattālūt-*, *məqattālā*, *mqattālu*, *mqattālūt-*, *qattōlē*, *mqatōlē*, *qētōlō*, *quttālā*, *quttōla*  
 C *haqtālā*, *haqtālāt-*, *haqtālūt-*, *'aqtālā*, *'aqtālāt-*, *'aqtālūt-*, *maqtała*, *maqtałū*, *maqtałūt-*, *'aqtōlē*, *maqtałē*  
 Gt *hitqətālā*, *hitqətālūt-*, *'itqətālā*, *'itqətālūt-*, *metqətālā*, *metqətālū*, *metqətālūt-*, *'itqətōlē*  
 Dt *hitqattālā*, *hitqattālūt-*, *'itqattālā*, *'itqattālūt-*, *metqattālā*, *metqattālū*, *metqattālūt-*, *'itqattōlē*  
 Ct *'ittaqtālā*, *mettaqtālū*, *mettaqtālūt-*, *'ittaqtōlē*

It is an axiom of historical reconstruction that early uniformity develops into increasing diversity. The oldest Aramaic inscriptions, however, display linguistic diversity from the start. This diversity complicates the reconstruction of infinitival forms, and one must perforce conclude that, in at least a late stage of Proto-Aramaic, there already was diversity. Uniformity must thus be pushed back into an earlier stage of Proto-Aramaic.

In the case of G stem infinitives, the form without a prefix, *qtl*, should logically be older than the form with the *m-* prefix, *mqtł*. The existence of both infinitival forms already in Old Aramaic, however, necessitates positing their existence already in a proto-stage of the language. The attestations of more than one form in the earliest attested Aramaic is not surprising in light of other Semitic languages, e.g. Classical Arabic, where there are 44 verbal nominal patterns (*maṣdar*) associated with G verbs, of which five are common (Wright 1896: 110–113), or Hebrew, where the dominant pattern for G, \**qutul* (> *qətōl*), is attested alongside additional nominal patterns (Orlinsky 1947), e.g. \**qitlat* (*šin'ā* “hate”, *yir'ā* “fear”), \**miqtal* (*miqrā* “read”), \**maqtilat* (*mahpēxā* “overturn”).

A neat reconstruction of one set of derived stem infinitives in Aramaic is made difficult by the heterogeneity of the data. I see no alternative but to reconstruct for the late stage of Proto-Aramaic two series of derived stem infinitival forms:

17. Forms with final *h* in some corpora are spelled with '.

## 1. D \*qattāl, C \*haqtāl, Gt \*hitqətāl, Dt \*hitqattāl, Ct \*hithaqtāl

The first series is supported by the nominal patterns (with differing affixes) that serve as infinitives in dialects of Old Aramaic, Official Aramaic, Middle Aramaic, and Late Eastern Aramaic. I hesitate to reconstruct a suffix on this series since in the wider Semitic context as exemplified by Akkadian, Arabic, and Hebrew, the most frequent nominal patterns serving as infinitives occur without suffixes. Moreover, within Aramaic there is fluctuation between the suffixes *-at* and *-ūt*, and it is difficult to see why one form should be preferred over the other. Finally, there is evidence of D forms without suffixes, if the relevant Tell Fekherye (*l=kbr*, *l=šlm*, *l=hyy*, *l=trš*) and Sefire (*l=šgb*) forms belong to this series.

## 2. D \*qattul, C \*haqtul, Gt \*hitqətul, Dt \*hitqattul, Ct \*hithaqtul

The second series is reconstructed based on *qattōlē*, *ʾaqtōlē*, *ʾitqətōlē* of Targums Onqelos and Jonathan, Palmyrene, the Late Aramaic dialects of Jewish Babylonian and Mandaic, and Neo-Aramaic. Instead of explaining away the earliest attested forms – those in Targums Onqelos and Jonathan – as the result of conscious and unconscious emendations on the part of later redactors during the course of the Targums' transmission in Babylon, as many have sought to do, it is possible to view these infinitives in Onqelos and Jonathan as authentic forms that existed in earlier Aramaic and by chance are unattested until the Middle Aramaic period. The single attestation of such a form in contemporaneous Palmyrene supports taking the targumic forms as authentic during this period since the inscriptional Palmyrene form cannot be attributed to later redaction. The D infinitive absolute of Hebrew (*qattōl* < \*qattul), the infinitival forms of the Assyrian dialect of Akkadian (D *qattul*, Dt *šaqtul*, N *nprus*), and the verbal nouns of the 5th and 6th stems of Arabic (*taqattul*, *taqātul*) provide exact parallels to the vocalic sequence of these nominal forms; this distribution throughout Semitic suggests that the Aramaic forms are of great antiquity, and thus they, too, should be reconstructed for Proto-Aramaic.<sup>18</sup> Do the possible D infinitival forms from Tell Fekherye and the form from Sefire mentioned above without a suffix also belong to the \*qattul nominal pattern<sup>19</sup> as well as the problematic Biblical Aramaic *ʾeštaddūr* “insurrection” and even *qtwl* (<*qittūl*?) verbal nouns of Samaritan Aramaic and Chris-

18. Perhaps also the infinitival forms of Classical Ethiopic D inf *qattālō* < \*qattulaw, C *ʾaqtālō* < \*ʾaqtulaw, if the vowel *ə* is a reflex of \*u and not \*i (*ə* is a reflex of both \*u and \*i in Classical Ethiopic). Barth (1894:153–158) took a step in this direction in noting the common *u* vowel of the second syllable in Hebrew, Aramaic, Akkadian (and possibly Classical Ethiopic) and in assuming one Proto-Semitic noun pattern, which he reconstructed as \*qūtūl.

19. Kaufman (1982:151) wonders if the Tell Fekherye forms are related to the Jewish Babylonian and Neo-Aramaic *qattōlē*. He concludes that if so, the Old Aramaic forms would have been borrowed from Assyrian. This seems unlikely since Semitic languages borrow from one another isolated nouns, not nominal patterns. A possible exception is Samaritan Aramaic and Christian Palestinian Aramaic *qtwl*, if indeed from Hebrew *qittūl*. See above 1.4.2 and also fn. 20 below.

tian Palestinian Aramaic?<sup>20</sup> The suffix *-e* (< \*ay) on the infinitival forms *qattōlē*, *'aqtōlē*, etc. is not reconstructed for Proto-Aramaic because, according to the Proto-Aramaic rule of reduction of short vowel in open pretonic syllables, the \*u-vowel should have reduced to a vocalic *schwa*, i.e. \*qattuláy > \*qattəlay.<sup>21</sup> Since this did not happen, the suffix must have been affixed sometime after the Proto-Aramaic period, either when the reduction rule no longer applied or when stress had shifted.

In summary, the diversity of infinitival forms is an old feature of Aramaic, and as such, forces one to reconstruct linguistic uniformity back to an early stage of Proto-Aramaic. On the one hand, diversity of forms characterizes the development of Aramaic through all periods of the language; on the other hand, there are infinitival forms that have remained in the oral register uninterrupted from the oldest inscriptions into the present.

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20. Nöldeke (1875: 142–143) relates the Hebrew verbal noun *qittūl* to the Mandaic, Jewish Babylonian, and Neo-Aramaic infinitival forms with internal *ō*, which he sees as originating in \*ū. *qittūl* is usually derived, however, from Proto-Semitic \*quttūl with back-vowel dissimilation. Though *qtwl* in Aramaic sources could be from a different nominal pattern, i.e. \*quttul, it is probably not coincidental that this form only occurs in Aramaic in two dialects that were heavily influenced by Hebrew.

21. The suffix is attested, however, in the Classical Ethiopic verbal nouns D *qettalē*, *qettālē*, L *quttālē*.

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# The role of productivity in word-formation change

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## 1. Introduction

The aim of this paper is to investigate the role productivity plays in word-formation change. I will argue that productivity is the key for understanding the nature of change in word formation. This will be exemplified by a detailed productivity study of an individual word-formation pattern, namely *-er* nominalization in German. The empirical part of the investigation will be based on the quantitative notion of productivity as illustrated by Baayen & Lieber (1991).

To date, productivity in historical word formation has been seldom treated. Word-formation change has mostly been perceived as change in the word-formation system resulting from some extramorphological, e.g. phonological or syntactic, process (Munske 2002). In his theory of word-formation change, Munske emphasizes changes affecting the word-formation inventory, namely the emergence and loss of word-formation means as well as formal and semantic changes in existing patterns.

Still, Munske and other researchers, such as Müller (2002), seem to underestimate the role productivity plays in word-formation change. According to Pounder (2000:158), change in productivity is the most common and the most significant type of change to occur within word formation. Cowie & Dalton-Puffer (2002:411) even state that “observing productivity and its fluctuations is tantamount to observing change in word formation”. As will be argued in the following, studying the change of productivity for individual word-formation patterns can lead to a better understanding of changes in the word-formation system as a whole. Productivity may not only be helpful to understand why constraints on individual patterns vary diachronically, it also explains the emergence and disappearance of word-formation patterns: The very first stage of analogical coinage can be explained as a new pattern becoming productive, whereas for vanishing patterns, productivity converges to zero (cf. Croft 2000). However, the focus of this paper will be on changes in formal and semantic restrictions on word-formation patterns.

Two major hypotheses on word-formation change will be investigated. The first hypothesis is that productivity may vary over time. As Bauer (2001) emphasizes, productivity is not a fixed or absolute property of a word-formation pattern, but a variable one (see also Romaine 2004). This claim has been corroborated empirically by several recent studies (for English see Aronoff & Anshen 1998; Cowie 1999; for German Pounder 2000; Demske 2000).

The second hypothesis to be examined is that the productivity of a word-formation pattern is dependent on its formal and semantic constraints. As for derivation, Anshen & Aronoff (1981:66) state that the productivity of a word-formation pattern “can not be determined absolutely, but only with reference to the morphology of its base”. And Kastovsky (1986:585) argues that productivity varies according to “various semantic types within a morphological pattern”. Accordingly, it can be concluded that constraints on word formation may be applied to the input, i.e. the constituents of the pattern, or to its output, i.e. the words formed by the pattern.

Although the interrelation of constraints and productivity in word-formation change has been discussed (e.g., Demske 2000), as far as I know, no diachronic corpus study has been undertaken yet to investigate this interrelation in some detail. In this paper, however, not only Bauer’s claim, but also Anshen & Aronoff’s and Kastovsky’s claims will be checked against data drawn from a diachronic corpus study.

The paper is organized as follows: In §2, I will present the setup of the present diachronic corpus study. This includes an outline of *-er* nominalization in German (§2.1), as well as a brief overview of the corpus (§2.2) and the methods used to quantify productivity (§2.3). In §3, the two hypotheses given above will be discussed with respect to the results of the corpus investigation. §3.1 will be concerned with the interrelation of productivity and the semantics of German *-er* nominals, §3.2 will deal with the interrelation of productivity and the lexical category of the base. In §4, I will propose some language-internal and language-external factors that may be responsible for the word-formation changes detected in §3. §5 gives a brief summary of the paper and leads to the conclusion that both initial hypotheses are supported empirically.

## 2. A diachronic corpus study of German *-er* nominalization

As far as the empirical investigation of the interrelation of productivity and word-formation change is concerned, a number of aspects have to be taken into account. First, in order to analyze the influence of different constraints, the word-formation pattern in question has to be subject to at least one constraint allowing for at least two options. This first condition is best fulfilled by *-er* nominalization in German, a word-formation pattern that shows wide variance in both its bases and referents. Second, the study has to be based on a diachronic corpus providing authentic data. This condition can be met by composing a corpus consisting of several subcorpora. Third, to adequately specify quantitative aspects of productivity, reliable indicators

have to be identified. Still, it is preferable to choose not one productivity index but rather to select a bundle of indicators and to compare their results.

In the following, I outline the setup of my study on *-er* nominalization in German briefly. For more detailed information readers should consult Scherer (2005).

## 2.1 The word-formation pattern surveyed

The *-er* nominalization pattern, in English as well as in German, has been discussed at length in the literature, recently for English, e.g. by Baeskow (2002) and Ryder (1999), and for German, e.g. by Bittner (2004) and Meibauer et al. (2004). This is probably due to the diversity of its input and output. As can be seen from Table 1, *-er* nominals in present-day German may refer to persons (*Handballer*) as well as to objects (*Wasserkocher*) and even to abstract entities (*Seufzer*). They can be formed out of bases belonging to different lexical classes including – but not limited to – verbs (*Lehrer*) and nouns (*Handballer*). With regard to the morphological structure of the base, the complexity of the base may also vary. Meibauer et al. (2004) differentiate between monolexematic and multilexematic bases, i.e. bases containing one or more lexemes, yet earlier research usually distinguishes between monomorphemic and polymorphemic bases. Irrespective of the exact definition of morphological complexity, it can be stated that the base of *-er* nominals such as *Handballer* is morphologically more complex than the base of *Lehrer*. Further differentiation as to whether *-er* nominalization triggers umlaut or not (*Rauber* vs. *Räuber* “robber”), whether object denotations refer to an instrument or patient reading (*Drucker* “printer” vs. *Untersetzer* “table mat”), or whether verbal bases are transitive (*Käufer* “buyer”) or intransitive (*Schläfer* “sleeper”) should be taken into account.

Meibauer et al. (2004) identify three historical tendencies in German *-er* nominalization, namely the trend from nominal bases to verbal bases, the trend from monolexematic to multilexematic bases (i.e. from morphologically less to morpho-

Table 1. Classification of *-er* nominals in present-day German

| <i>-er</i> nominals        | verbal base                                                | nominal base                                                              | geographic name                                       | other bases                                                    |
|----------------------------|------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------------------------------|----------------------------------------------------------------|
| denoting persons           | <i>Lehrer</i><br>“teacher”                                 | <i>Handballer</i><br>“handball player<br>(handballer)”                    | <i>Norweger</i> “person<br>from Norway<br>(Norwayer)” | <i>Barfüßer</i><br>“barefooted<br>monk<br>(barefooter)”        |
| denoting objects           | <i>Wasserkocher</i><br>“electric kettle<br>(water cooker)” | <i>Benziner</i> “car that<br>runs on gasoline<br>(gasoliner)”             | <i>Champagner</i><br>“Champagne<br>(Champagner)”      | <i>Zehner</i> “coin/bill<br>with the value of<br>ten (tenner)” |
| denoting abstract entities | <i>Seufzer</i> “sigh<br>(sigher)”                          | <i>Einakter</i><br>“performance of a<br>play with one act<br>(one actor)” | <i>Kalauer</i> “joke”                                 | <i>Einser</i> “best grade<br>in school (oner)”                 |

logically more complex bases) and, finally, a tendency from PERSON nouns to OBJECT nouns. Each of these three tendencies refers to a constraint on the word-formation pattern, the first one concerning the lexical category of the base, the second one the complexity of the base, and the last one regarding the concept of the *-er* nominal.

In the following, mainly the semantic output constraint will be scrutinized, however some additional results on the constraint on the word class of the base will be presented.

## 2.2 The Mainz Newspaper Corpus

To investigate *-er* nominalization in New High German (NHG), a special corpus, the Mainz Newspaper Corpus (MNC), has been created. The corpus consists of major German newspapers from the 17th to the 20th century and is subdivided into nine different subcorpora. The first subcorpus dates from 1609 and includes the complete volume of the *Aviso*, the first newspaper to appear worldwide. The second subcorpus is dated 1650 with the other subcorpora following every 50 years. Each of the subcorpora contains approximately 100,000 word forms with a range of 97,700 to 149,500 word forms, which is due to the fact that only complete issues were included into the corpus. Hence, all results have been normalized to a standard corpus size of 100,000 word forms. Altogether, a total of more than a million word forms have been collected. Further data can be found in the appendix and on the web.<sup>1</sup>

Three constraints have been investigated, namely the input constraint on the word class of the base, the input constraint on the complexity of the base, and the output constraint regarding the concept of the *-er* nominal. As noted, only data for the first and the last one will be presented.

## 2.3 Productivity indicators surveyed

Even though linguists quite commonly refer to the productivity of a given pattern, affix or process, the concept of productivity is still subject to discussion (Bauer 2001, Plag 1999). Nevertheless, most researchers agree that the potential of a morphological pattern to create new forms is central to the concept of productivity in morphology (Aronoff & Anshen 1998). A second aspect that is important to productivity is the extent of a pattern's use. This aspect refers to the number of forms (types or tokens) found in a language sample, i.e. the propagation of a pattern in the vocabulary. Yet, type or token frequency is not a reliable indicator of productivity when being studied alone as it does not take into account whether new coinages exist at all. Therefore, when investigating productivity it is best to compare different productivity indicators (Plag 1999).

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1. The complete results of the study can be found under: <http://www.germanistik.uni-mainz.de/linguistik/wbw/>.

Research in productivity has made little reference to time, but it is by definition central to a diachronic perspective (Cowie & Dalton-Puffer 2002). This problem has been tackled in my study by collecting all indicators for all of the nine measuring points.

In the following section the extent of use of *-er* nominals in the corpus as well as the potential of the pattern to create new forms will be discussed. The study of propagation is based on the frequency of types only, therefore ignoring the number of tokens and hapax legomena that had also been collected. As for the number of types, first the share each subclass occupies within the *-er* nominalization pattern will be analyzed. In a second step, the growth rate of types will be examined. The potential for new coining will be evaluated by means of productivity in the narrow sense ( $P$ ) (see Baayen & Lieber 1991).  $P$  is calculated by dividing the number of hapax legomena ( $n_1$ ) in a corpus by the number of tokens ( $N$ ) belonging to the word-formation pattern in question:  $P = n_1/N$ .

Finally, global productivity  $P^*$  as defined in Baayen & Lieber (1991) will be examined.  $P^*$  is a two-dimensional measure that unites the dimension of propagation and the potential to new coining by combining type frequency ( $V$ ) and productivity in the narrow sense. As both dimensions,  $V$  and  $P$ , are functionally independent from each other, global productivity can only be illustrated but it cannot be calculated (but see Baayen 1993). For further discussion see Baayen (1992), Plag (1999), Bauer (2001).

### 3. Word-formation change in the Mainz Newspaper Corpus

In this section the influence of two constraints on German *-er* nominalization, namely the semantics of the *-er* nominal and the lexical category of its base, will be examined. A linear regression analysis was conducted for all data to test statistical significance. The level of significance referred to throughout the text is  $\alpha=0.05$ .

#### 3.1 Changes in the semantics of *-er* nominals

I will first consider the influence of the semantic output constraint on the productivity of *-er* nominalization. Two of the three semantic subclasses analyzed, PERSON and OBJECT designations, will be studied. The discussion of the third one, the abstract *-er* nominals, will be skipped in the following due to their low overall frequency in the corpus (for discussion see Scherer 2005).

With respect to the first dimension of productivity, the propagation of a pattern, considerable changes become manifest in Tables 2 and 3. During the last four centuries the proportion of *-er* nominals denoting OBJECTS and abstract entities increases, whereas the share of PERSON nominals in the subcorpora is declining (see Table 2). However, only the rise of abstract nouns and the decrease of PERSON nouns prove to be statistically significant.

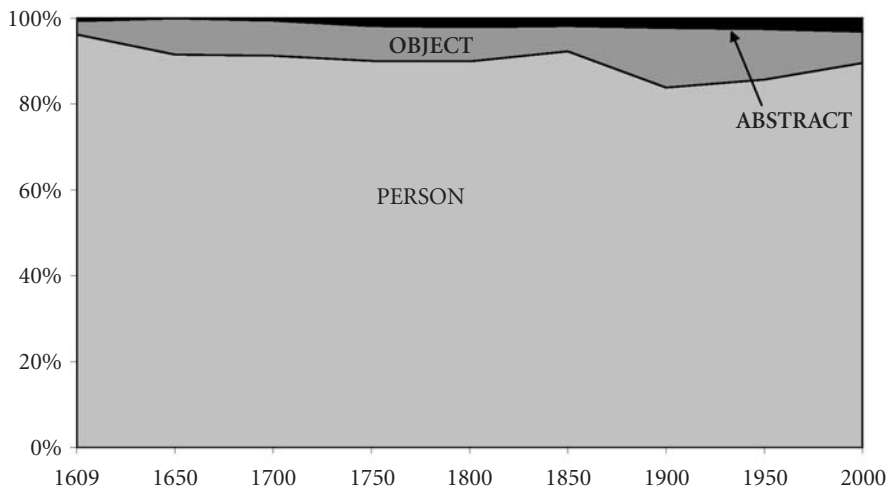


Table 2. *-er* nominals: share of types V per concept

These findings seem to be partially contradicted by the dynamics of type frequency as illustrated in Table 3. Compared to the first period investigated, not only does the number of OBJECT *-er* nominals increase but also the number of PERSON nouns, both trends being statistically significant. Whereas for OBJECT designations the increase in type frequency is paralleled by growth in share, for the PERSON subclass the increase in type frequency is at odds with a decline in proportion (see Table 2). This notional discrepancy can be accounted for by the overall rise of *-er* nominals. Both subclasses rise in type frequency. However, the rise of OBJECT *-er* nominals turns out to be considerably higher (factor eight) than for the PERSON concept (factor three and a half), the consequence being a decrease in the proportion of PERSON denotations.

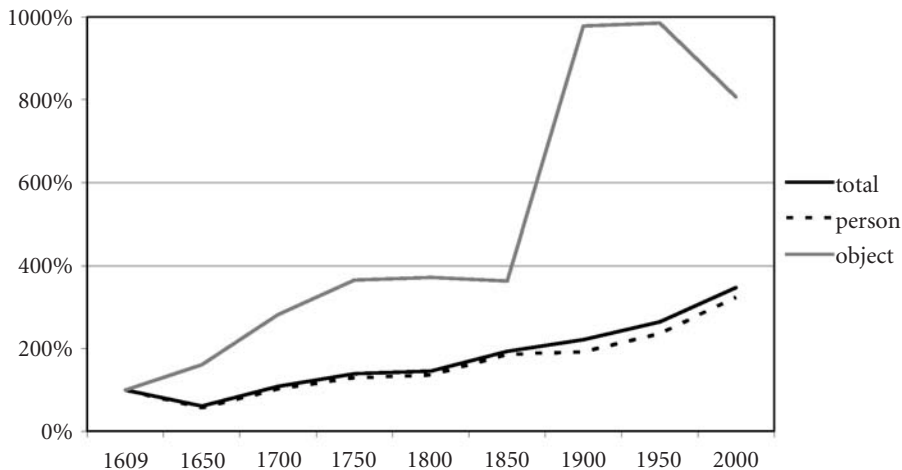


Table 3. *-er* nominals: growth of types V

As to the potential of the subclasses to coin new forms, productivity in the narrow sense increases in a statistically significant way for *-er* nominalization in general, as it does for both of the subclasses (see Table 4). It is striking that the development of productivity indicators for PERSON nominals and *-er* nominalization in general look a lot alike (see Tables 3–4). Both *-er* nominalization in general and the PERSON subclass almost triple their productivity *P* within the period investigated. This is largely due to the fact that 86% of all *-er* nominals in the MNC designate human beings. Compared to the PERSON concept, OBJECT *-er* nominals were much less productive in the seventeenth century, but swiftly gained productivity thereafter. From 1700 on the OBJECT pattern is, in terms of productivity in the narrow sense, about twice as productive as the PERSON concept.

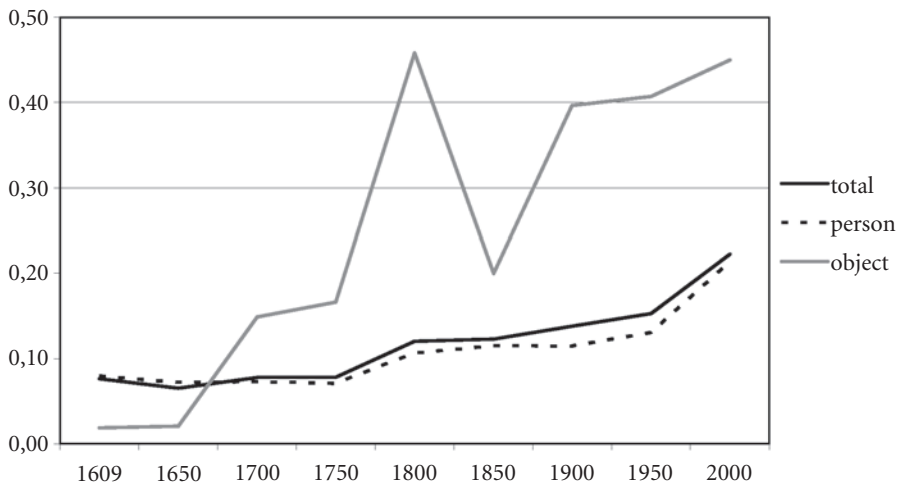


Table 4. *-er* nominals: productivity in the narrow sense P

Global productivity as illustrated in Tables 5–6 provides an overview of both the propagation of a pattern in the vocabulary and its potential to create new forms, as it consolidates the respective indicators of productivity *V* and *P*. Globally productive processes are supposed to have high values for both the number of types *V* and productivity in the narrow sense *P*. Globally unproductive processes, on the other hand, are supposed to show low values for both *V* and *P* (Baayen & Lieber 1991). As far as *-er* nominalization in general is concerned, global productivity displays rising values for both *V* and *P* (see Table 5), therefore revealing a diachronic growth in global productivity and corroborating former findings (see Tables 3–4).

The same holds true for the global productivity of PERSON denoting *-er* nominals, which is illustrated in Table 6. This growth of *P*\* substantiates that the PERSON subclass has gained productivity diachronically, even though it diminishes in terms of proportion (see Table 2).



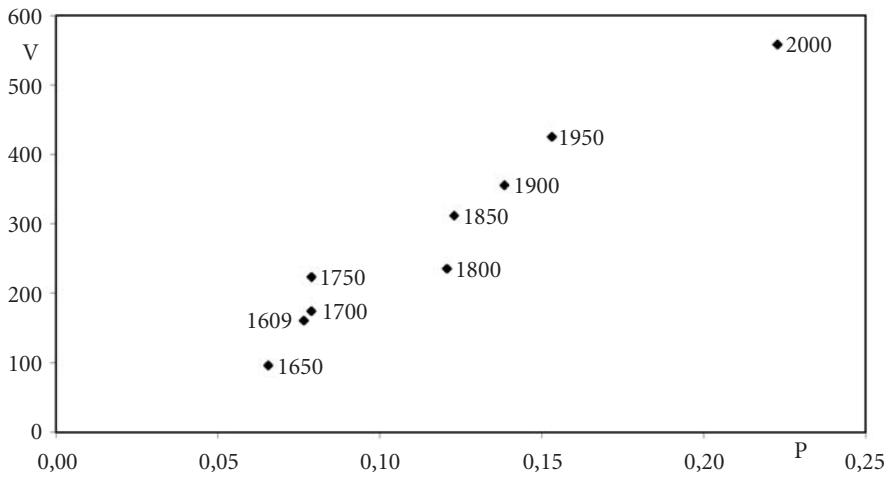


Table 5. -er nominals total: global productivity P\*

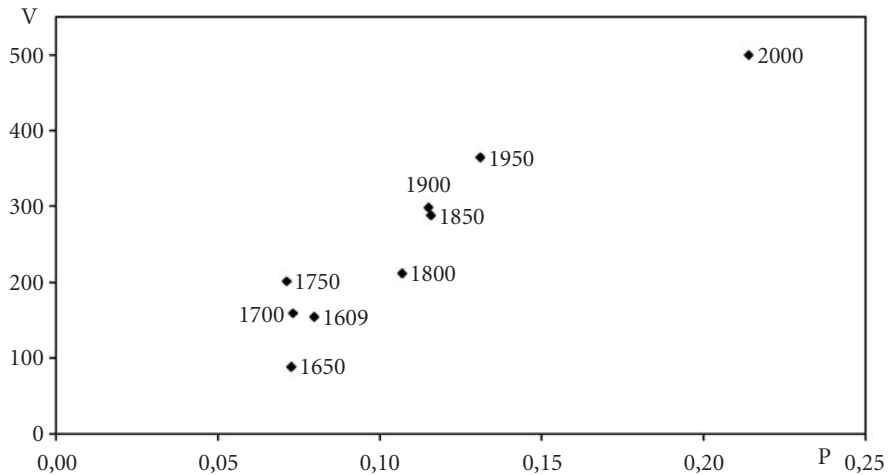


Table 6. PERSON -er nominals: global productivity P\*

As for OBJECT designations, global productivity also increases (see Table 7), but in a different way. On the one hand, the increase in type frequency is much smaller if compared to the PERSON concept (see Appendix). Yet this difference does not hold in relative numbers (see Table 3).

In contrast to the absolute type frequency, productivity in the narrow sense is considerably higher for object -er nominals, the maximum in 2000 being twice as high as for PERSON -er nominals. Even though it is rather small in the 17th century, the global productivity of OBJECT concepts grew constantly in the following centuries.

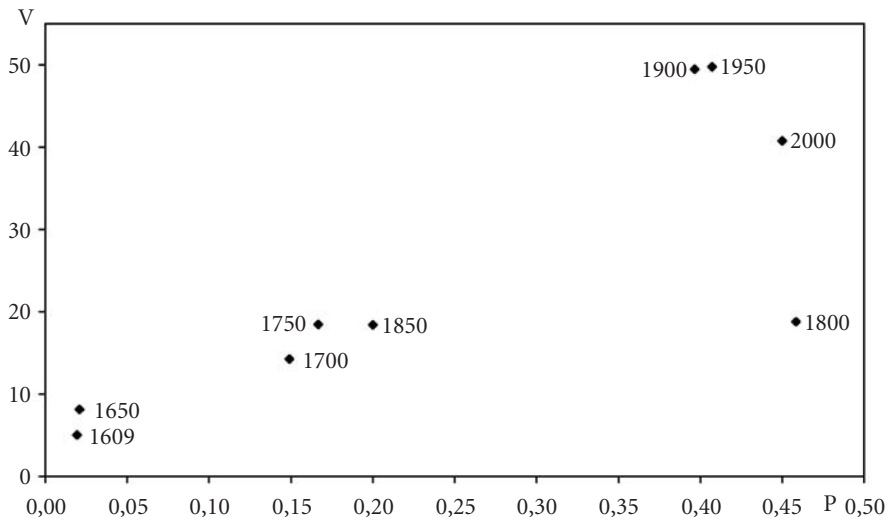


Table 7. OBJECT *-er* nominals: global productivity P\*

As a result, we may assume that the productivity of *-er* nominalization has risen significantly over the last four centuries. Each of the productivity indicators surveyed – namely the number of types V, productivity in the narrow sense P, and global productivity P\* – shows an evident increase for the pattern as a whole as well as for both of the concepts discussed. However, the productivity of the PERSON subclass and the OBJECT subclass developed in a different way. It is obvious that PERSON nouns greatly outnumber OBJECT *-er* nominals in the vocabulary in each of the subcorpora (ca. 85–95%). Therefore, the PERSON concept remains the core pattern for German *-er* nominals. Nevertheless, the OBJECT concept exhibits a higher proportional growth in type frequency and a significantly higher increase in productivity in the narrow sense. This disproportionately high growth of OBJECT nominals suggests that the polysemic potential of the *-er* word-formation pattern becomes better exploited diachronically. We can therefore conclude that the productivity of the PERSON subclass is strengthened by its important propagation in the vocabulary, whereas the OBJECT subclass has to be considered the more dynamic one, as its productivity increase mainly results from its distinct potential for new coinages.

The results so far also confirm the hypotheses formulated in §1. As to the first hypothesis, all of the indicators surveyed showed that productivity in fact varies diachronically. As to the second, the different results for PERSON and OBJECT *-er* nominals demonstrated that productivity – and productivity changes – within one single word-formation pattern do indeed depend on the semantic properties of the output.

### 3.2 Changes in the word category of the base

Thus far only the effect of semantic output constraints on productivity has been discussed. In this section the influence of an input constraint on the productivity of the *-er* nominalization pattern, namely the influence of the lexical category of the base, will be examined. Once again, both dimensions of productivity, propagation and the potential to create new *-er* nominals will be considered. Global productivity, however, will be set aside. As before, only the two most important subclasses, deverbal and denominal derivatives, will be addressed.

With respect to the word category of the base, we find a clear and diachronically increasing predominance of deverbal *-er* nominals, with regard to the propagation of the pattern. The proportion of deverbal types in Table 8 and the growth of deverbal types in Table 9 indicate an important rise of deverbal *-er* nominals. Yet, the proportional rise of deverbal *-er* nominals is not due to the decrease of denominal ones, as is often assumed. Rather, the proportion of denominal *-er* nominal remains stable – mainly between 20% and 25% – throughout the period investigated. Moreover, Table 8 clearly shows that the statistically significant growth of deverbal nominals is balanced against an also statistically significant decrease of deonomastic *-er* nominals.

As stated above, the number of *-er* nominals based on verbs increases faster than the total number of *-er* nominals and the number of denominal ones. However, both subclasses, as well as the pattern as a whole, show a clear and statistically significant growth in type frequency. It can therefore be concluded that stagnation in the share of denominal *-er* nominals is only due to the fact that the number of deverbal types increases faster than the number of denominal types.

With regard to the second dimension of productivity, productivity in the narrow sense, a different picture arises (Table 6). As it turns out, the probability of new

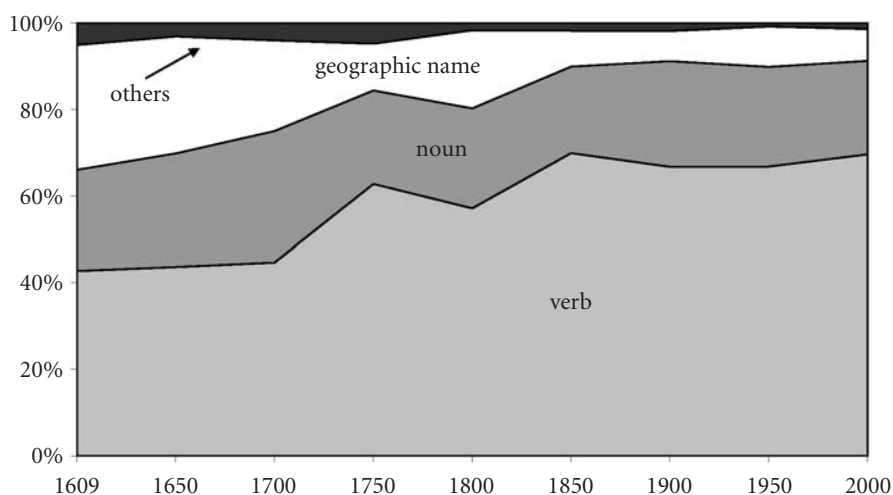


Table 8. *-er* nominals: share of types V per word category of the base

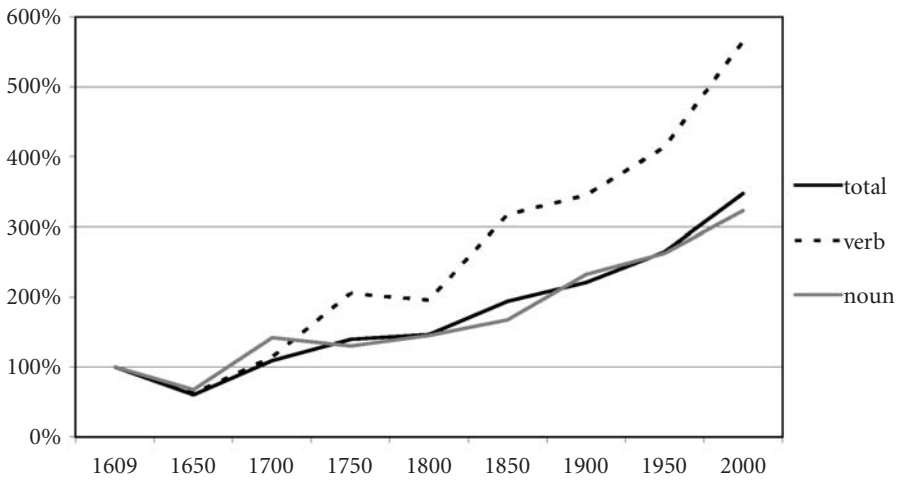


Table 9. *-er* nominals: growth of types V

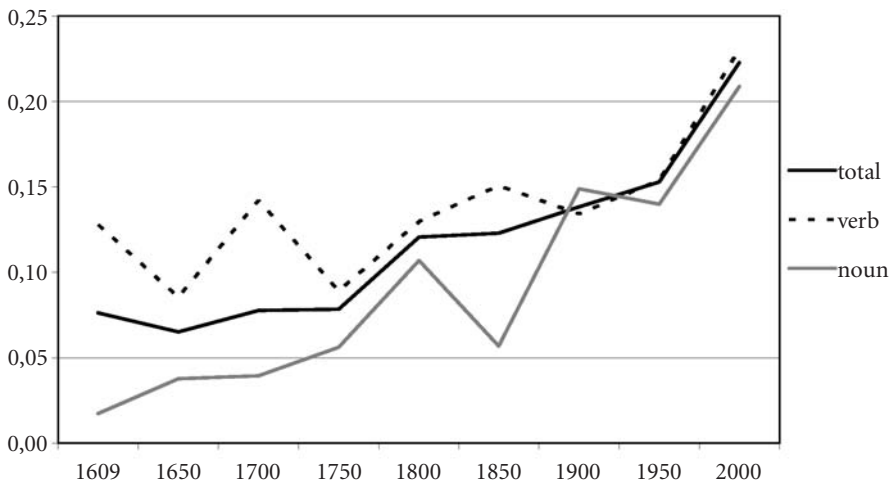


Table 10. *-er* nominals: productivity in the narrow sense *P*

coinages has increased not only for deverbal *-er* nominals, but also – and even more importantly – for denominal ones, with both tendencies proving statistically significant. This finding underlines the fact that the two dimensions of productivity, namely the propagation of a particular word-formation pattern as well as the potential to coin new words, do not necessarily parallel one another.

As before, the data from the MNC substantiate a significant rise in productivity for both the deverbal and denominal subclasses surveyed. However, both subclasses differ with respect to their productivity. The subclass of deverbal *-er* nominals – which has been the most important and the most productive class from 1609 on – shows the

largest increase in share and productivity. Nevertheless, the proportional gain of the deverbal pattern (+25%) is not associated with a decline of denominal *-er* nominals, as has often been assumed, but rather it is due to the drastic decrease of deonomastic *-er* nominals.

Again, the first hypothesis that productivity may change diachronically can be corroborated, as can the second. The study of *-er* nominals in the MNC clearly shows that productivity varies according to the lexical class of the base, therefore verifying the claim that the productivity of a word-formation pattern depends on the properties of its input.

Accounting for these developments will be the focus of the next section.

#### 4. Causes for change in German *-er* nominalization

The overall diachronic rise of *-er* nominals in German may be accounted for by language-external as well as by language-internal factors. As for language-external factors, we find a historically growing need to coin new PERSON and OBJECT designations (Meibauer et al. 2004). The reverse trend, the decrease in deonomastic *-er* nominals, may be due to the fact that, in modern times, other characteristics have become more important when referring to a person than his or her geographic origin.

