THE LIMITS OF GRAMMATICALIZATION

Edited by

ANNA GIACALONE RAMAT
University of Pavia

PAUL J. HOPPER
University of Pittsburgh

Table of contents

Structural scope expansion and grammaticalization

Whitney Tabor and Elizabeth Closs Traugott
Cornell University and Stanford University

1. Introduction

Unidirectionality in grammatical change is a tantalizing idea 'that has both substantial empirical plausibility and appealing theoretical simplicity, but it lacks tooth in its current'formulation because of a number of hard-to-dismiss counterexamples.[1] The idea comes in several forms which correspond roughly to different aspects of linguistic analysis: it is claimed that:

1. Grammatical change persistently involves a shift from more referential to less referential meanings (semantics/pragmatics) (e.g., Traugott 1982; Traugott and König 1991; Dasher 1995),
2. The meanings of grammatically metamorphosing elements tend to become more, rather than less, abstract (semantics) (e.g., Sweetser 1990; Heine, Claudi and Hünnemeyer 1991; Bybee, Perkins and Pagliuca 1994; Pagliuca 1994),
3. Their phonetic substance tends to be reduced (phonetic form) (e.g., Heine and Reh 1984; Bybee, Perkins and Pagliuca 1994),
4. Their frequencies tend to increase (statistical form) (e.g., Bybee 1985; Givón 1991),
5. Grammatical change proceeds across a cline of structural types (phrasal/morphemic form), which Givón formulated as:

   (1)   discourse > syntax > morphology > morphophonemics > zero
   (Givón 1979: 209)

and Lehmann (1995[1982]) has described in the following terms:

> [W]e assume that grammaticalization starts from a free collocation of potentially uninflected lexical words in discourse. This is converted into a syntactic construction by syntacticization, whereby some of the lexemes assume grammatical functions so that the construction may be called analytic. Morphologization, which here means the same as agglutination, reduces the analytic construction to a synthetic one ... In the next phase, the unity of the word is tightened, as the morphological technique changes from agglutinative to flexional. (Lehmann 1995[1982]: 13-14)

Lehmann identifies six "parameters" that typically correlate in processes of language change identified as instances of grammaticalization. Three are paradigmatic and will not concern us here, three syntagmatic: including bondedness, syntagmatic variability, and structural scope. Bondedness is morphophonological and involves "coalescence" primarily at the level of the word; it is the subject matter of many major studies, including Bybee (1985), and Bybee, Perkins and Pagliuca (1994). Syntagmatic variability is characterized by Lehmann as a change via "fixation" from a language state in which an item can be shifted around freely to one in which the item occupies a fixed slot. Structural scope, which is the major focus of our paper, is characterized as a change via "condensation" from a language state in which an item relates to constituents of arbitrary complexity to one in which the item modifies a word or stem (ibid. 145-178).

Givón's and Lehmann's formulations attempt to make explicit Langacker's appealingly vivid metaphor: languages "in their diachronic aspect" may be regarded as "gigantic expression-compacting machines" (1977:106). But the question is: Is this is the right metaphor for all aspects of language? Has a metaphor that applies well at the morphophonological level been overgeneralized to syntax and thereby created a conceptual dilemma for the field of grammaticalization studies?

Many of the troublesome challenges to Givón's and Lehmann's claims that have been reported on so far are somewhat idiosyncratic and primarily morphological in character, e.g., the English possessive (Janda 1980; Tabor 1992), various other clitics (Jeffers and Zwicky 1980; Joseph and Janda 1994), regional Spanish agreement affix *-mos* '1st pers. pl.' > *nos-* 'subject-marker' (Janda 1995, 1996), Estonian suffix *ep* > clitic 'affirmative adverb' (Campbell 1991), "regrammaticalization" of erstwhile articles in Salishan and Nilo-Saharan languages (Greenberg 1991). Others (not necessarily cited

as counter-examples), however, are more systematic, especially at the syntactic level. These include cases of shifts "from reduced (VP) to nonreduced (IP) clauses" in the history of Spanish and Portuguese (Davies 1994:48 on biclausal → monoclausal → biclausal causatives), a change that would be unexpected given a theory of structural scope reduction (see also Lehmann 1988 on correlated "parameters" of clause linking, among them grammaticalization and "desentialization" of the subordinate clauses, e.g., reduction to a nominalization, that is, to a constituent of the main clause). Another change that is problematic for scope reduction involves reanalysis of subordinate clauses as independent (a change known as "insubordination"), which has been reported in Australian languages (Evans 1988). Recently, a new class of counterexamples has been explored in some detail: the development of discourse markers which are clause-external and often disjunct, like *indeed* and *in fact* out of VP-internal adverbials in English (e.g., Traugott 1995), clause-external *demo* 'but, marker of turn taking' out of VP-internal, clause-final *-te mo* 'even if' in Japanese (Onodera 1995). All these episodes seem to involve structural scope increase. Nevertheless, they show many other signs of being episodes of the type of change called "grammaticalization".

One possibility, at this stage, is to reject structural unidirectionality as criterial for grammaticalization, an approach taken for various reasons by e.g., Nichols and Timberlake (1991); Hagège (1993); Traugott (1995). Another is to conceptualize it as irrelevant because it is not predicted by the theory within which the author is working — the position of linguists working in parametric theory, sometimes explicitly, sometimes implicitly (e.g., Lightfoot 1979, 1991; Roberts 1993; Warner 1990). In this paper we take a third position: that the claim of structural unidirectionality, and most especially scope reduction, deserves to be empirically tested with an explicit definition of "scope change". We will explore the hypothesis that episodes of so-called "grammaticalization" persistently involve increase of structural scope (defined as C-command Scope Increase), not decrease in structural scope. We will show that this hypothesis is surprisingly robust, given that it seems to be intuitively opposite to the scope claims that have been prominent in the literature up to now. Consequently, we argue that the jury is still out on the status of structural unidirectionality as a criterion for deciding what change episodes come within the purview of "grammaticalization studies". It is certainly not appropriate to take scope decrease (without further articulation and demonstration of its validity) to be a criterion. Nor is it appropriate to

conclude, yet, that there is no structural unidirectionality principle, for relatively little systematic exploration of the formal possibilities has so far been done.

The paper is organized as follows. Section 2 provides motivations and definitions of C-command and the method of "diachronic string comparison" by which scope increase or decrease can be tested. Section 3 considers several change episodes, showing that the C-command Scope Increase Hypothesis applies in a surprising number of cases, including some that have been taken to exemplify scope decrease. Finally, Section 4 reviews the results, and assesses the implications for the limits of grammaticalization studies. Examples are primarily from English.

Like earlier hypotheses concerning scope decrease, our hypothesis is unidirectional. Some serious conceptual questions about the ultimate viability of unidirectionality claims have been raised by Lass (p.c.). One strong version of unidirectionality holds that all grammatical formatives originate in lexical formatives. Lass points out that there is no evidence in Indo-European and Uralic of a lexical origin for many grammatical items; worse, in apparent violation of the uniformitarian principle, we would have to postulate proto-languages of a non-attested sort—ones with lexical items and no function elements or morphology. Givón (1979) and Bickerton (1984) have hypothesized that just such languages can be found in early creoles, but such creoles are only postulated, not empirically attested. Our claim, in this paper, however, does not depend on the existence of such languages. It says only that when change episodes occur in which an item or collocation changes its structural status gradually via reanalysis, then the change may involve C-command Scope Increase.

2. Scope change

To make what we mean by scope increase/decrease very clear, we define scope contrast in terms of C-command and propose an explicit method ("diachronic string comparison") for comparing scopes across different states of a language.

Def. 1.   Node A C-commands node B if A does not dominate B and every branching node which dominates A also dominates B (Haegeman 1994[1991], based on Reinhart 1981).

Def. 2.   Node A asymmetrically C-commands node B if A C-commands B but B does not C-command A.

Def. 3.   Node X dominates Y if Y is a daughter of X or there is a daughter of X which dominates Y. If the latter is the case, we say that X remotely dominates Y.

Def. 4.   Node R is a daughter of node Q if there is a phrase-structure rule in which Q is to the left of the arrow and R is to the right.

It is standard to equate C-command with scope and say that if node A asymmetrically C-commands node B, then node A has greater scope than node B. But we immediately run into a problem with vagueness when we try to extend this interpretation to the diachronic arena. Consider, for example, the claim that the Present Day English (PDE) modal *will* has higher scope than its Old English (OE) ancestor, which meant something like 'want.' One might try to support such a claim by noting that there is a natural syntactic and semantic correspondence between OE *willan* 'to want' and PDE *want*, and that we have good reasons to believe that there is a PDE structure along the lines of (2), in which *will* has C-command scope over *want*.

(2)   [IP Those people [I' will [VP want many things]]]

But this argument runs aground on examples like

(3)   Some people [VP want to believe [CP that [IP nothing [I' will [VP change]]]]]

in which *want* has C-command scope over *will*. Consequently, we propose the following more constrained notion of what it means to say that the scope of morpheme X has increased/decreased diachronically. We limit our attention to cases in which we can replace each word in an older construction with a descendent from some specific later stage to produce a legitimate sentence from the later stage. Then, if possible, we align phrase-brackets across the two diachronically related constructions and examine the changes in any words or subconstructions which have changed their syntactic class.

As an illustration, consider the following example:

(4)   *Min   Drihten,   ic   wille   gangan to Rome*.
      My   Lord,   I   want   go:INF   to Rome
      'My lord, I will/want to go to Rome.'
      (c. 970 Blickl. Hom. [DOE])

If we replace each word in this construction, in order, with its modern or early modern English descendant, we obtain the following diachronic comparison:

(5) a. Min Drihten, ic wille gangan to Rome.
 b. My Lord, I will go to Rome.

There have been many analyses of the history of the English modal system and there is still a question as to exactly which analysis is right. But one contrast seems to be agreed upon by all historical researchers: the modern modals occupy an auxiliary position which dominates the verb phrase in which main verbs are generated, while the OE ancestors of modal verbs were like main verbs and were presumably generated in the verb phrase. Thus, we can reasonably make a Diachronic String Comparison (DSC) along the lines of (6):

(6) **Diachronic String Comparison.** Main verb to modal verb.
 a. [CP *Min Drihten* [IP *ic* [I'0 [VP *wille* [VP *gangan* [PP *to* [NP Rome]]]]]] ,
 b. [CP My Lord [IP I [I' *will* [VP go [PP to [NP Rome]]]]]]

Here, there is a natural correspondence between certain levels of embedding or shells of matched brackets across these two examples. Given this alignment of brackets, there is a clear sense in which the position of *will* in (6b) has scope over the position of *wille* in (6a).[2] Thus, under the most plausible structural analyses we know of, this case involves increase, not decrease, in the scope of *will*. On this basis, we claim that this episode of grammatical change exhibits C-command Scope Increase. The validity of this claim depends crucially on the assumption that it is the element *wille/will* that we should be paying attention to when we compare scopes.— for example, the scopal status of *ic* 'I' in this example has not changed under the analyses given. Therefore, to be explicit, we assume that scope change claims must always be evaluated with respect to an item that changes its syntactic class status. We also assume that it is not necessary for the shells corresponding to the changing item in each example to line up (since it is changing) but we assume that all other shells must line up. We use the term "diachronic string comparison" to refer to this method of focusing on contrasting analyses of identically ordered, diachronically related, constructions from different time periods, lining up bracket shells across the analyses, and comparing the scopes of a reclassified item.

Now we turn to our central point. We test the following hypothesis:

(7) The C-command Scope-Increase Hypothesis: When an item undergoes gradual syntactic reclassification, resulting in a state in which diachronic string comparison can be applied, then its C-command Scope increases.

This hypothesis turns out to be surprisingly robust, even though it is probably not a universal generalization. Thus, we believe it merits further looking into. We hope that eventually it will become possible to decide, on independent grounds, which change episodes will exhibit C-command Scope Increase, which will exhibit decrease, and which will show no change in scope relationships. We see the formulation of a clear testable hypothesis like our C-command Scope-Increase Hypothesis as an important step in this direction.