As to language-internal factors, the ease of creating *-er* nominals seems to promote their general rise. On the one hand, only few restrictions on *-er* nominalization exist (Scherer 2005; for English see Ryder 1999; Lieber 2004). However, the divergence of the deverbal and the denominal subclass may result from different input and output restrictions (Scherer 2003). On the other hand, the decline of competing suffixes in New High German has to be taken into account. According to data drawn from Wellmann (1975), 73% of all PERSON designations are *-er* nominals, whereas the remaining 27% are distributed into another 13 suffixes. As for OBJECT designations, one quarter (27%) of all instruments are formed using the *-er* suffix, which is more than with any of the other 14 suffixes mentioned. Both factors are likely to facilitate the use and coining of *-er* nominals.

#### 5. Conclusion

In this paper, two different types of change in word formation have been identified, namely changes that are limited to individual word-formation patterns and those that affect the word-formation system as a whole. It has been argued that productivity may not only help to understand changes in individual patterns, but also changes affecting the system, e.g., the emergence and loss of word-formation patterns.

Change in individual patterns has been described in terms of change in word-formation restrictions. As this study of German *-er* nominalization shows, changes

in word-formation constraints become manifest in productivity when productivity is analyzed with respect to different subclasses of a word-formation pattern. It has been demonstrated that the extent to which productivity increases or does not is actually dependent on restrictions on the input or output of the pattern.

Moreover, most studies that have been conducted focus on changes affecting the word-formation system as a whole. Further research in historical word formation should therefore not only intensify research in diachronic aspects of word formation but should also shift its attention to changes of individual patterns, i.e. to changes in word-formation constraints. Systematic studies in productivity change may not only help to understand change in word formation but may also lead to a better synchronic understanding of the word-formation system and word-formation restrictions.

## 6. Appendix

### 6.1 Mainz Newspaper Corpus: Overview (non-standardized)

|                           | 1609 | 1650 | 1700 | 1750  | 1800  | 1850  | 1900  | 1950  | 2000  | total   |
|---------------------------|------|------|------|-------|-------|-------|-------|-------|-------|---------|
| word forms (in thousands) | 98.9 | 98.3 | 97.7 | 102.8 | 101.1 | 108.6 | 149.5 | 136.5 | 137.4 | 1,031.1 |
| -er types                 | 159  | 95   | 171  | 230   | 238   | 339   | 532   | 581   | 767   | 2,083   |
| -er tokens                | 693  | 351  | 622  | 749   | 646   | 911   | 1,553 | 1,581 | 1,890 | 8,996   |

### 6.2 -er nominals in MNC: Types V (per 100,000 word forms)

|               | 1609 | 1650 | 1700 | 1750 | 1800 | 1850 | 1900 | 1950 | 2000 | total |
|---------------|------|------|------|------|------|------|------|------|------|-------|
| types total   | 161  | 97   | 175  | 224  | 236  | 312  | 356  | 426  | 558  | 1,818 |
| concepts      |      |      |      |      |      |      |      |      |      |       |
| PERSON        | 155  | 88   | 159  | 201  | 212  | 288  | 298  | 365  | 500  | 1,571 |
| OBJECT        | 5    | 8    | 14   | 18   | 19   | 18   | 49   | 50   | 41   | 202   |
| ABSTRACT      | 1    | 0    | 1    | 4    | 5    | 6    | 8    | 11   | 17   | 45    |
| base category |      |      |      |      |      |      |      |      |      |       |
| verbal base   | 69   | 43   | 79   | 141  | 135  | 218  | 237  | 284  | 389  | 1,190 |
| nominal base  | 37   | 25   | 53   | 49   | 54   | 63   | 87   | 98   | 121  | 396   |
| geogr. name   | 46   | 26   | 37   | 24   | 43   | 26   | 25   | 40   | 41   | 196   |
| other bases   | 8    | 3    | 7    | 11   | 4    | 6    | 7    | 4    | 8    | 38    |

6.3 *-er* nominals in the MNC: productivity in the narrow sense (P)

|               | 1609  | 1650  | 1700  | 1750  | 1800  | 1850  | 1900  | 1950  | 2000  |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| types total   | 0.076 | 0.066 | 0.079 | 0.079 | 0.121 | 0.123 | 0.138 | 0.153 | 0.223 |
| concepts      |       |       |       |       |       |       |       |       |       |
| PERSON        | 0.080 | 0.073 | 0.073 | 0.071 | 0.107 | 0.116 | 0.115 | 0.131 | 0.214 |
| OBJECT        | 0.019 | 0.021 | 0.149 | 0.167 | 0.458 | 0.200 | 0.397 | 0.407 | 0.450 |
| base category |       |       |       |       |       |       |       |       |       |
| verbal base   | 0.128 | 0.085 | 0.142 | 0.089 | 0.130 | 0.151 | 0.134 | 0.154 | 0.231 |
| nominal base  | 0.017 | 0.038 | 0.039 | 0.056 | 0.107 | 0.057 | 0.149 | 0.140 | 0.209 |

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PART IV

**Phonetics and phonology**



# Structured imbalances in the emergence of the Korean vowel system

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## o. Introduction<sup>1</sup>

The basic vowel system in colloquial Korean today is symmetrical. In addition to one low vowel (central unrounded /a/), there are three mid and three high monophthongs: Two front unrounded (/i/, /e/), two central unrounded (/ɨ/, /ə/), two back rounded (/u/, /o/). An additional low vowel, front unrounded /ɛ/, still prevails in the formal standard (phonemically as well as orthographically), but this is being merged with /e/ in the speech of most Koreans throughout the country now, resulting in an evenly balanced 7-vowel inventory. This symmetrical system of monophthongs is complemented by a skewed set of nine on-glide diphthongs consisting of /wi/, /we/, /wə/, /wa/ with a labial onset (but no \*/wi/, \*/wu/, \*/wo/) and /yu/, /yo/, /ye/, /yə/, /ya/ with a palatal onset (but no \*/yi/, \*/yi/).<sup>2</sup> There are no off-glide diphthongs in the modern language, though several of these had been formed previously with the palatal glide.

This paper reviews how the present-day system evolved out of the seemingly odd array of vowels known to have characterized Middle Korean as spoken in the first half of the 15th century. Explicit phonological and phonetic information from this period is available based on careful commentaries and analysis associated with the new way of alphabetic writing that was introduced in Korea in 1446. In §1, we lay out

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1. Portions of this paper were presented in 2004 at the 12th Manchester Phonology Meeting in England (“On the Diachronic Inversion of Korean Diphthongs”) and at the Annual Meeting of the Phonological Society of Japan, Hiroshima (“(A)symmetries in the Evolution of the Korean Vowel System,” reported in the proceedings of the society, *Phonological Studies* 8.121–130, 2005). We thank the members of those audiences as well as the ICHL 17 participants in Madison for their many helpful comments and remarks, and Sung-Moon Cho for assistance with the data in (6) and (8).

2. Marginally, /tʷi/ with a central or back unrounded onset also occurs for some speakers in word-initial position, a remnant of historical /iʷ/, see §3 below.

the structure of the Middle Korean vowel system and identify its peculiarities, then briefly chart its development up to the early 20th century through a series of superficially contradictory monophthongizations and diphthongizations. In §2, we review the linguistic and philological evidence that establishes the diphthongal status in Middle Korean of orthographic <ay> and <əy>, which in Modern Korean represent /ɛ/ and /e/, respectively (recently merged as [e] for many speakers). We turn in §3 to a feature analysis of the systems over time and show how the apparent ‘inversion’ of diphthong to monophthong to diphthong (/uy/ > /ü/ > /wi/, /oy/ > /ö/ > /we/) derives naturally from structural forces in the system itself. Here we highlight the increasing prominence of the inherited constraint against labial off-glides and its generalization to exclude off-glides of all types, palatal as well as labial. Throughout, we point toward the symmetries and balance that are achieved as a consequence of the changes under review, taking these systemic factors as structural motivations for the changes themselves. In the end, these changes lead to a rationalized simplification of the inherited vowel system, but result also in a sharp skewing of the diphthong inventory to consist now only of on-glide structures, which is perhaps surprising in view of the commonplace occurrence of off-glide diphthongs crosslinguistically. We conclude with a short summary in §4.

### 1. The emerging resolution of asymmetries in the Middle Korean vowel system

The new means of alphabetic writing which had just been promulgated by King Sejong in 1446 is appreciated today as an ingenious linguistic invention.<sup>3</sup> With respect to the many vowels symbolized in this system, there are three ‘rudiments’ which make up each letter, either individually or in combination: A vertical stroke ‘|’, by itself representing the high front unrounded vowel /i/ (and standing for “man” in the cosmologic philosophy of the time), a horizontal stroke ‘–’ representing the high central unrounded vowel /i/ (“earth”), and a dot ‘●’ representing the low back rounded vowel /ɔ/ (“heaven”). The dot rudiment then combined with the two stroke rudiments in symmetrical ways to represent an additional four ‘principle’ vowels: To the right of the vertical stroke for /a/, to the left of the vertical stroke for /ɔ/, above the horizontal stroke for /o/, and below the horizontal stroke for /u/. In composite letters, however, the dot (presumably for reasons of ease and efficiency in manual writing) soon came to be replaced by a short stroke oriented opposite to the long stroke with which it associated, as in Korean orthography today, but the charts below show how the dot

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3. Indeed, this celebrated alphabet – literally so, as October 9 is designated Alphabet Day (*Hangeul-nal*) in Korea – is widely acclaimed to be the phonologically most sophisticated and insightful writing system in existence, combining phonetic and syllabic properties into a composite alphabet that continues to instill admiration among professional linguists and other scholars the world over (cf. the series of articles in the Kim-Renaud 1997 anthology).

rudiment was employed originally. Long strokes did not combine with each other in forming monophthongs, moreover, hence the graphic possibilities using just the three rudiments (–, |, •), either alone or in permitted combination, are exhaustive and represent the seven basic vowels of Middle Korean charted phonemically and orthographically in (1). That is, the seven monophthongs of 15th century Korean comprised an asymmetric system of six back vowels and just one front vowel (Huh 1965; K.-M. Lee 1972).

(1) Basic vowel system in the 15th century: 7 monophthongs

| –back |  | +back |   |
|-------|--|-------|---|
| i     |  | ɨ     | u |
|       |  | ə     | o |
|       |  | a     | ɔ |

Orthographic representation

| –back |  | +back |    |
|-------|--|-------|----|
|       |  | –     | –• |
|       |  | •     | –• |
|       |  | •     | ▪  |

The 15th century system also included a number of diphthongs, but their distribution was highly restricted phonologically, under limitations which the orthography encodes with impressive naturalness. Specifically, there were four phonemic diphthongs formed with palatal /y/ (IPA [j]) as an on-glide and six with /y/ as an off-glide, whereas there were but two on-glide diphthongs formed with labial /w/ and no off-glide diphthongs with /w/.<sup>4</sup> Figure (2) lays out how the vowels in (1) combined to form both on-glide and off-glide diphthongs with palatal /y/ (bracketed [yɔ] was marginal) and on-glide diphthongs with labial /w/. Asterisked combinations did not occur, according to the historical record, whereas those in bold face existed in Middle Korean but are absent in Modern Korean.

4. A fifth palatal on-glide diphthong with a low back rounded nucleus, /yɔ/, was marginal at best, and, for orthographic reasons about to be elucidated, was not even included in the 11 basic vowel letters set forth in *Hunminjeongeum* (see below). Used only in describing dialect variation or children's speech, *Hunminjeongeum* stated that this uncommon combination could, as needed, be represented in the new writing system by a dot placed below (rather than to either side of) the vertical stroke (K.-M. Lee 1972). Similarly, the phonemically excluded palatal on-glide diphthong with a high central nucleus, /yi/, could be represented by a horizontal stroke placed below the vertical stroke, but there is no textual evidence that this diphthong occurred.

## (2) a. On-glides (/y/ and /w/)

| -back |  | +back |      |
|-------|--|-------|------|
| *yi   |  | *yɨ   | yu   |
|       |  | yə    | yɔ   |
|       |  | ya    | [yɔ] |

| -back |  | +back |     |
|-------|--|-------|-----|
| *wi   |  | *wɨ   | *wu |
|       |  | wə    | *wo |
|       |  | wa    | *wɔ |

Orthographic representation

| -back |  | +back |   |
|-------|--|-------|---|
|       |  |       | ㅜ |
|       |  | ㅣ     | ㅡ |
|       |  | ㅣ     | ! |

| -back |  | +back |  |
|-------|--|-------|--|
|       |  |       |  |
|       |  | ㅟ     |  |
|       |  | ㅠ     |  |

## b. Off-glides (/y/ only, boldface not in Modern Korean)

|     |  |    |    |
|-----|--|----|----|
| *iy |  | iy | uy |
|     |  | əy | oy |
|     |  | ay | ɔy |

\*Vw

Orthographic representation

| -back |  | +back |   |
|-------|--|-------|---|
|       |  | ㅟ     | ㅠ |
|       |  | ㅟ     | ㅠ |
|       |  | ㅠ     | ㅠ |

Gaps in the charts in (2) reveal that, just as in Modern Korean, there was a restriction on diphthongal distribution in Middle Korean to the effect that any off-glide configuration with /w/ was not allowed. The orthographic restriction corresponding to this limitation is that only the vertical stroke rudiment | may appear to the right in combination with a fundamental vowel, hence the only permitted off-glide is /y/.<sup>5</sup> On-glides, by contrast, were represented by the symbol for either /o/ (before /a/) or /u/ (before /ə/) to the left of the nucleus in the case of the labial glide, or, in the case of the palatal glide, by an additional dot or short stroke adjacent to that already present in association with one of the two long stroke rudiments. Accordingly, of the seven monophthongs

5. The dot+vertical stroke combination unambiguously represented both the monophthong /ə/ (dot+stroke to the right of the obligatory initial consonant symbol) and the off-glide diphthong /ɔy/ (dot below the initial consonant symbol, stroke to the right), whereas the on-glide diphthong /yɔ/ was represented by placement of the dot directly below the vertical stroke. These two diphthongs (the second of which was marginal in any case, absent from the basic vowel set in (5a) below) along with their orthographic representations were short-lived, however, as /ɔ/ soon merged with /a/, individually as well as in diphthongal combination.

in Middle Korean, none formed off-glides with /w/ and all formed off-glides with /y/, except for /i/, whose juxtaposition to another instance of the same rudiment was not permitted. On-glide /w/ occurred only before the composite vertical letters, i.e., not before any of the three rudiments alone or before the horizontally oriented letters; hence, the only labial on-glide diphthongs were /wa/ and /wə/. (The combination of orthographic /u/ and /i/ stood for the off-glide diphthong /uy/, not \*/wi/, cf. below.)

The reasons for the systematic exclusions, of course, are phonological rather than orthographic, but it is impressive how directly (and automatically) the orthography reflects the several phonological restrictions. Thus, /i/ participated in the formation of only one diphthong, /iy/, a combination which lasted until the 20th century before monophthongizing to /i/ (or /i/, depending on the dialect, cf. Ahn & Cho 2003). Similarly, there has long been a rigorous constraint banning diphthongal configurations in which high vowel and glide share the same place of articulation, whether labial or palatal, hence \*/yi/, \*/iy/, \*/wu/; the labial glide has never occurred with rounded vowels, either, hence \*/wo/, \*/wə/. Each of these phonotactic restrictions (which persist to the present day) can be accounted for in a straightforward way using familiar devices and constraints to block, in particular, diphthongal combinations which share [+round] or [+high, aback]. But their emergence in later stages of the language, as will be shown below, shows that nonhigh front vowels freely do combine to form on-glide diphthongs. Thus, these gaps in the system, though regular (missing /ye/, /yɛ/, /e/, /ɛ/, also /ü/, /ö/), may be considered to have been essentially accidental, as they were filled in consequence of subsequent events, viz., the series of diphthong developments about to be described.

The systematic absence of \*/wi/ in Middle Korean would appear to be without structural foundation, however, inasmuch as the complementary palatal on-glide diphthong /yu/ was (and still is) freely sanctioned. But as will be shown in the next section describing other relevant aspects of the Korean alphabet, the orthographic representation of \*/wi/ would have been identical to that of the off-glide diphthong /uy/ (later the monophthong /ü/) because off-glide diphthongal vowels were symbolized not explicitly as vowel plus glide or as glide plus vowel, but rather as vowel plus vowel – which of the two is vowel and which is glide was then deducible from overall constraints on the system. Specifically, because /w/ is precluded from serving as an off-glide, the sequence of [i]+[u] must represent /yu/, not \*/iw/. The reverse-order sequence [u]+[i], by contrast, could in principle represent either /uy/ (which it did) or \*/wi/ (which it did not) because /y/ was free to serve as an off-glide and /w/ was free to serve as an on-glide. The ambiguity of diphthongal [u]+[i] in Middle Korean was resolved in favor of phonemic /uy/, but perhaps only arbitrarily so, because, as we shall see below, the sequence /wi/ did emerge much later on – and, indeed, from this same source. In a sense, then, the absence of \*/wi/ in Middle Korean was both arbitrary and systematic: [u]+[i] could have stood for phonemic /wi/ at that time, but this would have left a gap in the symmetrical system of back vowel plus palatal off-glide diphthongs (/uy/ would have been missing from the set) while creating an isolated labial glide plus front vowel diphthong. The phonemic resolution of [u]+[i] thus fa-



vored /uy/ over /wi/ in Middle Korean, though this interpretation was to be reversed some five centuries later as the vowel system evolved and the modern language came to develop an aversion to off-glide diphthongs generally.<sup>6</sup>

By the end of the 18th century, to lay out the chronology, then, the Middle Korean low rounded vowel /ɔ/ had been merged with /a/ (/ɔ/ > /a/) and a process of monophthongization had changed the central onset diphthongs /ay/ and /əy/ to /ɛ/ and /e/, respectively, thus forming the new eight-vowel system presented in (3) (K.-M. Lee 1972; J.-H. Park 1983; C.-W. Park 2002).<sup>7</sup>

(3) Basic vowel system in the 18th century: 8 monophthongs

| -back |  | +back |   |
|-------|--|-------|---|
| i     |  | ɨ     | u |
| e     |  | ə     | o |
| ɛ     |  | a     |   |

Two other off-glide diphthongs underwent monophthongization starting in the 19th century, /uy/ > /ü/ and /oy/ > /ö/, which resulted then in a basic ten-vowel system, i.e., that in (3) plus /ü/ and /ö/ (Ahn 1998).

(4) Basic vowel system in the late 19th and early 20th century: 10 monophthongs

| -back |   | +back |   |
|-------|---|-------|---|
| i     | ü | ɨ     | u |
| e     | ö | ə     | o |
| ɛ     |   | a     |   |

The new front rounded vowels /ü/ and /ö/ did not last long, however, for during the earlier part of the 20th century these typologically marked monophthongs began to be “broken” into the on-glide diphthongs /wi/ and /we/, respectively. We term the overall pattern of 18th-19th-20th century developments changing /uy/ > /ü/ > /wi/ and /oy/ > /ö/ > /we/ a “phonological inversion” (of the form, diphthong > monophthong > diphthong), and we see these particular shifts as having been precipitated by the emergence of a new restriction on the composition of diphthongs in the language which extended the extant suppression of labial off-glides (\*Vw) to palatals as well (\*Vy). Both labial and palatal on-glides were still sanctioned in the diphthong system, however, and a move to unpack the markedness inherent in the historically intermediate front rounded monophthongs induced a further shift to yield the overall series of changes just outlined: Off-glide diphthong (18th c.) > complex monophthong (19th c.) > on-glide diphthong (20th c.).

6. A discussion of the diphthongal status of Middle Korean /uy/ will be included in the next section on /ay, əy/.

7. In minor cases, however, /ɔ/ was changed to /o/ or even /i/ (K.-M. Lee 1972).

## 2. On the diphthongal status of orthographic <ay, əy> in Middle Korean

The changes in the Korean vowel system over some 550 years as laid out in §1 represent the essentially invariant philological consensus in Korean historical linguistics. Nonetheless, a question might arise as to the diphthongal status of <ay> and <əy> in the earlier period, because in Modern Korean these symbols represent monophthongal /e/ and /ɛ/; moreover, their absence from the 15th century basic vowel inventory charted in (1) results in a highly asymmetrical, perhaps even typologically unprecedented system. Conceivably, then, orthographic <ay, əy> in Middle Korean already represented the monophthongs /e, ɛ/, as these graphemes do in Modern Korean, which would have placed the vowel system in full balance even then with symmetrical distribution of three front vowels, three central and three back.

This structurally appealing possibility has been addressed in the work of S.-N. Lee (1949) and Huh (1952), both of whom concluded that <ay, əy> did convey diphthongal status in the 15th century and indeed for some time afterward. S.-N. Lee (1949), for example, argued that if <ay> and <əy> (as well as <oy> and <uy>) had been monophthongs in Middle Korean, there would have been no reason not to include them in the 28-character inventory of basic symbols presented in *Hunminjeongeum* (*The Correct Sounds for the Instruction of the People*), the treatise on the Korean writing system promulgated by King Sejong the Great in 1446. Now known as *Hangeul*, the rigorously phonetic spelling system of *Hunminjeongeum* included even <yu, yə, yo, ya> as basic vowel letters, representing four palatal on-glide diphthongs which still occur today and which arguably function phonologically as single nuclear vowels. The full set of basic vowels in the Middle Korean writing system thus consisted of the seven phonetic monophthongs listed in (1), /i, i, u, ə, o, a, ɔ/, plus the four palatal on-glide diphthongs given in (2a), /yu, yə, yo, ya/, the palatal element of which was marked in the orthography of *Hunminjeongeum* by an additional mark (dot or short stroke) next to the one already present in a composite symbol.

Symbols for the labial on-glide diphthongs in (2a) (/wə, wa/) and the palatal off-glide diphthongs in (2b) (/iy, uy, əy, oy, ay, ɔy/) were not included in the set of basic vowels, however, implying that these were perceived to be segmentally composite (i.e., /u+V/, /V+i/).<sup>8</sup> Thus, if <ay, əy> had indeed been phonetically or phonologi-

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8. It is perhaps curious that the basic vowels of *Hunminjeongeum* per se included only those on-glide diphthongs beginning with /y/ (i.e., /yo, ya, yu, yə/). That the two on-glide diphthongs with /w/ (/wa, wə/) were not grouped with the 11 basic vowel letters (these two combinations and their phonetic values were included in the *Commentaries* portion of *Hunminjeongeum*) indicates their psychologically derivative status as compared with the palatal on-glide diphthongs. As (2a) and (5) show, the orthography encodes this distinction by representing the labial on-glide structures as a combination of the symbol for an independent back rounded vowel followed by the diphthongal nucleus (/u+/ə/ for /wə/, /o+/a/ for /wa/), whereas the palatal on-glide diphthongs, which King Sejong apparently conceived of as units rather than combinations, are marked merely by a diacritic short stroke (originally a dot) on the nuclear vowel symbol.

cally monophthongal already at this early stage, then it is expected that they would have been included in the set of basic vowels in (5a) rather than grouped with the “combined” vowel symbols in (5b).

- (5) a. 11 vowels included in the basic 28 letters of *Hunminjeongum*<sup>9</sup>

|   |   |   |   |   |   |   |    |    |    |    |   |
|---|---|---|---|---|---|---|----|----|----|----|---|
| ㅏ | ㅑ | ㅓ | ㅕ | ㅗ | ㅛ | ㅜ | ㅠ  | ㅡ  | ㅣ  | ㅚ  | ㅜ |
| o | i | i | o | a | u | ə | yo | ya | yu | yə |   |

- b. Some vowels NOT included in the basic 28 letters

|    |    |    |    |    |    |     |     |     |     |    |    |     |   |   |   |
|----|----|----|----|----|----|-----|-----|-----|-----|----|----|-----|---|---|---|
| ㅛ  | ㅜ  | ㅠ  | ㅝ  | ㅞ  | ㅟ  | ㅠ   | ㅡ   | ㅢ   | ㅣ   | ㅤ  | ㅥ  | ㅦ   | ㅧ | ㅨ | ㅩ |
| ɔy | iy | oy | ay | uy | əy | yoy | yay | yuy | yəy | wa | wə | way |   |   |   |

Huh (1952) cites other types of evidence pointing toward diphthongal status for <əy, ay> and <oy, uy>. The major arguments can be summarized as follows. First, according to *Hunminjeongeum Haerye*, the commentaries and examples portion of *Hunminjeongeum*, <ay, əy, oy, ɔy> belonged to the same category as <uy, iy>. The commentaries indicate that these vowels all terminate in the sound marked by a single vertical stroke |, i.e., [i] (palatal /y/), which is strongly indicative of their diphthongal status. Second, the nominative marker /i/ underwent contraction or deletion after vowels ending in a similar or identical sound, viz., after /i, uy, iy/, and the same process took place following <ay, əy, oy> as well, implying that all of these were palatal articulations at their right edge. Third, the Chinese sound [ai] in borrowed words was transcribed as <ay> in works of literature such as Sejin Choi’s *Saseongthonghae*. Finally, even today when reciting Korean poetry in the conservative style known as *Sijo*, orthographic <hay> is pronounced as [hai] rather than [hɛ], pointing back to the earlier diphthongal pronunciation.

In addition to these arguments advanced by previous scholars, we find further evidence illustrating that <ay> and <əy> were genuine diphthongs in Middle Korean, not monophthongs. First, we look again at the *Commentaries and Examples* portion of *Hunminjeongeum*,<sup>10</sup> especially the part describing Medials (i.e., vowels).

- (6) 一字中聲之與 | 相合字十 ㅛ, ㅜ, ㅠ, ㅝ, ㅞ, ㅟ, ㅠ, ㅡ, ㅢ, ㅣ, ㅤ  
 The combination of a medial and ‘|’ make 10 (items) which are /ɔy, iy, oy, ay, uy, əy, yoy, yay, yuy, yəy/.

9. In *Hunminjeongeum* as promulgated in 1446, there were basic letters for 17 consonants and 11 vowels. The consonant letters are listed below, of which the three in the shaded area are now extinct, the velar nasal now represented by the symbol for a phoneme which no longer exists in the language, voiced *h*.

|                |   |   |   |   |   |   |   |           |   |                |                |                |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |
|----------------|---|---|---|---|---|---|---|-----------|---|----------------|----------------|----------------|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|
| letter         | ㄱ | ㄴ | ㄷ | ㄹ | ㅁ | ㅂ | ㅅ | ㅇ         | ㅈ | ㅊ              | ㅋ              | ㆁ              | ㅅ              | ㅆ | ㅈ | ㅊ | ㅋ | ㆁ | ㅅ | ㅆ | ㅈ | ㅊ | ㅋ | ㆁ | ㅅ | ㅆ | ㅈ | ㅊ | ㅋ | ㆁ |  |  |  |
| phonetic value | k | n | t | l | m | p | s | fi<br>(㉚) | c | c <sup>h</sup> | k <sup>h</sup> | t <sup>h</sup> | p <sup>h</sup> | h | ŋ | z | ʔ |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |

10. It was written as 訓民正音解例 中聲解.

This commentary indicates that the vowels listed in (6) are combinations of a monophthong, or ‘medial’, and the vocalic element /i/ (or glide /y/), represented orthographically by a long vertical stroke |. As there was no structural basis in *Hunminjeongeum* for combining medials with other vocalic elements to make still other monophthongs, it can be inferred that <ay, əy> along with <oy, uy> were diphthongs rather than monophthongs in Middle Korean.

Second, the examples in (7) illustrate some lexically restricted changes in Middle Korean by which /-ahi-/ and /-əhi-/ became /ay/ and /əy/, respectively.

- (7) *kahi* > *kai* > *kay* (> *kɛ* in Modern Korean) “dog”  
*pəhi-ta* > *pəi-ta* > *pəy-ta* (> *pe-ta* in Modern Korean) “to cut”

If <ay> and <əy> had represented the monophthongs [ɛ] and [e] at this point in Middle Korean, as in Modern Korean, the reduction of /a+i/ to /ay/ and /ə+i/ to /əy/ presumably would not have occurred, and we should have expected Modern Korean \**kai* rather than *kɛ* “dog”, \**pəi-ta* rather than *pe-ta* “to cut”.<sup>11</sup>

Third, there is direct evidence for the diphthongal status of <ay> and <əy> in an early literary work written by a Middle Korean phonologist in 1678, Seok-Jeong Choi. In this book, *Kyeongse Jeongun*, Choi transcribes the phonetic values of the Middle Korean vowels using Chinese characters. He included vowels of both types, monophthongs and diphthongs, and we note especially his diphthongal rendering of orthographic <ay> and <əy>.

- (8) Chinese transcriptions for Middle Korean vowels in *Kyeongse Jeongun* (1678)

|       |       |       |       |
|-------|-------|-------|-------|
| 卜 阿   | 𠂇 也   | 𠂇 於   | 𠂇 與   |
| 斗 烏阿  | 𠂇 要也  | 𠂇 于於  | 𠂇 由與  |
| · 兒   | 𠂇 伊兒  | 一 應   | 𠂇 伊應  |
| 上 烏   | 𠂇 要   | 丁 于   | 𠂇 由   |
| 𠂇 阿伊  | 𠂇 也伊  | 𠂇 於伊  | 𠂇 與伊  |
| 𠂇 烏阿伊 | 𠂇 要也伊 | 𠂇 于於伊 | 𠂇 由與伊 |
| · 兒伊  | 𠂇 伊兒伊 | 𠂇 應伊  | 𠂇 伊應伊 |
| 𠂇 烏伊  | 𠂇 要伊  | 𠂇 于伊  | 𠂇 由伊  |

In this 17th century document, all of the off-glide diphthongs (those with a single vertical stroke at the right edge of the Korean symbol) end with the Chinese character 伊. If they had been monophthongs at this time, they should have been represented as a single Chinese letter without 伊 instead of being marked by two (or even three) letters. We thus infer that the orthographic off-glide diphthongs did not undergo monophthongization until, at the earliest, the latter part of the 17th century, as these were still

11. Even in present-day Korean, dialectal alternations occur between monosyllabic and disyllabic words, e.g., /say/ *sai* ↔ *sɛ* ‘gap’.

valued as phonetically diphthongal in 1678. Based on these arguments in addition to those put forth in previous scholarship on the question, we conclude that <əy, ay> as well as <oy, uy> were diphthongal in Middle Korean, whose system of basic monophthongs, then, despite the structural oddity of including only one front vowel out of seven total, was the skewed pattern given in (1).

### 3. Feature analysis of the historical monophthongization/ diphthongization events

#### 3.1 Decline of the off-glides

As described previously, Middle Korean in the 15th century had four phonemic *y* on-glide diphthongs and just two *w* on-glide diphthongs, while there were six *y* off-glide diphthongs but none with a *w* off-glide.<sup>12</sup> Thus, *y* off-glides were quite common and combined to form all logical possibilities, except for *\*iy/*, which was blocked by the Obligatory Contour Principle (OCP) restriction banning two essentially identical vocalic segments in a row, which also excludes *\*wu/*. On-glides did not occur in combination with the high central unrounded vowel /i/ (*\*yi/*, *\*wi/*), apparently in reflection of an OCP-related restriction against high vocalic sequences of glide+vowel in which both segments are either unrounded or back, and an OCP restriction against diphthongal elements both having the feature [+round] blocked *\*wo/* and *\*wɔ/*. The labial on-glide diphthong *\*wi/* did not occur as a phoneme, either, and there were no labial off-glide structures at all (*\*Vw*), either now or at the time of Middle Korean. In the charts below summarizing the varied possibilities, precluded combinations are placed in parentheses and actual diphthongs highlighted with shading (with marginal [yɔ] indicated in brackets).

#### (9) Middle Korean diphthongs

##### a. On-glides

| -back          | +back          |      |
|----------------|----------------|------|
| ( <i>*yi</i> ) | ( <i>*yɨ</i> ) | yu   |
|                | yə             | yo   |
|                | ya             | [yɔ] |

| -back          | +back          |                |
|----------------|----------------|----------------|
| ( <i>*wi</i> ) | ( <i>*wɨ</i> ) | ( <i>*wu</i> ) |
|                | wə             | ( <i>*wo</i> ) |
|                | wa             | ( <i>*wɔ</i> ) |

##### b. Off-glides

|                |    |    |
|----------------|----|----|
| ( <i>*iy</i> ) | iy | uy |
|                | əy | oy |
|                | ay | ɔy |

12. The triphthongs /yoy, yuy/ were rare, used chiefly in representing Chinese sounds, and appear not to have undergone the expected reductions (/yoy/ > /yö/, /yuy/ > /yü/).

By the 18th century, however, the low back rounded vowel /ɔ/ had disappeared from the phonemic inventory (Huh 1965, K.-M. Lee 1972, W.-J. Kim 1996, Ahn 2002, etc.), chiefly via merger with /a/. Further, /ay/ (original as well as any instances deriving from phonetic [ɔy]) monophthongized to /ɛ/, and a parallel monophthongization process affected Middle Korean /əy/ to produce /e/. The forms in (10), which underwent intermediate changes as well, exemplify these historical shifts (Ahn & Cho 2003:fn. 6), where the period indicates syllable divisions as spaced in the orthographic representation.

- (10) *pəy.yam* > *pɛ.yam* “snake” (> *pyam* ~ *pɛm*)  
*səy.kyon* > *sɛ.kyon* “remember” (> *sɛ.ki-ta*)  
*cəy.pi* > *cɛ.pi* “swallow” (< \**cɔy.pi*)<sup>13</sup>

Thus, early Modern Korean, i.e., Korean in the 18–19th centuries, had the diphthongs charted in (11), where /ye/ < /yəy/, /yɛ/ < /yay/, /we/ < /wəy/, /wɛ/ < /way/.

(11) 18th–19th century Korean diphthongs

a. On-glides (boldface new in the 18th century)

| -back     |    | +back |    | -back     |    | +back |  |
|-----------|----|-------|----|-----------|----|-------|--|
|           |    |       | yɯ |           |    |       |  |
| <b>yɛ</b> | yə |       | yɔ | <b>wɛ</b> | wə |       |  |
| <b>yɛ</b> | ya |       |    | <b>wɛ</b> | wa |       |  |

b. Off-glides

|  |           |      |
|--|-----------|------|
|  | <b>iy</b> | (uy) |
|  |           | (oy) |
|  |           |      |

The new additions are the result of the unrounding of /ɔ/ to /a/ along with the subsequent monophthongization of /ay/ and /əy/, producing, respectively, /ɛ/ and /e/. At about the same time, /uy/ and /oy/ (as indicated by the parentheses in (11b)) embarked on their path of monophthongization to /ü/ and /ö/, and were not articulated as off-glide diphthongs at all after the 19th century. Therefore, the only off-glide diphthong extant after the 19th century was one composed of the high central unrounded vowel plus palatal glide, /iy/ (C.-W. Kim 1968; Ahn 1998, etc.).

A widespread development in Modern Korean today is the ‘decay’ of that sole off-glide diphthong, /iy/. Although its diphthongal orthographic representation remains intact parallel to that of other monophthongized diphthongs, the phonetic realization of this vowel varies from context to context, both phonological and dialectal. Outside of word-initial position, e.g., in /hiy.man/ “hope” or /min.cu.cu.iy/ “democracy”, /iy/

13. We posit an intermediate stage /cye.pi/ (from earlier /cɔy.pi/), which became the present form *cɛ.pi*, the apparent result of an OCP-related ban against two coronal segments /c/ and /y/ in a row. Refer to C.-W. Kim (1968) for the formulation of the earlier intermediate form /cɔy.pi/.

is often blended and reduced to [i], i.e., [himaŋ] or [minjuju]. It can show up even as [e] when used as the genitive suffix, e.g., /uli-iy/ [urie] ‘our’. In word-initial position the vowel is seldom realized as the off-glide diphthong [iy], either, whose nucleus is the high central unrounded vowel [i],<sup>14</sup> but rather occurs in a new diphthongal form consisting of a high central unrounded on-glide followed by the high front nucleus [i], i.e., [ii], which we shall represent phonemically as /uui/ using the IPA symbol [u] to stand for this third kind of on-glide. Thus, a simple shift in syllabic prominence reverses the vowel-glide sequence /iy/ to glide-vowel /uui/, with the result then that there really is no phonetic off-glide diphthong remaining in Modern Korean. To complete the picture of current vowel articulations, it should be pointed out that another development dominant in most dialects now is the raising of the low front vowel /ɛ/, which causes /ɛ/ (orthographic <ay>) and /e/ (orthographic <əy>) to be pronounced the same, as [e].

The tables in (12) and (13) lay out the vowel system which has emerged in today’s Korean. The parenthetical monophthongs with question marks no longer appear as such phonetically, having been broken into new on-glide diphthongs with *w*, and the parenthesized on-glide diphthongs with nuclear /ɛ/ are, like /ɛ/ itself, undergoing merger with the next higher vowel in the chart; symbols with asterisks represent longstanding illegitimate combinations. Finally, the new diphthong /uui/ has come into existence in word-initial position, but its status in the system remains marginal and so is indicated below in brackets.

## (12) Modern Korean monophthongs

| -back |      | +back |   |
|-------|------|-------|---|
| i     | (ü)? | ɨ     | u |
| e     | (ö)? | ə     | o |
| (ɛ)   |      | a     |   |

## (13) Modern Korean diphthongs

## a. On-glides

| -back | +back |    |
|-------|-------|----|
| *yi   | *yɨ   | yu |
| ye    | yə    | yo |
| (yɛ)  | ya    |    |

| -back | +back |     |
|-------|-------|-----|
| wi    | *wɨ   | *wu |
| we    | wə    | *wo |
| (wɛ)  | wa    |     |

| -back | +back |  |
|-------|-------|--|
| [uui] |       |  |
|       |       |  |
|       |       |  |

## b. Off-glides: None

14. Depending on the dialect, /iy/ generally appears as either [i] (in the southeast) or [ɨ] (in the southwest). For example, *hapiy* ‘agreement’ is realized as [hɨbi] in the southeast dialect, whereas it is [hɨbi] in the southwest.

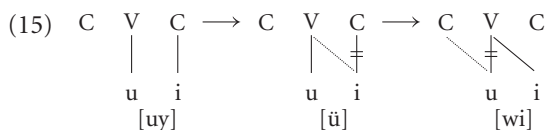
### 3.2 Feature description of the inversion

A result of this series of changes is that all the off-glides of Middle Korean have been lost, whereas the number of on-glide diphthongs has been increased. A prominent historical trend in the Korean vowel system is thus the restriction – indeed, elimination – of off-glides, generalizing on a property in the system that dates back to Middle Korean of the mid-15th century, viz., the preclusion of the particular off-glide /w/. In this section, we show how the overall process of the monophthongization and diphthongization events can be better understood in terms of systematic feature changes.

To recapitulate, the effects of the diachronic monophthongization and diphthongization processes are as summarized in (14).

- (14) a. 18th century: (ɔy >) ay > ε, əy > e  
 b. 19th century: uy > ü (> wi), oy > ö (> we)<sup>15</sup>  
 c. 20th century: ü > wi, ö > we

The monophthongizations of the 18th and 19th centuries can be viewed as manifestations of a general phonological preference which had developed in the language to avoid off-glides of all types, /y/ as well as /w/. The figure in (15) portrays how sub-optimal off-glide diphthongs like /uy/ were shifted to monophthongs during this period.