Our thesis presupposes a particular view of the "limits of grammaticalization". We take the volume title to be posing questions about what methods we should use to decide which historical change events our theories should explain, that is: What are the limits on the subject matter of the field of study which goes by the name of "grammaticalization"? It is clear that we cannot take structural unidirectionality as a definition of the subject matter, for structural unidirectionality is a hypothesis which needs to be formalized and tested before it can be presupposed. Instead, we suggest using the following correlated hallmarks to identify change episodes of relevance:

1. Morphosyntactic change
2. Pragmatic/Semantic change
3. Gradualness in the sense that some subtypes of a new construction become possible before others.

These hallmarks are fairly easy to use.[3] Even when, as we advocate, these features are treated as necessary conditions for deciding what episodes our theories of change are responsible for, these criteria include a wide range of changes — almost everything, in fact, that researchers have called "grammaticalization" in the past. We feel it is better to use uncontroversial features such as these to identify the realm of study. Controversial features, like unidirectionality, should be given explicit formulation and then tested. If someone succeeds someday in formulating a version of unidirectionality which is highly correlated with the above, uncontroversial hallmarks, then we would support including it in the list of field-defining features. But, given our current results, and the lack of another explicit formulation, we feel unidirectionality is best treated as a hypothesis, not a defining characteristic.

Our list of hallmarks includes much, but it also rules out some important kinds of change which we do not aspire to make claims about. First of all, coinages, and lexical borrowings, and other "lexicalization" processes are excluded for they are essentially instantaneous. Thus regular "lexicalization" processes are also excluded that involve major category shifts such as use of *up* as a verb, *upper* as a noun. If, following the common English pattern, a speaker innovates the usage *to window a process*, meaning to open a computer window for a program to display its output, then the change, here N → V, is not within the purview of grammaticalization because a productive rule of the language has been used to shift an element from one major category into another.

On the other hand, if this new verb *window* subsequently undergoes a protracted development (involving the acquisition of special semantic and morphosyntactic properties and almost a continuum of intermediate phases), eventually changing its class from verb to auxiliary verb, then the changes will be in the purview of grammaticalization. We predict that there will be no such gradual development which changes an auxiliary verb into a main verb.[4] In sum, we take the limits of the field of inquiry to be gradual morphosyntactic and semantic change which results in grammatical reanalysis and we hypothesize that such change brings about an increase, not a decrease, in C-command scope.

3.   Four cases

In this section we discuss four change episodes in the history of English:[5] the development of the *-s* possessive, the VP-gerund, adverbial and conjunctive *instead (of)*, and the discourse marker *anyway*.

3.1   The English possessive

Our first example concerns a morphological change which we will argue is best explained in terms of a shift in status from case inflection to clitic: the history of the English possessive *-s* (see in PDE *Celine's oak, the postal worker's bicycle*). As Janda (1980) already pointed out, it is a potential challenge to Givón's famous slogan "Yesterday's syntax is today's morphology" (Givón 1971: 413).

The OE ancestor of the *-s* was a genitive case marker that occurred on masculine and neuter *a-* and *i-*stems. Several pieces of evidence support the view that this marker was generated in the morphology of OE: it alternated with other markers of genitive case (e.g., *-a*, zero) on a lexical basis (8), all lexical daughters of NP exhibited concordant marking (9), phrasal modifiers were always extraposed and thus never intervened between the *-s* and its host lexical item (10):

(8)   NOM   *fot*   vs.   *bot*
      GEN   *fot-es* vs. *bot-e*
            'foot'   'remedy'

(9)   *þæs   arwurð-an   wer-es   gebedrædden-e*
      the:GEN   honorable:GEN   man:GEN   prayer:DAT
      'to the honorable man's prayer'
      (c.1000 Gregory's Dialogs H: 39.12 [DOE])

(10) a.   mid   Rodbeardes eorl:es   fultume   of   Flandran
           with   Robert:GEN   earl:GEN   support   of   Flanders
           'with Robert, Earl of Flanders' help'
           (1085 ChronE (Plummer) [DOE])

      b.   *ðæs   cyning:es   sweoster   Ecgfrid:es*
           the:GEN   king:GEN   sister:NOM   Ecgfrid:GEN
           'the sister of Ecgfrid the king'
           (c. 1000 Aelfric Hom 11, 10 87, 215 [DOE])

By contrast, in PDE, corresponding evidence supports the view that the possessive *-s* is a kind of clitic[6]: there is no variation across possessive phrases that is sensitive to the lexical identity of the head noun; no daughters of NP exhibit specific possessive marking, as the translation of (9) shows; the *-s* can appear at the end of the possessor noun phrase even when there are post-head phrasal modifiers as in (11):

(11) a.   the King of Thailand's response
      b.   a room in the attic's quietude
      c.   the woman we met yesterday's umbrella
      d.   * the king's response of Thailand
      e.   * a room's quietude in the attic
      f.   the woman's umbrella *(? that) we met yesterday

These data suggest that, structurally, the -s made the following transition:

(12) a. OE Lexical genitive.

```
                NP
               [Gen]
              /      \
           NP          N
          [Gen]       [Case]
         /  |  \
      Det  Adj   N
     [Gen] [Gen] [Gen]
                 /   \
              Nstem    s
```
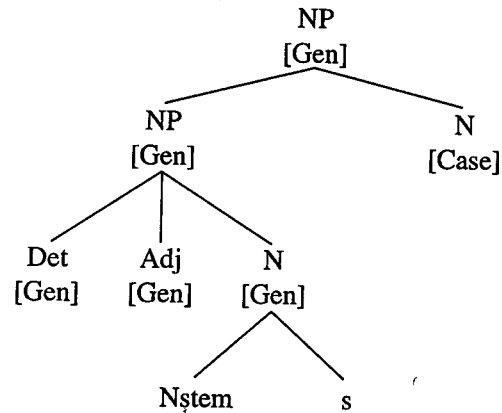
b. PDE Clitic possessive.

```
              NP
             /   \
          Det      N
         /    \
       NP      Gen
      / | \     |
   Det Adj N    s
```