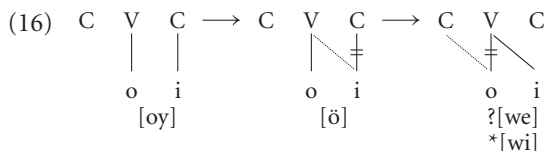


The 19th century developments would seem to have arisen from the earlier and parallel monophthongization that had changed /ay/ to /ε/ and /əy/ to /e/ in the 18th century. That is, both periods of monophthongization involved blending the backness feature of the off-glide into the nuclear vowel as the glide came to be eliminated. But (15) also illustrates that the typologically marked front rounded monophthongs that emerged from diphthongs in the 19th century went through a kind of inversion in the 20th century, becoming diphthongs again via the factoring out of their roundness in the form of the labial glide /w/. As the outcome of this last change is an on-glide diphthong, however, the emergent restriction seeking to avoid off-glides remains in force. Moreover, the directional particulars of this development resolve the apparent paradox of phonological inversion as well because the (off-glide) diphthong of the earlier stage is not the same as the (on-glide) diphthong of the present.

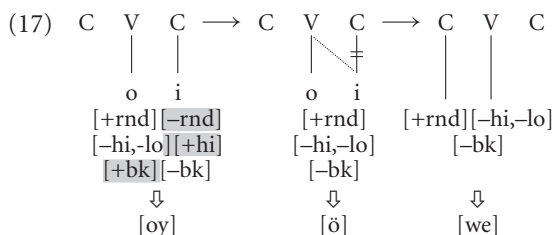
15. Again with some dialectal variation, the monophthongization of /uy/ > /ü/ may have taken place earlier than that of /oy/ > /ö/, as it is often claimed that the former process was completed by the 19th century, while the latter was still in progress until the early 20th century (Ahn & Cho 2003: fn. 8).



An apparent challenge to this analysis, indicated in (16), is to derive the correct diphthong [we], which involves extracting the roundness of /*ö*/ into an interpolated on-glide /w/.



But the difficulty disappears under closer inspection. The feature conflicts which arose between the two components of the /*oy*/ diphthong when undergoing monophthongization are highlighted in (17), which illustrates that the (shaded) [+high] and [−round] specifications of the glide gave way to the [−high] and [+round] values of the nucleus, while the (shaded) [+back] specification of the nucleus deferred to the [−back] value of the glide, all resulting in the mid front rounded vowel /*ö*/. Under diphthongization, subsequently, the [+round] property of /*ö*/ was factored out in the formation of a new glide, which is predictably [+high] and, when [+round], also [+back] in Korean, leaving the nuclear front vowel to default to [−round] status. In sum, the height and roundness properties of the nuclear vowel (i.e., head) remained intact under monophthongization while nuclear roundness transferred to the new glide that was created in the later change of diphthongization.



For ease (or at least familiarity) of exposition, we do not pursue a unary feature presentation here, though it would perhaps be illuminating to do so inasmuch as the singular properties which emerge from the blending of vowel and off-glide are consistently [round], [mid] and [front], suggesting that these are the marked vowel features in Korean. Their absence from the representation would then encode the ‘negative’ values, with /*ö*/ ([round], [mid], [front]) thus characterized as more complex than /*e*/ ([mid], [front]), /*ü*/ ([round], [front]) as more than /*i*/ ([front]), etc. The merger of /*o*/ ([round], [mid]) and /*i*~*y*/ ([front]) into /*ö*/ would then involve merely removal of the segmental boundary between them. Under the conventional binary interpretation adopted here for convenience, the dominance relations of the features for roundness, height and backness in the nucleus vis-à-vis the glide are similarly determined by the values which survive under monophthongization, as presented in (18).

- (18) Nucleus: roundness, height > backness  
 Glide: backness > roundness, height

This same generalization extends to the earlier monophthongization of /ay/ and /əy/, as illustrated in (19). Again, suppressed features are represented with shading, survivors without.

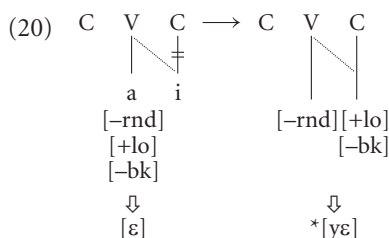
- (19) a. C V C → C V C  
           |   |        |   |   |  
           a   i        a   i  
           [ay]           [ɛ]
- b. C V C → C V C  
           |   |        |   |   |  
           a   i        a   i  
           [-rnd] [-rnd]   [-rnd]  
           [+lo] [+hi]    [+lo]  
           [+bk] [-bk]   [-bk]  
           ↓               ↓  
           [ay]            [ɛ]

In the 18th century monophthongization charted in (19b), the [-round] ([ ]) and [+low] ([low]) properties of the nucleus /a/ along with the [-back] ([front]) property of the glide /y/, from which rounding is absent in any case, survive into the resulting monophthong /ɛ/. This foreshadows the way that nuclear roundness and height values blended with the specification for glide backness to form the feature content of the monophthongs that emerged from diphthongs later on in the 19th century, viz., /ö/ < /oy/ and /ü/ < /uy/. Unlike /ü/ and /ö/, however, these products of 18th century off-glide monophthongization did not undergo on-glide diphthongization later on (\*[yɛ] < /ɛ/, \*[ye] < /e/), in part, perhaps, because the Modern Korean diphthong inventory in (13) already included /yɛ/ and /ye/, but likely in larger measure because front unrounded monophthongs are more fundamental types of vowels than front rounded ones, which are highly marked in the familiar, typological sense. Indeed, the history of English shows a similar response to the markedness of /ü/ and /ö/, which were simply unrounded in the transition from Old to Middle English (cf. *goose* with back rounded vowel, but *i*-umlauted *geese* < pre-OE \**go:si*, now with front unrounded rather than rounded vowel, or, similarly, *i*-umlauted *fill* < OE *fyll(i)an* vs. *full*). The unrounding of front vowels in English resulted in merger with extant /i/ and /e/, of course – a price that language evidently was willing to pay to rid itself of these complex segments.

Korean, conversely, removed these marked vowels by factoring their roundness out in the form of a *w* on-glide to now unrounded nuclear front vowels. This produced a new diphthong in the form of /wi/ as well as new instances of the labial glide+mid front vowel /we/, which had already come into existence via the reduction of /wəy/. Interestingly, as previously described, the possibility of a labial glide+high front vowel diphthong had been rather arbitrarily phonemicized out of the Middle Korean inven-

tory in favor of /uy/, which now comes to be replaced by the very configuration it had won out over before, viz., /wi/.

The conceivable diphthongization of front unrounded vowels mapped out in (20), however, did not take place because there was no motivation for it to have occurred: Its inputs were not particularly marked in comparison to other vowels in the system, and, unlike /wi/ < /ü/, its outputs already existed in the system.



We conclude that the suite of vowel changes which took place in the lengthy transition from Middle to Modern Korean were predetermined, as it were, by the striking asymmetries that were present in the system at the close of the 15th century. Our knowledge of Korean vowel architecture before this time, i.e., before the introduction of King Sejong's phonetically sophisticated alphabet, is not sufficient to comment authoritatively on what gave rise to the odd Middle Korean system or how long it had been in this unbalanced state. But it seems apparent now that, in particular, the unusual paucity of front vowels in the seven-way system in (1) invited the creation of /ɛ/ and /e/ during the 18th century via monophthongization of /ay/ and /əy/, and that the overall absence of labial off-glides (\*Vw) invited the gradual extension of this prohibition to palatals as well (\*Vy), a process which is just now being completed with the monophthongization (or, word-initially, reversal in syllabicity) of /iy/, leading to the structural absence of all off-glide diphthongs (\*VG) in the modern language.

Although the removal of off-glides in the 19th–20th century via monophthongization of /uy/ > /ü/ and /oy/ > /ö/ imposed two typologically marked front rounded vowels on the system, a simplification or demarking of these was effected in the 20th century via the measure of 'breaking' them into the labial on-glide diphthongs /wi/ and /we/. This development was further motivated, we believe, by the fact that there has been a structural ambiguity with respect to /wi/ ever since the 15th century, a combination which presumably could have existed even then were it not for the competition from /uy/ in the system of that time. The diphthong /we/, of course, did not occur prior to the 18th century, either, simply because there was no /e/ up to that time, a vowel which arose only later with the monophthongization of /əy/. In Middle Korean, accordingly, the front unrounded palatal glide did not combine with front unrounded vowels, just as the back rounded labial glide did not combine with back rounded vowels. In modern times, however, the vowel /e/ does exist, a product of the 18th century reduction of /əy/ > /e/ (as well as of the 20th century raising of /ɛ/ < /ay/ to /e/), and throughout this modern period combinations of the palatal glide with non-high front vowel – diphthongal /ye/ (and earlier /yɛ/) – have been fully sanctioned. This suggests

then that the OCP limitation even in earlier stages of Korean did not hold systematically against juxtaposition of the palatal glide to front vowels generally, because the creation of /ye/ </yæy/ and /yɛ/ </yay/ in the 18th century was not inhibited. But OCP restrictions in the system still militate against high vocalic sequences which share the same value for backness (blocking \*/yi/, \*/iy/, \*/wu/ and even \*/uw/ [out in any case because of the labial off-glide]) or any vocalic sequences which share roundness (blocking \*/wo/ and [15th century] \*/wɔ/ as well as \*/wu/).

With the 18th century monophthongizations of /wəy/ to /we/ and /way/ to /wɛ/, moreover, /w/ came into position before front as well as back unrounded vowels, two new combinations whose previous absence appears to have been only accidental in the system and whose very creation may have primed the pump in the 19th–20th century to break /ö/ into /we/ and /ü/ into /wi/. The modern emergence of /wi/, too, takes advantage of a structural peculiarity in the system, for with the metamorphosis of Middle Korean /uy/ (orthographic <ui>) into /ü/, the door was opened for this vowel to follow the alternative diphthongal interpretation of its components, viz., /wi/.

The last step in these several historical changes, the widespread and on-going raising of /ɛ/ to /e/, reduces markedness and skewing in the basic vowel inventory even further, finally giving rise to the symmetrical 7-way system of monophthongs (less those in parentheses) of Modern Korean that is charted in (12).<sup>16</sup> Throughout this history, then, prominent phonological changes in the Korean vowel system have been determined naturally, with one development leading to the next in a progression that reflects the ‘ingenerate’ or built-in character (Iverson & Salmons 2003) of the basis for the changes, viz., the structural instabilities and distributional peculiarities which inhered in the asymmetric systems of the initial state in (1) and (2).

#### 4. Concluding summary

This paper has sought to unify the monophthongization events of the 18th (/ay/ > /ɛ/, /æy/ > /e/) and 19th centuries (/uy/ > /ü/, /oy/ > /ö/) with the diphthongizations of the early 20th century (/ü/ > /wi/, /ö/ > /we/). Both monophthongizations are shown to have consisted in a merger of features in vocalic sequences that was motivated by a developing aversion to off-glides. The later breaking or diphthongization of resultant front rounded vowels /ü/ and /ö/ to /wi/ and /we/, in turn, was facilitated by the absence of these output sequences in an otherwise largely symmetrical system of on-glide diphthongs, a change set off by the same markedness considerations as caused front vowels to unround in the history of English. A key property of the historical develop-

16. In casual speech, there is an incipient parallel raising of /a, ə, o/ to [ə, i, u] in many common words, e.g., *ha-ko* “do and” → [həku], *əlin* “adult” → [irin], *sə-ta* “stand up” → [sida], as well as raising of [e] to [i] in *ne-ka* “you (subject)” → [niga]. Still limited to certain lexical items and styles of speech, these processes are not nearly as widespread or frequent as the raising of [ɛ], though they may portend a future direction the vowel system is likely to take.

ments in Korean, moreover, is that the height and roundness qualities of the nucleus vowel in diphthongs remained intact under monophthongization and survived as well into the new nucleus that emerged in the later change of diphthongization. Throughout its vocalic history of the past 550 years, then, Korean has moved progressively from a sharply asymmetric 7-way system of monophthongs in the 15th century to the symmetrical 7-way system of today, and from a widely distributed system of 13 diphthongs to one of 9 on-glide structures (or 10, with marginal /ui/) today. The latter development was precipitated by the emergent prominence of increasingly general limitations against off-glide diphthongs, there having been none formed with *w* even in Middle Korean; today, through the progression of changes charted here, there are none formed with *y*, either. Other sequential (notably, OCP-related) constraints have been dominant in the system since the 15th century, whereas novel segmental limitations have arisen with the promotion, over time, of markedness constraints against low rounded vowels, front rounded vowels and now, increasingly, low front vowels. The interplay of these developments with both original (e.g., exclusion of *w*-off-glides) and novel systemic factors (prohibition of all off-glides) has led directly to the symmetrically arranged array of vowels and the seemingly skewed set of phonemic diphthongs that comprise the vowel system of Modern Korean.

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# Final features and proto-Uto-Aztecan

## A contribution using morphological reconstruction

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### 1. Final features in Uto-Aztecan

One of the classic problems for the reconstruction of the Uto-Aztecan (UA) family is how to incorporate the nasalizing, geminating, spirantizing, and preaspirating “final features”, a characteristic identified initially in the Numic branch of the family. However, a number of proposals have been made about the way the “features” should fit into the reconstruction of proto-Uto-Aztecan (pUA).

In this paper, I will review some of the recent work relevant to the problem and then introduce new evidence from southern Uto-Aztecan languages to support the hypothesis that the so-called *nasalizing* feature has its origins in pUA \*-rV morphemes. The hypothesis is based in part on the identification of certain sound correspondences between the coronal consonants in the languages and their reconstruction to proto-Uto-Aztecan.

In the final section, I will discuss the implications of the reconstructions for the subgrouping of the family. However, for reference purposes in Table 1 is a brief outline of the Uto-Aztecan family by subbranches, organized as is usual from north to south. Rather than be committed to larger groupings, I have indicated the intermediate branches proposed in a number of classifications between square brackets. I will speak of “northern” and “southern” languages, but in doing so am referring to geographical position.

Sapir (1915), as part of his comparative work on Southern Paiute and Nahuatl, first identified and introduced the general term for these features in Uto-Aztecan languages. “Final feature” describes the situation in which a morpheme that ends in a vowel word-finally, will, when not final, have a particular effect on the first consonant of the following morpheme, either (a) “spirantizing”, also described as lenition in the literature, (b) geminating or non-leniting a following stop consonant, (c) “preaspirating”, or (d) “nasalizing”, a case in which a homorganic nasal appears before the



**Table 1.** Classification of Uto-Aztecan languages (revised from Mithun 1999) (subgrouping proposals given in brackets)

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|     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     | [Northern Uto-Aztecan = 1, 2, 3, 4]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 1.  | Numic (Western (Mono (California), Northern Paiute (Idaho, Nevada, California, Oregon) (3,000–5,000 speakers), Fort McDermitt, Nevada, Paviotso (extinct?), Bannock (extinct?); Eastern (Shoshone, Big Smokey, Gosiute, Comanche, Panamint (Death Valley and Lone Pine, California; Beatty, Nevada); Southern (Ute dialects, Ute, Southern Paiute, Chemehuevi, Kawaiisu))                                                                                                                                                      |
| 2.  | Tübatulabal – Kern River                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 3.  | Hopi                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 4.  | Takic: Serrano, Kitanemuk (extinct?), Gabrielino-Fernandeño (extinct), Cupan (Cahuilla-Cupeño), Luiseño                                                                                                                                                                                                                                                                                                                                                                                                                        |
|     | [Southern Uto-Aztecan = 5, 6, 7, 8, 9, 10, 11]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 5.  | Tepiman: Pima-Papago (Upper Pima), Papago (Tohono o'odham = desert people); Totoguañ (east, central); Koloodi (southeast); Pisinomo'o; Western edge, Pima (Akimil o'odham = river people), Salt River, East Gila River, West Gila River, Kobadt; Névome; Lower Pima; Yécora, Sonora; Maycoba, Sonora; Tepehuán: Northern Tepehuan; Baborigame (principal dialect); Nabogame; Southern Tepehuan; Southeastern Tepehuan, Municipio of El Mezquital, Durango; Southwestern Tepehuan, Municipio of Pueblo Nuevo, Durango; Tepecano |
|     | [Taracahitan = 6 and 7]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 6.  | Tarahumara-Guarijío (Tarahumara: Northern and eastern Tarahumara (Sogichi, Naráachi, etc.), Western Tarahumara (Cerochui, Chinipas), Southern Tarahumara (Guadalupe, Calvo); Guarijío: Mountain Guarijío (de Chihuahua), Lowland Guarijío (de Sonora))                                                                                                                                                                                                                                                                         |
| 7.  | Cahita (Yaqui and Mayo)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 8.  | Opatano (Opata (extinct?)); Eudeve (extinct)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 9.  | Tubar (extinct?)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|     | [Nahuatl-Corachol subgroup = 10 and 11].                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 10. | Corachol (Huichol; Cora)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 11. | Nahuatl (Eastern Nahuatl; Western Nahuatl ) [a historical classification]                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

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following consonant. Sapir was the first to suggest tentatively that at least the nasalizing forms had been final *segments*, and that some had originally been followed by a vowel:

If *ɔvi-* (plus its nasalizing power) corresponds in all respects to N. *uapali-* “planche,” we must suppose that final *i* of \**ɔpin'i-* was syncopated and that *-n'*, not being able to stand at the end of a word, could maintain itself only when followed by a stopped consonant, in other words, lingered on as a nasalizing peculiarity of the stem. There is no doubt, from comparative evidence, that there are several cases in Southern Paiute (and other Shoshonean dialects) of nasalized consonants resulting from the syncope of a vowel between an original nasal (*m*, *n*, or *ŋ*) and a stopped consonant. (1915: 105)

Sapir continues:

These three causes, then – assimilation to nasal of stem, syncope of vowel following nasal, and reduplication – may, in the present state of our knowledge, be

advanced as responsible for the presence in Shoshonean of nasalized stops. *They are clearly not, any more than the spirantal developments of stopped consonants, to be attributed to original Uto-Aztecan.* (1915:106, emphasis added)

Using principally evidence from Numic languages, Whorf (1935:602–603) reconstructs final features for pUA. Voegelin, Voegelin & Hale (1962:89–100) also reconstruct the features for the entire family, including them internally in CV<sup>Feature</sup>CV morphemes, but describe them instead as characteristics of pUA vowels.

Much of the more recent work on the phonology of UA has pointed to a segmental status for some of the features both within the Numic branch and more generally in the pUA family. For example, Elzinga (2003), in his description of Gosiute consonants has argued that there are grounds for considering final features to be full segments. In his published and unpublished work Manaster Ramer (1986, 1991, 1992, 1993, 1994, 2002a, 2002b), using evidence from the northern Numic languages and Tübatulabal, and from the southern languages Guarijío and Huichol in particular, has proposed that pUA had a contrast between open and closed syllables, and has reconstructed closed canonic forms for UA morphemes that in most cases correspond to those morphemes described as having geminate or nasal final features. In his more recent work, Manaster Ramer wrote:

Sapir ... and Whorf ... hinted at a contrast between open and closed syllables in pUA. However, at the time there was little evidence for this outside of the tightly knit Numic subgroup of Northern Uto-Aztecan languages (the most celebrated of which is Southern Paiute). ... I have sought, over the past few years, to marshal the evidence necessary to test their hypotheses. (Manaster Ramer 1992:436)

## 2. pUA Coronal Consonants \*t, \*r, \*n, \*ç, (\*s), and palatal \*y

Part of the evidence in this paper comes from establishing the correspondences of the languages outside Numic with that branch's nasalizing feature. A number of isoglosses involve the interplay of the reflexes of the coronal pUA consonants \*t, \*r<sup>1</sup>, \*n, \*ç, and \*y, which can be seen in particular in noun derivation and inflection. There are different reconstructions for \*r and \*n, depending on the analysis of the direction of change. Also, as noted below, some linguists have reconstructed \*ŋ as well as \*n.

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1. \*r versus \*l. For the reconstructions, I have used \*r rather than \*l simply because there are more languages that have *r* than those that have *l* for this correspondence.

### 3. Changes in pUA \*r (or \*l)

One of the points of disagreement in reconstructions of pUA concerns the *r/n/y/?* and the *ŋ/n* correspondences. The two hypotheses are summarized in 3.1 and 3.2.

#### 3.1 \*n and \*ŋ (Sapir 1915:315; Voegelin, Voegelin & Hale 1962:30; Kaufman ms, 1981; Silver & Miller 1998)

\*n > SUA \*r/V\_V

\*n elsewhere

(*n/r/y* correspondences not identified)

\*ŋ > SUA \*n

Although there is not space to argue against the existence of the pUA \*ŋ reconstructed in previous work, a proposal (§3.1) which attributes the origin of all intervocalic *n*'s in the southern languages to the pUA velar nasal, is problematic in terms of reconstruction because there are cognates with an intervocalic *n* in the southern languages that corresponds to *n* in the northern languages, for example \*naʔ- "to burn" > -naʔ in Numic languages, cf. \*ku- "wood" + \*naʔ > Shoshone *ku-naʔ* "to burn (wood)", \*çi- "brush, twigs" + \*naʔ > Nahuatl *çi-na-wi* "to burn (a field)", \*ta(hi) "hot, fire" + \*naʔ > *tla-na-wi* "to have a fever".

#### 3.2 \*r and \*n

In this view, several changes are involved.

##### 3.2.1 \*r > n in northern languages

The most general change, which has been discussed in the literature, is that \*r > n in most environments in Numic, Tübatulabal, Hopi and Takic. The changes involving \*r are much more complicated, however.

##### 3.2.2 \*r > ʔ, Ø as well as to r in some southern languages

Stubbs (1994) in his work on the correspondences involving the "illusive liquids" has shown a number of regularities in the correspondences of \*r with ʔ and Ø in Cahitan and some other southern languages. Dakin (1995, 1996, 2000a) has provided evidence from Nahuatl for the loss of -l- (< \*r) in a number of formations that would have a \*-ri in a reconstruction based on southern languages.

##### 3.2.3 \*r > y

In Dakin (2002b) a sound change is described by which \*r > y intervocalically before or after a high vowel in a number of languages that include Nahuatl, Huichol, Cora, and Cahita. There is some evidence to be shown here that it became \*y in pre-Takic as well,

as can be seen in contrasts found in Kitanemuk. Dakin (2002b) also gives evidence of additional reflexes of pUA \*r that include Nahuatl *y*, *l*, and length when intervocalic.<sup>2</sup>

### 3.2.4 \*r > ? intervocalically

It becomes clear also that in some positions \*r > ? in both northern and southern languages. These include some Takic languages, as well as specific environments in Numic languages. The change was noted by Sapir (1915:314) for Southern Paiute.

### 3.2.5 In northern languages \*n > ŋ in specific environments.

#### *n elsewhere*

The cases of *ŋ* in NUA languages appear to reflect \*n > *ŋ* changes in certain positions in different languages or to derive from sequences of \*n(V)w, \*n-k, onomatopoeia, etc. Also Munro (1973) has argued that pUA \*w is also a source of Proto-Cupan \*ŋ. Many of the reconstructions that have initial *ŋ* may be onomatopoeic, for example Bright & Hill (1967) reconstruct Proto-Takic \*ŋa “to cry”, is based on Cahuilla -*ŋáŋ* “to weep, cry; to sing, of birds”, which I think corresponds to Mono *yaqa* “to cry”, Mono *yawi*, Tubar *nawi*- “to laugh”, Southern Paiute *yakai*: “cries, (horse) neighs, (owl) hoots”. The forms with correspondences between *ŋ*, *m* and *w* in some cognate sets make one suspect original consonant clusters that have been simplified according to regular rules.

In §3.1, the first proposal discussed, which would have pUA \*n > *r* and a pUA \*ŋ to *n* in southern and some northern languages, the additional *r/n/y/?* reflexes in the correspondence sets that are described in parts (3.2.3) and (3.2.4) of (3.2) are not considered and constitute difficulties for that proposal. In contrast, (3.2) pUA \*n’s in northern languages are retained as *n*’s, while the \*r reflexes are varied.

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2. There are other sources for *y* as found in different languages.

- (1) \*ç > *y*. Another source of *y* in northern language is pUA \*ç. Manaster Ramer has argued for the change of \*ç > *y* as an innovation that for him would help define a Northern Uto-Aztecan subgroup. Dakin (2004) has shown that pUA initial \*ço is the source of proto-Takic \*yu.
- (2) \*p > h > *y*/\_\_i. In Dakin (2000b), I also argued that some *y*’s come from pUA \*p before the mid-vowel \*i. This change is shared at least partially by Takic, Hopi and the southern languages Cora, Huichol, Nahuatl, Tepiman languages, and Cahitan, but not by the other northern subgroups.
- (3) \*y > *y*. Finally, it is possible to reconstruct pUA \*y on the basis of *y-y* correspondences in all the languages in a few basic cognates.

#### 4. Manaster Ramer's pUA closed syllables

As noted in (1), Manaster Ramer reconstructed closed as well as open syllables for pUA. The following evidence has led me to suggest that the final consonants were segmentable and part of a following pUA CV syllable – or morpheme – that has lost the final vowel in the languages on which he has based his analysis. Manaster Ramer has reconstructed \*n and \*ʔ as two of the syllable final consonants for Takic, Tübatulabal, Hopi and other UA. Analyzing the final segment as a part of a following CV morpheme that has lost the vowel would help to explain why some morphemes are found to occur with two or more different features, one of the puzzling aspects of the distribution of final features. I. Miller (1982) pointed out a number of cases of variation in Numic. The fact that the suffixes are not used in every derivation or compound would be one source of that variation.

It is important at this point to remember one contrast between the reconstruction I am making and the systems Manaster Ramer and Kaufman reconstruct. Manaster Ramer reconstructs \*r in contrast with \*n, while Kaufman considers the *r*'s in southern languages to be reflexes of pUA \*n. However, both Manaster Ramer and Kaufman reconstruct a final \*-n to correspond to the Numic nasalizing segments.

#### 5. \*-ri, \*-ra are the source of many “syllable final nasals”

##### 5.1 Reflexes of \*-ri and \*-ra

Instead of the reconstruction of final \*n and \*ʔ, I reconstruct sequences involving \*-ri and \*-ra, corresponding to *-li/-l/y* and *-ya*, etc. in Nahuatl, to *-ra* and *-ri* in Guarijío, Tarahumara, and Tubar, to *-ri* and *-y* in Cora and Huichol, to *-ri/-ʔi*, and *-(y)a* in Cahita, and to \*-dz(i) and \*-da in Tepiman languages. Initial arguments for the reconstructions are outlined in Dakin (2002b).

I suggest that these two grammatical morphemes may be the sources of most if not all cases of the homoorganic \*n and many of those of the glottal \*ʔ that Manaster Ramer has reconstructed as syllable final consonants. The frequency with which the *n* and *ʔ* reflexes appear as the syllable final consonants *-n* and *-ʔ* in the northern Uto-Aztecan languages led me to look for such a grammatical origin, that is, an inflectional or derivational morpheme that has lost the final vowel. Such morphemic sources would be in addition to ones such as the reduplication of C<sub>[+nasal]</sub>V- syllables suggested by Sapir (see above) for Southern Paiute and for Numic by I. Miller in 1982.

The functions of the two suffixes are not well-defined, but it is clear that the \*-ra requires the presence of a patient argument or marks a noun as possessed, while the function of the \*-ri appears to be to derive nouns from roots, and it may be either a nominalizer or a class-marker of sorts. There are also morphemes of the form \*CVra in which the \*-ra may be part of the root rather than a suffix. The comparative evidence for these forms follows:

5.1.1.1 *STEM + \*-ri suffix “nominalizer; realized action”*5.1.1.1.1 *RULE: \*-ri >*

pTakic \*-ʔi; pCupan (Jacobs 1975:154) \*-ʔi “realized (or past tense) suffix”; pNumic \*-n, \*-ʔi; Hopi -ni-, -n, -ʔi; pTepiman \*-li- > STepihuan -ʔi: *gaʔ -ʔi-ʔaʔ* “sell-RI-RA = to sell to”; pNahuatl \*-l, \*-li-: *-ista-li-ya* “white-RI-RA = to whiten”

5.1.1.2 *RULE: -\*ri + t “absolute”*

Cora (18th Century) *-ri-t*, (modern) Cora *-ri*: 18th century Cora <*cérit*> *sé-ri-t* “ice, frost”; Huichol *-ri* (reanalyzed as plural marker for noun class); Nahuatl *-tl*, also *-l(-li)*, *-li(-n)*: Nahuatl *se-tl* “ice”; Hopi, Numic, Tübatulabal *-n+t*; pTakic \*y-t: Kitanemuk \*y-t > č: *huʔ-č* “star, landsnail”; *pa-č* “water”; Cahuilla *-ʔ*, Luiseño *-l*, *-ʔ*

5.1.2 *\*STEM + \*-ra suffix*5.1.2.1 *\*-ra suffix “possession, abstract; durative”*

\*-ra > -ra/-la; \*-ra-wV > -lo:-/\*-ro

Eudeve *-ra*: *ba-rá-wa*, *ba-ra-wa-t* “water” *-ra-POS-ABS* “soup”; *-ra-wa*, (*-ra-h-ta*), *-ra-wa-t* “habit, facility”; Cahuilla *-la*: *kuna-la* “married (man-possessed)”; *pítta-la* “clenched”; Cora *ru-* “3rd per possessive” (Langacker 1977:79)

5.1.2.2 *\*-ra > \*ya / V<sup>(+high)</sup> \_\_\_*

Nahuatl \*-ya/-yo[:], *i:-tek-ya* “his cutter”;

Huichol *-ya* “3rd per possessive pron”.

\*-ya > pTepiman \*-da: O’odham *hohoʔ-da* “loved” (<\*soʔ- “precious” + POS); STepihuan *gaʔra* “to sell”, *gaʔra-da-m* “seller”

5.1.2.3 *\*-ra > \*ʔa, \*-n(a)*

pNumic \*ʔa, \*-n(a): Mono – “*-na* (Langacker 1977:63) “instrument, place”

pTakic \*-ʔa, \*-n; cf. pCupan \*-ʔa (Jacobs 1975:154) “durative” (cf. Nahuatl *-ya* “imperfect”).

Hopi \*ʔa, \*-n: 3SG. *-ʔa-t* “his/her/its”

5.1.3 *\*CVra root (+ suffix)*5.1.3.1 *\*kura “celestial”*

Eudeve *me-kura-wat* “height of the sky”; Nahuatl *kiya-wi* “to rain”; pNumic (Iannucci 1973:137) \*pa-kəna-h (< \*pa- “water” + \*kura): Shoshone *pa-kənapəh* “thunder cloud”; Southern Paiute *pa-kin* “fog, cloud”; Mono *pa-kún-ah*; Northern Paiute *pa-kəna-p-pə*; pNumic \*tu-kun “sky”: Panamint

*tu-kum-panapi*, Shoshone *tu-kum-pin*, Möhineyam *duguba-t*; pTactic \**tu-ku-pa-*: Gabrielino *tu-ku-pa-r*; Tübatulabal *to-gu:m-ba-l* (Hill-Miller *tu-16*); Tepiman: STepheuan *tu-k̄i-a* “to turn black, get dirty”

5.1.3.2 \**mura* “spike, ear”:

Guarijío [*sunú*] *mulá-la* “[corn] spike”; Nahuatl *miya-wa-tl* “spike of plant”, Cora (JM) *t’itá-miyu* “it is forming the ear”; O’odham *mudá* “spike”; Hopi *moŋ-wi* “leader”

5.1.3.3 \**pura* “to tie, keep”:

Tarahumara *burá* “to wrap, tie”; STepheuan *butia?* “to tie”; Yaqui *puá-hta* “to pack”; Nahuatl *piya* “to keep”; Huichol *hia=, tapie* “to tie”; Tübatulabal *pu:na-t* “to tie a knot”; Hopi *poni(k-)* “to coil up”; Kitanemuk *pin* “tie”

5.1.3.4 \**tura* “darkness” > “unknown, spirit”

Guarijío *tulá-wa* “it’s cold”; Nahuatl *tiyo:tl, teo:tl* “divine”; Kitanemuk *tiy-t* “spirit”

5.1.3.5 \**sura* “mental or spiritual process”

STepheuan *hur* “heart”; Nahuatl *siya/seya* “to agree, accept”; pNumic \**sumpa*, \**sumpi* “know/recognize” (Iannucci 186) Shoshone *sum-paatu* (also “learn”), *sum-panai* (“know someone”); Northern Paiute *su(h)pita(h)k<sup>w</sup>a(h)tu*

5.2 Evidence for \*-*r(V)* as one source of Manaster Ramer’s “morpheme internal syllable final nasal”

There is a second part to Manaster Ramer’s proposal (2002b) about final consonants:

In the Northern Uto-Aztecan languages, there is good evidence for stems of the form \*CVNVCV. In Tubatulabal and Southern Paiute, the nasal appears as such, in Serrano the nasal sometimes comes out as *-h-*, and sometimes as zero, whereas in Hopi it appears as preaspiration before a stop but as a nasal before *w*. Some of these stems are attested in SUA languages and hence are presumably pUA vintage but there as yet is no evidence that SUA languages preserve any special reflex of the nasal.

Manaster Ramer notes that the “vowel features” on a first vowel that Voegelin, Voegelin & Hale (1962: 86–93) reconstruct would be equivalent to the nasals in his reconstruction. My proposal draws on Manaster Ramer’s ideas about the analysis of CVhCV forms in Guarijío, but differs from his position because of the Nahuatl evidence I will bring in. The existence of the reconstructed derivational \*-*ri* and \*-*ra* suffixes before a following root would actually point to analyzing my \*CVRCV forms as compounds. There is paradigmatic evidence from the southern languages – and from Tactic, for seg-

menting the first \*CV- as a root followed by a \*-r(V) suffix to create a derived form that is compounded into some compound nouns. The \*-r(V) suffix becomes the “nasalizing feature” \*CV<sup>n</sup>CV stems in Numic. In some cases, the syllable-final *-n* in the first syllable appears to have moved to the end of the stem in some Numic languages, but is retained in others in its original position, as McLaughlin (1987) has shown, and as will be seen below. For Hopi, Hill et al. (1998:3553) notes that some forms show *-n*-before certain suffixes or in compounds, as in *nima* “go home” + *katsina* “kachina” > *Nima-n-katsina* “Home Dance kachina”. The \*-rV suffixes are reflected in various ways in the southern languages, including as an *-l-* in Nahuatl in archaic compounds and in the class of denominative verbs derived in *-liwi/-lowa* (cf. Dakin 2006a, 2006b), as well as in the CVhCV forms in Guarijío that Manaster Ramer has identified.

Returning to Manaster Ramer’s analysis, many of the first CV’s of his \*CVNVCV stems appear to have been segmentable stems formed by a \*CV root followed by a \*-rV suffix that have been compounded into forms that have lexicalized, some perhaps at the pre-pUA level. In this case also, evidence for the reconstruction comes from the southern Uto-Aztecan languages.

### 5.3 \*CV-ri stems

#### 5.3.1 \**pa-ri*, \**pa-* “water” (cf. Miller & Hill 2004 \**pa-07*; Manaster Ramer 1993 \**pa*):

Shoshone *pa-m-poaH* “to float”; Tübatulabal *pa:-n* “soup” (cf. *pa:-l* “water” from \**pa-t*); Huichol *há-rí-tia* “to serve agua”; Nahuatl *papa-lo-wa* “to lick”; *a-l-tepe:-tl* “settlement”; *a-l-moloya* “boiling water place”; *a-l-tia* “to bathe”; *a:-tl* “water” < \**pa-ri-t*; but Eudeve *ba-t*, *bá-ta* “water”.

#### 5.3.2 \**to-ri* “interior (esophagus, stomach, etc.)”:

Kitanemuk: *toʔ-č* “belly”, cf. *toʔ-y* (poss. obj.); Luiseño: *té:íla*; Nahuatl: *to-lo-wa* (<preNahua \**to-li-wa*) “to swallow”/ “bend head down”; *to-s-ka-tl* “voice”; Guarijío: *to-h-pá* “stomach, belly”; *to-ló-gala* “throat, trachea”

#### 5.3.3 \**tí-ri* “rock”:

pNumic \**tí-n-*: Panamint *tí-m-pin* “rock”; Tübatulabal *tí-n-t*; Guarijío *te-h-te* “rock”; *te-h-pú-* “cut into pieces (with stone instrument)”; Nahuatl *te-te-lo-wa* “to hit with the elbow”; *te-l-olohtli* “eye”, *te-l-iksa* “to kick”, *te-te-l-li* “rock field”; Kitanemuk has *timí-t*, instead of the expected *tí-č*, but the *-mí-* may be a separate morpheme; *tíčk* “to kick” may, like Nahuatl *te-l-iksa* above, reflect \**tí-ri*.

#### 5.3.4 \**tu-ri* “dark, black”:

Tepiman: O’odham *ču:-d-* “charcoal”: *ču:d-t* “make embers of wood, etc.”; *ču:-dag* “embers, charcoal”; Tacic: Kitanemuk *tu(-)č* <\**tu-ri-t* “charcoal”; Numic: Mono *tu-m-mu* “black”.



## 5.3.5 \*wo-ri “cob”:

Nahuatl *o-l-o-lo-wa* (redup) “to roll”; *o[:]lo:-tl* “corncob” (although also possibly < \*o’o- “bone”); \*wo-ri- “cone” + \*ku- “tree, wood” > \*wo-R-ko “pine” (Iannucci 1973:275 pNumic \*woŋko(N) “pine tree/fir/spruce”) Shoshone (*w*)*o-ŋ-ko-pin*, Southern Paiute *oko-ŋ*, Mono *wo-h-qo-pə*, Northern Paiute *wo-h-ko-h-pi*, Nahuatl *o-ko-tl* “pine”, Guarijío *wo-h-ko*, Tübatulabal *woho-m-bo: -l* (Voegelin), Kitanemuk *woko-h-t* “pine species”. In \*wo-r(i)-ku-t, it appears that the pUA \*r > pNumic \*n that moves to final position in Southern Paiute. In Tübatulabal and Kitanemuk the \*r that is moved from \*wo-r > \*h, whereas when it is not moved, as in Kitanemuk *pa-č* < \*pa-ri-t.

## 5.3.6 \*ya-rV “to be located”:

Nahuatl (Huasteca) (*y*)*e-l-to:k* “to be”; \*ya-r-ča (VVH 076 \*ya<sup>n</sup>sa “to sit”, Manaster Ramer \*yansi Tübatulabal *ya-n-dzít* “to sit down; to set (of the sun)”; Hopi *ye:se* (*yes-*) “to sit; to live, inhabit (sg)”; Guarijío *ya-h-cá-* ~ *ya-h-ca-* “to seat”, Cahita *yé: -sa* “to sit (sg)”, *yé: -ča* “to seat (sg)”; Nahuatl *-ye-č-* “to be” (in honorific reflexive verb *mo-ye-č-tika*)

## 5.3.7 \*-ka-ra “agentive or characterizing suffix”:

Ktn *-?kay*, *ki?-?kay* “captain (lit. he who has house(s))”; *poho-?kay* “furry”; WSh *-ka-n-tin*, *ke-puih-ka-n-tin* “blind=not a seer”; Tepecano *-ka-r* “instrumental”; Nahuatl *-ka:-*, *teopiš-ka:-č-in*

## 5.4 \*CV(C)CV-R

There are more roots reconstructed by earlier analyses as \*CV(C)CV-n that would correspond to my \*CV(C)CV-R(V) constructions. Kaufman (manuscript) included a number of CVCVn forms in his reconstructions, such as \*wokon “pine”, \*yakan “nose”, and \*hə(ə)kan “wind” (1981:215). Nichols’ (1973) reconstructions for pNumic with final nasals include \*nampai “foot”; \*pan-wi “fish”; \*taman “tooth”; \*wopin “board, wood, timber”; \*tukun-pa “sky, clear weather”; \*wih-kun “buzzard, aura”.

## 6. \*CVNV roots

There are some \*CVC forms that end in final pUA \*-n, since they show *n* in southern languages as well as northern ones, as seen below.

## 6.1 \*cun (Miller &amp; Hill, ka-20) “end, point”

Nahuatl *č-in-* “base”; *č-in-ti* “to begin”, perhaps the honorific suffix *-č-inowa* Mono *taqqa-cun* “point, tip of a long object” Shoshone *ka-cun* (acc. ~a) “end (of a stick, story)” Cf. Iannucci 056 \*kacun “point, end”

6.2 \*monV “in-law”; p-Numic (Iannucci 94) \*mona, \*muna “son-in-law”:

Shoshone *monappə*, Southern Paiute *munna*; Hopi *mɔʔnaŋ*<sup>w</sup> “groom, sister’s husband, husband of a woman in one’s clan or phratry”, Eudeve *món-wa* Gua *moŋné* “daughter-in-law”, Tarahumara *moŋnéra*, Cah *móŋone*, Cora-JM *n’a-múŋu* (PL. *n’a-mú:n’i-m<sup>w</sup>aʔa*) “my affinal relative” Huichol *mone*, Nahuatl *mo:n-tli*

7. A note on UA geminating stems

The origins of the geminating stems in northern languages have not yet been considered, and space here does not permit their inclusion. However, if the “nasalizing features” have morphological sources, as described here, the “geminating morphemes” may also have their origin in morphological sequences. Sapir (1915:105), as noted earlier, suggested for words that begin with nasals that the gemination comes from the reduplication of the following segment, especially since the geminated alternation sometimes, although not always, seems to reflect a distributive or plural action sense in some ways. Although Sapir expressed doubts about identifying particular sources for other geminated consonants, that explanation may hold also for at least some of them, but the semantic details would need to be considered. There are a few Nahuatl nouns that form their plurals by reduplicating the second-syllable, for example: Nahuatl *te:l-poč-tli* ‘young man’, *te:l-po-poč-tin* ‘young men’, although this form does not appear to be cognate with Numic forms. Another possible source of gemination in Numic languages would be that the preceding vowel was glottalized.

8. Conclusions

8.1 Final features do not reconstruct to proto-Uto-Aztecán

In previous work on Uto-Aztecán, proposals have been made that the nasalization found as a final feature in Numic languages should be reconstructed as a feature of the protolanguage. Reconstructions by Whorf (1935), Voegelin, Voegelin & Hale (1962), Manaster Ramer (1986, 1991, 1993, 1994, 2003) and Kaufman (1981) have posited pUA stems with final nasal consonants, \*CVCVn. Manaster Ramer has proposed reconstructions of stems that end in other consonants as well. The reconstructions proposed in this paper differ from Manaster Ramer’s because many, if not all, of the consonants are not considered final, but rather suffix initial: \*(CV)CV-RV, forms also compounded into longer stems. The evidence analyzed here, drawn from several southern languages and from Takic, points to the reconstruction of vowel-final stems to which these \*-rV morphemes are added in derivational and inflectional formations. The \*-rV morphemes are found with the following vowels in some constructions in

languages that include Guarijío, Tarahumara, Tubar, Eudeve and 18th century Cora, and can be reconstructed with regular changes in Nahuatl, Yaqui, and languages of the Tepiman and Takic branches. The final *-n*'s found in a number of northern languages as well as the Numic "nasalizing final feature" reflect the \*r > northern \*n and are relics of these pUA constructions.

## 8.2 Isoglosses involving \*r and \*n cut across a north-south division

The geographical patterning of the correspondences \*n > n, ʔ and ɣ found for the stems ending in \*-rV also appears to support an intermediate position for Takic languages and perhaps Hopi as well between the rest of the northern languages and the southern languages. At the same time, the different reflexes of \*-rV in the southern languages do not really support the unity of these languages as a genetic group.

Such findings should be included in the consideration of UA subgrouping. Uto-Aztec comparative linguistics, including the reconstruction of pUA, has its roots in important work by Sapir, Whorf, Voegelin, Voegelin & Hale, Miller, and later key contributions made by Heath, K. Hill, Langacker, Manaster Ramer, Munro, Stubbs, and others. However, it is still a developing field. It has been possible to identify important features and trace the innovations only gradually through detailed research and sifting of the data, as seen, for instance, in Manaster Ramer's identification of the change of pUA \*ç > ɣ under specific conditions in northern languages. It is hoped that the analysis presented in this paper will suggest new paths to look for evidence for the reconstruction and classification of proto-Uto-Aztec.

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# Facts, theory and dogmas in historical linguistics

## Vowel quantity from Latin to Romance\*

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### 1. Introduction

The aim of this paper is to sketch a reconstruction of the diachronic development of vowel quantity in the Romance languages. The discussion of (selected aspects of) this empirical dataset will be put to use to bring home two general points which, at first glance, may look rather obvious but actually turn out not to be obvious (anymore) in current theoretical debates. I would like to show, on the one hand, that historical evidence can shed light on competing synchronic analyses and on related theoretical issues (§§4–5); and, on the other hand, that the study of historical linguistics needs its own set of methodological tools, which cannot be simply replaced by the application of any theoretical model for synchronic description, however refined. This set of tools, in particular, includes two procedures that are specific to historical linguistics, viz. comparative reconstruction and the inspection of the philological record (§§7–10).

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\* Parts of this research have been presented previously in talks at the universities of Copenhagen (August 2003), Pisa (Scuola Normale Superiore, February 2004), Graz (December 2004), Roma Tre (February 2005), Geneva (March 2005), Cluj-Napoca (May 2005). I thank the organizers of ICHL XVII for giving me one more opportunity to present these results, as well as the audiences in Madison and elsewhere for feed-back and discussion. I am also indebted to Tom Cravens, Marcello Barbato, Yves Charles Morin, Stephan Schmid and one anonymous referee for comments on previous drafts. Throughout the paper, the following abbreviations will be used: f(eminine), m(asculine), pl(ural), s(in)g(ular), O(pen) S(yllable) L(engthening), O(p)timality T(theory), P(roto)/W(estern)/N(orthern)/It(alo)-Rom(ance), R(addoppiamento) F(onosintattico), V(owel) Q(uantity).



In both these domains, the Latin-Romance continuum, with its two and a half millennia of documented history and with the great amount of scholarly work that has been carried out on it, provides an ideal testing ground for competing analyses. In this historical-geographical domain, the burden of established FACTS, to be dealt with by means of the appropriate (historical) method, is too heavy for any analysis to ignore it – which most recent proposals tend to do, partly because of emphasis on (synchronic) THEORY. This is largely due to the underlying assumption that views work in diachronic linguistics as being primarily a contribution to a grander enterprise in which a general model of linguistic theory is being tested and developed. This same emphasis on theory, especially if contested, will duly verge on the dogmatic: If what actually matters is (the superiority of) one’s own model, then unbiased cross-theoretical debate – to weigh the merits of competing analyses of the empirical data – becomes difficult.

Alternatively, historical linguistics can be conceived as an (autonomous) problem-solving discipline. As I will demonstrate with the example of the development of quantity from Latin to Romance, a balanced application of the method of this discipline not only guarantees the best descriptive results and thus furthers our comprehension of the intricate facts under discussion, but may also help us to discriminate between alternative assumptions about the synchronic modeling of language structure.

## 2. Vowel length in Latin: Facts and theory

We all know that facts are construed, especially so in historical linguistics, as pointed out effectively by Lass (1997:27):

To the extent then that history is not observational but argumentative, it is necessarily constructivist; the historian participates actively in making his subject matter.

Yet, we do speak all the time of observations that are theory-neutral as opposed to theory-internal arguments. Take the starting point of my discussion of vowel quantity (henceforth VQ), and compare the two statements in (1a–b):

- (1) a. Latin had contrastive VQ, inherited from Proto-Indo-European, e.g. *lēvis* “light” vs. *lēvis* “polished”, *vīll(a)* “villa” vs. *vīll(um)* “(animal) hair”
- b. Kaye (1989:151): [in Latin] “length distinctions can be removed from considerations of phonemic status and assigned to syllable structure, where they belong”.

(1a) is handbook wisdom, based on convergent evidence from comparison with Italic languages and with other branches of IE, as well as from Latin metric and from remarks by Latin grammarians. (1b), on the other hand, is the conclusion of Kaye’s (1989) analysis of Latin quantity: Clearly, it requires the reader to share several assumptions about phonological representations and to follow several steps in a complex argument

within one specific theoretical model, that of Government Phonology. In other words, it is a theory-internal conclusion. For anybody not sharing those assumptions there is no compelling reason to distrust what the Latin evidence itself shows, with minimal pairs like those in (1a): Long vs. short vowels, namely, could occur in the same syllabic environments (although with some restrictions, we cannot dwell on here).

Of course, (1a) is not pure “fact” either. It also requires that we share some assumptions concerning contrastiveness, the definition of quantity, etc. Yet, there is a clear difference: (1a) pertains to what Dixon (1997) calls Basic Linguistic Theory, while (1b) clearly does not.

### 3. Vowel length from Latin to Romance: Three basic types

Assuming (1a) as our starting point, let us now consider what happened to VQ in Romance. As is well known, the Latin VQ contrast has not survived into any of the Romance languages, which display instead one of the three options listed in (2):

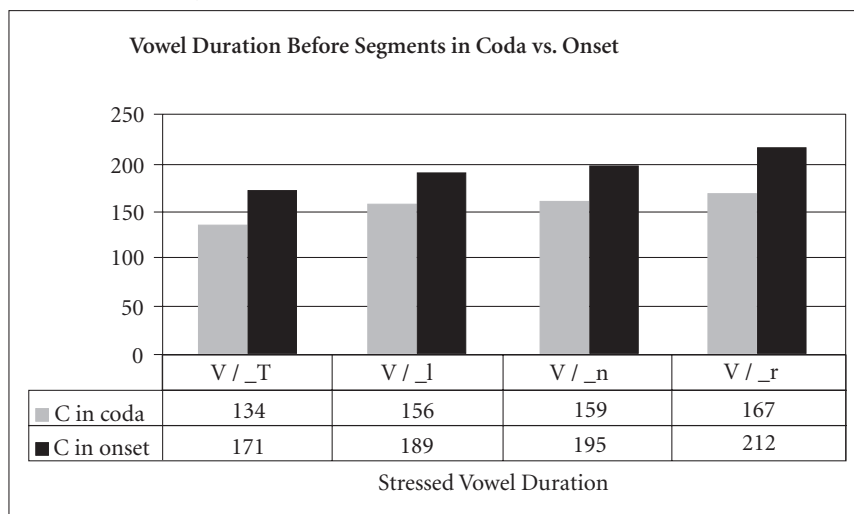
|      |                                        |                 |   |                |
|------|----------------------------------------|-----------------|---|----------------|
| (2)  |                                        | a. 'CV.CV       |   | b. 'CVC.CV     |
| i.   | Italian (= Sardinian)                  | ['lato] “side”  | ≠ | ['gato] “cat”  |
| ii.  | Spanish (= Ibero- and<br>Daco-Romance) | ['laðo] “side”  | = | ['gato] “cat”  |
|      |                                        | < LATUS         |   | < CATTUM       |
| iii. | Northern Italo-Romance<br>(Cremonese)  | ['pa:n] “bread” | ≠ | ['pan] “cloth” |
|      |                                        | < PANEM         |   | < PANNUM       |

Both Italian (2i) and Spanish (2ii) lack distinctive VQ: In the latter, all stressed vowels have approximately the same duration, regardless of syllable structure, and the same goes for the rest of Ibero-Romance and for Romanian. In Italian, on the other hand, stressed vowels are lengthened in open word-internal syllables, when the word occurs prepausally, at least. The same applies to Sardinian.

The third option (2iii) is exemplified with a Northern Italo-Romance (= henceforth NItR) variety, the dialect of Cremona (Southern Lombardy). It is found in most of NItR and has been argued to have been once more widespread, spanning all the territory from Northern France to the Apennines, down to the La Spezia-Rimini line. In this area, which is sometimes called Northern Romance, a novel VQ contrast was established, as apparent from the minimal pairs in (2iii).

The empirical question I will discuss in what follows is that of the historical relationship between these three different Romance developments of VQ. The general point I want to make is that all of these developments can be explained most economically under the assumption that PRom was just like modern standard Italian with regard to vowel length.



**Table 1.** Stressed vowel duration before consonants in open and closed syllables in Standard Italian (McCrary 2003)

This has been claimed among others by Luschützky (1984: §§10–11) and, more recently, by McCrary (2002, 2003, 2004). In her thorough experimental study of vowel durations in the speech of Tuscan speakers from Pisa, McCrary found that vowel duration varies gradually, as a function of both the segmental nature and the number of the consonants following the stressed vowel. Consider for instance Table 1 (after McCrary 2003, n°25).

The graph shows that vowel duration increases gradually depending on the following consonants: Stressed vowels are shortest before stops and longest before rhotics, both in a closed and in an open syllable.

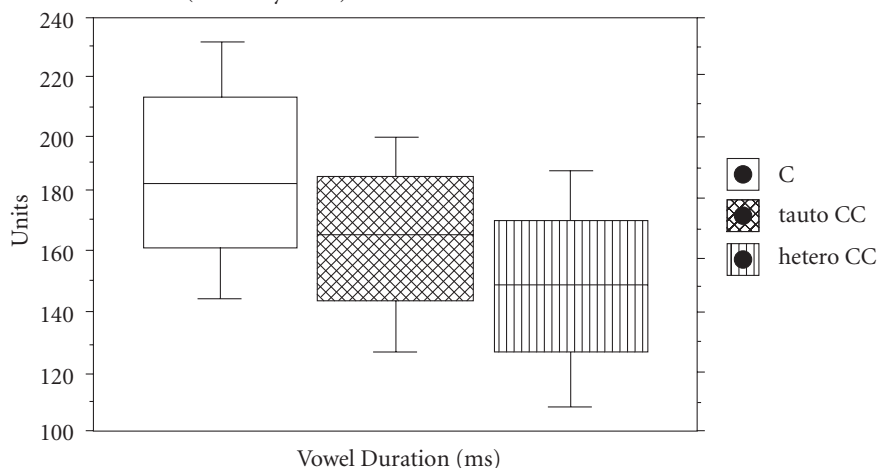
Table 2, on the other hand (n° 18 in McCrary 2003), shows that there is a considerable overlap in duration between stressed vowels in open syllable, before a tautosyllabic consonant cluster, and before a heterosyllabic consonant cluster.

From this, McCrary (2003: 15) concludes that “The conditioning factors ... are segmental, contrast-based conditions” and that “Syllable structure is not implicated in these phenomena”. In this view, stressed vowel durations are exhaustively determined by the durational trade-off between stressed vowels and the following consonants: This trade-off being trans-syllabic, there is no room for OSL.

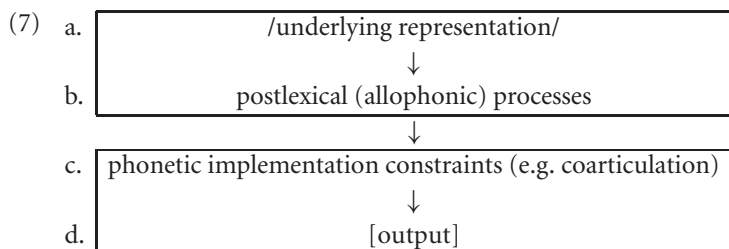
The fact that stressed vowel duration in Italian, at the phonetic surface, does not display a plain complementary distribution but rather a fine-grained continuum is in itself not surprising and has been known for a long time, as is shown in (6), based on an experimental study by Fava & Magno Caldognetto (1976):

- (6) 'CVCV 'CVTRV 'CVRTV 'CVLTV 'CVSTV 'CVNTV 'CVC:V  
 208.4 > 184.1 > 177.6 > 121.7 > 112.7 > 98.6 > 85.3  
 C = consonant, V = vowel, T = plosive, S = sibilant, N = nasal, R = trill,  
 L = lateral

**Table 2.** Vowel durations before singleton consonants, tauto- and hetero-syllabic clusters in Standard Italian (McCrary 2006)



This gradient, however, is not in itself conclusive proof that OSL does not exist. McCrary's conclusion crucially depends on the model adopted, which is phonetically-grounded OT, an output-oriented model that conflates phonology and phonetics (cf. Flemming 2001; Kirchner 1997). Consider, however, the more conservative view displayed in (7) (e.g. Kiparsky 1985; Keating 1990):



This model differentiates between postlexical allophonic processes (7b), which operate on phonological features, and low-level phonetic constraints (7c) (typically, coarticulation) that are gradual in nature and do not operate in terms of distinctive features.

The same basic idea underlies the model of Natural Phonology (cf. Stampe 1979; Dressler 1984) – for this model, in (7) one would have to add prelexical processes, shaping underlying phoneme inventories. In this view, phonological processes are motivated by phonetic constraints, but do not REDUCE to them. As Dressler (1984:31) puts it,

Anderson (1981) attacks a straw-man who would reduce phonology to its phonetic basis, e.g. phonological cover features of a specific language ... to phonetic features measured experimentally.<sup>2</sup>

2. Phonetically grounded OT is this kind of straw-man.

Under a model such as (7), the Italian facts in (6) (and in McCrary's findings in Tables 1–2) can be interpreted as follows. First, allophonic OSL applies, deriving lengthened stressed vowels in open syllables. Then, coarticulation between sounds in the speech chain intervenes, so that the contrast in length becomes blurred at the surface, and the continuum in (6) eventually emerges.

Diachronic evidence in our case supports a model such as (7). To see how, it suffices to consider virtually any one of the syllable-related sound changes reported in handbooks of (Romance) historical linguistics, like /a/-fronting in (Old) French (8) or /ɛ/-diphthongization in (Old) Tuscan (9):

(8) /a/-fronting in (Old) French

|     |             |               |               |               |               |               |             |
|-----|-------------|---------------|---------------|---------------|---------------|---------------|-------------|
| /a/ | CAPUT       | CAPRAM        | CHARTAM       | CALDAM        | CASTAM        | CANTAT        | CARRUM      |
|     | <i>chef</i> | <i>chèvre</i> | <i>charte</i> | <i>chaude</i> | <i>chaste</i> | <i>chante</i> | <i>char</i> |

(9) /ɛ/-diphthongization in (Old) Tuscan

|     |             |               |              |              |              |              |              |
|-----|-------------|---------------|--------------|--------------|--------------|--------------|--------------|
| /ɛ/ | HERI        | PETRAM        | PERDIT       | CELS(AM)     | VESTEM       | CENTUM       | TERRAM       |
|     | <i>ieri</i> | <i>pietra</i> | <i>perde</i> | <i>gelso</i> | <i>veste</i> | <i>cento</i> | <i>terra</i> |

The standard account of such changes implies that there was an allophone lengthened via OSL in the first place, and that this allophone underwent the change while the non-lengthened one remained unaffected. The examples in (8)–(9) (which contain the Latin etyma as well as the Romance outcomes) are displayed in the same order as the decreasing stressed vowel durations in the continuum (6). Yet, on this continuum, the language itself – through the application vs. non-application of sound change – makes a binary choice. And this binary choice requires that OSL be assumed for those varieties prior to change. In other words, it requires that we have a phonology, interacting with phonetics, rather than just conflating the two.

In fact these elementary generalizations about sound change would be missed under the conflated view of phonology-phonetics. If vowel duration really depended exclusively on segmental coarticulation effects, then the statement of the changes in (8)–(9) could not make reference to either syllable structure or to a lengthened allophone. And no sensible alternative is in sight. Clearly, the nature of the following sound does not play any role here (cf. in (9) the application of diphthongization in *ieri* vs. the non-application in *terra*). Thus, the only possibility left would be to assume that speakers, one day, applied colouring or diphthongization to just those stressed vowels whose actual phonetic duration was, say,  $\geq 165.4$  milliseconds.<sup>3</sup> This is unconceivable,

3. This solution would parallel, for vowel quantity, the set of constraints assumed by Kirchner (1997), which introduce into the phonology of vowel quality direct reference to phonetic substance replacing e.g. the feature specification [+high] with the 'abstract value' – V(owel)h(eigh)t > 33 etc. Even more directly, Boersma (1998:280) builds formant values into acoustic faithfulness constraints (e.g.  $F_1 > 600$  Hz) selecting over candidates such as '550 Hz', '600 Hz'.

however, since experimental phonetics shows that there is an overlap in absolute durations across different contexts and, besides, that duration is contingent upon speakers, speech rate and style.

This in no way detracts from McCrary's account of the PHONETICS of stressed vowel duration in modern standard Italian. Yet, there is no genuine case here against OSL: The phonology of vowel length cannot be reduced to phonetics alone, as the evidence from diachrony eloquently reminds us.

A further theoretical implication of the above is that one first needs to distinguish between synchrony and diachrony in order to evaluate where diachronic evidence can be relevant for synchronic analysis or vice versa. This is far from obvious, after decades of research in theoretical phonology proposing lengthy derivations which plainly casted sound change into synchronic structure. Partly as a reaction to this, the research program advocated by Blevins (2004) and others (Evolutionary Phonology), claims instead that most synchronic sound patterns require only an historical, and not a synchronic, explanation.<sup>4</sup> In our case, OSL is the product of sound change, yet it gives rise to a typologically recurrent synchronic pattern that is open to a (synchronic) phonetic explanation (cf. Maddieson 1985).

### 5. Digression 1: Vowel length and the variability of syllable structure

Once the two distinct levels in (7b–c) are admitted, one can observe an interesting interplay between allophonic length (and syllabification, upon which allophonic length depends) and low level coarticulation and/or compensatory effects.<sup>5</sup>

In fact, in several Romance varieties – typically, those spoken in south-eastern Italy, represented in (10) by the Apulian dialect of Bisceglie – stressed vowels undergo changes comparable with those in (8)–(9): (The specific change involved in (10) is /a/ – velarization in open syllable.)

(10) /a/-velarization in the dialect of Bisceglie (Apulia, Loporcaro 1996: 171)

|     |        |         |         |            |          |
|-----|--------|---------|---------|------------|----------|
| /a/ | CAPUT  | LATRO   | BARBAM  | EMPLASTRUM | PLATEAM  |
|     | 'kɔpə  | 'latrə  | 'varvə  | 'mbjastrə  | 'catsə   |
|     | “head” | “thief” | “beard” | “poultice” | “square” |

4. Kiparsky (2004) and Hyman (2005), among others, criticize this approach, asserting a greater role for synchronic phonological analysis than Blevins sees the need for. See however Iverson & Salmons (2006) for a defense of Blevins' arguments (specifically concerning the occurrence of final voicing in Lezgian) against Kiparsky's (2004, 2006) criticism.

5. This interplay is in keeping with the idea that ‘The boundary between phonetics and phonology is largely porous’, as Iverson & Salmons (2003: 199) recently put it, mediating between the ideas of a strict separation and of an outright conflation of the two (as respectively advocated by Lexical Phonology and phonetically-grounded OT).

However, unlike in Tuscan or in French, here only the environment CVCV counts as an open syllable, whereas all consonant clusters – including obstruent + rhotic – are heterosyllabic and prevent the change from applying. Interestingly, here too the binary option respects the vowel duration continuum: The difference is that it cuts across it at a different point.

Incidentally, the occurrence of changes such as that in (10) allows us to take leave of a well-entrenched dogma of historical Romance linguistics, exemplified in the following quotation from Allen (1973: 139 n. 2):

In late Latin, as the evidence of Romance development shows, there was a shift of accent from e.g. *tēnebrae* to *tenēbrae*. But this can hardly mean that the syllabification was then *te.nēb.rae*, since the Romance evidence also indicates an *open* syllable.

It is often assumed, in fact, that *muta cum liquida* clusters are (and were) always tautosyllabic in Romance (cf. also Steriade 1988: 379; Bullock 2001: 187). However, while this is actually the case in the major standard languages, as exemplified with French and Italian in (8)–(9), this tenet does not withstand closer inspection as soon as dialect variation is considered, given data like those in (10) (cf. Loporcaro 2005a for further relevant examples).

From a theoretical point of view, this is evidence against theories that only admit tautosyllabification of these clusters, like Government Phonology (Kaye et al. 1990: 210), and in support of preference theories for syllable structure like Vennemann's (1988: 43–46).

## 6. Loss of OSL: Ibero-Romance and Daco-Romance

Reverting now to the classification of Romance outcomes in (2), if OSL was P<sub>Rom</sub>, then the varieties in (2ii) (like Spanish, Portuguese, Romanian) must have lost it. A parallel for this rule loss is provided by the demise of intervocalic obstruent lenition in Eastern Romance as reconstructed by Cravens (1991, 2002). Lenition is one of the major isoglosses responsible for the split between Western and Eastern Romance, as it took place in the West, not in the East:

| (11) | Spanish      | French       | Italian      | Romanian     | Latin                       |
|------|--------------|--------------|--------------|--------------|-----------------------------|
| a.   | <i>rueda</i> | <i>roue</i>  | <i>ruota</i> | <i>roată</i> | lenition < ROTAM “wheel”    |
| b.   | <i>copa</i>  | <i>coupe</i> | <i>coppa</i> | <i>cupă</i>  | degemination < CUPPAM “cup” |

Comparison of (11a–b) shows that, in Western Romance, lenition co-occurred with degemination in a chain-shift that was analyzed as a push chain by Martinet (1955) but actually was a drag chain, historically, since lenition is demonstrably older. In fact, the philological evidence discussed in Politzer (1951) and Campanile (1971: 60) shows that intervocalic lenition already occurred in Latin. The problem with lenition is that the harbingers of the Romance process are documented almost everywhere in the Ro-



man empire, not only in the West, but also in the East (e.g. EXTRICADO, for -ATO, CIL III 3620, from Pannonia Inferior, 217 C.E.), although in the East lenition did not eventually succeed as shown in (11a) by the voiceless stop in Romanian *roată*.

The explanation proposed by Cravens is the following: Latin had an allophonic voicing process, just like American English voicing and flapping of intervocalic *-t-*. This process, then, was phonologized in the West, leading to restructuring, but was lost in the East.

The fate of OSL in the (2ii) Romance languages may well have been of this kind: When degemination applied, the two environments in (2a) vs. (2b) (open vs. closed syllable) became identical, so that an allophonic OSL could not possibly persist. Spanish, Portuguese, Catalan, and Romanian chose the rule-loss option. Northern Romance, on the other hand, followed a different path and developed a novel VQ contrast.

## 7. The Northern (Italo-)Romance type

### 7.1 The facts

Many Northern Italian dialects (and some other varieties of Rheto- and Gallo-Romance) still preserve the VQ contrast to this day. As for the distribution of this contrast, two basic subtypes are to be distinguished. In some dialects – exemplified, again, with Cremonese in (12) – it occurs in both oxytones (12i) and paroxytones (12ii):

- (12) Cremonese (Southern Lombard, Oneda 1965:34; Rossini 1975:190):
- |                            |                   |            |                      |
|----------------------------|-------------------|------------|----------------------|
|                            | a. 'CV.CV         | b. 'CVC.CV |                      |
| i. vowel quantity contrast | [ˈpaŋ] “bread”    | ≠          | [ˈpaŋ] “cloth”       |
| in oxytones                | [ˈpeːl] “hair”    |            | [ˈpeːl] “skin”       |
| ii. ... and paroxytones    | [ˈpaːla] “shovel” | ≠          | [ˈspaːla] “shoulder” |
|                            | [ˈlaːna] “wool”   |            | [ˈkana] “reed”       |

In other dialects – exemplified with Milanese in (13) – it occurs only in oxytones, not in paroxytones:<sup>6</sup>

- (13) Milanese (Western Lombard, Nicoli 1983:45; Sanga 1984:60–64):
- |                                |                     |            |                        |
|--------------------------------|---------------------|------------|------------------------|
|                                | a. 'CV.CV           | b. 'CVC.CV |                        |
| i. vowel quantity contrast     | [ˈkaːl] “loss”      | ≠          | [ˈkaːl] “corn”         |
| in oxytones                    | [ˈfyz] “spindle”    |            | [ˈfys] “were.3SUBJ”    |
| ii. ... but not in paroxytones | [ˈpa(ː)la] “shovel” | ≠          | [ˈspa(ː)la] “shoulder” |

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6. The former type spans Emilian, most of Ligurian, as well as some varieties of Northern Provençal; the latter is found in all of Western Lombard and in Friulian. Cf. Morin (2003), Loporcaro (2003) for a more detailed overview of dialect variation in VQ.

Note that all the words involved in these pairs stem from Latin disyllables as shown by the CV skeleton on top: The words now ending in a consonant underwent apocope, since in most NItRom dialects non-low final vowels were generally lost. The CV skeleton also shows that the contrast, in Latin, used to be one of gemination, that was neutralized through Western Romance (henceforth **WRom**) degemination (11b).

## 7.2 The analyses

Comparing these two different types of systems, the question in (14) naturally arises.

- (14) Same diachronic source for contrastive VQ in (12) and (13)?
- a. Yes. Two subsequent stages in the same development.  
Loporcaro (2003), Morin (2003)
  - b. No. Two distinct developments.  
Baroni & Vanelli (2000), Bonfadini (1997), Francescato (1966), Hualde (1992), Montreuil (1991), Prieto (1994, 2000), Videsott (2001), Vanelli (1979), etc.

The first solution would be more economical. Yet, the second one seems to enjoy more favour: (14b) lists only some of the many contributions, in both traditional dialectology and theoretical phonology, which subscribe to the view that the two types are totally unrelated. They mostly do so implicitly. Repetti (1992), however, has the merit of making this point explicitly, as she lists the divorce between the two types of development among the main results of her reconstructions (Repetti 1992: 180):

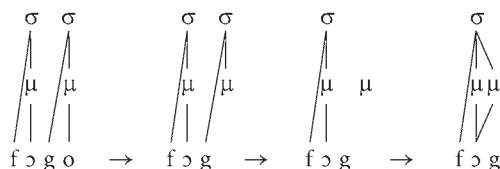
In this paper I have shown how similar synchronic structures (long vowels) in related languages (northern Italian dialects) *MAY HAVE DIFFERENT ORIGINS*. In some dialects, the long vowels are the result of vowel lengthening in open syllables (bimoraic norm), while in others the long vowels arose through a process of compensatory lengthening due to apocope of word final vowels [respectively, Cremonese vs. Milanese, emphasis added, M.L.].

Repetti's (1992: 175) explanation for the rise of VQ in Milanese, summarized in (15), excludes any historical relationship with PRom OSL:<sup>7</sup>

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7. This point is made explicitly too: 'Milanese (and Friulian) long vowels cannot derive from Late Latin vowel lengthening in open syllables' (Repetti 1992: 174).

- (15) Milanese: FOCU > \*['fɔgo] > ['fɔ:g]/['fɔ:k] “fire”  
 a. input form    b. apocope    c. parasitic delinking    d. compensatory lengthening



Under this analysis, contrastive VQ arose through compensatory lengthening as final vowels were deleted (15b) and their prosodic weight was transferred to the stressed vowel, via mora reassociation (15d). Since final /a/'s were not deleted, no distinctive VQ arose in paroxytones that preserved final /a/, as in (13ii).<sup>8</sup>

A number of alternative analyses of the rise of Milanese VQ have been proposed in work in Generative Phonology over the past decade or so (cf. Loporcaro 2005b for detailed discussion). Montreuil (1991:43ff.) assumes for minimal pairs like those in (13i.a–b) the structural representations in (16a) vs. (16b–c) (his (10), (11) and (14) respectively):

- (16) a. input (and output) form    b. input form    c. output (SRC)  
 ['fys] “were.3SUBJ”                      ['fyz] “spindle”
- 
- The diagram shows the structural representations of the words 'were.3SUBJ' and 'spindle' in Milanese. It consists of three parts:
- a. input (and output) form:** A syllable (σ) containing a vowel (μ) and a consonant (f), followed by another syllable (μ) containing a vowel (μ) and a consonant (y), and a final consonant (s).
  - b. input form:** A syllable (σ) containing a vowel (μ) and a consonant (f), followed by another syllable (μ) containing a vowel (μ) and a consonant (y), and a final consonant (z).
  - c. output (SRC):** A syllable (σ) containing a vowel (μ) and a consonant (f), followed by another syllable (μ) containing a vowel (μ) and a consonant (y), and a final consonant (z).

Under this view, stressed short vowels are assumed to be followed by moraic consonants underlyingly, whereas long vowels are followed by non-moraic codas. Given the standard moraic representations, this boils down to positing underlying consonant gemination. Vowel length, on the other hand, is derived, as shown in (16c), through the enforcement of a Strong Rhyme Constraint (SRC) imposing that all stressed syllables be bimoraic.

Still another explanation of Milanese vowel length, based on foot structure, was proposed by Prieto (2000, cf. already Prieto 1994:101). Within the framework of OT, Prieto regards length in (13i.a) as forced by a prosodic F(OO)T-BIN(ARITY) constraint, imposing that “Feet should be analyzable as binary” (Prieto 1994:91):

The analysis offers a principled motivation for the fact that vowels are only lengthened in final syllables. In particular, the FT-BIN constraint explains why VOWELS

8. This analysis formalizes a view that had been upheld before (e.g. Contini 1935:59; Pellegrini 1982:17).

ARE LENGTHENED IN THIS CONTEXT and stay short when in penultimate or antepenultimate positions. (Prieto 2000:270) [emphasis added]

This means that this lengthening applied when the words concerned were already monosyllabic, and they became monosyllabic due to apocope. Clearly, then, lengthening did not preexist; rather, it arose AFTER apocope, if not BECAUSE OF apocope, as in Repetti's account. In any case, also in this proposal, the link between PRom OSL and Milanese VQ is broken.

Prieto goes even further, since she implicitly denies this link even for dialects like Cremonese, where apocope cannot be responsible for VQ since the contrast is also found in non-apocoped disyllables (12ii). According to her proposal, length in Cremonese arose as a product of a prosodic change (which she terms Foot Expansion) WITHIN the history of that variety:

(17) Prieto (1994:92): Foot Expansion in Early Cremonese

|                   |                |                       |                 |
|-------------------|----------------|-----------------------|-----------------|
|                   | [μ]            | [μ μ]                 | [μμ]            |
| a. Foot Structure | á. <la> "wing" | mó. bi. <le> "mobile" | vák. <ka> "cow" |
| b. Foot Expansion | [μμ]           |                       |                 |
|                   | [μ] -> [μμ]    | n.a.                  | n.a.            |
| Output:           | [ála]          | [móBILE]              | [vákka]         |

### 7.3 The method

All these alternative proposals are respectable formalizations of the synchronic phonology of Milanese or Cremonese. However, they also carry over to diachrony, in the proponents' view, as made clear by Prieto's (1994) title ("HISTORICAL vowel lengthening in Romance"). And here, in the transfer from synchrony to diachrony, they go astray and make up changes which actually never took place in these dialects, as I will demonstrate. The reason why they do so has to do with a dogma (perhaps THE dogma) of modern formal linguistics, which goes as follows: "Exploit the resources of the formalism; it will bring you somewhere". This procedure, which might be appropriate for synchronic analysis, creeps into diachronic linguistics, and this is a problem. To see why, we have to say something about method.

Ever since the rise of synchronic linguistics, this had an impact on the methods for analyzing diachrony. To mention just some prominent episodes, consider Hoenigswald (1950), who introduced into diachronic linguistics, for the reconstruction of proto-languages, the discovery procedure employed by American structuralism to work out the phonemes of a language in synchronic analysis. Or think of Kiparsky (1965), who "introduced the synchronic distinction of competence and performance into the realm of sound change" by distinguishing INNOVATION and RESTRUCTURING, as Blevins (2004:66) recently puts it.

This impact, however, also had some drawbacks for diachronic linguistics: Sometimes it shaded into colonization, through which procedures of synchronic analysis

tend to simply oust those of historical linguistics. This colonization is backed up by the sociological/institutional factors mentioned by Janda & Joseph (2003: 129):

the study of linguistic change is also being eroded by the steady disappearance of positions once specialized for historical linguistics (e.g., in language departments).

Actually, one may get the impression that diachrony is all but marginal, lately. For instance, there is a lively ongoing debate on diachronic explanation, stirred by Blevins (2004, cf. §4 above, fn. 4). However, my point here is not about the theory of explanation, but rather about analytical procedures. The point can be illustrated with the following well-known passage from Saussure (1922<sup>2</sup> [1979]: 291):

tandis que la linguistique synchronique n'admet qu'une seule perspective, celle des sujets parlants, et par conséquent une seule méthode, la linguistique diachronique suppose à la fois une perspective prospective, qui suit le cours du temps, et une perspective rétrospective, qui le remonte.

This distinction has long since found its way into the handbooks. Thus, since diachronic linguistics has two perspectives, any diachronic account must reconcile the evidence coming from reconstruction (*perspective rétrospective*) – which in turn consists of two operations, internal and comparative reconstruction – with the evidence coming from philological inspection of extant relevant records (*perspective prospective*). No serious diachronic account can do without any of the items in this checklist:

- (18) a. philological evidence  
 b. comparative reconstruction  
 c. internal reconstruction

In handbooks of historical linguistics one also finds that:

IR [= internal reconstruction] is of limited use in historical linguistics; CR [= comparative reconstruction] is so much more reliable that it is preferred whenever possible. (Ringe 2003: 244)

Now, the dogma of formal linguistics (“exploit the resources of the formalism”) implies precisely the opposite procedure: When a synchronically oriented (generative) linguist moves on to analyze diachrony, it is internal reconstruction that takes precedence. The reason for this is also handbook wisdom:

IR replicates phonological analysis point for point (Ringe 2003: 246, on final devoicing in German).

In our specific case, application of the basics of the historical method reveals that vowel length in Northern Italian dialects is not the product of any of the changes formalized in the proposals reviewed in §7.2. Both comparative reconstruction and philological evidence (18a–b), in fact, tell us that (phonetic) vowel length was there from the outset (i.e. from PRom). Thus, these dialects did not lengthen anything, in spite of the fact that this or that formalism may provide an elegant way to formalize the way a lengthening process *COULD* have applied.

Morin (2003: 130), comparing Gallo-Romance with evidence from Northern Italian dialects, speaks of “différences de durée héritées de l’allongement en syllabe ouverte”. In saying so, he adheres to a traditional tenet in Romance linguistics: I will show in §§9–10 that there is no reason to abandon it. After this, the final question will be whether an internal reconstruction (18c) is available that is compatible with the philological and comparative evidence, rather than contradicts it.

## 8. Digression 2: The rise of Raddoppiamento Fonosintattico

Before answering this question, however, I will briefly discuss a parallel case, the rise of Raddoppiamento Fonosintattico (henceforth RF) in Italian. This shows that much of the work on sound change in Romance (especially within the generative paradigm) over the past few decades actually reduces to internal reconstruction alone, much as in the VQ case.