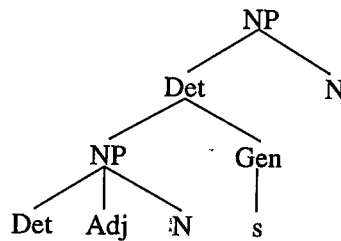The development of the possessive shows all three of the "hallmarks of grammaticalization" that we identified in the introduction. It clearly shows syntactic change, as we have argued above. It also shows semantic change, for the OE genitive (including the -s genitive) was used for many noun-noun relations that are not possible with the modern possessive (see Mitchell, 1985). Furthermore it shows signs of gradualness in the sense that some grammatical changes happened before others. Possible evidence consists in the fact that we see -s marked genitive nouns with uninflected definite articles in the Peterborough Chronicle c. 1155 — so new forms compatible with the clitic analysis had already begun to appear at that time, but it is not until two centuries later, in Chaucer's time, that we find the first unequivocal evidence for a clitic analysis in the form of a modifier separating the noun from its head:

(13) *the god of slepes heyr*
      'the god of sleep's heir'
      (c. 1368 Chaucer, Book of Duchess 168)

There are three such instances in Chaucer's works. Of course, it is possible that this delay is due to a low overall likelihood of observing post-head modifiers on genitive noun phrases. We also have evidence for incremental change in the fact that in Chaucer's works there are still some lexical items which systematically take a special form — zero-marking — in the genitive singular (e.g., *chirche* 'church's', *lady* 'lady's', *sonne* 'son's', *widwe* 'widow's'). Such systematic exceptions suggest that the clitic analysis had not yet become completely general by Chaucer's time.

The structural analyses given above suggest the DSC (14):

(14) **Diachronic String Comparison.** Lexical genitive to possessive clitic (X_D = "X has dative case"; X_G = "X has genitive case").

a. $[NP_D$ $[NP_G [Det_G$ *þæs*] $[N_G$ Nstem *wer*] *es*]] $[N_D [Nstem$ *gebed*] *e*]]
b. [NP [Det[NP [Det the] [N man]] *s*] [N prayer]]

Here, we have aligned brackets corresponding to major class labels, and not required alignment for the brackets corresponding to the changing item, or to case-categories. The former move is consistent with our assumptions as laid out in the beginning. The latter seems reasonable since English has lost case marking except on pronouns. Given this comparison, we can say that the OE genitive marker that appears on nouns has narrower scope than the modern possessive marker. Since this is the only item that has significantly changed its morphosyntactic class (from being a marker of a subclass of nouns to being a marker of full noun phrases), we conclude that this episode exhibits C-command Scope Increase.

Janda (1980) suggests a different analysis of the history of the possessive clitic. If his analysis is correct, this example may not be problematic for Lehmann's and Givón's scope-decrease claims after all. Janda notes that there is evidence for what has been called the "*his*-genitive" during this crucial transitional period. The [h] of the pronoun *his* had lost its aspiration in unstressed positions (Wyld 1953: 314)) and sometimes forms like the following are attested in texts:

(15) a. *Modred is hafd*
          'Modred's head'
          (1225 Lay. Brut [MED])

b. *Seynt Dunstone his lore*
    'Saint Dunstan's lore'
    (1420 [Janda (1980: 248])

Janda hypothesizes that the immediate source of the clitic was not the inflectional genitive but the resumptive pronoun, itself a clitic, although the survival of the possessive marker *-s* may have been helped along by its coincidental homophony with the pronoun. However, Tabor (1992) notes that the development of a similar possessive clitic in Norwegian and Danish without a homophonous *his*-genitive makes this hypothesis less convincing and that the paucity of gender agreement early in the *his*-genitive period makes it unlikely that the *his*-genitive was around early enough to play a role in the differential erosion of case on genitive noun phrases. In sum, we believe the English possessive is a problem for the Scope Decrease Hypothesis, but is consistent with the C-command Scope Increase Hypothesis.

3.2. The English gerund

In discussing the grammaticalization scale of verbal nouns (gerunds), Lehmann cites:

(16) a. John's constantly reading magazines
     b. John's constant reading of magazines
     c. *the (constantly) reading magazines
     d. the constant reading of magazines
         (Lehmann 1995[1982]: 62)

and comments "we have two stages of our grammaticalization scale embodied in the English POSS-*ing* construction. At the latter stage, the nominalized verb has assumed all the relevant features of a noun; *-ing*-nominalizations are even pluralizable" (Lehmann 1995[1982]: 64). While it is not clear whether Lehmann is making a synchronic or diachronic claim here,[7] the diachronic version of his claim is incorrect: types (16b) and (16d) are historically earlier than type (16a).

A number of synchronic analysts have noted the pervasive differences between gerunds (that is -*ing* words) like those in (16b) and (16d) on the one hand, which we will call "NP gerunds", and that in (16a), which we will call a "VP gerund" (see e.g., Lees 1960; Chomsky 1970; Wasow and Roeper 1972; Jackendoff 1977; Abney 1987). The NP gerunds accommodate only adjectival

modification; they take any kind of nominal quantifier, and, if a direct object is present, it occurs in a prepositional phrase headed by *of*. The VP gerunds, on the other hand, accommodate only adverbial modification; they take only possessive quantifiers, and if a direct object is present, it occurs immediately after the verb. The auxiliary verbs *have*, *be*[copula], and *be*[passive] occur in VP gerund constructions, as does the main verb *be*[predicate nominal] and the verbs which take adjectival complements (*be*[predicate adjective], *feel*, *seem*, *look*, etc.) None of these special kinds of verbs can occur in the NP gerund construction. Jackendoff (1977) suggests the following contrasting phrase structure analyses of these constructions:

(17) a. PDE NP Gerund.
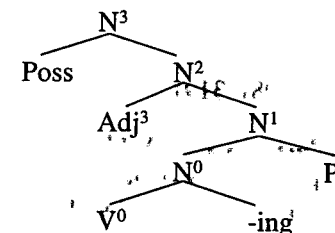
b. PDE VP Gerund.
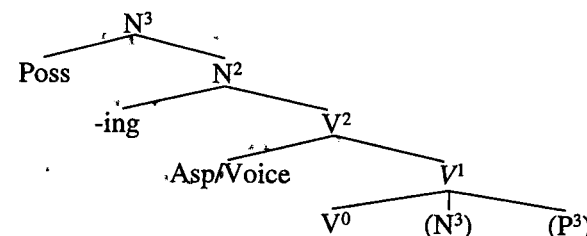
He assumes that the -*ing* marking is base-generated in a position to the left of the phrase it marks and then jumps over intervening words to be united with the verb in a process related to Chomsky (1965)'s "Affix Hopping." Jackendoff notes that we can describe the relationship between the two types as involving two different instantiations of his Deverbalizing Rule Schema: $X_n \rightarrow Af\ V_n$, with X = N and n = 0 for the NP gerund and n = 2 for the VP gerund.