In Italian, gemination of an initial consonant is regularly triggered when the preceding word ends in a stressed vowel (19a). On the other hand, RF is also triggered by a closed list of unstressed monosyllables whose Latin etymon ended in a consonant that got assimilated in external sandhi (19b):<sup>9</sup>

- (19) a. regular RF: *tu* [d:]*ici* < TU DICIS “you say” [/ stressed monosyllables \_ ]  
 b. irregular RF: *e* [t:]*u* < ET TU “and you” [/ unstressed monosyllables \_ ]

Work on RF in Generative Phonology (e.g. Saltarelli 1970, 1983; Vogel 1978, 1982: 66ff.; Chierchia 1986; Kaye et al. 1990: 206) focused on regular stress-conditioned RF, and derived the RF facts by means of a Well-Formedness Constraint on the structure of stressed syllables, the same responsible for the syllable-driven distribution of vowel length considered above in (7). This synchronic analysis has been extended to diachrony (cf. Vincent 1988; Repetti 1991): Regular RF, which is surely core-grammar today, has been claimed to have been there from the beginning, having arisen as a by-product of the collapse of Latin contrastive VQ.

This proves to be wrong, however. Going through the checklist of the relevant kinds of evidence in (18a–c) one discovers that (a) irregular RF is attested in the Latin sources, while regular RF is not; and that (b) apart from Tuscan, all the remaining dialects showing RF all over Southern Italy and Sardinia actually lack stress-conditioned RF (cf. Loporcaro 1997).<sup>10</sup> This yields a different internal reconstruction: (c) Regular RF must have arisen, by reanalysis of the irregular one, during the history of

9. This description is a bit simplified for the sake of expository simplicity.

10. What Nespor & Vogel (1979: 479) claim, in this respect, is false: ‘While the specific phonological conditions vary to some extent according to region, the one condition that always causes RS in all the dialects in which it occurs is that  $w_1$  ends in a vowel that bears the primary word stress’.

Tuscan, and surely not in the Latin-Romance transition, unlike implied by the above-mentioned accounts.

### 9. Philological evidence for the rise of PRom open syllable lengthening

Back to vowel quantity, we will now go through our check list, considering the philological evidence first. Consentius, a grammarian writing in Gaul in the early 5th century, remarks that OSL was at that time a feature perceived as characteristic for the African pronunciation of Latin. The Africans would say [ˈpiːper], not [ˈpiper] for “pepper”, and the like:

Consentius, *Ars de barbarismis et metaplasms* (Keil V 392): ut quidam dicunt *piper* producta priore syllaba, cum sit brevis, quod vitium Afrorum familiare est (= [ˈpiːper]).

*ibid.*: ut siquis dicat *orator* correpta priore syllaba, quod ipsum vitium Afrorum speciale est (= [oːrator] instead of [oːrator]).

This evidence has been the object of a lively debate that was settled, in my opinion, by Herman’s (1982) comparative analysis of metrical inscriptions from Africa and Rome. Studying a corpus of 279 metrical inscriptions from CIL VIII, Herman shows that confusion of long vs. short vowels occurs in Africa (20a), with a random distribution in both stressed and unstressed syllables, at a time in which in Rome this is not yet the case (20b). In Rome (data from a control corpus), until the early 4th century, confusion of long and short vowels is restricted to unstressed syllables. After this point, something happens, and Rome becomes like Africa (20c):

| (20) | errors on stressed vowels       | total | percent |
|------|---------------------------------|-------|---------|
| a.   | Africa (1st-early 4th century): | 28    | 27%     |
| b.   | Rome (1st-early 4th century):   | 7     | 8.6%    |
| c.   | Rome (late 4th-6th century):    | 16    | 29%     |

What happened? The obvious candidate is the rise of OSL in stressed open syllables, and the metrical evidence supports this idea. Errors on stressed vowels mostly involve erroneous occurrence of a short vowel where a long one would be required (e.g. *in título clárum* at the end of an hexameter in CIL VIII 9080). Symmetrically, errors on unstressed vowels involve, with more than chance frequency, the occurrence of a long vowel where a short one would be required: 68% in Africa, 47% in Rome, as against an expected random distribution of about 20% (the ratio  $\bar{V}:\check{V}$  in unstressed position being 1:4, cf. Herman 1968:199).

In sum, the results of the analysis of metrical evidence correspond exactly to the description provided by Consentius. This convergence supports the hypothesis of an early rise of OSL in the Latin of Africa and of its subsequent spread to the rest of the

Western Empire, before its fall, by the end of the 5th century, a conclusion already reached as early as Schuchardt (1866–68, III: 44).

## 10. The true story of VQ in Northern Romance

The philological evidence, thus, indicates that OSL is inherited. Consequently, we already have a diachronic source for length in Northern Italian dialects, and it is uneconomical to propose alternative ones, unrelated to OSL, as do most current analyses (§7.2).<sup>11</sup> PRom was like today's Standard Italian: Subsequently, WRom degemination applied, levelling out the difference between the two environments in (2a–b) (open vs. closed syllable), and the difference in length became contrastive in the 'CV(:)CV' environment. This implies that, of the two types in (12)–(13) (Cremonese vs. Milanese), here repeated synthetically in (21a–b), the latter must be innovative with respect to the former, that preserves contrastive length in paroxytones (21ii.a):

|                                               |                                            | a. Cremonese | b. Milanese |
|-----------------------------------------------|--------------------------------------------|--------------|-------------|
| (21)                                          | i. $\acute{\sigma}$ ] <sub>PW</sub>        | +            | +           |
|                                               | ii. $\acute{\sigma}\sigma$ ] <sub>PW</sub> | +            | –           |
| [+ = contrastive VQ in the given environment] |                                            |              |             |

And if it is so, then what we have to explain is not LENGTHENING in Milanese, which never took place, but rather SHORTENING in Milanese. To flesh out this idea, we now have to check the comparative evidence and propose an alternative internal reconstruction.

### 10.1 The comparative picture

Note preliminarily that the two alternative answers to our question in (14), now repeated in (22), make two opposite predictions concerning vowel systems in the area:

- (22) Are the two systems (21a–b) related?
- a. Yes. Two subsequent stages in the same development.
  - b. No. Two distinct developments.

All the accounts reviewed in §7.2 can be grouped under (22b): They assume separate developments through which VQ MAY HAVE ARISEN ANEW, here and there, within the structural history of these particular systems. Under this view, the expected trend in this area is towards the rise of newly created contrasts. My account (22a) makes the opposite prediction: If the two kinds of systems are related, and if Milanese is innovative, then we are dealing with a gradual fading of contrastive VQ from this area.

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11. Note that, as apparent from the quotation in fn. 7 above, Repetti (1992:174) does not question the existence of OSL in Late Latin.



This prediction is indeed borne out by the comparative evidence. In fact, all over Lombardy, VQ is beating a retreat, as illustrated by Bergamasco:<sup>12</sup>

- (23) Bergamasco (Eastern Lombard, Bernini & Sanga 1987:75; Sanga 1987b:37 fn. 1)
- |    |                                |   |                           |
|----|--------------------------------|---|---------------------------|
| a. | [ʼset] < SITIM(-EM) “thirst”   | ≠ | [ʼsɛt] < SEPTEM “seven”   |
|    | [ʼpes] < PE(N)SUM “weight”     |   | [ʼpɛs] < PEIUS “worse”    |
| b. | [ʼnas] < NASUM “nose”          | = | [ʼnas] < NASCIT “is born” |
|    | [ʼtas] < TACERE “to be silent” |   | [ʼtas] < TAXUM “badger”   |
|    | [ʼpas] < PACEM “peace”         |   | [ʼpas] < PASSUM “step”    |
|    | [ʼkar] < CARUM “dear”          |   | [ʼkar] < CARRUM “waggon”  |

The pairs of words listed in (23) do not contrast (anymore) in this dialect, that has lost VQ altogether. Note, however, that the corresponding words do form minimal pairs in Milanese:

- (24) Milanese (Western Lombard, Sanga 1984:62–63, 1988:292–293)
- |    |                               |   |                               |
|----|-------------------------------|---|-------------------------------|
| a. | [ʼpɛs/-z] < PE(N)SUM “weight” | ≠ | [ʼpɛs] < PISCEM “fish”        |
|    | [ʼmɛs/-z] < ME(N)SEM “month”  |   | [ʼmɛs/-z] < MEDIU “half.M”    |
| b. | [ʼnɔz] < NASUM “nose”         | = | [ʼnas] < NASCERE “to be born” |
|    | [ʼkɔr] < CARUM “dear”         |   | [ʼkɔr] < CARRUM “waggon”      |

For mid vowels (24a), the quantity contrast in Milanese combines with a tenseness contrast, along the lines familiar from crosslinguistic surveys: Long vowels are tense, short vowels are lax (e.g. Lehiste 1970:30ff.). The vowel system of Bergamasco is best analyzed as a further evolution of the Milanese type: As quantity disappears, the contrast in quality still keeps the words distinct if they have a stressed mid vowel (23a). For low vowels, however (23b), no difference in quality was there to rescue the distinctions, and merger took place.

This internal reconstruction for Bergamasco is supported by both philological and comparative evidence. In the 19th century, Tiraboschi (1873<sup>2</sup>:34) still recorded the contrast for long vs. short /a/ only:

Coll’accento circonflesso (^) noto le vocali, che hanno un prolungamento di suono. *Nâs*, Naso – *Pâs*, Pace – *Tâs*, Tacere. [I use a circumflex to mark vowels whose sound is prolonged. *Nâs*, nose – *Pâs*, peace – *Tâs*, to be silent.] vs. *nas* “to be born”, *pas* “pace”, *tas* “badger” (1873<sup>2</sup>:840, 930, 1337), (cf. Sanga 1987a:19).

12. This trend is actually found in NItRom as a whole, as shown in more detail in Loporcaro (2003). Even more broadly, this retreat characterizes the entire Northern Romance area, including Gallo- and Rheto-Romance. In standard French, for instance, contrastive VQ, originally arisen from OSL via degemination (cf. Haudricourt & Juilland 1949:35), was later fed by other processes (e.g. coda [s]/[z]-deletion) and was eventually lost (cf. Morin 2006).

This contrast, nowadays neutralized in Bergamo (23b), is retained to this day in some rural Bergamasco dialects spoken in the nearby Val Cavallina: [ˈnaʃ] “nose” ≠ [ˈnah] “is born” (Bonfadini 1987: 333, 375).

Several other Lombard dialects preserve traces of the fading of VQ. For the dialect of Airolo (Alpine Lombard, Val Leventina), experimental measurements by Bosoni (1995: 361) show that the vowels in [ˈcɛr] “dear” vs. [ˈcar] “wagon” have approximately the same duration, yet the contrast in vowel quality can be explained only assuming that VQ was distinctive in a previous stage, so that long vowels were selectively affected by fronting.

In some other Alpine Lombard varieties, finally, the transition between the Milanese and the Bergamasco type is still observed to be going on today. This is the case in the dialect of Val Tàrtano, for which Bianchini & Bracchi (2003<sup>2</sup>) record a residual presence of inherited length, in many words, which is however only optional:

- (25) Val Tàrtano (Valtellina, Alpine Lombard, cf. Bianchini & Bracchi 2003<sup>2</sup>)
- |    |               |           |     |    |             |             |
|----|---------------|-----------|-----|----|-------------|-------------|
| a. | <i>mö(ö)f</i> | “to move” | (≠) | b. | <i>möff</i> | “mouldy.ms” |
|    | <i>mö(ö)t</i> | “manner”  | (≠) |    | <i>möt</i>  | “dumb.ms”   |

If the words in (25a) are realized with a short stressed vowel, they merge with their short-vowel counterparts in (25b).

## 10.2 Making sense of the comparative picture

The disappearance of VQ in systems like those of Bergamo or of the Alpine varieties considered in §10.1 is the endpoint of a diachronic development which proceeded, step by step, from P<sub>ROM</sub> OSL down to modern dialects. We have seen from the philological evidence (§9) that OSL was inherited from P<sub>ROM</sub>. However, this must be relativized a bit. Consider (26):

- (26) a. Italian *viene*, French *vient* < VĒNIT, Italian *cuore*, French *coeur* < \*CÖR(E)  
 b. Italian: *tiepido*, *Fiesole* vs. *pecora*, *medico*  
 Old French: *oeuvre* < OPERAM, *friemte* < FREMITUM, *fierdre* < FERETRUM,  
 along with *tiede/tede/tieve/teve* < TEPIDUM

Open syllable diphthongization of P<sub>ROM</sub> /ɛ ɔ/ in Italian and French, a further development of OSL, took place regularly in paroxytones (26a), much less so in proparoxytones (26a). Northern Italo-Romance dialects are more categorical, as none of them displays any traces of OSL in proparoxytonic words:

- (27) a. Milanese (Nicoli 1983: 47–58): [ˈpegura] “sheep”, [ˈlegura] “hare”, [ˈstrɔlega] “gipsy.F”, [ˈnivula] “cloud” (also in etymological proparoxytones like [ˈazen] “donkey”),  
 b. Ligurian (Ghini 2001: 171–2): Genoese [ˈzuvɛnu] “young man”, [ˈkaregu] “load.1SG”, [ˈnavegu] “be at sea.1SG”, Savonese [u ˈnavega] “be at sea.3MSG”, [ˈavidu] “greedy”, [ˈarabu] “Arab”.

Now, after reviewing the comparative evidence, we will first see how its pieces fit together and then propose an internal reconstruction for the rise of the Milanese system, an alternative to those in §7.2. The results of our dialect comparison can be schematically represented as follows (pluses in the box stand for both allophonic vowel length and its diachronic successor, contrastive VQ):

|      |    |                              |     |    |     |      |     |                |   |
|------|----|------------------------------|-----|----|-----|------|-----|----------------|---|
| (28) | a. | $\acute{\sigma}$             | ]PW | i. | ii. | iii. | iv. | length(ening): |   |
|      | b. | $\acute{\sigma}\sigma$       | ]PW | +  | +   | +    | -   | more natural   | ↑ |
|      | c. | $\acute{\sigma}\sigma\sigma$ | ]PW | +  | -   | -    | -   | less natural   |   |

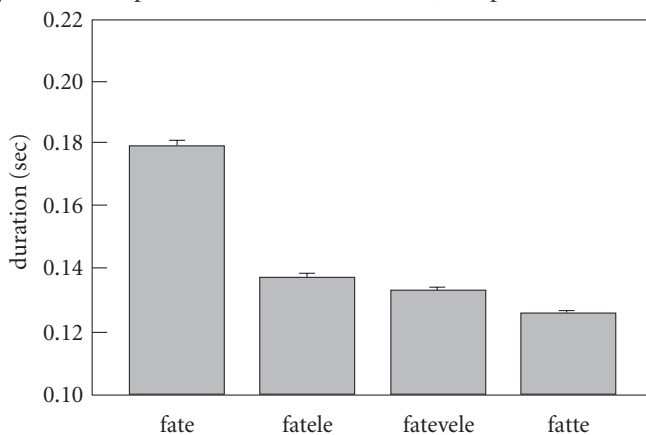
Standard Italian (cf. (26) and Table 3 below) can be placed between (28i) and (28ii): In proparoxytones, OSL does not apply as pervasively as in paroxytones.<sup>13</sup> Northern Italo-Romance dialects represent further steps within a general drift towards reduction of the structural room for vowel length, along this scale: Cremonese (28ii), Milanese (28iii) and Bergamasco (28iv). As we saw in (27), no NIt dialect has VQ in proparoxytones. This means that Proto-NItRom must have been a system like (28ii), a system that has survived today into the Cremonese type, with contrastive VQ in both oxytones and paroxytones. Then Milanese went a step further, as it eliminated VQ from paroxytones and kept it in oxytones only (28iii). Finally, dialects like Bergamasco went even further and reached stage (28iv), losing VQ altogether.

### 10.3 A phonetic constraint on vowel length: Rhythmic compensation

This scale, which has been reconstructed through dialect comparison, has a straightforward phonetic motivation, which is well-known from experimental phonetics and is schematically represented by the arrow pointing upwards on the right-hand side in (28). As for Standard Italian, the experimental-phonetic literature shows that there is a gradual decrease in stressed vowel length, as the number of syllables to the right of the stressed one increases (cf. Table 3, with data from D’Imperio & Rosenthal 1999:4–8; cf. also Marotta 1985).

Under a view of sound systems which recognizes a phonology-phonetics interaction, rather than conflation (as argued in §4 above), the substantial/phonetic motivation – the arrow on the right in (28) – will constrain the phonology (the box in the middle), without determining it exhaustively, though (cf. §5 and fn. 5 above). The phonology will impose binary choices on phonetic gradients and yet maintain room for self-organization. It can even impose constraints of its own, not (directly) motivated phonetically, as Hyman (2001) convincingly argues. For instance, in many languages there are quantity-related problems with oxytones. This is part of a broader

13. Here, a caveat must be added concerning the special status of final syllables: see just below (29).

**Table 3.** Rhythmical compensation in Standard Italian (D’Imperio & Rosenthal 1999: 4–8)

issue: In fact, there seems to be a conspiracy against assigning prominence to the final syllable in terms of stress, vowel length, and heaviness.

Latin and standard Italian are two cases in point: The former has no final stress, the latter does, but does not allow vowel lengthening word-finally. Mester (1994) captured this conspiracy by means of a markedness scale, further refined by D’Imperio & Rosenthal (1999), to account for Italian as well:

- (29) Markedness scale for final syllables (Mester 1994, D’Imperio & Rosenthal 1999):  
extrametrical, weak branch > stress > heavy

Northern Italian dialects, however, are very liberal with prominence in final syllables, as they freely allow both stress and heaviness word finally, as shown in (30), where a Milanese minimal pair is provided to show that VQ is contrastive in this position as well:

- (30) Final syllables in Northern Italian dialects:  
 $\acute{V} \sim \acute{V} : \sim \acute{V} C \sim \acute{V} : C / \_ \#$  (Milanese [kan'ta] “to sing”  $\neq$  [kan'ta:] “sung.M”)

Northern Italian dialects, as we have seen, impose restrictions on VQ not at the right edge of the word but rather as one goes further left. And the explanation for these restrictions cannot be yielded by the markedness hierarchy in (29), which is phonological (i.e. it concerns phonology as a self-organizing system). It must come from the phonetics. It is the phonetic universal tendency to rhythmical compensation that explains the diachronic drift (28) comparative reconstruction has revealed. This provides the rationale for our internal reconstruction: Milanese has undergone vowel shortening in paroxytones, thus giving up contrastive VQ in this context, and this is perfectly understandable given the overall picture drawn here.

## 11. Conclusion

The reconstruction of the development of VQ from Latin to Romance proposed here yields plausible answers to the questions raised by the comparison of Latin distinctive VQ (1) with the different synchronic arrangements of vowel length found in modern Romance languages (2). This diachronic reconstruction, attained through the simple application of the classical tripartite method of historical linguistics, yields better results than diachronic accounts whose highest priority is to validate some specific formalism, but that do not obey the requirements of the historical method as they reduce diachronic phonology to internal reconstruction alone.

When the paper was presented orally in Madison, Elan Dresher commented that the MIT doctrine does not exclude either comparative reconstruction or ‘prospective’ philological evidence from the scope of diachronic linguistics. Yet, I have shown here that this reduction is a matter of fact in diachronic generative studies on, say, vowel quantity in Northern Italo-Romance (§7.2) or the rise of RF (§8), and that there is a principled reason for that (§7.3), as “IR replicates phonological analysis point for point” (Ringe 2003:246).

I can think of no better conclusion than the comment Larry Hyman made when I presented part of this research at GLOW 2005 in Geneva: “Well, in a way what you are implying is that historical linguistics should be done by historical linguists”. Yes, this was exactly my point.

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# On the irregularity of Open Syllable Lengthening in German\*

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## 1. Introduction

Open Syllable Lengthening in German is generally thought to have begun around the 12th century in Low Franconian dialects, located in present-day northern Germany and the Netherlands, and spread south, affecting High German dialects around 1400. The most conservative alpine Alemannic dialects never underwent OSL.<sup>1</sup> Representative examples of OSL are found in (1). Two sets of exceptions are commonly mentioned. Lengthening in closed syllables, as in (2), is usually accounted for by an appeal to paradigmatic leveling. The exceptions in (3) are more problematic and are the focus of this paper.

- (1) OSL from MHG to NHG

| MHG   | NHG      |           |
|-------|----------|-----------|
| hāben | h[a:]ben | “to have” |
| nēmēn | n[e:]men | “to take” |
| nāme  | N[a:]me  | “name”    |

- (2) Exception 1: Lengthening in monosyllables

| MHG  | OSL   | Leveling | NHG  | gloss          |
|------|-------|----------|------|----------------|
| wec  | wec   | we:c     | Weg  | [ve:k] “way”   |
| wege | we:ge | we:ge    | Wege | [ve:gə] “ways” |

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1. There is some disagreement with the majority view. Kranzmayer (1956) argues that OSL occurred in some Bavarian dialects as early as the twelfth century. OSL in any particular dialect may well reflect an independent innovation rather than the spread of a single historical change.

- (3) Exception 2: Absence of lengthening before *t*, *m* (particularly in disyllables ending in *-er*, *-el*)

| No lengthening          | Lengthening             |
|-------------------------|-------------------------|
| <i>Hammer</i> “hammer”  | <i>Name</i> “name”      |
| <i>Himmel</i> “sky”     | <i>Schemel</i> “stool”  |
| <i>kommen</i> “to come” | <i>nehmen</i> “to take” |
| <i>Vetter</i> “cousin”  | <i>Vater</i> “father”   |
| <i>Gatte</i> “husband”  | <i>Kater</i> “tomcat”   |

The analysis of the motivation for OSL adopts a listener-based perspective of phonological change (see Ohala 1981, 1993, 2003; Blevins 2004). In this view, phonological change is rooted in ambiguities in the acoustic signal that may lead the listener to reinterpret the underlying form of an utterance. According to Blevins (2004: 262), one would expect listener-based change to be regular. As did the Neogrammarians, she attributes irregularity to analogy and dialect mixing. In contrast, I argue that the distinction between prosodic change and sound change plays a crucial role in the irregularity of OSL in German. The distinction between sound change and prosodic change reflects the two sets of phonological primitives argued for by Evolutionary Phonology: Distinctive features that define categorical segmental contrasts and prosodic constituents that include the syllable and the phonological word.

The paper is organized as follows. §2 provides a critical overview of previous explanations for the exceptions in (3). §3 introduces the distinction between two types of phonological change: Sound change and prosodic change. §4 presents an overview of Upper German dialects in support of the view that a prosodic change can motivate irregular segmental lengthening. §5 concludes the paper.

## 2. Previous approaches to the irregularity of OSL in German

Early work on OSL acknowledged that the change did not appear to be entirely regular on the surface. In response, some researchers have attempted to identify an environment for OSL that would account for the apparent irregularity. For example, Paul (1888) argued that syllable cut conditions OSL. In this view, vowels in open syllables undergo lengthening if the syllable is smoothly cut (or, as it is sometimes put, if there is *loser Anschluss*). Lengthening does not occur in syllables with abrupt cut (also termed *fester Anschluss*) (see Reis 1974).

In the case of OSL in German, this explanation is *ex post facto*. One may reasonably argue that syllable cut is the result of OSL (see Vennemann 1995). However, the only evidence that the tonic vowel in *Vater* occurred before *loser Anschluss* whereas the tonic vowel in *Vetter* occurred before *fester Anschluss* is the subsequent lengthening in *Vater* versus the lack of OSL in *Vetter*.

King (1988) uses the possibility of competing lengthening rules to account for the irregularity before of OSL before /t/. According to King, at the time of OSL some speak-

ers formulated a rule that lengthened short vowels in open stressed syllables. Others formulated a rule that lengthened vowels before voiced consonants. Thus some speakers lengthened short vowels before *t* and others did not. The competing rules, which King terms ‘ambiguous projection’, resulted in irregularities. King’s analysis is a variation on the traditional Neogrammarian appeal to dialect mixing. Since many dialects have exceptions under either rule, King refers to speaker variation, in other words, idiolectal variation. King’s approach is appealing but does not account for irregularity before *m*.

Russ (1982) argues that OSL did not occur before *t*, *m*, *n*, and *l* but fails to adequately account for forms with lengthened vowels in that environment. Similarly, Lahiri & Drescher (1999) and Kraehenmann (2003) assume that *t* and *m* geminated in German, thereby closing the preceding syllable and eliminating the environment of OSL (see also Russ 1982 who argues that gemination of *l* and *n* occurred as well). Gemination of *t* and *m* after short vowels in open syllables would explain the lack of OSL in forms such as *Vetter*, but exceptions remain. For example, there is OSL and no gemination in *Vater* and *nehmen*.

Finally, some researchers have pointed to the possibility that syncope of the unstressed vowel in the second syllable eliminated the environment for OSL, e.g., *kommen* [kɔmm] ‘to come’ (Paul 1884). Syncope of unstressed syllables often varies with register and rate of speech, raising the possibility of irregular sound change. Even if one accepts the premise that casual speech processes may lead to irregular change, this view does not explain why lack of lengthening is prevalent before *t* and *m*. Note that syncope in Modern German is common following medial consonants other than *t* and *m*, for example, *haben* [ha:bm]. However, OSL is virtually exceptionless before medial consonants other than *t*, *m*, *n* and *l*.

A more promising approach to the exceptions to OSL is found in Murray’s (forthcoming) discussion of exceptions to OSL in Middle English. Murray points out that OSL in Middle English appears to be irregular. Vowels may or may not lengthen in the same phonetic environment. Thus, the reflexes of OE *crādol* and *sādol* are *cradle* with a long vowel and *saddle* with a short one. In Murray’s view, OSL in Middle English resulted in the elimination of contrastive vowel length and the establishment of syllable cut. He argues that this prosodic change is completely regular although the implementation of the change on the segmental level is irregular.

Murray also discusses OSL in German as a parallel change with a similar set of exceptions. Namely, Murray argues for irregularity before *t* and before any medial consonant followed by a sequence of *eC*, where C may be any consonant. As with the other analyses, Murray fails to explain why OSL often fails to occur before *t* and *m* beyond observing that OSL does not occur before *t* in a wide variety of Upper and Low German dialects. Nevertheless, the distinction between prosodic change and its implementation on the segmental level can be fruitfully applied to OSL in German in order to explain apparent exceptions.

### 3. Sound change versus prosodic change

Before continuing, it is necessary to define the terms sound change and prosodic change. Definitions of prosodic change and sound change appear in (4) and (5) (adapted from Vennemann 1995: 185–186):

(4) Definition of sound change:

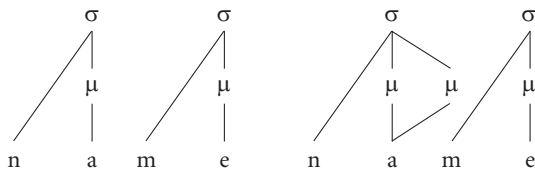
A sound change is a phonological change that targets the feature composition of a segment or group of segments. Example: Grimm's Law, which changes the laryngeal and continuancy features for inherited PIE plosives in Proto-Germanic.

(5) Definition of prosodic change

A prosodic change is a phonological change that affects the rhythmic pattern of a language. Its focus is a prosodic constituent, not the feature composition of a segment or group of segments. Example: Fixing of initial stress in Proto-Germanic.

Segmental length is represented prosodically by association with moras or slots on the skeletal tier. Therefore, it would appear that OSL is by definition a prosodic change. As can be seen in (7), OSL in German affects the prosodic structure of the word, but the distinctive features associated with lengthened vowel are unaffected.<sup>2</sup> Following OSL, stressed syllables are always heavy.

(6) MHG *nāme* > ENHG *nāme*



The motivation for the change lies in the longer duration of stressed syllables. Listeners may reinterpret the longer duration of stressed syllables as a requirement that stressed syllables be bimoraic. In other words, light syllables are reanalyzed as being heavy if stressed. For reflexes of light syllables, the bimoraic requirement can be met through either OSL or intervocalic gemination (compare Riad 1992 for Swedish). In a crosslinguistic survey, Maddieson (1985) found that short vowels had a consistently longer duration in open syllables than their counterparts in closed syllables. The relatively long duration of phonologically short vowels in open syllables is therefore subject to misinterpretation by the listener as being phonological (see Ohala 1981, 1993 and

2. OSL in Middle Dutch and Middle English results in short high vowels becoming long mid vowels. For example, OE *wicu* and *wudu* become *week* and *wood*, with the long mid vowel reflected in the orthography. In this case there is an apparent change in vowel quantity and quality. See Stockwell & Minkova 2002 for a recent analysis of OSL of high vowels in Middle English.

Blevins 2004 for different typologies of listener-based phonological change). On the other hand, the contrast between simplex and geminate consonants was robust at the time of OSL but laryngeal contrasts in the obstruent system of High German<sup>3</sup> were weak. Therefore, intervocalic *t* as well as *m*, *n* and *l* were subject to gemination.

#### 4. Segmental lengthening in Upper German dialects

This section provides three examples of segmental lengthenings conditioned by different prosodic changes in German dialects. In all three cases, a similar pattern of irregularity emerges.

##### 4.1 Lengthening of monosyllables in Swiss German

The existence of conservative dialects that retain short tonic vowels in open syllables permits the reconstruction of the progression of OSL in Upper German. In these dialects, it is now well-established that lengthening in monosyllables precedes OSL (see Kranzmayer 1956; Naiditsch & Kusmenko 1992; Kusmenko 1995; Naiditsch 1997). Lengthening in monosyllables in Alemannic is irregular. Evidence from Zürich is given in (8).

- (7) *Einsilberdehnung* in Zürich (Keller 1961:47)
- a. Lengthening before tautosyllabic lenis consonants  
*Taaɡ* ‘day’ ~ *Taaɡe* ‘days’
  - b. lengthening of *l* and nasals after tautosyllabic short vowel  
[brɪŋə] ‘to bring’ ~ [brɪŋ:t] ‘he brings’  
*vill* ‘much’ ~ *vili* (pl.)
  - c. Requirement does not apply if following word begins with a vowel  
[xum:] ‘come’ imp., [xum inə] ‘come in’
  - d. Minimality requirement on prosodic word  
V:C]<sub>w</sub>. VC:]<sub>w</sub> \*VC]<sub>w</sub>
  - e. Evidence of irregularity  
*überaal* ‘everywhere’ : *all* ‘all’ : *ali* (pl.)

The Alemannic dialect spoken in Zürich has a minimality requirement at the level of the prosodic word. The final foot of a prosodic word may be satisfied by a sequence of VCV, VCC, or VVC. A sequence of VC does not satisfy the minimality requirement (cf. Kiparsky 1984 for Icelandic; Riad 1992 for Swedish).<sup>4</sup> If a lexical sequence of VC

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3. High German dialects comprise Upper and Central German dialects.

4. Riad and Kiparsky both attribute the failure of VC]<sub>w</sub> to meet minimality requirements to final consonant extrametricality. See Lunden (2006) for arguments against the concept of extrametricality and the optimality theoretical constraint NonFinality.

occurs at the end of a prosodic word, minimality requirements may be satisfied by lengthening of either the vowel or the consonant.

The motivation for the change in minimality requirements in monosyllables is related to phrase-final lengthening (see Lunden 2006). The phonetic lengthening associated with phrase-final position is reinterpreted by the listener as a minimality requirement conditioning a phonological lengthening word-finally. Blevins (2006) reports that up to 60% of input in first language acquisition consists of single words. On this basis, the language learner may construct a grammar which requires phonological lengthening in monosyllables regardless of position in the phrase.

Blevins (2004, 2006) and Iverson & Salmons (2006, forthcoming) also argue that phrase-final lengthening plays a crucial role in the evolution of laryngeal neutralization in final position. The increased closure duration of phrase-final obstruents inhibits voicing and may lead to laryngeal neutralization word-finally. Finding a common motivation for final fortition and monosyllable lengthening helps explain the complementary distribution of the two phenomena across German dialects. Vowel lengthening in monosyllables is confined to those German dialects that do not have neutralization in final position (Wiesinger 1983:1092; Kranzmayer 1956). There is strong evidence that laryngeal neutralization in German is in fact a fortition (see Iverson & Salmons 2006, forthcoming). Vowel duration is shorter before the fortis series of obstruents and therefore less susceptible to lengthening in that environment.

The evidence in (8) indicates that either the vowel or coda consonant in word-final stressed syllables may be interpreted as being phonologically long in order to meet the minimality requirement for monosyllables. However, whether the vowel or the consonant lengthens in monosyllables is by no means arbitrary. The vowel always lengthens before final lenis consonants /b, d, g/ as in (8a). The phonological contrast identified by Keller (1961) and other dialectologists as fortis ~ lenis is implemented primarily through closure duration (Keller 1961:46; Kraehenmann 2001). Neither the fortis nor the lenis series is voiced or aspirated (Keller 1961:45, 54).<sup>5</sup> Phonetic realization and phonological patterns indicate that the fortis ~ lenis distinction in Swiss German is based on phonological length (Kraehenmann 2001; Page 2001). So-called fortis consonants are geminates. Lenis consonants are phonologically short and simplex. The duration of the preceding vowel also serves to cue the phonological length of the following consonant in Swiss German. Thus phonologically short vowels have greater duration before lenis consonants than before fortis ones (Ham 2001). Their greater phonetic duration before lenis consonants led to their phonological lengthening in this environment in word-final syllables.

In the Zürich dialect, sonorant consonants do not have contrastive length. The length of *l*, *n*, *m* is predictable. They are always short ('lenis' in Keller's terminology) unless they follow a tautosyllabic short vowel, as in (8b), where they are always long.

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5. Many German dialects have optional aspiration of phrase-final fortis stops. Although he does not address phrase-final aspiration directly, Keller (1961:54) does state that final fortition is "unknown" in this dialect.

The sonorant consonant *r* is always short. This is not surprising. There is a widespread tendency for vowels to lengthen before *r* throughout Germanic. Moreover, *r* resists gemination. For example, West Germanic gemination did not affect *r*.

It therefore appears that the interplay of phonological contrasts and phonetic implementation has an effect on what lengthens and what does not. Because phonological length is contrastive for obstruents and vowel duration serves as a cue for the contrast, the vowel lengthens before simplex obstruents to satisfy the minimality requirement in (8d). Phonological length is not contrastive for sonorant consonants in Zürich. In monosyllables ending in a sequence of vowel plus sonorant consonant, the sonorant consonant usually lengthens, but exceptions do occur. In those cases where the consonant does not lengthen, the vowel always lengthens. The exception in (8e) is due to the fact that the new prosodic requirements may be satisfied by lengthening of either the vowel or the consonant. This is consistent with the principle in (9).

- (8) Prosodic changes may result in irregular segmental lengthenings  
(Page 1999:315).

#### 4.2 Cimbrian (Bavarian)

Cimbrian is a Bavarian dialect spoken in South Tyrol in northern Italy. As described by Kranzmayer (1981), Cimbrian has incipient OSL. Etymologically short vowels have half-length in open syllables. However, variation is present in the data, ranging from full length in forms such as *zq̄tl* ‘saddle’ to retention of an unreduced short vowel and consonant gemination in *kxnotto* ‘knot’. Examples are given in (10) and (12). Note that these exceptional forms cannot be attributed to influence from Standard German.

- (9) Lengthening before *t* in disyllables (Kranzmayer 1981)

| Cimbrian | Standard German | gloss     |
|----------|-----------------|-----------|
| bèton    | beten           | ‘to pray’ |
| šatom    | Schatten        | ‘shadow’  |
| gʋritet  | geritten        | ‘ridden’  |
| gʋzòtet  | gesotten        | ‘boiled’  |
| žnìta    | Schnitte        | ‘slice’   |
| zq̄tl    | Sattel          | ‘saddle’  |
| kxnotto  | Knoten          | ‘knot’    |

The exceptions to lengthening involve *t* and *m*, as shown in (9) and (10), just as is the case with Standard German. In Cimbrian, lengthening before *t* appears to be the rule in disyllables. Before *m*, the vowel lengthens when the second syllable is open, but gemination usually occurs when the second syllable is closed.



(10) Lengthening before *m* in disyllables (Kranzmayer 1981)

| Cimbrian     | Standard German | gloss            |
|--------------|-----------------|------------------|
| nàmo         | Name            | “name”           |
| dème         | dem             | “the” masc. dat. |
| ime          | ihm             | “him” masc. dat. |
| šèmen        | schämen         | “to shame”       |
| kxemmen      | kommen          | “to come”        |
| kxümme/kxüme | Kümmel          | “caraway (seed)” |
| hammər       | Hammer          | “hammer”         |
| zummər       | Sommer          | “summer”         |
| himmel       | Himmel          | “sky”            |
| hemmiš       | hämisch         | “malicious”      |

The developments in Cimbrian are consistent with observations by Russ (1982) on OSL in German. By Russ’s count, there are six words in the standard language with a long vowel as a reflex of short vowel followed by *m* versus seventeen words where the short vowel is retained. The relevant forms are listed in (14).

## (11) Reflexes of MHG sequences of short vowel + /m/ (Russ 1982:134)

- a. OSL  
*Schemel, Name, nehmen, schämen, ziemen, lähmen*
- b. No OSL  
*Kümmel, sammeln, Schimmel, Semmel, tummeln, genommen, kommen, zusammen, Ammer, dämmern, Hammer, Nummer, Schimmer, Schlummer, Sommer, Trümmer*

Similarly, Russ (1982) surveys reflexes of short vowel plus *t* in the standard language and the dialects. He finds that retention of the short vowel is much more common than OSL before *t*. He states: “Nearly all the examples of the words with a lengthened vowel before NHG /t/ can be explained by analogy, spelling pronunciation or dialect borrowing” (Russ 1982:134). He concludes that OSL did not occur before *t*, *m*, *n* or *l* and that OSL was conditioned by a following voiced obstruent (Russ 1982:134).

Murray (forthcoming) rightly criticizes Russ’s treatment of the exceptions as ad hoc and unconvincing. It is simply difficult to believe that the spelling of Latin *pater* influenced the pronunciation of German *Vater*. However, Murray veers to the other extreme. Rather than opting for Neogrammarian regularity, Murray argues that English and German have undergone a prosodic change, the advent of syllable cut, and that the resulting changes in segmental length are wholly irregular. Yet OSL is highly regular before voiced obstruents in Standard German. In Cimbrian, incipient OSL is regular as well in this environment.

King (1988) and others have noted that the Old High German Consonant Shift had a great effect on the environment of OSL. After short vowels, /p, t, k/ shifted to /ff, ss, hh/, /d/ to /t/, and /θ/ to /d/. In addition, intervocalic fricatives became voiced in

Middle High German. Figure (12) shows the inventory of obstruents after short vowels prior to OSL. The inventory in (12) reveals that the voiced ~ voiceless distinction after short vowels is far from robust in High German prior to OSL. Moreover, the shift of /p, t, k/ to affricates in other positions had further weakened evidence of a voice ~ voiceless distinction in dialects that underwent the OHG Consonant Shift.