There has been much debate about the manner in which the modern contrast in gerunds arose (see e.g., Curme 1912; Einenkel 1913; Poutsma

1923; Visser 1966; Emonds 1971; Tajima 1985; Houston 1989; and a summary in Fischer 1992), but the following points are agreed on by most: the OE ancestor of the gerund *-ing* was an ending *-ung* (or occasionally *-ing*) used mainly in forming feminine abstract nouns from members of the second class of weak verbs:

(18) abidung   'waiting'
      ascung   'interrogation'
      blacnung   'pallor'
      brocung   'affliction'
      handlung   'handling'
      niþerung   'humiliation'
      wiccung   'witchcraft'
      wending   'turning'
      (Wright and Wright 1925[1908]: 319)

These nouns behaved like other nouns in all relevant regards; in particular they showed none of the distinctive properties associated with the VP gerund.

In late OE and eME, the *-ung* ending spread to all verbs while its spelling changed to *-ing*.[8] From earliest eME, the *-ing* nouns could occur with direct objects in a prepositional phrase headed by *of* (19). Then, according to a tabulation based on a sample of approximately 22,000 pages of eME and ME texts examined by Tajima (1985), the development proceeded as follows. Around 1200, the deverbal nouns in *-ing* began taking adverbial modifiers (both before and after the noun) (20); such constructions are not attested in OE. Around 1300 the first instances of immediately following direct objects appeared (21). Around 1450, the first adjectival complements appeared (22). A century later, around 1550, the first gerundive forms of *be*[passive] (23) and *have*[perfect] (24) appeared. In this way, the current VP gerund came to exist along side the NP gerund.

(19) a. *þe   lichames   festing   is   wiðtiging   of estmetes   and*
          the body's   fasting   is   resisting   of delicacies and
          over-etes.
          excessive eating.
          (c. 1200 Trin. Hom. 63/21-22 [Tajima 1985: 62])
      b. *wiþouten doyng   of any harme*
          without doing   of any harm
          'without doing any harm'
          (c.1300 K Alex. 558 [ibid.])

(20) *þe teares þe man wepeð for longenge to heuene ben cleped rein water oðer deu water.*
      'the tears that man weeps in longing for heaven are called rain water or dew water.'
      (c. 1200 Trin. Hom. 151/17-18 [ibid.: 107])

(21) a. *bisi In ordaining of priestes, and clerkes, And in casting kirc werkes*
          'busy ordaining priests and clerics, and in planning church works'
          (c.1300 [MS. 1400] NHom 112/2-4 [ibid.: 76])
      b. *he shewed obedyens Yn fulfyllyng hys faders comoundemens.*
          'he showed obedience in fulfilling his father's commands.'
          (c. 1325 Med. Supper 173-4 [ibid.])

(22) *y haue more repented me of spekinge than y haue do of beinge still.*
      'I have regretted speaking more than being quiet.'
      (1450 Scrope DSP 236/27-28 [ibid.: 92])

(23) *shoulde take more honour in being coupled to Englande*
      (1545 Ascham Tox. [ibid.: 115])

(24) *after having failed to take him into the fisher boate*
      (c. 1580 Sidney, Arcadia I. 36 [ibid: 112])

Abney (1987) and Tabor (1993) suggest that this development was incremental, passing from the V0 stage through a V1 stage to the V2 stage. Indeed, Tajima's analysis makes it appear that there was a V0 → V1 transition around 1250 and a V1 → V2 transition around 1550. However, it is not clear that these two transitions were distinct, for the modern, presumably asymptotic, rate of use of passive and perfect (VP) gerunds, so it may be that the V2 types appear later simply because they are much less likely to occur in texts (see Kroch 1989a, 1989b), or because of independent developments in the auxiliary system. Nevertheless, there is little doubt that the main transition, the advent of the VP gerund, occurred over this period of time.

Like the possessive, the gerund development also shows the three "hallmarks of grammaticalization". As we have argued above, the VP gerund is a new syntactic form which did not exist in OE. The semantic function of the ending has changed as well, for the original OE *-ung* ending was used mainly in forming abstract nouns from the second class of weak verbs (Wright and

Wright 1908: 299) while its modern descendant can be applied to essentially any main verb. The outline of the development of the gerund based on Tajima's tabulations, which we summarized above, suggests an incremental development, but this evidence is not conclusive because the later emergence of the predicate adjective, passive, and perfect gerunds may reflect the low odds of seeing them used at all. However, the earlier possibility of gerunds with non-possessive quantifiers (25), now ungrammatical, suggests that the constraints on the modern construction did indeed emerge incrementally.

(25) *The wythholdyng you fro it can doo yow no good.*
(1481 Caxton, History of Reynard Fox [Tajima, p. 81])

Moreover, it is clear that at least by 1550, certain strings had become ambiguous between the NP- and VP-gerund analyses. Thus we can make the following comparison for *God's blessing*:

(26) **Diachronic String Comparison**. NP gerund to VP gerund.
  a. $(N^3$ Godes $\quad$ $[N^2$ $[N^1$ $[N^0$ $[V^0$ bliss] $\quad$ -ynge]]]]
  b. $(N^3$ God's $[N^2$ -ing $[V^2$ $[V^1$ $\quad$ $[V^0$ bless] $\quad$]]]]

Under this analysis, the later -ing (26b) has greater scope than the earlier -ing (26a). In this case, there are missing shells opposite both the old and the new shells specified by the -ing marker. All the other shells line up on the assumption that it is fair to make the correspondences, N2 ↔ V2 and N1 ↔ V1. But these correspondences are well-motivated in Jackendoff's schema: he shows that modifiers on the same level share many properties across different types of projections. Thus, this case also arguably involves C-command Scope Increase. It certainly does not illustrate condensing of constructions relating to a "constituent of arbitrary complexity" into one where the item (-ing) modifies a word or stem as Lehmann (1995[1982]: 64, 164) seems to suggest.

3.3. Instead of and instead

The development in English of the possessive and gerund are challenges to the Scope Decrease Hypothesis, but they seem to have happened just once in the few languages where they have happened at all. The case for C-command Scope Increase will be strengthened if we can show that it characterizes a common kind of grammaticalization episode. A clear example of this sort is

provided by a number of adverbial phrases in English which started out as adjuncts of the verb and evolved into sentence adverbs, and in some cases, discourse markers. In this section we will investigate *instead (of)*, and in the next *anyway*.

PDE has at least three syntactically distinct adverbial formatives which derive from the OE noun *stede* meaning 'place.' *Instead of* functions as a preposition heading an adverbial phrase and as a conjunction. *Instead* alone functions as an adverbial phrase, with a distribution similar to that of adverbial *instead of*. We justify these assertions and then outline the developments that led to the modern situation, showing how several strands involve Scope Increase.

In his groundbreaking work on adverbials, Jackendoff (1972) distinguished three adverbial positions based on distributional evidence: sentence-initial, within the range of the auxiliary, and in sentence-final position. He suggested three levels of configurational scope, sometimes described in the following terms: those adverbs that are sisters to S (e.g., *probably*), those that are sisters to V-bar (e.g., *intentionally*), and those that are sisters to V (e.g., *completely*). Subsequent work has refined the analysis, with particular attention to the fact that most adverbs can occur in several different slots, sometimes with different meanings, and to the constraints on the distributional characteristics of particular classes of adverbs with respect to the auxiliary (e.g., McConnell-Ginet 1982; Ernst 1984; McCawley 1988; Radford 1988). No current linguistic theory has a full account of these facts, but most agree on the distinctions that are important for the points we make here. McCawley (1988) gives a summary of distribution on which we expand to account for *instead (of)*:[9]

(27) Distribution of PDE adverbial *instead, instead of NP*, and *in Al's place* in comparison to various adverbs (based on the table given by McCawley 1988 (p. 632)).

	□ The carpenter	□ will	□ have	□ constructed a chimney	□,	□.
perhaps	OK	OK	OK	??	*	OK
intentionally	*	*	OK	OK	OK	*
completely	*	*	?	OK	OK	*
instead	OK	??	OK	??	OK	??
instead	OK	OK	??	??	OK	??
... of installing a window						
in Al's place	OK	*	*	*	OK	OK

Comparing the distributions of *instead* and *instead of* NP against this chart suggests sentence adverb status for both of these expressions, although the correspondence is not quite perfect.

Further evidence that the two adverbial *instead* constructions are not V-bar or V-adverbs comes from a semantic scope contrast: like S-adverbs (SAdvs), the *instead* adverbs strongly prefer to be scoped outside of the quantification on an embedded NP, while the V adverbs (VAdvs) resist wide scope readings, and the V-bar adverbs accommodate both scopings (cf. McCawley 1988: 634):

(28)   a.   Marvin completely ate all three bagels. (prefer narrow)
       b.   Marvin intentionally ate all three bagels. (narrow or wide)
       c.   Marvin probably ate all three bagels. (prefer wide)
       d.   Marvin instead (of shaving) ate all three bagels. (prefer wide)

While the phrase *instead of* NP functions as an adverbial, the substring *instead of* seems best analyzed as a complex preposition. It can do most of the sorts of things prepositions can do:

(29)   a.   Nominal embedding: A boy with a marshmallow *instead of* / on a stick
       b.   Preposition stranding: What did you eat watercress *instead of* / with?
       c.   Subordination: The judge dismissed the case *instead of* / without filing charges.

However, unlike any other English prepositions, *instead of* can also behave as a coordinating conjunction, combining a wide range of categories. In this regard, it behaves almost identically with the canonical conjunctions (e.g., *and, or, but not,* etc.). In some cases there is structural ambiguity with the prepositional use, as in (30a), but usually the constructions are totally distinct. Examples of conjunctive *instead of* include:

(30)   a.   We're now getting hostility *instead of* / and / but not hospitality.
            (4 July 1990 UPI[10] (NP conjunction)
       b.   Gonzalez agreed to be sentenced in New York *instead of* / and / but not Miami.
            (27 Sept. 1990 UPI (PP conjunction).
       c.   Dealing with abortion ..., *instead of* / and / but not making it a crime, is the most effective way to reduce abortions.
            (14 July 1990 UPI (VP-gerund conjunction)

       d.   You can sit *instead of* / and / but not stand.
            (finite VP conjunction)
       e.   to put things on *instead of* /and /but not to strip things off
            (non-finite VP conjunction)

However, *instead of* does not enter into conjunction of inflected clauses (31a); nor is it very felicitous as a conjoiner of nonmaximal projections (31b-d):

(31)   a.   He runs to her and / * *instead of* she runs to him.
            (finite S conjunction)
       b.   *The king and / * *instead of* queen of England wrote the note.
            (N conjunction)
       c.   A rather contrite and / ? *instead of* miserable face appeared in the doorway.
            (Adj conjunction)
       d.   We build and / ? *instead of* buy picture frames. (V conjunction)

All three of the *instead* constructions treat *in* and *stead* as inseparable (*in *Jasmine's* / *the* / *good stead*). Moreover, the conjunction *instead of* does not tolerate separation of the *of*:

(32)   a.   *Instead,* by the way, *of* clapping, perhaps you could just stomp softly. (adverbial *instead of*)
       b.   You can sit *instead* (*by the way) *of* stand. (conjunction *instead of*)

These data suggest the following analyses of the various *instead (of)* constructions:

(32)   a.   PDE Adverbial *instead (of NP).*

b. PDE Conjunction *instead of.*
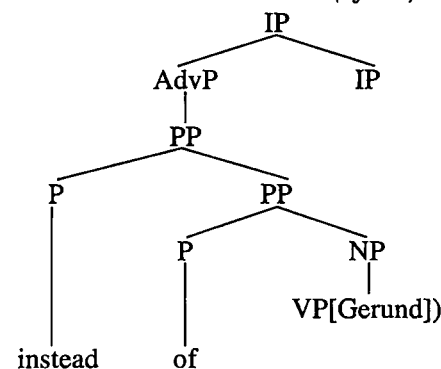
```
                XP[-IP]
              /         \
        XP[-IP]   Conj    XP[-IP]
                    |
                instead-of
```
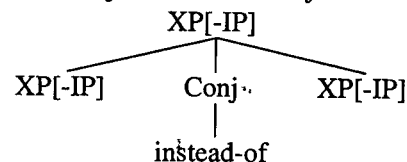
Tree Diagram (32a) captures the fact that the adverbial *instead*'s can appear in the outermost shell of the matrix clause as sentence adverbs. It does not provide a mechanism for generating sentential adverbs in the many intermediate positions in which they occur, but we know of no fleshed-out syntactic theory that does at the moment. Our arguments for Č-command Scope Increase hinge only on the claim that *instead(of)* can occupy this outermost position in IP. Tree Diagram (32b) captures the fact that conjunctive *instead of* can conjoin maximal projections of any type except IP.