- (12) Consonant inventory after short vowels prior to OSL (adapted from King 1988)

| Voiced  | Voiceless | Geminates       |
|---------|-----------|-----------------|
| b       |           | pp              |
| (θ) > d | (d >) t   | tt              |
| g       |           | kk              |
| v       |           | (p >) ff        |
| z       |           | (t >) ss        |
|         |           | (k >) hh        |
| m       |           | mm              |
| n       |           | nn              |
| l       |           | ll              |
| r       |           | rr <sup>6</sup> |

Typically, vowel duration varies with the voicing of the following consonant. Thus, a short vowel has a shorter duration before a voiceless consonant than before a voiced consonant. Moreover, a voiceless consonant in this environment has a longer duration than a voiced consonant (Kingston & Diehl 1994). Similarly, vowel duration typically serves as a cue for the length of a following consonant in languages that have a contrast between simplex and geminate consonants (Ham 2001). Thus, one can expect that short vowels had a shorter phonetic duration before /t/ than before /d/ and other voiced obstruents. In addition, /t/ had longer phonetic duration in this environment than voiced obstruents. Therefore, sequences of short vowel plus /t/ were subject to reinterpretation as sequences of short vowel plus /tt/.

The lack of OSL before /m/ also appears to have its roots in phonemic distribution and the relative phonetic duration of vowels in different environments. Prior to OSL, short vowels occurred before both simplex and geminate nasals and laterals. However, long vowels occurred only before simplex nasals and laterals. The three possibilities may be represented schematically as VNV, VNNV, VVNV. In Cimbrian, OSL is better characterized as a prosodic change in which light stressed syllables become heavy. In the cases where half-length or full length does not occur before the medial consonant, the medial consonant has geminated. In other words, the sequence VNV no longer meets the prosodic requirements of the language. In a sequence VNV, a syllable can become bimoraic through lengthening of either the vowel or the consonant. As Russ

6. Geminate *rr* is only marginally attested in Middle High German. Russ (1982: 134) finds only two examples: *hërre* ‘lord’ and *dürre* ‘drought’.

points out, there are cases where OSL does not occur before *l* and *n* as well. Examples include *Donner* “thunder”, *Banner* “banner”, *Füllen* “foal”, *Eller* “alder”, *Koller* “rage”, *Söller* “balcony” (Russ 1982: 134). Crosslinguistic experimental evidence indicates that vowels are shorter before labials than before coronals and velars (Lehiste 1970; Fischer-Jørgensen 1964). This would explain why OSL was less frequent before *m* than before other sonorant consonants. It is interesting to note that in northern Italian dialects, *m* geminates after short vowels but *n* does not (Loporcaro 2003).

#### 4.3 Middle Bavarian (Pfalz’s Law) and the development of isochrony

The incipient changes observable in Cimbrian result in isochrony in Middle Bavarian. Prior to OSL in Bavarian, quantity was free. Short vowels appeared before both simplex and geminate consonants as did long vowels. After OSL, short vowels only appeared before geminate consonants and long vowels only appeared before simplex consonants, as illustrated in (16).

(13) Bird’s-Eye View of Bavarian Isochrony (adapted from Auer & Murray 2004)

| Sequence                          | Old High German              | Middle Bavarian       |
|-----------------------------------|------------------------------|-----------------------|
| VCV                               | lāhan “tadeln, reprimand”    | *                     |
| VVCV                              | līhan “leihen, lend”         | vēdā “Feder, feather” |
| VC <sub>i</sub> C <sub>i</sub> V  | lāhhan “Tuch, cloth”         | vētā “Vetter, cousin” |
| VVC <sub>i</sub> C <sub>i</sub> V | lihhan “gefallen, to please” | *                     |

Experimental evidence presented by Bannert (1976) supports the view that Bavarian isochrony is best represented as phonological length rather than the traditional fortis ~ lenis distinction. Geminate consonants are two to three times longer than their simplex counterparts. Bannert shows that the ratio of vowel to consonant duration is relatively constant for VVC sequences and for VCC sequences. Evidence is given in (17).

(14) Relative duration of VC sequences in Middle Bavarian (Bannert 1976: 129, adapted from Hassall 1999: 30)

|                              | V   | C   | V + C | V/(V+C) % |
|------------------------------|-----|-----|-------|-----------|
| <i>Ofa</i> “Ofen, oven”      | 210 | 103 | 313   | 67        |
| <i>offa</i> “offen, open”    | 145 | 197 | 342   | 42        |
| <i>Feda</i> “Feder, feather” | 160 | 59  | 219   | 73        |
| <i>Feta</i> “Vetter, cousin” | 100 | 209 | 309   | 32        |

Middle Bavarian has undergone a prosodic change and now requires quantitative complementarity in stressed syllables. Short (monomoraic) vowels are always followed by long (moraic) consonants. Long (bimoraic) vowels are only followed by short (non-moraic) consonants. This prosodic change admits no exceptions. In order to meet this requirement, OHG sequences of short vowel plus short consonant had to undergo either vowel lengthening or consonant gemination as shown in (16).

Just as was the case in Zürich and in Cimbrian, the prosodic change in Middle Bavarian results in irregular lengthenings, though the prosodic change is regular. For reflexes of short vowel plus *t*, there are examples of vowel lengthening and of consonant lengthening as shown in (18).

- (15) Irregularity in Middle Bavarian, Marchfeld (Schirmunski 1962:337)

| Vowel Lengthening |           |          | No Vowel Lengthening |           |           |
|-------------------|-----------|----------|----------------------|-----------|-----------|
| Mid. Bav.         | Std. Ger. | gloss    | Mid. Bav.            | Std. Ger. | gloss     |
| fōdʊ              | Vater     | “father” | bɛtn                 | beten     | “to pray” |
| šriʊd             | Schritt   | “step”   | blot                 | Blatt     | “leaf”    |
| brēd              | Brett     | “board”  | sot                  | satt      | “full”    |

The motivation for the irregularity of segmental lengthening before *t* in Middle Bavarian is the same as for the irregularity in the same environment in Cimbrian. After isochrony is established in Middle Bavarian, the only fortis simplex consonant in the inventory, *t*, is eliminated. Reflexes of *t* are either a lenis simplex consonant or a fortis geminate.

Murray (forthcoming) argues against any appeal to the imbalance in the OHG consonant system to explain the irregularity of OSL before *t*. Murray notes that OSL often fails before *t* in Low German, where the OHG Consonant Shift had no effect. Moreover, he argues that OSL was irregular in other environments in different dialects. He cites, for example, forms such as *kopər* “copper” in Eastphalian. Murray’s arguments are unconvincing because he fails to take into account differences in the phonological systems of the various German dialects. For instance, *kopər* “copper” in Eastphalian has not undergone the OHG Consonant Shift. In contrast, the Standard German form is *Kupfer*, reflecting shift of the medial *p*. Thus, Eastphalian has a different inventory of obstruents than Upper German dialects and the contrast between voiced and voiceless consonants was much more robust. Consequently, it is not surprising that OSL proceeded differently in that dialect.

## 5. Conclusion

The distinction between prosodic change and Neogrammarian sound change has played a crucial role in this discussion of the irregularity of OSL in German. The source for these two different kinds of change is the same, however. In both cases, the listener may misinterpret the intent of the speaker due to the phonetic variation inherent in speech (Ohala 1981, 1993; Blevins 2004). For example, the longer duration of syllables under stress may lead language learners to perceive all stressed syllables as heavy. There is no need to appeal to Universal Grammar and a markedness constraint preferring heavy stressed syllables as in Optimality Theory. Instead, OSL is viewed as stochastic and language specific. Some dialects of German have undergone OSL and some have

not. In this regard, OSL is no different from the High German Consonant Shift and other phonological changes that have played a role in the history of German.

Unlike Neogrammarian sound change, prosodic change may be irregular in its implementation on the segmental level. Prosodic requirements may often be satisfied in more than one way and therefore do not wholly determine phonetic shape. A bimoraic requirement for stressed syllables can be met through either OSL or gemination of intervocalic consonants. Similarly, word minimality requirements can be met by either vowel lengthening or consonant gemination. Language-specific factors determine whether minimality requirements at a particular prosodic level, be it the word or the syllable, are met by vowel lengthening or consonant gemination. Throughout West Germanic there is a robust trading relationship between vowel duration and consonant closure duration in implementing laryngeal contrasts. In sequences of vowel plus voiced obstruent, the vowel has a relatively long duration and the consonant has a relatively short closure. It is therefore unsurprising that vowel lengthening is regular in this environment.

Language-specific factors also provide insight into irregularities. In sequences of vowel plus voiceless obstruent, the vowel is relatively short and the obstruent long. It is therefore possible for listeners to reinterpret the longer phonetic duration of the obstruent as being phonological, particularly in Upper German dialects where a simplex-geminate opposition is more robust than a laryngeal contrast, which was only found in the opposition /d/ ~ /t/ following the High German Consonant Shift. It is therefore unsurprising that OSL before /t/ is irregular. Similarly, at the time of OSL in German, there was a robust contrast between simplex /m, n, l/ and geminate /mm, nn, ll/ due to West Germanic Consonant Gemination. Therefore, sequences of short vowel plus *m*, *n* or *l* were subject to either vowel lengthening or consonant gemination. The shorter duration of vowels before labials than before coronals explains the relative infrequency of OSL before /m/ in German.

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# The resilience of prosodic templates in the history of West Germanic

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## 1. Introduction

The foot has received much attention in phonological analyses of Germanic, but only recently has its importance in shaping morphological classes become a focus of research (cf. Booij 1998, 2002; van der Hulst & Kooij 1998; Wiese 2000, 2001; Smith 2004a, 2004b). The foot's morphological role results from prosodic templates that outline the canonical shape of words and stems. The templates at work in Germanic are of two types, namely simple templates that are defined in terms of feet alone and complex templates which are based on the interaction of feet with other levels of the prosodic hierarchy.

In this paper I present my own templatic analyses for historical data from Old Saxon *i*-stem nouns and Old High German *jan*-verbs to show that these analyses are in harmony with accounts proposed for the modern German data by Féry (1997) for *i*-croppings and Wiese (2001) for plurals. These data underscore the resilience of both simple and complex templates diachronically in West Germanic despite the change from moraic trochees (a heavy syllable or two light syllables forming feet) found in early Germanic to the syllabic trochee (stressed-unstressed syllable sequence) of modern German and Dutch. Simple foot-based templates are shown to account for *i*-loss in Old Saxon *i*-stem nouns where *i* is lost when it cannot fit the template (underlined portion), e.g., [gas.]ti > [gast] “guest” but [wi.ni] “friend” with no loss, and to shape Modern German *i*-croppings, e.g., *Susanna* > [Sú.si], *Hausaufgabe* > [Háu.si] “homework”. Conversely, complex templates are argued to constrain *i*-loss in Old High German *jan*-verbs, e.g., [ne.ri]+ta “saved” (no syncope), [ho:]ri+ta > [ho:r]+ta “heard”, [ua:][fē. ni]+da (trissyllabic) > [ua:][fēn]+da “armed” (disyllabic) when multiple prosodic requirements converge, i.e., stems are minimally one foot, maximally disyllabic. Modern German plurals also employ a complex template where plurals must end in a disyllabic trochee containing a final schwa syllable, e.g., *Uhr*~[Úh.ren] “clock~clocks” and *Figúr*~Fi[gú.ren] “figure~figures”. Together, these data demon-

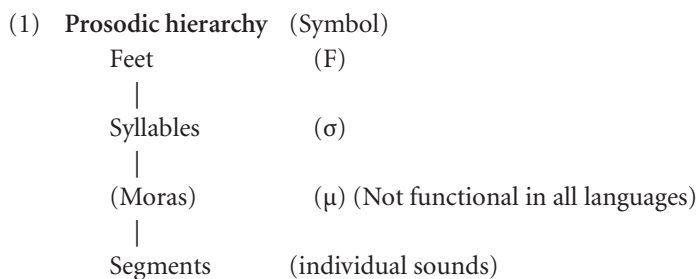


strate the resilience of templates, regardless of foot-type, to shape paradigms across the history of West Germanic.

## 2. Background

### 2.1 The prosodic hierarchy

Prosodic units such as syllables and feet serve as the building blocks of prosodic templates. As the prosodic hierarchy in (1) illustrates (cf. Selkirk 1980; McCarthy & Prince 1986, 1990, 1996; Wiese 2000; Löhken 1997, etc.), individual sounds are grouped together to form syllables which in turn are grouped together to form feet. In some cases, the amount of segmental material in a syllable rhyme, defined in terms of moras,<sup>1</sup> determines how syllables will combine to form feet, while in other cases footing of syllables depends on stress placement.



The role played by syllables in the assignment of foot structure changed during the history of West Germanic as reflected by the change of the moraic trochee in early Germanic to the syllabic trochee of Modern German and Dutch.

### 2.2 Feet in the history of West Germanic

#### 2.2.1 Foot-type of Early Germanic: Moraic trochees

As noted, the primary foot type of the early West Germanic languages, such as Old High German (OHG), Old English (OE) and Old Saxon (OS), was the moraic trochee. According to this weight sensitive foot, a syllable such as *gas* as in *gasti* in (2a) had two moras, one assigned to the vowel *a* and one to the coda *s*. This bimoraic syllable was considered heavy and formed a foot on its own as indicated by the square brackets.

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1. Broselow (1996: 175) notes that moras “serve as indicators of syllable weight” in weight sensitive languages. Typically one mora is assigned to short vowels and single consonants whereas long vowels contribute two moras to syllable weight. Syllable onsets, however, do not appear “to contribute to syllable weight” (1996: 188). A syllable such as *tap* would thus have two moras, one from *a* and the second from *p*.

However, the next syllable, *ti*, had only one mora assigned to the vowel *i* due to the lack of a coda and was thus counted as light and unable to form a foot on its own.

- (2) a. **Foot structure of OS *gasti* “guest”** (Foot type: Moraic trochee)  
 F          Foot level (F=foot)  
 [H] L      Syllabic level (H=heavy syllable (2+ moras); L=light syllable (1 mora))  
       μμ μ    Moraic level (μ =mora)  
 [gas] ti    Segmental level
- b. **Foot structure of OHG *wini* “friend”** (Foot type: Moraic trochee)  
 F          Foot level  
 [L L]      Syllabic level  
       μ μ    Moraic level  
 [wi. ni]    Segmental level ([...] =foot; .=syllable break)
- c. Moraic trochee = [H] or [LL]

A sequence of two light syllables (or a light-heavy sequence), however, was able to form a foot, equivalent to that of the single heavy syllable. This is illustrated in (2b) for OHG *wini* “friend” where the period indicates the syllable boundary. The equivalence between a heavy syllable and two light syllables in forming a foot was based on the notion of resolution from Germanic verse (cf. Lahiri et al. 1999, among others).

### 2.2.2 Foot-type of Modern German and Dutch: Syllabic trochees

The trochee found today in German and Dutch, however, no longer depends on weight and whether the syllable has a coda. Instead it is based on the alternation between stressed and unstressed syllables as illustrated by the word *winter* in (3):

- (3) a. **Prosodic structure of *winter*** (Foot type: Syllabic trochee)  
 [wín .ter] ([...] = foot, . = syllable break, ´ = stress)
- b. Syllabic trochee = [óσ] (ó = a stressed syllable; σ = a syllable)

Here the two syllables *win* and *ter* form the sequence of a stressed-unstressed syllable, known as a syllabic trochee, the most prevalent foot type found in Modern German and Dutch (Booij 1998, 2002; Wiese 2000, 2001).

## 2.3 What are templates?

In the last two decades, research has demonstrated that prosodic units such as syllables and feet can play a role not only in shaping the phonology, but also the morphology of a language. This notion builds on McCarthy’s (1979) work on root-and-pattern morphology in Arabic where discontinuous consonantal roots, e.g., *ktb* “writing”, were shown to be mapped to specific consonant-vowel structures, i.e., skeletal templates, associated with a given morphological category or paradigm. For instance, the participle *kaatib* “writing” results from mapping the root *ktb* to the template CVVCVC defining the canonical shape of participles. Crosslinguistic study of these patterns, as

well as others such as reduplication and infixation, subsequently “revealed that the templates underlying these morphological processes overwhelmingly [are] sensitive to prosodic constituents” (Macken & Salmons 1997:36). This observation led McCarthy and Prince (1986, etc.) to propose their theory of Prosodic Morphology. According to the Prosodic Morphology Hypothesis, “templates are defined in terms of the authentic units of prosody” (McCarthy 1992:188) and stipulate the prosodic conditions defining the canonical form of a morpheme, e.g., prefix, stem, etc., or output of a morphological process, e.g., diminutivization and pluralization. For example, a template could require a stem to be one foot or a prefix to be a heavy syllable.

To date prosodic templates have been used primarily to account for synchronic data. However, recent work by Macken & Salmons (1997) for Mixtec and Smith (2002, 2004a, 2004b) for West Germanic has shown that prosodic templates can also shed light on language change by providing a more coherent account of seemingly divergent morphological and phonological phenomena at different stages of a given language. This paper provides evidence for the persistence of templates throughout the history of the West Germanic languages. In what follows, I assume that the template used in a particular paradigm applies specifically to that paradigm and does not dictate the shape of all words and paradigms in a language.

### 3. Simple and complex templates in the history of West Germanic

Two primary types of templates, namely simple and complex templates, can be aduced to have played a role in shaping morphological paradigms both historically in West Germanic and synchronically in Modern German and Dutch. As noted above, simple templates are those defined in terms of one level of the prosodic hierarchy, e.g., the foot or syllable. By contrast, complex templates arise when prosodic requirements from more than one level of the prosodic hierarchy converge, e.g., feet and syllables. With this in mind, I now turn to the evidence starting with a discussion of simple templates before examining data in support of complex templates.

#### 3.1 Simple templates

##### 3.1.1 *Historical data: Old Saxon i-stem nouns (Smith 2002, 2004a)*

The loss or maintenance of the thematic vowel *i* in Old Saxon (OS) *i*-stem nouns depends on the shape of the preceding stem. In this inflectional class, the thematic vowel *i* is lost after long stem nouns, namely those of the shape VCC and V:C, e.g., *gast* “guest” and *thrād* “thread” but retained when the noun stem is short, i.e., those ending in a VC, e.g., *stedi* “city” as shown in (4).

(4) Old Saxon long vs. short stems (Nominative/Accusative forms, forms from Sehrt 1925)

| Long Stems            |                      | Short Stems                   |    |
|-----------------------|----------------------|-------------------------------|----|
| VCC                   | V:C                  | VCC                           | VC |
| gast (m.) “guest”     | thra:d (m.) “thread” | sted <i>i</i> (f.) “city”     |    |
| fard (f.) “journey”   | qua:n (f.) “woman”   | uuini (m.) “friend”           |    |
| burg (f.) “town,city” | wa:g (m.) “wave”     | seli (m.) “room”              |    |
| uurm (m.) “worm”      | bru:d (f.) “woman”   | friundskepi (m.) “friendship” |    |

Examples of full paradigms for both the long and sort masculine and feminine stems are provided in (5) (based on Kyes ms., Holthausen 1921):

(5) Sample declensions of long and short masculine and feminine *i*-stems

|                 | Masculine                                        |                                   | Feminine             |                             |
|-----------------|--------------------------------------------------|-----------------------------------|----------------------|-----------------------------|
|                 | Short (VC)                                       | Long (VCC/V:C)                    | Short (VC)           | Long (VCC/V:C)              |
| <b>Singular</b> |                                                  |                                   |                      |                             |
| Nom             | uui <i>n</i> <u>i</u> “friend”                   | gast “guest”                      | sted <i>i</i> “city” | fard “journey”              |
| Acc             | uui <i>n</i> <u>i</u>                            | gast                              | sted <i>i</i>        | fard                        |
| Dat             | uui <i>n</i> <u>i</u> , <i>-ie, -ia, -ea, -e</i> | gaste, <i>-a</i>                  | sted <i>i</i>        | ferd <i>i</i> , fard        |
| Gen             | uui <i>n</i> <u>i</u> es, <i>-ias, -es</i>       | gastes, <i>-as</i>                | sted <i>i</i>        | ferd <i>i</i> , <i>-e</i>   |
| Instr           | uui <i>n</i> <u>i</u> u, <i>-i</i>               | gastu                             | _____ <sup>b</sup>   | _____                       |
| <b>Plural</b>   |                                                  |                                   |                      |                             |
| Nom             | uui <i>n</i> <u>i</u> , <i>-ios<sup>a</sup></i>  | gest <i>i</i> , <i>-e</i>         | sted <i>i</i>        | ferd <i>i</i> , <i>-e</i>   |
| Acc             | uui <i>n</i> <u>i</u> , <i>-ios<sup>a</sup></i>  | gest <i>i</i> , <i>-e</i>         | sted <i>i</i>        | ferd <i>i</i>               |
| Dat             | uui <i>n</i> <u>i</u> un, <i>-ion</i>            | gest <i>i</i> un, <i>-m, -ion</i> | _____ <sup>c</sup>   | ferd <i>i</i> un, <i>-m</i> |
| Gen             | uui <i>n</i> <u>i</u> o                          | gest <i>i</i> o, <i>-eo</i>       | _____                | ferd <i>i</i> o             |

- a. *-ios* reflects the extension of the *ja*-stem endings via analogy.
- b. No instrumental forms exist for the feminine forms.
- c. No forms have been attested in dative and genitive plural for this noun.

The difference between the long and short stems is further underscored by the presence or absence of umlaut. Simply, where *i* was retained, it triggered umlaut as the contrast between *fard* (no *i*, no umlaut) and *ferdi* (*i*, umlaut) illustrates.

As summarized in (6), loss versus maintenance of *i* is related to the syllable immediately preceding the *i*, regardless of whether the word is monosyllabic, e.g., <sup>+</sup>*wurmi* > *wurm* “worm”, or multisyllabic, e.g., *friundskepi* “friendship”.

(6) The development of PGmc. +*i* in West Germanic (cf. Boutkan 1995:39)

|                                          | Old Saxon | Old English | Old High German |
|------------------------------------------|-----------|-------------|-----------------|
| + <i>i</i> after unstressed syllable     | ∅         | ∅           | ∅               |
| + <i>i</i> after stressed long syllable  | ∅         | ∅           | ∅               |
| + <i>i</i> after stressed short syllable | <i>i</i>  | <i>e</i>    | <i>i</i>        |

By assigning foot structure to the underlying forms prior to *i*-loss, the pattern in (7) emerges. Here the *i* is parsed within the final light syllable of the word.

(7) **Foot Structure Before *i*-loss** (Smith 2002, 2004a)

| Long                  |   |                       |   | Short                |    |
|-----------------------|---|-----------------------|---|----------------------|----|
| [H]                   | L | [H]                   | L | [L                   | L] |
| [μμ]                  | μ | [μμ]                  | μ | [μ                   | μ] |
| C <sub>0</sub> VC. Ci |   | C <sub>0</sub> V:. Ci |   | C <sub>0</sub> V. Ci |    |
| far di > fard         |   | tī di > tīd           |   | se li > seli         |    |

I contend that when the syllable containing the *i* was left unfooted after long stems as in [far]di>fard, the *i* was subsequently lost. Conversely, when the syllable containing *i* was resolved with the preceding light syllable of a short stem as in seli, *i* was retained. Thus, *i*-apocope ensured that the *i*-stem nouns came to fit the template stipulating that they end in a moraic trochee as depicted in (8).

- (8) [H]L → [H]  
 [L L] → [L L]

This same approach can account for the failure of *i* to undergo syncope after trisyllabic light stems where the *i* is footed as *friundskepi* shows in (9):

(9) **Trisyllabic short stem:**

|         |      |                 |
|---------|------|-----------------|
| [H]     | [L   | L]              |
| [μμμ]   | [μ   | μ]              |
| friund. | ske. | pi “friendship” |

Since *i* can be footed and is thus mapped onto the template, it is consequently retained.

3.1.2 *Modern data: German i-croppings* (Féry 1997)

The simple foot-based template can also account for *i*-croppings in Modern German as described by Féry (1997). These abbreviations and nicknames are formed by taking a portion of the word and adding *i* to the end. Consider for a moment the examples in (10):

(10) **Formation of abbreviations and nicknames in German** (based on Féry 1997)

## a. Personal names

|          |          |
|----------|----------|
| Thómas   | [Tó.mmi] |
| Susáanna | [Sú.si]  |
| Andréas  | [Án.di]  |
| Gabriéle | [Gá.bi]  |

## b. Nouns

|               |                   |            |
|---------------|-------------------|------------|
| Studént       | “student”         | [Stú.di]   |
| Haúsaufgábe   | “homework”        | [Haú.si]   |
| Kriminalromán | “detective novel” | [Krí.mi]   |
| Kompóst       | “compost”         | Kom[pósti] |

## c. Adjectives

doof “stupid, silly” [Dóo.fi]<sup>2</sup>

As these examples illustrate, *i*-croppings are typically, though not always, constructed by taking the first part of the word up to and including the first consonant of the second syllable, e.g., *Andreas* > *An.d-*, and then adding the suffix *i*. In each case, cropping results in a word ending in a syllabic trochee, i.e., a stressed-unstressed syllable sequence, e.g., *Sú.si* and *Krí.mi*. Regardless of where the stress originally fell, it is shifted to the penultimate syllable to ensure the word ends in a syllabic trochee. For instance, in *Studént*, the stress is on the final syllable *-dent*. However, in *Stúdi*, the stress is shifted to the first syllable *Stú-* resulting in the necessary word-final trochee.

Since *i*-formations end in a syllabic trochee, then we can say that the trochee serves as the prosodic template for *i*-croppings. In fact, Féry (1997:465) states the following (my translation):

The result of this suffixation is namely prosodically stipulated, and the stems are virtually wedged into a template by force to fit this prescribed form. The stipulation is that the resulting word must build a trochee; that means, it must consist of an accented syllable followed by an unaccented syllable.<sup>3</sup>

I thus formalize Féry’s template for *i*-croppings in (11) where the square brackets denote the foot and the number sign (#) indicates the right edge of the word:

(11) **Template for *i*-construction:**

... [σ + i]#

This template stipulates that the word will end in a stressed syllable plus the suffix *-i*, or in other words, a syllabic trochee where the final syllable is the invariable suffix *-i*.

## 3.2 Complex templates

Sometimes, however, the foot alone cannot account for the shape of words in a given paradigm. In these cases, the shapes of words and paradigms are defined by more than a single prosodic unit, e.g., the combination of feet and syllables, which converge to form complex templates.

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2. Many speakers produce this word as Doo[v]i, not Doo[f]i.

3. As one anonymous reviewer points out, the notion of “wedging” words into a “prescribed form” is likely overstating the case and certainly ignores the potential for exceptions. What leads a speaker to fit a word form or morpheme to a template or just how this process of mapping is carried out in the mind of the speaker is a question that has not been adequately addressed in the literature.

### 3.2.1 Historical data: Old High German *jan*-verbs (Smith 2004a, 2004b)

One historical example of complex templates comes from *i*-syncope in the West Germanic *jan*-verbs. In early Germanic, the preterite of the Class 1 weak verbs or *jan*-verbs was formed by adding a dental suffix, e.g., *-ta* or *-da*, to a stem + the connecting vowel *i* as in (12).

#### (12) Behaviour of *i* based on weight of stem

- |              |              |   |                                                                 |
|--------------|--------------|---|-----------------------------------------------------------------|
| a. LIGHT     | + ner-i-da   | > | OHG <i>nerita</i> , OS <i>nerida</i> , OE <i>nerede</i> “saved” |
| b. HEAVY     | + hōr-i-da   | > | OHG <i>hōrta</i> , OS <i>hōrda</i> , OE <i>hīerde</i> “heard”   |
|              | + drank-i-da | > | OHG <i>drankta</i> , OE <i>drencte</i> “watered, soaked”        |
| c. POLYSYLL. | + mahal-i-ta | > | OHG <i>mahalta</i> “vowed, pledged”                             |

This linking vowel *i*, however, was eventually lost after heavy stems, namely ones that ended in a VCC or VVC as in (12b), and after polysyllabic stems as in (12c). However, when the stem was light, ending in a VC as in (12a), then *i* was retained. A larger list of examples from OHG is provided in (13):<sup>4</sup>

#### (13) OHG *jan*-verbs (based on Braune/Eggers 1987)

|              |                 |                               |                         |
|--------------|-----------------|-------------------------------|-------------------------|
| LIGHT        | <i>knussen</i>  | <i>knusita</i>                | “to crush, pound”       |
|              | <i>frummen</i>  | <i>frumita</i>                | “to promote, encourage” |
| HEAVY        | <i>teilen</i>   | <i>teilta</i>                 | “to divide”             |
|              | <i>wānen</i>    | <i>wānta</i>                  | “to mean”               |
|              | <i>hengen</i>   | <i>hangta</i> , <i>hancta</i> | “to hang”               |
| POLYSYLLABIC | <i>nidaren</i>  | <i>nidarta</i>                | “to lower”              |
|              | <i>heilazen</i> | <i>heilazta</i>               | “to greet, hail”        |
|              | <i>anazen</i>   | <i>anazta</i>                 | “to urge, drive on”     |

Since the environment where this *i* was lost is best defined in terms of morpheme boundaries, i.e., *i* was lost following a heavy or polysyllabic stem before the dental preterite suffix, we can apply the template to the stem prior to affixing the preterite ending. Mapping from left to right, the stem and connecting vowel are mapped onto the template as in (14):

---

4. The pattern of syncope in Old High German as shown in (13) reflects the state of affairs in the major manuscripts Otfrid (second half of 9th century) and Notker (end of 10th century to 1022) as well as numerous other smaller manuscripts and the analysis presented here thus addresses this more prevalent pattern. It should be noted, however, that somewhat different patterns are found in Tatian (first half of 9th century) and Isidor (9th century).

## (14) Template mapping

a. LIGHT (LL) and POLYSYLLABIC (LLL&gt;LH)

F  
 [L L] +ta  
 μ μ  
 CV CV +ta

i. Light [*ne ri*] + ta <nerita>ii. Poly. [*ni da*] ri +ta <nidarta>

b. HEAVY (HL&gt;H)

F  
 [H] L +ta  
 μμ μ  
 C<sub>0</sub>VC Ci +ta  
 C<sub>0</sub>VV Ci +ta

Heavy [*tran*] *ki* +ta <trancta>[*hō*] *ri* +ta <hōrta>

c. POLYSYLLABIC (HHL&gt;HH)

[H] [H] L  
 μμ μμ μ  
 C<sub>0</sub>VC CVC CV  
 [*am*] [*bah*] *ti* + ta <ambahta>

I argue that when the *i* could be mapped onto the template as (14a.i) illustrates for light stems, e.g., *nerita*, then it was preserved forming an [LL] resolved foot to which the dental preterite ending could affix itself. In all other examples in (14), such as <sup>+</sup>*trankita* becoming *trancta*, conversely, the *i* could not be mapped onto the foot template for the stem and was lost. This accounts for the heavy and polysyllabic examples, except for those of the shape HLL. As the foot-based approach in (15) illustrates, the foot alone cannot account for the loss of *i* for this stem type.

## (15) POLYSYLLABIC (HLL &gt; HH)

[H] [L L] + ta  
 μμ μ μ  
 C<sub>0</sub>VC CV CV + ta  
 C<sub>0</sub>VV CV CV + ta  
 [uuā] [fe ni] + ta > <uuāfenda>

Since *i* can be parsed into a resolved foot with the preceding light syllable, it would not be expected to be lost if foot structure alone was responsible for *i*-syncope. Consider the table in (16):

| (16) Stem type | Stem σ types  | Example          | # of moras | # of feet | # of syllables |
|----------------|---------------|------------------|------------|-----------|----------------|
| LIGHT          | L + L (< LL)  | [ne.ri] + ta     | 2          | 1         | 2              |
| HEAVY          | H (< HL)      | [hōr] + ta       | 2+         | 1         | 1              |
| POLYSYLLABIC   | L + H (< LLL) | [ni. dar] + ta   | 2+         | 1         | 2              |
|                | H + H (< HHL) | [am] [baht] +ta  | 2+         | 2         | 2              |
|                | H + H (< HLL) | [hei] [laz] + ta | 2+         | 2         | 2              |

As shown, the minimum number of feet is one, with some polysyllabic stems having two feet. However, the maximal number of syllables for any stem is two. In essence, the stems have the following shapes: They all have at least one foot, but no more than two syllables, and by extension they have no more than two feet. This means that although



the *i* in the HLL > HH polysyllabic stems can be footed as in (15), the stem exceeds the two syllable maximum. To remedy this violation of the disyllabic upper limit *i* is lost bringing the stem in line with the constraints on stem shape and size, namely minimally one foot, but maximally 2 syllables: Ft  $\geq$  1,  $\sigma \leq$  2.

- (17) a. **Relation between stem and suffix in a templatic approach**  
 X+preterite ending, where X  $\geq$  one foot and X  $\leq$  two syllables
- b. **OHG *jan*-verbs**  
 Foot: [Ft] ([Ft])+  
 Syllable:  $\sigma$  ( $\sigma$ )  
 Moraic:  $\mu$   $\mu$  ( $\mu$ ) ( $\mu$ )  
 Segmental: Except with phonotactic violations<sup>5</sup>

I thus propose that syncope of *i* serves to achieve the prescribed stem shape. The dental preterite suffix was then affixed to the right edge of this filled template as the plus sign indicates.

Since the well-formedness of the stems is based on both feet and syllables as (17) shows rather than just one prosodic level, it is considered a complex template with a number of templatic configurations possible, i.e., [H], [LL], [LH], and [HH]. Moreover, as (17) illustrates, moras play a role in the template since they determine the weight of the syllable, namely heavy or light, which in turn determines the footing of syllables.

### 3.2.2 Modern data: German plurals (Wiese 2000, 2001)

Examples of the complex template from modern times can be drawn from Modern German plurals. Wiese (2000, 2001) demonstrates that the apparent chaos of the German plurals looks much more systematic when viewed from the perspective of prosodic unity. Setting aside umlaut in the plural, German has five discrete plural markers (Wiese 2001) as shown in (18):

- (18) **Plural formation suffixes in German (umlaut set aside)** (Wiese 2001)
- a. *-e* [ə] Hund+e “do”, Tisch+e “tables”, Argument+e “arguments”,  
 Paket+e “packages”
- b. *-(e)n* [(ə)n] Uhr+en “watches”, Frau+en “women”, Partei+en “parties”,  
 Idee+en “ideas”

---

5. When *i*-syncope would result in a phonotactic violation, syncope is either blocked or carried out with concomitant anaptyxis to break up the cluster:

- |                   |                           |
|-------------------|---------------------------|
| a. Epenthesis     | b. <i>i</i> -loss blocked |
| + <i>bauhnjan</i> | <i>pauhh<u>anta</u></i>   |
|                   | <i>bauhnida</i>           |
|                   | <i>pou<u>chenta</u></i>   |
|                   | <i>gabauhnida</i>         |

As a result, the stem violates the template but preserves the phonotactics. This underscores the balance between prosodic and phonotactic requirements.

- c. *-er* [ɐ] Kind+er “children”, Wäld+er “forests”, Spital+er “hospitals”, Regiment+er “regiments”  
 d. *-Ø* Vögel “birds”, Ruder “oars”, Computer “computers”, Filter “filters”  
 e. *-s* Auto+s “cars”, Club+s “clubs”, Sofa+s “sofas”, Clown+s “clowns”

Wiese (2001: 19) notes that plurals formed by the suffix *-s* “differ from all other plurals in a number of dimensions, that is, in phonological, morphological, lexical and processing properties.” Although *-s* forms a minority of plurals, Wiese (2001) and Marcus et al. (1995), among others, have argued that it serves as the default plural marker in contemporary German. Since *-s* is exceptional both as a default plural suffix and in failing to pattern with the other plurals prosodically, I set it aside in this discussion.

The plural forms relevant to a discussion of prosodic templates are those in (18a–d). As these examples illustrate, originally monosyllabic nouns become disyllabic in the plural. A closer examination of the choice between *-en* and *-n*, shown in (19), reveals that plurals must end in a syllabic trochee resulting in the disyllabic requirement.

(19) Allomorphy of the plural suffix *-(e)n* (examples from Wiese 2001: 20)

- |                                                                             |                                                    |
|-----------------------------------------------------------------------------|----------------------------------------------------|
| a. Úhr+en “watches, clocks” $\acute{\sigma}>[\acute{\sigma}\sigma]$         | b. Stéuer+n “taxes” $[\acute{\sigma}\sigma]$       |
| Jágd+en “hunts” $\acute{\sigma}>[\acute{\sigma}\sigma]$                     | Máuer+n “walls” $[\acute{\sigma}\sigma]$           |
| Fabrík+en “factories” $[\acute{\sigma}\sigma]>\sigma[\acute{\sigma}\sigma]$ | Númmér+n “numbers” $[\acute{\sigma}\sigma]$        |
| Figúr+en “figures” $[\acute{\sigma}\sigma]>\sigma[\acute{\sigma}\sigma]$    | Táfel+n “tables, tablets” $[\acute{\sigma}\sigma]$ |
| Idée+en “ideas” $[\acute{\sigma}\sigma]>\sigma[\acute{\sigma}\sigma]$       | Scháufel+n “shovels” $[\acute{\sigma}\sigma]$      |

As the foot structures immediately to the right of each example show, each of the plurals end in the stressed-unstressed sequence of the syllabic trochee. In the case of the monosyllabic singulars in (19a), e.g., *Úhr* and *Jágd*, the plural ending *-en* adds the requisite final unstressed syllable to form the trochee. Likewise for words like *Fabrík* or *Figúr*, where the final syllable is stressed in the singular, the addition of the *-en* plural suffix provides the final unstressed syllable to fit the word to the requirement that plurals end in trochees. In each of the (19b) examples, on the other hand, the singular already conforms to a disyllabic trochee. Thus, adding *-n* rather than *-en* maintains the final trochee by not adding an additional syllable.

By adding *-n* and *-en* in the opposite environments, incorrect plurals would emerge as in (20) where the asterisk denotes an incorrect form.

(20) Problems in adding the incorrect plural allomorph

- |                                   |                                                 |
|-----------------------------------|-------------------------------------------------|
| a. *Úhr+n $[\acute{\sigma}]$      | b. *Steuer+en $[\acute{\sigma}\sigma]$ $\sigma$ |
| *Jágd+n $[\acute{\sigma}]$        | *Mauer+en $[\acute{\sigma}\sigma]$ $\sigma$     |
| *Figur+n $\sigma[\acute{\sigma}]$ | *Tafel+en $[\acute{\sigma}\sigma]$ $\sigma$     |

Thus, adding only *-n* to a word ending in a stressed syllable, or adding *-en* to an already conforming trochaic stem would result in plurals that failed to conform to the

requirement that plurals end in a syllabic trochee further underscoring the role played by the disyllabic trochee in plural formation.

This trochaic requirement is also evidenced for plurals ending in *-e*, *-er*, or with no overt ending as in (21).

(21) **The syllabic trochee in Modern German plurals**

- a. *-e* [Hún.de] “dogs”, [Tí.sche] “tables”, Argu[mén.te] “arguments”, Pa[ké.te] “packages”
- b. *-(e)n* [Uh.ren] “watches”, [Fráu.en] “women”, Par[téi.en] “parties”, I[dée.en] “ideas”
- c. *-er* [Kín.der] “children”, Regi[mén.ter] “regiments”
- d. *-Ø* [Vó.gel] “birds”, [Rú.der] “oars”, Com[pú.ter] “computers”, [Fíl.ter] “filters”

Once again, all plural forms end in a disyllabic trochee. However, this is not the only requirement; the segmental level also plays a crucial role. Unlike the case for the *i*-croppings where the second syllable mapped onto the template is always the pre-determined and invariant *i*-suffix, the final syllable of a plural must contain a specific type of segment, namely a schwa or syllabic resonant. This schwa syllable can belong to either the stem, e.g., *Vogel*~*Vögel*, or the plural suffix, e.g., *Uhr*~*Uhren*.