With these analyses in mind, we now review the historical developments (based on Schwenter and Traugott 1995).

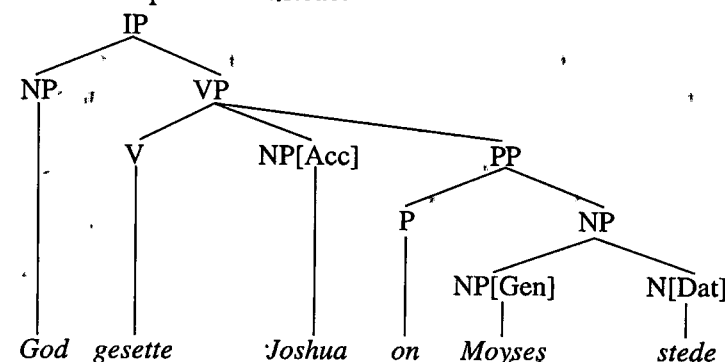The modern preposition *instead of* stems indirectly from the concrete sense of OE *stede* as physical place. In QE we find only *stede* 'place' and a metaphorically extended use expressing substitution (originally of one person for another in a position or role). We will call this the "deputative" type:

(33) & God silf   hine bebirigde & gesette   Iosue   *on*
     & God himself him buried   & appointed Joshua in
     Moyses stede þam mannum to heretogan.
     Moses' place those men:DAT as leader
     'and God himself buried him (Moses) and appointed Joshua in
     Moses' place, as leader of the people.'
     (c. 1000 Aelfric, Letter Sigeweard, p. 31 [HC])

In ME we find this type with the *of*-genitive:

(34) *I schall haue a-nothyre mann jn the stede of Pekoke.*
     'I shall have another man in the place of Peacock.'
     (c. 1450 John Paston II, letter 231])

This early use clearly involves *stede* as a noun, syntactically distinct from the preceding preposition: while we cannot place any words between *in* and *stead* in the modern adverbial sense, OE speakers could do so. Thus we posit the following analysis:

(35)   OE/ME Deputative *on stede.*

```
                        IP
                   /          \
                NP             VP
                        /      |      \
                       V    NP[Acc]    PP
                                      /    \
                                     P      NP
                                          /    \
                                    NP[Gen]    N[Dat]
                God   gesette    Joshua   on   Moyses   stede
```

By the later ME period the substitutive construction begins to be attested as the head not only of animate nouns but also of concrete objects and abstract (nominalized) actions, including NP gerunds, in constructions that suggest it had acquired its subordinator use. These generalized uses of the construction are most frequently found in topicalized position, after the complementizer, if there is one:

(36)   Therfore *in stede of* wepynge and preyeres
       Men moote yeve silver to the povre freres.
       'Therefore instead of weeping and prayers, people should give
       silver to the poor friars.'
       (c. 1388 Chaucer, Prol. Cant. Tales, p. 27 [HC])

By EMdE the contexts have been expanded to include VP gerunds:

(37)   a.   Grim-visaged war hath smoothed his wrinkled front,
            And now *instead of* mounting barbed steeds ...
            He capers nimbly in a lady's chamber.
            (1597 Shakespeare, Richard III I:i.5-8)
       b.   studies ... which will corrupt and hurt *in stead of* doing good.
            (1627 Brinsley, Ludus Literarius p. 45 [HC])
       c.   The senate there, *instead of* being elected for a term of six
            years, and of being unconfined to particular families or for-
            tunes, is an hereditary assembly of the opulent nobles.
            (1787 Federalist papers p. 430)

It seems reasonable to conjecture that at this point *instead of* is functioning as a complex preposition and *instead of NP* has joined the class of SAdvs in the language:[11] it frequently effects contrast between event-denoting clauses rather than person-denoting noun phrases and it can occur clause-initially (37a), between the subject and main verb (37c), and also at the end of VP (37b). We can surmise that it had, by the 17th century and probably significantly earlier, a different analysis from the earlier locative PP, given the fact that modern locative PPs have a distribution more similar to that of VAdvs than SAdvs. Also, locative PPs can participate in nominal embedding (38) and locative inversion (39) while SAdvs cannot:

(38) a. Which umbrella are you looking for?
     b. The umbrella in Loretta's chair
     c. * The umbrella probably
     d. * The umbrella *instead* (of a cane)

(39) In Sonny's place stood a statue of Venus.
     * Probably stood a statue of Venus.
     ?? *Instead* (of his rifle) stood a statute of Venus.

Further evidence that *instead of* had developed adverbial status by the 17th century is provided by the appearance, around this time, of the similarly distributed form *instead*, without an overt PP (presumably via ellipsis of the anaphoric *instead of this*):

(40) a.   and in derision sets
        Upon their tongues a various spirit, to rase
        Quite out thir Native Language, and *instead*
        To sow a jangling noise of words unknown.
        [instead of their native language]
        (1667 Milton, Paradise Lost xii. 51 [OED])
     b. Elizabeth felt herself completely taken in. She had fully proposed being engaged by Wickham for those very dances: — and to have Mr. Collins *instead*! her liveliness had been never worse timed.
        (1813 Austin, Pride & Prejudice, p. 87)
     c. No doubt the hope of praise and liking and services from one's fellowmen, and the fear of forfeiting these and incurring *instead* aversion, ...
        (1874 Sidgwick, Methods of Ethics, p. 166)

In Austen's novels adverbial *instead* is used only in direct speech, indirect speech (40b), or free indirect style and not in narrative, which suggests it was regarded at the beginning of the 19th century as a feature of spoken language. However, it appears in a philosophical work at the end of the century (40c).