In formalising Wiese’s plural templates, I thus propose the template in (22) which also interestingly accounts for Dutch plurals despite differences between the plural suffixes of German and Dutch (cf. Booij 1998).

(22) **Template for German (and Dutch) plurals**

|            |       |
|------------|-------|
| Foot:      | [Ft]# |
| Syllable:  | [óσ]  |
|            |       |
| Segmental: | ə     |

As (22) shows, three levels of the prosodic hierarchy interact to form the plural template. In particular prosodic conditions must be met at the segmental level which requires the presence of a schwa or syllabic resonant, the syllabic level which stipulates that this schwa must be in the second syllable, and lastly at the foot level outlining the need for the plural to end in a syllabic trochee.

#### 4. Templates in the history of West Germanic

To conclude, the templates presented in this paper for both the historical and modern data are summarised in (23). As this table shows, the use of simple foot-based templates depicted in (23a) as well as more complex templates involving multiple prosodic units as in (23b) was shown to have played a role in shaping lexical classes during the history of West Germanic despite differences in foot formation at different stages of

West Germanic, i.e., moraic versus syllabic trochees, and despite individual differences in templates.

(23) Sample templates in the history of West Germanic

|                     | Historical data:                                 | Modern data:                   |
|---------------------|--------------------------------------------------|--------------------------------|
|                     | Moraic trochee                                   | Disyllabic trochee             |
|                     | (Default foot)                                   | (Default foot)                 |
| a. Simple template  | i. OS <i>i</i> -stem nouns                       | ii. German <i>i</i> -croppings |
|                     | Foot: [Ft]#                                      | [Ft]#                          |
|                     | Moraic: $\mu\mu\dots$                            | $\therefore$ [óσ]              |
|                     | $\therefore$ [H] or [LL]                         |                                |
| b. Complex template | i. OHG <i>jan</i> -verbs                         | ii. German and Dutch plurals   |
|                     | Foot: [Ft] ([Ft])+                               | Foot: [Ft]#                    |
|                     | Syllable: ó (σ)                                  | Syllable: [óσ]                 |
|                     | Moraic: $\mu\mu(\mu)(\mu)$                       |                                |
|                     | Segmental: Except with<br>phonotactic violations | Segmental: ə                   |

In the simple templates only one level of the prosodic hierarchy is posited and the OS *i*-stem nouns and the German *i*-croppings must simply end in a trochee. In the case of the complex templates, however, the foot alone cannot account for the common shape of the paradigms. The trochaic requirement was shown to converge with other prosodic requirements, such as the two syllable maximum of the OHG *jan*-verbs and the requirement that the final syllable of German plurals contains a schwa. Together these multiple units define the very nature of complex templates and permit the full range of possible templatic shapes.

Although no one particular template type can be defined for any given stage or for every paradigm of a language, the examples presented here do demonstrate that both simple and complex templates played a role in shaping, and indeed reshaping, lexical classes and paradigms throughout the history of the West Germanic languages. As I have shown, the templates used to analyse synchronic data from the modern languages can also be applied to account for the diachronic data from West Germanic.

To date little attention has been paid to these consistent shapes in the various morphological paradigms across languages and even less work has been done investigating the impact of prosody on morphology in diachronic data. Consequently we are only beginning to understand the role of templates in shaping the morphology of languages both synchronically and diachronically and many questions remain unanswered regarding the status of templates in the grammar. For instance, although the template defining the shape of German plurals appears to be without exception in the standard language, Menz & Ruf (2005) have found that native speakers show only a strong preference for rather than an exceptionless use of the bisyllabic template when producing plurals of nonce words. This finding demonstrates that although the output of paradigms in a language may closely adhere to a template, this template may

not be as strictly ingrained in the minds of speakers when confronted with new words. This raises yet another question, namely how these templates arise in the first place. It seems plausible that templates may arise by a variety of means, be it via analogy where new forms are produced based on a comparison with preexisting forms in the language which serve to strengthen the association between a paradigm and a prosodic shape, via satisfaction of a minimal word condition where, for instance, syncope or apocope could fail if it would result in a subminimal form, or via some combination of factors. I would argue that there is not just one factor at work that leads to the establishment of a template for a given paradigm or morphological process and that each case must be assessed on an individual basis. Although these questions go beyond the scope of the present paper, it is hoped that the insights gleaned from the resilience of prosodic templates throughout the history of West Germanic will provide a positive starting point for future work in this area of study.

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PART V

## Variation





# Urban interactions and written standards in Early Modern German

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## 1. Introduction

This paper presents results of a project to adapt the gravity model of linguistic diffusion, a geolinguistic modeling technique used in dialectology and sociolinguistics, for use in historical linguistics. The gravity model assumes that linguistic changes spread from city to city when residents of one urban center interact with residents of another. By estimating the frequency and intensity of these urban interactions, it is possible to infer the potential that residents of one city have to influence the residents of another city. Although the gravity model has proven useful in studies of contemporary language variation and change, it has found relatively little application in the field of historical linguistics.

The paper begins with a brief introduction to the gravity model and sets goals for adapting the model to the study of Early Modern German. The procedures used to select cities and to develop a geolinguistic model for Early Modern German are outlined in the following sections. Data from the geolinguistic model showing the potential of individual cities to influence others in the model, both individually and grouped by dialect region, are presented for three time periods. Finally, the paper considers the potential influence of East Central German cities on cities in northern Germany and the spread of the emerging High German-based standard to these cities in the 16th century. The paper argues that the geolinguistic model of Early Modern German is consistent with approaches to standardization that emphasize processes of selection and leveling and shows that the influence of East Central German cities as calculated by the model can be correlated to the onset of shift to the emerging High German-based standard in northern Germany.

## 2. The gravity model

The gravity model was initially adapted from techniques used by human geographers such as Hägerstrand (1967) and Olsson (1965) by Trudgill (1974) in a study of language change in East Anglia (see also Trudgill 1986 and Chambers & Trudgill 1998). Using a formula devised by Trudgill, it is possible to calculate index scores for pairs of cities, which identify the most influential population centers in a network of cities and possible trajectories for the spread of innovative forms. The gravity model is meant to account for linguistic innovations that display a hierarchical pattern of spread in which an innovative feature jumps from one large urban center to another and only later spreads to the smaller cities and rural areas between the larger urban centers. Studies that illustrate hierarchical patterns of spread include the raising of /æ/ in northern Illinois (Callary 1975), h-dropping in East Anglia (Trudgill 1974; Chambers & Trudgill 1998), and the unrounding of /ɔ/ to [a] in Oklahoma (Bailey, Wikle, Tillery & Sand 1993; see also Gerritsen & Janson 1980; Chambers & Trudgill 1998; Hernández-Campoy 1999; Boberg 2000; Labov 2003; and Taeldeman 2005 for further examples and discussion of hierarchical patterns and their relationship to other patterns of spatial diffusion).

The gravity model assumes that the spread of linguistic features from one community to another is the result of the interactions of individuals from those communities and that the transfer of linguistic forms is favored when such interactions are frequent and numerous. Two important factors influencing frequency and number of interactions are population size and respective locations of the communities in question. The average resident of small city A is more likely to meet someone from very large city B than the average resident of very large city B is to meet someone from small city A. Similarly, someone in a large city has a greater chance of interacting with someone from a distant large city than with someone from an equally distant small city. The gravity model assumes that larger cities typically have a greater influence on smaller cities than vice versa, that the influence of a city decreases with geographic distance, and that the degree of linguistic similarity of varieties is conducive to the adoption of innovative linguistic features. The calculation of index scores allows researchers to estimate the intensity of urban interactions, which are the cumulative interactions of residents of various cities, and provides a means to correlate these with linguistic data.<sup>1</sup>

Despite the usefulness of this modeling technique in the study of contemporary variation and change, relatively little use has been made of it in historical linguistics.

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1. When speaking of urban interactions or the linguistic influence of one city or one region on another, it should of course be understood that it is always the human beings who live in a city or region who influence other human beings living in other cities and regions. Similarly, the interaction of urban centers represents the cumulative interactions of the individuals who live in those urban centers, not the interaction of governments or of cities in any anthropomorphized sense.

Conde-Silestre & Hernández-Campoy (2002) have used Trudgill's formula to develop a geolinguistic model of late 14th-century England; however, this appears to be the only previous work that applies the gravity model directly to historical data. This is likely due to the difficulty of working with historical population data and the difficulty of identifying a point of origin for long-completed changes without which it is difficult to test the effectiveness of the model. Despite these difficulties, the gravity model has clear relevance for historical linguistics and may be particularly useful in the study of the emergence of written standards. Work in the standardization of German has emphasized the complex nature of standardization phenomena in which regions interact in complex ways and features become part of an emerging standard through processes of diffusion, selection, and leveling (see Besch 1982 and Hartweg & Wegera 1989). There is clearly a spatial dimension in such models, and the ability to quantify urban interactions has the potential to increase our understanding of the way in which competing regional influences may have been manifested. Similarly, the growth of cities in the early modern era, a frequently cited factor in the development of European vernacular standards, argues for closer examination of urban interactions in this time period.

### 3. Project goals

In establishing goals for a geolinguistic model of Early Modern German, it is very important to keep in mind the inherent limitations of such techniques and the additional limitations of historical population data. The gravity model incorporates population size, distance, and broad linguistic similarities; however, it excludes highly relevant political, social, economic, cultural, and more specific linguistic factors, which do not readily lend themselves to quantification within the model. While providing useful insights into the potential interactions of urban communities, the results of geolinguistic models cannot be interpreted without taking these other factors into consideration. Chambers & Trudgill (1998: 185–186) have observed that additional social or linguistic factors are almost always relevant when applying geolinguistic models and that the usefulness of such models is often their ability to prompt researchers to seek out such factors.

In the historical context, the inherent problems of geolinguistic modeling are compounded by the problematic nature of historical population data. Clear and accurate population records are for the most part non-existent for medieval and early modern Europe; however, historians have developed numerous techniques for estimating populations based on a variety of sources such as church and tax records. Such estimates are usually the best information available; however, it must be presumed that geolinguistic models based on historical population data will contain a certain degree of error due to the limitations of the population data, and this must be considered in the interpretation of results.

Bearing in mind the limitations of both the modeling technique and the problematic nature of historical population data, this paper seeks to address the following, relatively modest set of questions: (1) Are historical population data adequate to create a plausible geolinguistic model for Early Modern German? (2) To what extent does the geolinguistic model conform to assumptions about the role of various regions in the emergence of the written standard? (3) How does a geolinguistic model of Early Modern German compare to the model developed by Conde-Silvestre & Hernández-Campoy (2002) for late 14th-century English? (4) Can a geolinguistic model be correlated to data on the spread of the emerging written standard in northern Germany in the 16th century?

#### 4. The Population Potential Index

The initial step in developing a geolinguistic model for Early Modern German was to identify those cities to be included in the modeling calculations. Using historical population data from de Vries (1984) and Bairoch, Batou & Chèvre (1988), a group of 101 German-speaking cities was identified that achieved populations of 6,000 or greater between 1400 and 1600.<sup>2</sup> In order to reduce the number of cities to a manageable level, a Population Potential Index (PPI) was employed. The PPI (Hernández-Campoy 1999 and Conde-Silvestre & Hernández-Campoy 2002) is a simple calculation that takes into account the populations of and distances between cities in an urban network. The PPI score reflects the importance of a city within the network in terms of its size and centrality.

Cities were grouped into six broad dialect areas (Low Saxon, East Low German, West Central German, East Central German, Alemannic, and Bavarian-Austrian) using traditional dialect divisions (see Wiesinger 1982; Barbour & Stevenson 1990; and Debus 1982).<sup>3</sup> The cities in each broad dialect area were treated as an urban network for which PPI scores were calculated in 100 year intervals for 1400, 1500, and 1600. The PPI for each region was calculated in two ways: a base PPI using historical pop-

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2. Cities in the Netherlands and Flemish areas of Belgium were not included in this study; however, there is a strong case to be made for their inclusion in a more complete geolinguistic model of Early Modern German. While Netherlandic-speaking areas ultimately underwent a separate standardization process, it is clear that the modern linguistic division is a result of the standardization process and that significant linguistic influences in both directions existed in the Early Modern period.

3. For the purposes of the PPI calculation, cities that fell within transitional zones between broad dialect areas were included in calculations for both dialect areas.

ulation data<sup>4</sup> and straight-line distances,<sup>5</sup> and an adjusted PPI for which scores were modified based on an additional set of geographic factors that would have enhanced the importance of a city. The base PPI calculation employed the following formula:

$$\text{PPI city } a = (P_a \div D_{ab}) + (P_a \div D_{ac}) + (P_a \div D_{ad}) + (\dots)$$

$P_a$  = population of  $a$

$D_{ab, ac, ad, \dots}$  = distance from city  $a$  to city  $b$ , city  $c$ , city  $d$ , ...

The additional factors in the adjusted PPI were locations within water and land transportation networks (Conde-Silvestre & Hernández-Campoy 2002:157–162; Putzger 1961; and Magocsi 1993) that would have increased a city's interactions with other cities. For cities in the water transportation network, PPI scores were modified using the following values: seaport=2, location on a major river=1.7, and location on a secondary river=1.5. For cities in the land transportation network, PPI scores were modified by the following values: crossroads of major trade routes=2, on a major trade route=1.6, and crossroads of secondary trade routes=1.4.

Table 1 provides an example of the base and adjusted PPI scores for cities in the Alemannic dialect area in 1400. Those cities with PPI scores exceeding the mean value on either the base or adjusted PPI scale for each region, indicated in bold, were selected for inclusion in the Linguistic Influence Index calculated for the entire German-speaking area for each time period. The advantage of using the PPI calculation rather than a simple population cutoff is that cities of similar sizes may have a different potential to influence other cities based on geographic location. One of the main effects of the PPI calculations for the dialect regions is to exclude relatively isolated population centers. This effect is particularly evident on the periphery of the German-speaking area; many medium-sized cities in Switzerland, Austria, and the eastern Baltic area are excluded because their distance from other population centers left them poorly positioned to have a particularly great influence on other cities within their own dialect region and presumably with an even lower chance of influencing cities in other regions. The PPI filter also tends to favor inclusion of cities in relatively tight clusters and thus favors inclusion of cities from regions with higher degrees of urbanization over those from regions with relatively lower degrees of urbanization.

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4. All population data were drawn either from de Vries (1984) or Bairoch, Batou & Chèvre (1988). To the extent that these sources overlap, they frequently contain identical population estimates; however, in those instances in which the two sources disagree, an average of the two estimates was used in the calculations. Such discrepancies were relatively minor and have had little effect in the overall calculations.

5. During the discussion of this paper at ICHL 17, it was suggested that the number of days needed to travel between two cities obtained from historical records could provide a more meaningful measure of distance for the time period. This is an excellent suggestion; unfortunately, the implementation is somewhat impractical for a model that incorporates a large number of cities. This is due to the need to obtain distance figures for each possible pairing of cities within the model, a number that escalates rapidly as the number of cities increases.

Table 1. Base and adjusted PPI scores for cities in the Alemannic dialect area: 1400

| City           | base PPI | adjusted PPI |
|----------------|----------|--------------|
| Straßburg      | 1.714    | 5.827        |
| Basel          | 1.295    | 3.524        |
| Mülhausen      | 1.262    | 2.019        |
| Freiburg i.Br. | 1.231    | 1.231        |
| Ulm            | 1.172    | 3.517        |
| Augsburg       | 1.094    | 2.189        |
| Heilbronn      | 0.593    | 0.890        |
| Colmar         | 0.527    | 0.843        |
| Zürich         | 0.502    | 1.205        |
| Nördlingen     | 0.467    | 0.467        |
| Stuttgart      | 0.452    | 0.724        |
| Memmingen      | 0.422    | 0.591        |
| St. Gallen     | 0.280    | 0.280        |
| Mean PPI score | 0.847    | 1.793        |

Table 2. Cities selected for inclusion in the geolinguistic model based on PPI calculation<sup>6</sup>

|                        |                  |                      |                        |
|------------------------|------------------|----------------------|------------------------|
| <b>1400, 23 cities</b> | Danzig (Gdansk)  | Lübeck               | Stettin (Szczecin)     |
| Augsburg               | Erfurt           | Magdeburg            | Stralsund              |
| Basel                  | Freiburg i.Br.   | Mülhausen (Mulhouse) | Straßburg (Strasbourg) |
| Braunschweig           | Görlitz          | Nürnberg (Nuremberg) | Ulm                    |
| Bremen                 | Hamburg          | Rostock              | Wien (Vienna)          |
| Breslau (Wroclaw)      | Köln (Cologne)   | Speyer               | Wismar                 |
| <b>1500, 38 cities</b> | Eisleben         | Hildesheim           | Schwarz                |
| Aachen                 | Erfurt           | Köln (Cologne)       | Speyer                 |
| Augsburg               | Frankfurt (Oder) | Leipzig              | Stettin (Szczecin)     |
| Basel                  | Frankfurt (Main) | Lübeck               | Stralsund              |
| Berlin                 | Freiberg         | Magdeburg            | Straßburg (Strasbourg) |
| Braunschweig           | Görlitz          | München (Munich)     | Ulm                    |
| Bremen                 | Goslar           | Mülhausen (Mulhouse) | Wien (Vienna)          |
| Breslau (Wroclaw)      | Halle            | Nürnberg (Nuremberg) | Wismar                 |
| Colmar                 | Hamburg          | Regensburg           | Worms                  |
| Danzig (Gdansk)        | Heidelberg       | Rostock              |                        |

6. In this table, both the conventional German forms of city names and alternative forms are given. For the sake of brevity, only the conventional German forms are used elsewhere in the paper.

Table 2. (continued)

|                   |                  |                      |                        |
|-------------------|------------------|----------------------|------------------------|
| 1600, 34 cities   | Danzig (Gdansk)  | Köln (Cologne)       | Regensburg             |
| Aachen            | Dresden          | Leipzig              | Rostock                |
| Augsburg          | Erfurt           | Lübeck               | Speyer                 |
| Bamberg           | Frankfurt (Main) | Lüneburg             | Straßburg (Strasbourg) |
| Basel             | Freiberg         | Magdeburg            | Stuttgart              |
| Berlin            | Görlitz          | Mainz                | Torgau                 |
| Braunschweig      | Halberstadt      | München (Munich)     | Ulm                    |
| Bremen            | Halle            | Naumburg             | Wien (Vienna)          |
| Breslau (Wrocław) | Hamburg          | Nürnberg (Nuremberg) | Worms                  |

Table 2 provides a full list of cities selected by the regional PPI calculations for inclusion in the next stage of the study; maps of the selected cities for each time period can be found in Figures 1, 2, and 3. In Figure 1, the map of cities selected for 1400, there are two areas with notable clusterings of urban centers: the major cities of the Hanseatic league (Bremen, Hamburg, Lübeck, Wismar, Rostock, and Stralsund) in the north and a cluster of cities (Basel, Mülhausen, Freiburg i.Br., Straßburg, and Speyer) in the southwest along the Rhine. Other cities included in the model for this time period are relatively scattered and isolated.

Figure 2, the map for 1500, shows basically the same grouping of cities in the north; however, a number of cities have been added in central and southern areas, reflecting growing urban populations in these regions.

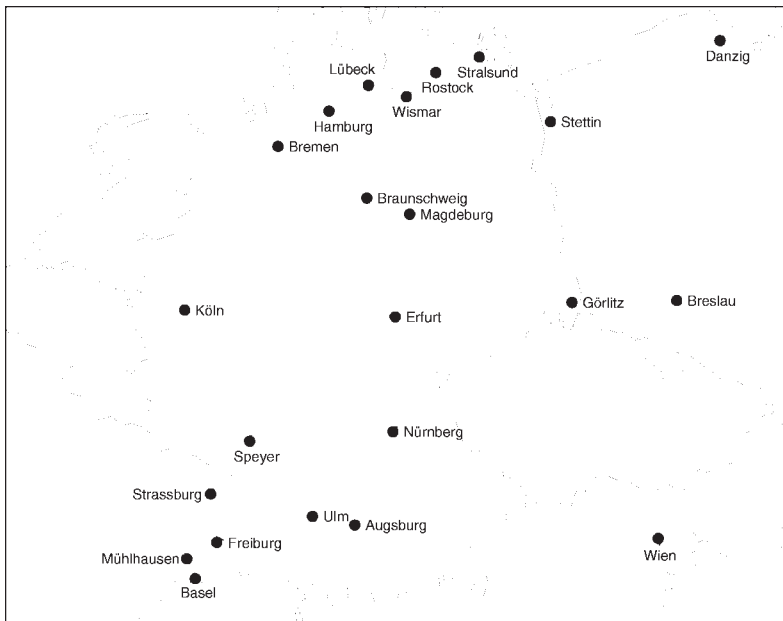


Figure 1. Map of cities in geolinguistic model: 1400



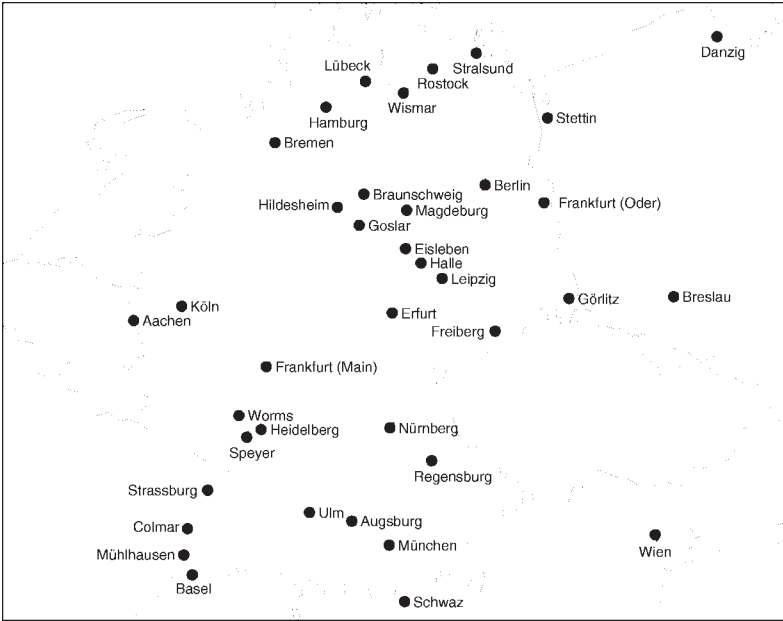


Figure 2. Map of cities in geolinguistic model: 1500



Figure 3. Map of cities in geolinguistic model: 1600

In Figure 3, the map for 1600, the cities included in southern and western regions remain largely unchanged, while the selection of cities in Saxony and Thuringia has shifted with the growth of some cities relative to others. In the north, the number of cities included in the model, especially in the northeast, is reduced due to stagnant or shrinking population figures.

## 5. The Linguistic Influence Index

Using the cities identified for each time period, a Linguistic Influence Index (LII) score was calculated for each city, against each of the other cities included in the time period, using Trudgill's (1974:235) formula:

$$I_{ij} = s \cdot (P_i P_j \div (D_{ij})^2) \cdot (P_i \div (P_i + P_j))$$

$I_{ij}$  = linguistic influence of city  $i$  on city  $j$

$s$  = index of linguistic similarity

$P_i$  = population of  $i$

$P_j$  = population of  $j$

$D_{ij}$  = distance  $i$  to  $j$

As was the case for the PPI calculations, historical population data from de Vries (1984) and Bairoch, Batou & Chèvre (1988) as well as straight-line distances were used. The scale of linguistic similarity was based upon traditional dialect boundaries: city pairs in the same narrow dialect area (both Swabian, Westphalian, Silesian, etc.) received a value of 5, those in the same broad dialect area (both Alemannic, East Central German, Low Saxon, etc.) a value of 4, those within the same principal dialect division (Low German, Central German, or Upper German) a value of 3, those in adjacent principal dialect divisions (Low German–Central German or Central German–Upper German) a value of 2, and those in non-adjacent principal dialect divisions (Low German–Upper German) a value of 1.

The LII calculations produce a considerable volume of results for each city, results that are far too extensive to be considered here in full detail. An example of the LII results can be seen in Table 3, which provides LII scores for Köln and the neighboring city of Aachen for 1500. Köln was one of the largest German-speaking cities in 1500 with almost 40,000 residents, while nearby Aachen was less than half that size. The LII scores reflect the relative potential of the city to influence the other cities included in the model. With a LII score of 5085, Köln has a far greater potential to influence Aachen than any other city in the model. Aachen's potential to influence Köln, a LII score of 2237, is far less than its potential to be influenced by its larger neighbor; however, this is still greater than its potential to influence any other city in the model. Moving down the table, Köln's potential to influence Frankfurt am Main (LII 590) is greater than Aachen's (LII 118) potential to do so, despite the fact that the distances are roughly the same. A similar correspondence in LII scores can be seen for all cities

Table 3. LII scores for Köln and Aachen: 1500

| Köln             |      |                  | Aachen |                  |      |                  |    |
|------------------|------|------------------|--------|------------------|------|------------------|----|
| Aachen           | 5085 | Halle            | 59     | Köln             | 2237 | Leipzig          | 15 |
| Frankfurt (Main) | 590  | Regensburg       | 57     | Frankfurt (Main) | 118  | Lübeck           | 15 |
| Speyer           | 335  | Colmar           | 48     | Speyer           | 89   | Mülhausen        | 15 |
| Worms            | 319  | Basel            | 41     | Worms            | 85   | Basel            | 14 |
| Heidelberg       | 224  | Mülhausen        | 39     | Heidelberg       | 62   | Regensburg       | 14 |
| Erfurt           | 162  | Freiberg         | 37     | Straßburg        | 41   | Freiberg         | 10 |
| Straßburg        | 135  | Breslau          | 34     | Erfurt           | 34   | München          | 10 |
| Bremen           | 126  | München          | 34     | Braunschweig     | 24   | Schwarz          | 9  |
| Nürnberg         | 125  | Schwarz          | 31     | Bremen           | 28   | Görlitz          | 8  |
| Braunschweig     | 112  | Görlitz          | 30     | Nürnberg         | 26   | Wismar           | 8  |
| Hildesheim       | 101  | Berlin           | 27     | Hildesheim       | 22   | Breslau          | 8  |
| Goslar           | 98   | Wismar           | 27     | Goslar           | 21   | Berlin           | 7  |
| Eisleben         | 76   | Rostock          | 25     | Eisleben         | 19   | Rostock          | 7  |
| Magdeburg        | 75   | Frankfurt (Oder) | 21     | Colmar           | 18   | Stralsund        | 6  |
| Augsburg         | 69   | Stralsund        | 20     | Ulm              | 18   | Frankfurt (Oder) | 6  |
| Ulm              | 67   | Wien             | 18     | Magdeburg        | 17   | Wien             | 5  |
| Lübeck           | 66   | Stettin          | 15     | Augsburg         | 17   | Stettin          | 5  |
| Hamburg          | 62   | Danzig           | 14     | Halle            | 15   | Danzig           | 4  |
| Leipzig          | 60   |                  |        | Hamburg          | 15   |                  |    |

in the table. The potential of both cities to influence others decreases with distance; however, the potential of Köln to influence a given city is always greater than that of Aachen. These calculations indicate that, in the absence of confounding social, political, or economic factors, a hypothetical linguistic innovation originating in the city of Köln in 1500 would have a relatively greater chance of spreading to other cities than a hypothetical innovation originating in the much smaller city of Aachen because residents of other cities in the model have a greater chance of interacting with a resident of Köln than with a resident of Aachen.

Following Conde-Silvestre & Hernández-Campoy (2002: 169–173), the LII scores for each city were compiled to derive the potential of each city to exert linguistic influence relative to all other cities in the model. Table 4 provides these figures for each time period in the study. There are no particularly obvious patterns in these data. No city in any of the three time periods has a dominant position relative to other cities, and only those cities near the bottom of the list (primarily cities on the periphery of the German-speaking area) appear to maintain their position relative to other cities across time periods. The most interesting aspect of these data is the contrast they provide to the data for English. In their geolinguistic model of late 14th century England, Conde-Silvestre & Hernández-Campoy (2002: 170) calculate the potential of London to exert influence on other cities in their model to be 51.2% of the total with the next highest figure, that for Coventry, being only 9.4%. It is not a new observation that the German-speaking area lacked a city with the concentration of political, economic, and cultural power exerted by London in this time period; however, these figures help to

Table 4. Relative potential to exert influence

| 1400           |     | 1500             |    | 1600             |     |
|----------------|-----|------------------|----|------------------|-----|
| Lübeck         | 16% | Braunschweig     | 8% | Hamburg          | 11% |
| Hamburg        | 13% | Speyer           | 8% | Augsburg         | 9%  |
| Basel          | 7%  | Köln             | 6% | Magdeburg        | 9%  |
| Mülhausen      | 7%  | Lübeck           | 5% | Nürnberg         | 7%  |
| Rostock        | 7%  | Augsburg         | 5% | Frankfurt (Main) | 5%  |
| Wismar         | 6%  | Nürnberg         | 5% | Köln             | 5%  |
| Magdeburg      | 5%  | Heidelberg       | 4% | Mainz            | 5%  |
| Straßburg      | 5%  | Goslar           | 4% | Leipzig          | 4%  |
| Braunschweig   | 5%  | Magdeburg        | 4% | Lübeck           | 4%  |
| Bremen         | 5%  | Hildesheim       | 3% | Ulm              | 3%  |
| Freiburg i.Br. | 5%  | Straßburg        | 3% | Lüneburg         | 3%  |
| Stralsund      | 4%  | Halle            | 3% | Freiberg         | 3%  |
| Köln           | 3%  | Hamburg          | 3% | Halle            | 2%  |
| Erfurt         | 3%  | Basel            | 3% | Dresden          | 2%  |
| Speyer         | 3%  | Mühlhausen       | 3% | Erfurt           | 2%  |
| Nürnberg       | 2%  | Worms            | 3% | Aachen           | 2%  |
| Augsburg       | 2%  | Eisleben         | 3% | Braunschweig     | 2%  |
| Ulm            | 2%  | Erfurt           | 2% | Halberstadt      | 2%  |
| Breslau        | 1%  | Leipzig          | 2% | München          | 2%  |
| Stettin        | 1%  | Regensburg       | 2% | Worms            | 2%  |
| Danzig         | 1%  | Ulm              | 2% | Bremen           | 2%  |
| Wien           | 0%  | Aachen           | 2% | Straßburg        | 2%  |
| Görlitz        | 0%  | Bremen           | 2% | Regensburg       | 2%  |
|                |     | Colmar           | 2% | Bamberg          | 1%  |
|                |     | München          | 2% | Naumburg         | 1%  |
|                |     | Rostock          | 2% | Breslau          | 1%  |
|                |     | Frankfurt (Main) | 2% | Speyer           | 1%  |
|                |     | Wismar           | 2% | Wien             | 1%  |
|                |     | Schwaz           | 1% | Berlin           | 1%  |
|                |     | Breslau          | 1% | Danzig           | 1%  |
|                |     | Stralsund        | 1% | Torgau           | 1%  |
|                |     | Berlin           | 1% | Stuttgart        | 1%  |
|                |     | Frankfurt (Oder) | 1% | Rostock          | 1%  |
|                |     | Freiberg         | 1% | Görlitz          | 0%  |
|                |     | Görlitz          | 1% | Basel            | 0%  |
|                |     | Stettin          | 0% |                  |     |
|                |     | Danzig           | 0% |                  |     |
|                |     | Wien             | 0% |                  |     |

underscore the extremely different population demographics that existed as the two languages underwent the process of standardization.

In an additional set of calculations, cities were again grouped into broad dialect areas, and the potential of each dialect area to exert influence on cities in the model was calculated as shown in Table 5. As was the case for data on individual cities presented

Table 5. Relative potential of cities in broad dialect areas to exert influence

|                     | 1400 | 1500 | 1600 |
|---------------------|------|------|------|
| Low Saxon           | 32%  | 25%  | 24%  |
| East Low German     | 16%  | 9%   | 9%   |
| West Central German | 20%  | 14%  | 13%  |
| East Central German | 14%  | 16%  | 16%  |
| Alemannic           | 12%  | 19%  | 20%  |
| Bavarian-Austrian   | 6%   | 17%  | 18%  |

in Table 4, no single region appears to have had a dominant position in any of the time periods investigated. However, this lack of a dominant region is very much in line with views of the standardization of German that emphasize the involvement of many regions in the standardization process via mechanisms of diffusion, selection, and leveling.

It should be emphasized at this point that the figures in Table 4 and Table 5 are not meant to quantify the *actual* participation of various cities and regions in the standardization process; instead they represent the *potential* of these cities and regions to exert influence based on a limited set of factors. The main significance of these results is as an additional argument in support of models that emphasize the competing influences of various regions in the standardization process.

One of the patterns that can be found in these data is the relative decline of Low Saxon and East Low German dialect areas, from a very strong position in the 1400 model to a much weaker one in the 1500 and 1600 models. This is true both of the regional data in Table 5 and of the data for individual cities such as Lübeck, Hamburg, Rostock, and Wismar in Table 4. This decline coincides with the decline of the Low German regional written standard in the 16th and 17th centuries and its replacement by an emerging High German-based written standard. This development has been analyzed as the spread of the emerging written standard from the East Central German area, attributed to a host of political, economic, and social factors. It has also been analyzed as having a clear spatial component (see Gernentz 1964; Gabrielson 1983; and Sodmann 1983).

In a final set of calculations, data on the first use of the emerging written standard in a group of Low Saxon and East Low German cities drawn from Gabrielson (1983) were compared to the influence of East Central German cities as measured by the LII scores. Table 6 provides composite East Central German LII (ECG-LII) scores from 1500 for nine cities in the model for which data concerning the onset of shift were available. There appears to be a very rough correlation between the ECG-LII scores and the onset of shift in these data. The cities can be divided into three clusters as shown in Table 6. In the first group, with ECG-LII scores above 250, the correlation appears rather incoherent, with wide discrepancies in the ECG-LII scores and the onset of shift. However, in the second group, ECG-LII scores cluster in a relatively narrow band between 101 and 116 with the onset of shift in a relatively narrow period between 1530 and 1541. In the third group with only two cities, even lower ECG-LII scores of

**Table 6.** Influence of East Central German cities and the onset of shift

| ECG influence on |     | Onset of shift |      |
|------------------|-----|----------------|------|
| Magdeburg        | 770 | Berlin         | 1504 |
| Goslar           | 461 | Braunschweig   | 1510 |
| Braunschweig     | 337 | Magdeburg      | 1520 |
| Berlin           | 250 | Goslar         | 1527 |
| Lübeck           | 116 | Lübeck         | 1530 |
| Bremen           | 107 | Hamburg        | 1530 |
| Stettin          | 106 | Stettin        | 1534 |
| Hamburg          | 101 | Bremen         | 1541 |
| Wismar           | 78  | Rostock        | 1559 |
| Rostock          | 76  | Wismar         | 1560 |

76 and 78 for Wismar and Rostock can be correlated with an even later onset of shift around 1560. While the highest ECG-LII scores do not show a clear correlation with onset of shift, lower ECG-LIII scores do appear to show such a correlation.

When considering the data in Table 6, it is important to remember that the LII can at best explain patterns of spatial diffusion. It cannot explain why some linguistic features begin to spread while others do not, or why a particular feature begins to spread at a certain point in time. The adoption of an emerging High German-based written standard by northern German cities can only be explained fully by considering social, economic, and cultural factors outside the geolinguistic model. A possible interpretation of the ECG-LII data is that such factors played a very large role in the early stages of the process of shift, affecting cities such as Berlin and Braunschweig for reasons that have little to do with population size and location. Only after the broader process was well underway did geolinguistic factors represented in the ECG-LII calculations become relevant. Accounts of shift in Berlin provide some evidence for this view; the relatively early shift in Berlin has been attributed to the influence of the ruling Hohenzollern Dynasty that had its origins in southern Germany, a factor clearly independent of the LII calculations.

## 6. Conclusion

This section returns to the four questions this project set out to address. The first question was whether historical population data are adequate to create a plausible geolinguistic model for Early Modern German. At the most basic level, the construction of such a model appears to be possible; population data for cities in all regions and for most major cities are available for the three time periods targeted in this study. The issue of plausibility is more difficult to address; the LII scores for individual cities, such as those given for Köln and Aachen in Table 3, appear to be a reasonable reflection of the degree of influence one would expect between cities, given their size and location. There is, however, a degree of circularity inherent in evaluating the plausibility of such a model in that the evaluation must resort to factors (size and location) that are used

in the calculations. Ultimately, the plausibility of the model depends on the accuracy of historical population data, a complex issue beyond the scope of this paper.

The second question was to what extent the geolinguistic model corresponds to assumptions about the role of various regions in the development of Standard German. The geolinguistic models for three time periods do not show clear dominance or pre-eminence of any particular city or region. This result is very much in line with models of standardization that emphasize the roles of many regions and a complex process of contact, diffusion, selection, and leveling in the standardization process. While a variety of social, political, and economic factors may have favored particular cities and regions, these forces are not supported by demographic and geographic factors in a manner that would favor their dominance relative to other cities or regions.

These results are in stark contrast to the results of Conde-Silvestre & Hernández-Campoy's (2002) geolinguistic model of late 14th century England, which answers the third question this study set out to address. The geolinguistic situation of Early Modern German is very different from that of English in the same time period since no German-speaking city or region had the extremely high potential to influence other cities displayed by London. While not a new observation, the quantification of this difference underscores the need to consider population demographics in comparative work on standardization in early modern Europe.

The final question was whether the LII scores calculated for Early Modern German could be used to explain a wide-scale change in the development of the written standard, the shift in northern German cities from a Low German regional written standard to an emerging High German-based standard. It was possible to show a rough correlation between ECG-LII scores and the onset of shift, at least for those cities shifting at later stages of the process. This correlation suggests that geolinguistic models do have potential to account for the historical spread of linguistic features, and further application of such models to historical data is warranted.

In conclusion, this study set out to explore the application of geolinguistic modeling techniques based on the gravity model for use in historical linguistics. It has shown that the development of such a geolinguistic model is possible for Early Modern German and that such a model can provide broad insights into the geolinguistics of the period and provide support for those models of standardization that emphasize the role of various regions in the standardization process. The project has also had limited success in correlating a geolinguistic model with data on the spread of an emerging written standard.

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# The Hollandish roots of Pella Dutch in Iowa\*

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## o. Introduction

In an excellent overview, den Besten & Hinskens (2005) provide a systematic account of recent research concerning the diversification of Dutch due to external causes. They essentially distinguish three groups:

- varieties of Dutch outside the speech community
- ethnolects of Dutch
- daughter languages of Dutch

Among the daughter languages, special attention is paid to the most important and best known among these, i.e. Afrikaans, and also to Negerhollands, which is much less known. This language was spoken on the Virgin Islands from around 1800 until 1987, when the last speaker died. Among the ethnolects of Dutch are varieties such as Jewish Dutch.

In this study we will focus on a variety of Dutch which until recently was spoken in the US, Pella Dutch, spoken in Pella, Iowa. We will pay special attention to its system of verbal inflection. In order to analyse this, it is necessary to have detailed knowledge of the dialect(s) of the migrants and the areas they came from *in patria*. I will show that Pella Dutch reflects to a large extent forms that already existed in the dialects of the immigrants *in patria*, and that these are not the result of innovation or paradigmatic leveling which took place in the period after immigration. In this respect Pella Dutch is like many German-American dialects: Features of the immigrant dialects are not necessarily the result of some kind of leveling or koineization process, but rather may reflect features of one or more contributing dialects that were brought in from Europe.

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## 1. Roots

When some 20 years ago I participated in a conference at Grinnell College, Iowa, a colleague invited me to pay a visit to his relatives in Pella, so that I could speak Dutch with them – something that he was not able to do. For a considerable period of time, Pella had been an isolated community, and many of the settlers continued to speak Dutch as their first language. In Pella, I was introduced to the VanZee family, whose Dutch had a central Dutch, rural flavour to my ear; their Pella Dutch was different from Standard Dutch. More recently, I learned that there are several dozens VanZees in Pella, who all descend from Engel van Zee. He hailed from Herwijnen in the western part of the Tielerwaard (province of Gelderland), near the border with Zuid-Holland (see area 1a on Map 1), where he lived from 1775–1868 (Stout 1922: 158).

Since my visit to Pella, two important studies on Pella Dutch have been published, Webber (1988) and Smits (1996). Webber gives an overview of the language, while Smits describes the disintegration of its inflectional system. Both studies contain interesting observations on the roots of the Pella settlers, but this point is not examined in any detail by either author. The provenance of the settlers does play a crucial role in Smits (1996), however, since the study of aspects of the history of a migrant language, its formation, evolution and disintegration makes it necessary to take into account the dialectal elements from which it developed.

In van Reenen (1999), I examined the identity of the Pella migrants and where they came from (see also <http://easy.dans.knaw.nl/>). The results are represented in Map 1 and Table 1. They can be summarized as follows:

1. In 1846–1847, a group of Dutch settlers, under the leadership of the Seceder Reverend Hendrik Pieter Scholte, founded Pella in the state of Iowa. For the period between 1846 and 1880, I have retraced 2,666 individuals, i.e. more than 90% of the emigrants from the Netherlands. In the early years of migration, the great majority of the migrants belonged to the Reformed group of Seceders of Reverend Scholte; later, ordinary Reformed settlers were most prominently present. Other religious groups did not play a role, see Table 2.

2. The great majority of the emigrants came from rural areas – Utrecht city (area 3b) being the only exception: from the islands of southern Zuid-Holland and the border area of Zuid-Holland and Gelderland (areas 1a–c). The areas around this core, in Zuid-Holland, Gelderland West, and Utrecht (areas 2 and 3), the Gelderse Vallei and coastal area (areas 5b and 5c), around Zutphen (5a) and Friesland (areas 4) may have played a modest, reinforcing role. The influence of the other areas of migration (6) is negligible.

3. As the founding fathers and mothers, we would expect that the Seceders from the core area 1 on Map 1 had a strong impact on the formation of Pella Dutch. (See Mufwene 1996 on the “founder principle”.)

**Table 1.** Number of migrants per area. *Famhips* (family heads or independent persons) and total number of migrants.

|                                                                    |      |                                    |                                                  |
|--------------------------------------------------------------------|------|------------------------------------|--------------------------------------------------|
| 1. Core area: border Zuid-Holland/Gelderland, Zuid-Holland islands |      |                                    |                                                  |
| 191                                                                | 774  | 1a.                                | Vijfherenlanden and surrounding areas            |
| 76                                                                 | 278  | 1b.                                | Hoekse Waard                                     |
| 31                                                                 | 125  | 1c.                                | IJsselmonde                                      |
| 298                                                                | 1177 | Total                              |                                                  |
| 2. Area around the core area                                       |      |                                    |                                                  |
| 25                                                                 | 94   | 2a.                                | Bommelerwaard                                    |
| 16                                                                 | 55   | 2b.                                | Voorne/Putten                                    |
| 13                                                                 | 42   | 2c.                                | Goeree-Overflakkee                               |
| 10                                                                 | 50   | 2d.                                | Schieland                                        |
| 9                                                                  | 20   | 2e.                                | De Klundert (Noord-Brabant)                      |
| 4                                                                  | 11   | 2f.                                | Land van Altena                                  |
| 4                                                                  | 13   | 2g.                                | Neder-Betuwe                                     |
| 3                                                                  | 19   | 2h.                                | Krimpenerwaard                                   |
| 84                                                                 | 304  | Total                              |                                                  |
| 3. Utrecht                                                         |      |                                    |                                                  |
| 44                                                                 | 166  | 3a.                                | border area Utrecht, Zuid-Holland, Noord-Holland |
| 22                                                                 | 82   | 3b.                                | Utrecht, city and surrounding area               |
| 66                                                                 | 248  | Total                              |                                                  |
| 4. Friesland: Frisian, Town Frisian, Northern Dutch dialects       |      |                                    |                                                  |
| 71                                                                 | 228  | 4a.                                | Frisian dialect speakers                         |
| 27                                                                 | 59   | 4b.                                | Town Frisian: a form of Northern Dutch           |
| 19                                                                 | 60   | 4c.                                | Stellingwerven, Steenwijk: also Northern Dutch   |
| 117                                                                | 347  | Total                              |                                                  |
| 5. Other areas which provided considerable numbers of migrants:    |      |                                    |                                                  |
| 30                                                                 | 85   | 5a.                                | Achterhoek                                       |
| 64                                                                 | 249  | 5b.                                | Gelderse Vallei, especially Ede                  |
| 14                                                                 | 60   | 5c.                                | Gelderland, coastal area                         |
| 108                                                                | 394  | Total                              |                                                  |
| 6. Remaining areas:                                                |      |                                    |                                                  |
| 8                                                                  | 41   | Over-Betuwe (Gelderland southeast) |                                                  |
| 18                                                                 | 59   | Noord-Holland rest                 |                                                  |

## 2. Dialect features in the language of Pella

In this section, I compare a series of common verb forms in Pella Dutch presented in Smits (1996) with dialect features found in the Dutch homeland of the migrants. In §2.1, forms of *hebben* “to have” are presented, in §2.2 I discuss first person singular and plural forms of verbs like *doen* “to do” and §2.3 gives present tense first person singular forms of regular verbs.<sup>1</sup> Dutch dialect data come from the GTRP (2000), col-

1. There are many more features to be examined, such as the present plural of the verb *zijn* “to be”. Here too there are patterns that indicate that the core area played an important role, cf. van Reenen (1999).

**Table 2.** Number of migrants to Pella per period, and their religious affiliation. For data per year see Van Reenen (1999) Appendix B.

| period    | Sec  | Ref  | rest | unknown | total | famhips |
|-----------|------|------|------|---------|-------|---------|
| 1846–1848 | 571  | 41   | 6    | 40      | 658   | 166     |
| 1849–1854 | 258  | 238  | 4    | 4       | 504   | 137     |
| 1855–1880 | 233  | 1231 | 37   | 3       | 1504  | 419     |
| Total     | 1062 | 1510 | 47   | 47      | 2666  | 722     |

*Famhips* = family heads or independent persons.

Sec = Seceders. I have grouped together as Seceders: (*Christelijk*) *Afgescheiden*: ‘Seceders, Christian Reformed’; *Gereformeerd*: ‘Reformed’; *Christelijk Gereformeerd*: ‘Christian Reformed’ (the first in 1871, in total 4 famhips: 14 individuals); *Hervormd afgescheiden*: ‘Reformed Seceders, Christian Reformed’.

Ref = Reformed. I have grouped together as Reformed: (*Ned.*) *Hervormd*: ‘Dutch Reformed’; *Nederduitsch Hervormd*: ‘Netherlands Reformed’.

lected since the beginning of the 1980s. The data for Pella Dutch come from Smits (1996: 20–26), which presents results from two corpora, one collected in 1966 and the other in 1989.

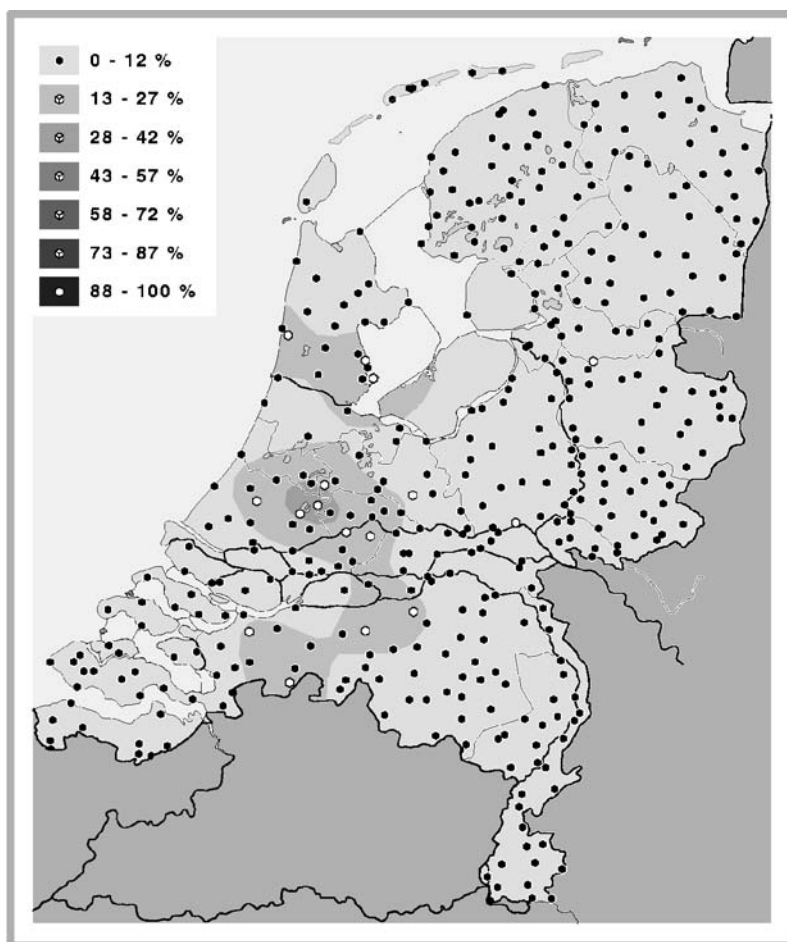
Comparing data from the 20th century with variants of dialects that were spoken 100–150 years ago contains, of course, the risk that the dialects have changed. This problem could be avoided by using older data. Although such data are not always easily accessible, I was able to check facts for older periods in several cases.

A problem of a different nature concerns the choice of the informants in the Pella corpora. Although according to Smits (1996: 228) the 1966 corpus more closely resembles Standard Dutch than the 1989 corpus, it is older and in one respect more reliable than the 1989 corpus. The 1989 corpus includes data from ten informants. However, four of these persons were not from Pella. Below I will draw mainly on the 1966 corpus, which contains speech from 30 Pella speakers. Although all informants of the 1966 corpus came from Pella, their roots *in patria* are not completely representative, since the Gelderse Vallei (area 5b) seems to be slightly overrepresented, just like the number of informants coming from minor dialect areas (cf. van Reenen 1999: Appendix E). Consequently, the possibility cannot be excluded *a priori* that traces of the dialects of areas 5b and 6 on Map 1 are slightly overrepresented.

## 2.1 Forms of the present tense third person singular of *hebben* ‘to have’

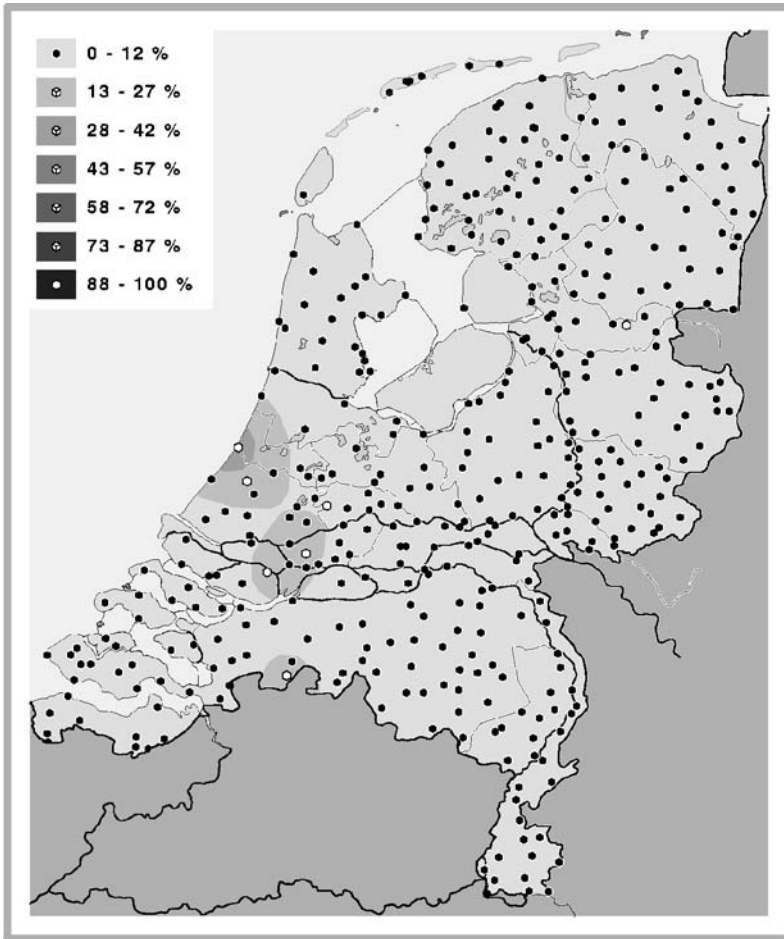
Standard Dutch: *Hij heeft* ‘he has’ (Smits 1996: Table 4.18:130, see also 71, 83–84, 130–131, 161) has a number of variants:

|       |     |     |      |        |     |       |                         |
|-------|-----|-----|------|--------|-----|-------|-------------------------|
| heeft | heb | het | hebt | hebben | had | Total |                         |
| 21    | 8   | 101 | 1    | 0      | 2   | 133   | corpus Pella Dutch 1966 |



Map 2. *(Hij) heeft* (dark) in modern Dutch dialects. Production Evert Wattel.

Maps 2–7 show where the different forms occur. Map 2 shows that *(hij) heeft* is not frequent in (the relevant) Dutch dialects, and neither is *(hij) hebt* (see Map 3). However, *(hij) heeft* is certainly not infrequent in Pella Dutch and the difference with lower-frequency *(hij) hebt* is striking. This difference must be due to the influence of Standard Dutch. Thus, I do not agree with Smits (1996:84), who considers *(hij) hebt* as a regularization: this variant simply migrated from the Netherlands, where it was rare, as it still is in Pella Dutch. *(Hij) heb* and *(hij) het* are both frequent in and around the core area (areas 1–3 on Map 1), as Maps 4 and 5 show. However, in Pella Dutch *(hij) het* is considerably more frequent than *(hij) heb*. This is understandable, since older data show that *(hij) het* was more common in the Dutch dialects of areas 1–3, while *(hij) heb* was more exceptional than it now is (see Opprel 1896:40, 42; Kloeke 1956; Daan

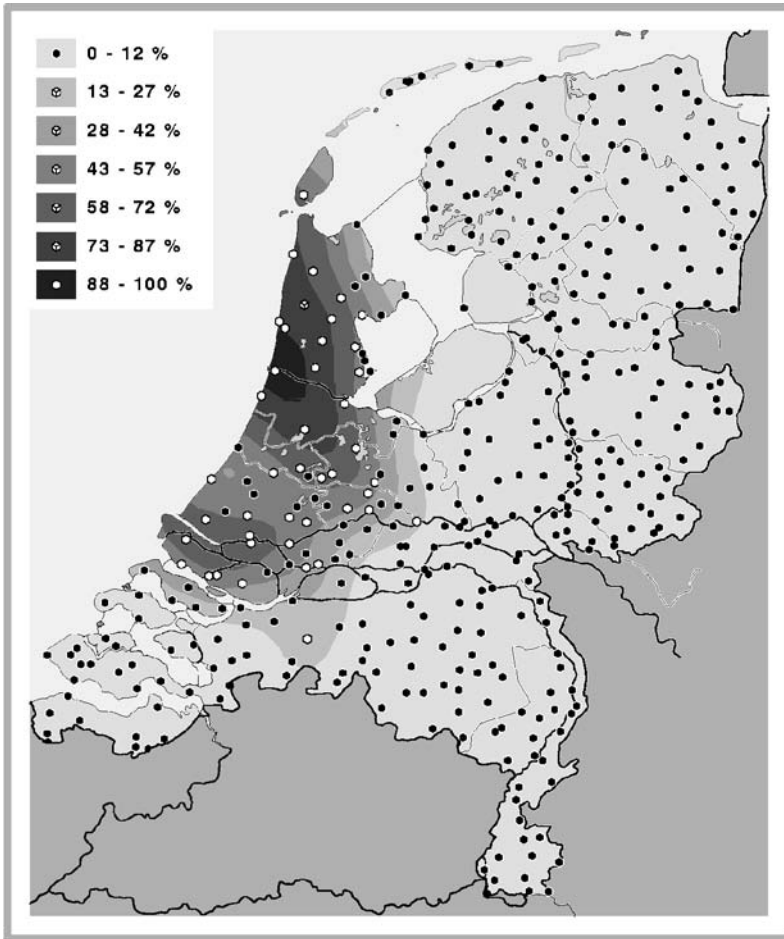


Map 3. (*Hij*) *hebt* (dark) in modern Dutch dialects. Production Evert Wattel.

1965; van Bree 1997: 125).<sup>2</sup> Pella Dutch still has the old form (*hij*) *het*. In addition, the use of (*hij*) *het* as the norm in Pella Dutch has been reinforced considerably by the fact that *het* also occurs as the majority form in areas 4 and 5, i.e. the Gelderse Vallei and part of the coastal area, in the majority of Frisian dialects (besides *hat* or *had*, see below), in Town Frisian and in Stellingwerfs. According to Smits (1996: 131), “*het* may actually be a dialect form that survived the process of dialect leveling”. Since it was the most common form in a large majority of all relevant dialects, I would rephrase this

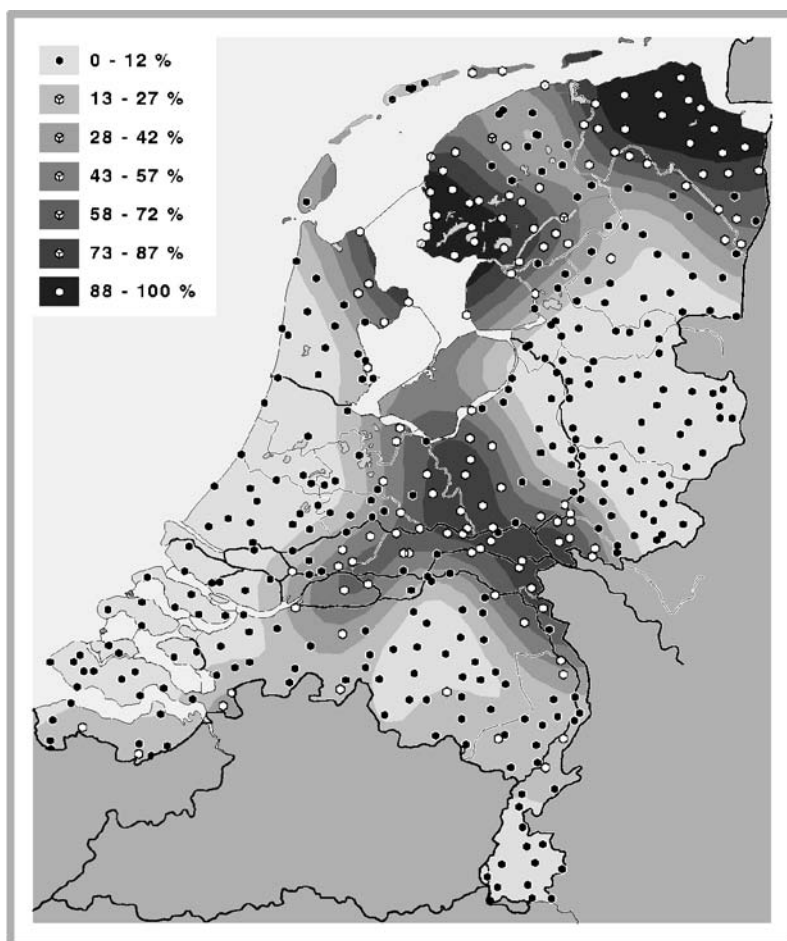
2. It is remarkable that the forms *hij he(e)*, *ait*, *hait*, *et* do not occur in the data of the 1966 corpus, especially since Webber (1988:92) mentions *he(e)* for Pella Dutch. According to the RND (clause 43, map 13; clause 24, map 85; clause 117, map 117), such forms are also present in the dialects of the core area and its surroundings.





Map 4. (*Hij*) *heb* (dark) in modern Dutch dialects. Production Evert Wattel.

as “*het* is actually the only result to be expected of the process of dialect leveling”. As Trudgill (1983: 105) observes: “Where varieties in contact are related and similar, they may retain what they have in common and lose what is different.” Besides (*hij*) *het*, we also find, although rarely, (*hij*) *had*. These forms must be Frisian (see Map 6). By contrast, consider (*hij*) *hef*, the third popular dialect form (see Map 7). Virtually no migrants in my data come from the eastern area (provinces of Drente, Overijssel, East Gelderland) where this form occurs. It is therefore not surprising that it is completely absent in Pella Dutch.

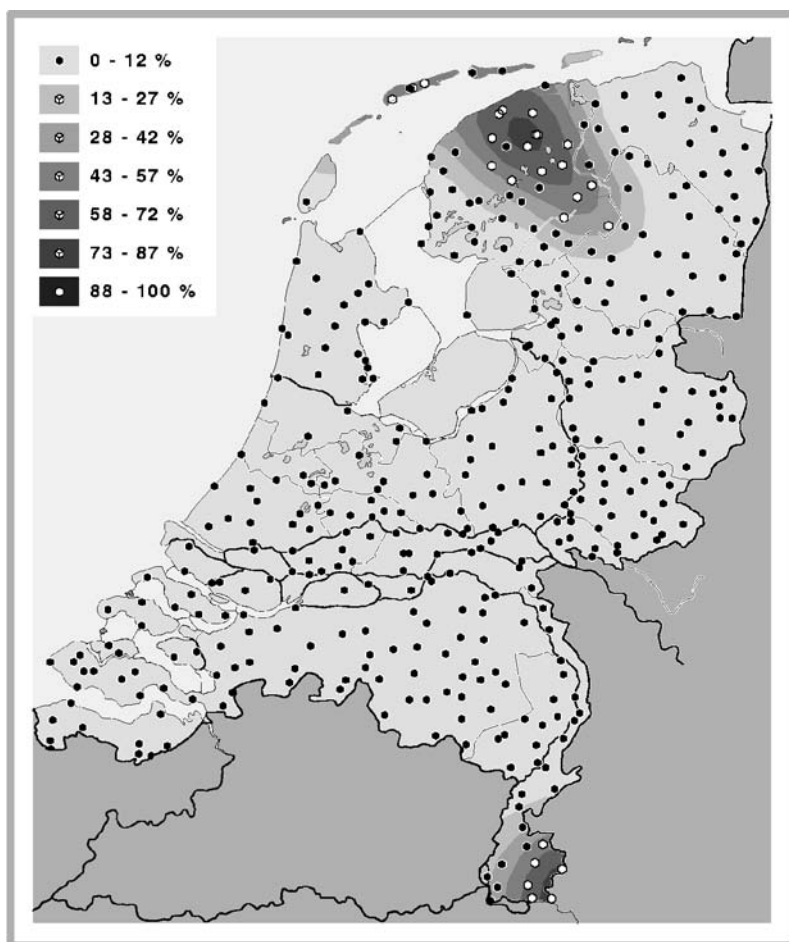


Map 5. (*Hij*) *het* (dark) in modern Dutch dialects. Production Evert Wattel.

## 2.2 Present tense first person singular and plural of *doen* “to do”

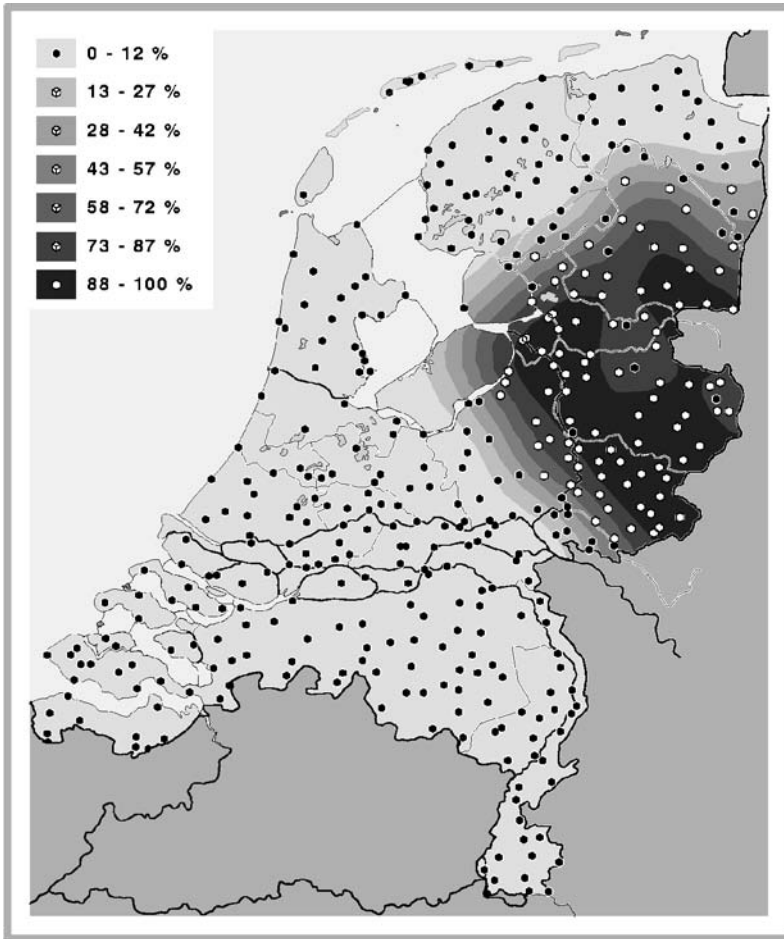
Standard Dutch: *Wij doen* “we do” (Smits 1996, Table 4.16:123, see also 71, 85, 108, 123–124) also has a number of variants. I have added the relevant data from the 1989 corpus (Smits 1996, Table 5.11:210). This group of verbs which end in *-n* includes *gaan*, *staan*, *slaan*, *zien*, *doen* plus their derivatives and compounds, all included in Smits’ data (Smits 1996:69). My own data only concern *doen*.

| doen | doenen | doet | doe | rest | total |                         |
|------|--------|------|-----|------|-------|-------------------------|
| 23   | 12     | 0    | 5   | 0    | 40    | corpus Pella Dutch 1966 |
| 5    | 2      | 2    | 1   | 5    | 15    | corpus Pella Dutch 1989 |



Map 6. (*Hij*) *hat, had* (dark) in modern Dutch dialects. Production Evert Wattel.

Quite a number of forms in Pella are different from Standard Dutch *wij doen*. Map 8 shows that in present-day dialects *doene(n)* occurs in the western part of Frisia and marginally around the core area. It is frequent only in a part of Noord-Holland which is completely irrelevant to the present investigation. However, in older data *doene* does occur within the core area. Therefore, Smits' (1996:85) claim that the formation of *doene* "seems to be an internally induced attempt to bring the plural form of these verbs into line with the canonical shape of plural forms of Standard Dutch" does not describe what happened in Pella Dutch, but what must have happened in Oud-Beierland, many years ago. "By analogy with the other verbs, the monosyllabic *doen, zien, gaan, staan* and *slaan* in the present plural usually have also taken *e*: *we doene ons best, Ziene jullie dat niet? We zijne bij mekander. Zij gane der na toe*" (see Opprel 1896:41, my translation PvR). Where the creation of *doe* (IPA [du]) in the corpus of



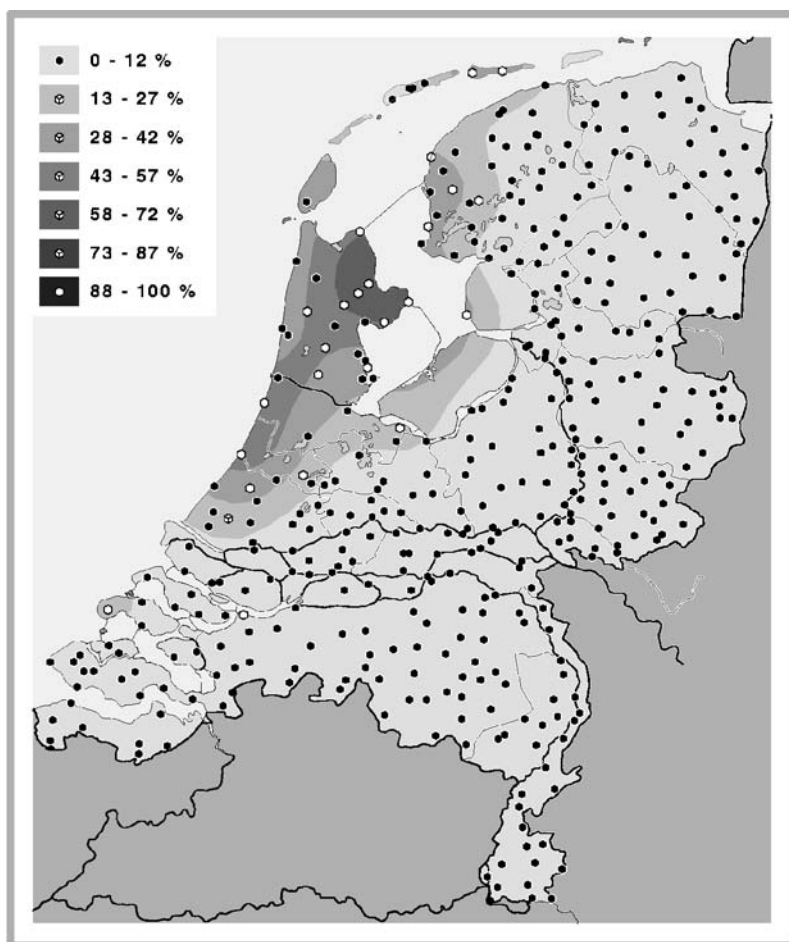
Map 7. (*Hij*) *hef* (dark) in modern Dutch dialects. Production Evert Wattel.

1989 is concerned, Smits (1996:124) points out the influence of English *do*. Indeed, this form is very exceptional in the relevant Dutch dialects.

With respect to variants of Standard Dutch: *Ik doe* ‘I do’ (Smits 1996, Table 4.16:123, see also 70, 85, 108, 123–124, 175, 191, 234), I have also added the relevant data from the 1989 corpus (Smits 1996, Table 5.11:210):

|    | doe | doenen | doet | doen | rest | total |                         |
|----|-----|--------|------|------|------|-------|-------------------------|
| 13 | 0   | 9      | 0    | 0    | 22   | 22    | corpus Pella Dutch 1966 |
| 1  | 0   | 9      | 1    | 4    | 15   | 15    | corpus Pella Dutch 1989 |

Standard Dutch *ik doe* ([du] in IPA) is very close to its English equivalent *I do*. Yet it is far from the only form in Pella Dutch, and it is even becoming marginal. Smits (1996:71) observes: ‘In western dialects, 1st person singular verb forms such as *ik*



Map 8. *(Wij) doene* (dark) in modern Dutch dialects. Production Evert Wattel.

*gaan, ik gaat ... occur.*” However, forms like *(ik) gaan, doen* are lacking in the 1966 corpus and are marginal in the 1989 corpus, whereas, in spite of any influence from English, *doet* is quite popular. Map 9 shows why. *(Ik) doet* is the typical form in the core area 1 and around the core (areas 2 and 3). The older RND data (clause 136, map 109) confirm this: final *-t* occurs more frequently north of Rotterdam, in almost the whole of Utrecht, and slightly more often in the Alblasserwaard (area 1 on Map 1). By contrast, *(ik) doen* occurs mostly outside any of the relevant areas. The *doet*-forms are the only ones to have migrated to Pella. Smits (1996: 85) observes:

... we can regard the generalization of *-t* forms to the 1st person singular of the *-n* verbs as an attempt to bring these forms into line with the canonical shape of 1st person singular verb forms: Dutch 1st person singular verb forms should end in



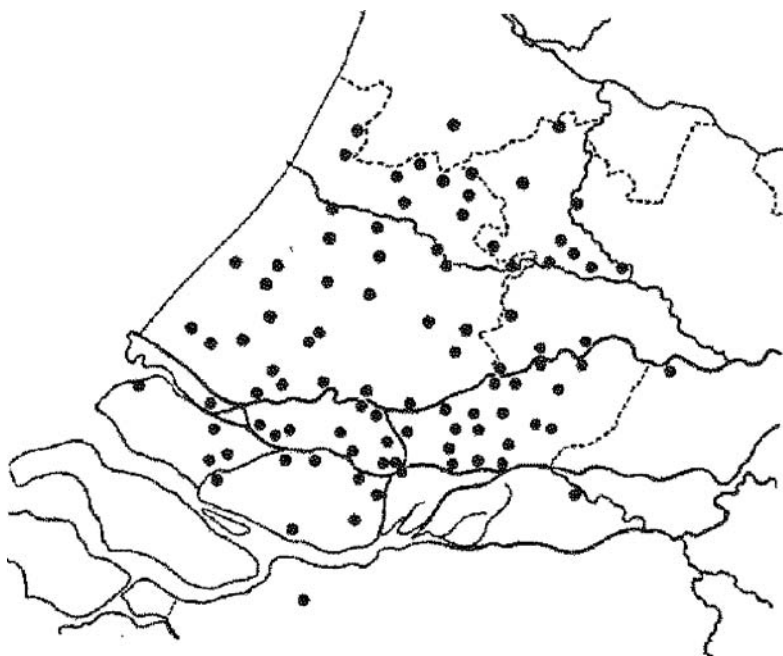
Map 9. (*Ik*) *doet* ○ versus (*Ik*) *doen* ● in modern Dutch dialects. Production Evert Wattel.

a consonant. ... the misuse of stem + *-t* forms may not be an independent force, but may be due to the striving for surface regularity.

I completely agree with this scenario, but the scene is not Pella. The attempt had taken place already long before, in Zuid-Holland and Utrecht.

### 2.3 Present tense first person singular of the regular verbs

Let us turn to Standard Dutch: *Ik draag, loop, bak*, etc. “I carry, walk, bake” (Smits 1996, Table 4.15:120, see also 89, 119, 178). I have also added the relevant data from the 1989 corpus (Smits 1996, Table 5.9:204):



Map 10. (*Ik draagt, loopt, bakt* etc. in modern Dutch dialects. Source Daan (1965:13).

| stem | +t | +en | other | total |        |       |       |      |
|------|----|-----|-------|-------|--------|-------|-------|------|
| 455  | 7  | 2   | 0     | 464   | corpus | Pella | Dutch | 1966 |
| 15   | 5  | 1   | 3     | 24    | corpus | Pella | Dutch | 1989 |

The standard form clearly dominates in Pella Dutch, and stem + *t* is quite exceptional, although the 1989 data seem to show another pattern. Stem + *t* is not frequent in present-day Dutch dialects either (see Goeman 1992:130). If it occurs, it occurs in and around the core area. Such forms may have been more frequent at an earlier time. Baker van Dulst from Poederooyen (Bommelerwaard, area 2c) uses stem + *t* in a letter from 1840 to Reverend Scholte in *ik... ontfangt* ‘I receive’ (Smits 1977–1991:III:313), which proves that the relevant area must have been more extended to the east than it is on the map of Goeman (1992). The discussion and maps in Daan et al. (1965:12–14; see also Daan 1985:14), based on data from 1871 and later, and Goeman (1976:191, 193), based on a comparison of data from 1941 and the RND twenty years later, confirm this: Poederooyen seems to have been part of the *-t* area. When Smits (1996:178) classifies these forms as ‘Generalization of regular 3rd person singular verb forms in *-t*’ and as ‘Non-conventional use of forms’, the generalisation did not apply to Pella Dutch. Instead, the non-conventional use migrated straight from Zuid-Holland and Gelderland and is now slightly regressing in Pella.

### 3. General conclusions

1. Many linguistic properties of Pella Dutch migrated straight from the dialects of the homeland, in particular from the core area consisting of the islands in southern Zuid-Holland and the border area between Zuid-Holland and Gelderland.

2. Although Smits (1996) allows for the possibility that properties of Dutch dialects were transplanted directly to Pella, her study lacks a framework in which we can distinguish between forms migrating from the relevant Dutch dialects to Pella and changes that were newly introduced in Pella in the formation of Pella Dutch. As a consequence, the conclusions in Smits (1996) concerning both the disintegration of inflection and the dialect roots of this language are speculative. On the basis of Smits (1996), it cannot be established to what extent aspects of the disintegration of inflection are properties of Pella Dutch or were they were already present in the dialects *in patria*.

3. Comparisons between migrant languages and the dialects *in patria* are often difficult to test for lack of data concerning the origin of the migrants and/or the properties of their dialects. In cases like Pella Dutch, however, historical information is widely available. This information helps us to carry out what might be called the sociolinguistics of the past and to see how original dialects contributed to the formation of a new language.

### 4. Further research

The approach adopted in Smits (1996:83) leads her to observe: "It is not unlikely that some of the trends ... may already have been active in the dialects transplanted to the Iowa Dutch settlements." I have shown that in quite a number of cases this observation is correct. Since both for Pella Dutch and for the relevant Dutch dialects more sociolinguistic material is available, it is worth trying to reconstruct how Pella Dutch evolved from a mixture of dialects and standard Dutch to its actual form in the 20th century. Further research is possible along at least three main lines:

1. A closer analysis of relevant dialects from around 1850 in the Netherlands. In this manner it can also be established to what extent properties of these Dutch dialects have been taken over by Pella Dutch. This will be a difficult task, since hardly any dialect descriptions from this period are available, and letters written in dialect such as those from baker Van Dulst, from which we quoted in §2.3 above, are rare.
2. Further analysis of Pella Dutch, especially with respect to three points:
  - a. The completion of the linguistic profile of as many migrants as possible in Pella on the basis of the tape recordings that are available.
  - b. An analysis of as many linguistic aspects as possible, for instance those mentioned in Webber (1988) and Smits (1996:14, 63, 89, 94) or directly from the



- tape recordings, in order to determine wherever possible what happened with the migrated dialect forms.
- c. In this study I have used the name Pella Dutch, whereas Smits 1996 uses the term Iowa Dutch. Since we do not know whether these terms refer exactly to the same varieties, an analysis of the language of other Iowa settlements, especially Orange City and Peoria, may be useful. It may answer the question to what extent Smits' 1989 corpus is reliable in this respect.
3. An investigation of (the variants of) Dutch spoken in the settlements of Michigan, which were founded in the same period as Pella by Reverend van Raalte. This variety has its main roots in dialect areas in the Netherlands which are often complementary to, and sometimes overlap with, those relevant for Pella Dutch. Research concerning the migrants who followed Reverend van Raalte, a contemporary colleague of Reverend Scholte, may shed further light on the formation of Dutch immigrant languages.

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