While the history of the adverbial *instead*'s sketched above suggests that *instead of NP* underwent C-command Scope Increase during the 17th century, *instead* does not appear in our data base preceding a full clause until the 20th century (41), suggesting that the emergence of the full-fledged SAdv *instead* was gradual:

(41) Michaelis tried to find out what had happened, but Wilson wouldn't say a word — *instead* he began to throw curious, suspicious glances at his visitors
     (1925 Fitzgerald, Great Gatsby p. 164)

Meanwhile, starting in the 17th century, we find *instead of* spread to contexts preceding a participle (42a) and PP (42b, c), thus beginning to take on the behaviors of a conjunction:

(42) a. Would he not think himself mocked, *instead of* taught, with such an account as his?
        (1690 Locke, Essay Human Understanding, np 175, dp 230)
     b. It was very strange that he should come to Longbourn *instead of* to Lucas Lodge.
        (1813 Austen, Pride & Prejudice, p. 128)

More recent types to appear involve finite and non-finite VP coordination: all of the examples in our database involve ellipsis of modals:

(43) a. You are in the devil of a hurry, sir. Are you clear (= "sure") that this haste will not mar, *instead of* make an understanding? I think I am, sir.
        (1794 Godwin, Caleb Williams, IV, p. 28)
     b. It must be so frightful to have to put things on in order to look better, *instead of* to strip things off.
        (1962 Drabble, A Summer Bird Cage [Quirk et al. 1985: 661])
     c. "Mr. Rose," US. District Judge Arthur Spiegel politely asked the man called "Pete" by most people, "are you in pain because of your leg? If so, you can sit *instead of* stand."
        (July 19 1990 UPI)

The data outlined here suggest that the conjunction *instead of*, like the adverbial *instead (of)* spread gradually, step by step to more and more constructions. It is likely that conjunctive *instead of* arose directly out of the deputative *instead of* type in (33), once inanimate nouns had become available in this construction, rather than out of adverbial *instead*. The deputative construction typified by *God appointed Joshua in Moses' stead* had persisted alongside the adverbial construction (it is now largely replaced by *in (the) place of Moses*). There is a semantically plausible reanalysis for the deputative → conjunctive transition, motivated simply by loss of the constraint that the entity X existed in the position before Y was substituted.

Regarding "hallmarks of grammaticalization", we have presented evidence for several syntactic changes. Each of these syntactic changes was clearly associated with a semantic change (see Schwenter and Traugott 1995 for treatment of developments within deputative *instead of* and the emergence of substitutive *instead of*). Moreover, Schwenter and Traugott show that modern day *in place of* has a distribution very similar to that of an earlier, intermediate, stage of *instead of* when the construction had locative senses, social role replacement senses, and inanimate role replacement senses, but not gerund or tensed verb phrase uses. Thus, we also have evidence for a grammatically incremental development here.

In a brief passage, Ramat (1992), characterizes the development of adverbial *instead* as a case of "degrammaticalization" or return to the lexicon. However, this ignores the properties just mentioned, and the fact that *instead* has no characteristics of major class lexical items. The history of all three *instead* constructions is fully consistent with processes of grammaticalization, except that adverbial *instead (of)* violates the postulated scope reduction.

Based on the analyses we presented above, and using a modified version of example (36a), we can make the following DSC for the adverbial *instead of* NP:

(44) **Diachronic String Comparison.** Deputative to adverbial *instead of.*
a. [IP [IP Men [VP yeve [NP silver] [PP <u>in stede of wepynge</u>]]]]
b. [IP [IP Men [VP give [NP silver]]] [PP <u>instead of weeping</u>]]

In (44a), men are being asked to "give silver" and not "give weeping" (consistent with Chaucer's example (36a)), while in (44b), men are being asked to "give silver" rather than "engage in the act of weeping". Here we have scope increase of the prepositional phrase headed by *in stede/instead*.

Thus this case supports the C-command Scope Increase hypothesis.

As indicated above, we assume that conjunctive *instead of* arose from deputative *instead of* rather than from adverbial *instead (of* NP). This suggests the following DSC:

(45) **Diachronic String Comparison.** Deputative to Conjunctive *instead of.*
a. [IP I [VP have [NP a-nothyre] [PP <u>in in the stede of</u> Pekoke]]]
b. [IP I [VP have [NP [NP another] instead-of [NP Pekoke]]]]

Unlike the adverbial case, this does not exhibit C-command Scope Increase. In fact, one might argue that it involves C-command Scope Decrease since the PP *in the stede of Pekoke* in (45a), C-commands the NP which, *instead-of Pekoke* becomes a subpart of in (45b). However, the analyses may be misleading. Larson (1981) and Pesetsky (1996) present evidence from negative polarity environments, pronoun binding, and reflexive binding that the second constituent following a double complement verb (like *have* NP PP) is C-commanded by the first argument. Under such an analysis, there is a clear sense in which *in (the) stede/instead-of Pekoke* has "moved up" in the structure, although some elaboration of the notion of C-command may be required to make this case consistent with the other cases we have examined. We will not pursue this elaboration here. We conclude, thus, that the development of conjunctive *instead of* is a possible exception to C-command Scope Increase, while the development of adverbial *instead (of* NP) is clearly consistent with it.

3.4. Anyway

We turn now to one example of a frequently attested syntactic development of a clause-internal adverb to a sentence adverb and sometimes ultimately a discourse marker. Hanson (1987) discussed the development of manner adverbs like *probably* and *possibly* into epistemic sentence adverbs; Powell (1992) showed how a whole class of "stance" adverbs (Biber and Finegan 1988) including *actually, generally, really* likewise arose from clause-internal adverbial constructions; and Bullen (1995) investigated the development of clause-internal adverbs such as *once, still, besides* into clause connectives. Traugott (1995, Forthc.) discusses the development of clause-internal *indeed, in fact, besides, anyway* etc. into epistemic sentence adverbs that express attitude to the truth-fullness of the proposition, and then into discourse markers; Brinton (1996) discusses a significantly wider set of similar changes. The

focus of many of these studies has been the semantics and pragmatics of the changes, and their significance for grammaticalization. However, there are clearly important syntactic structural changes as well.

In Traugott (1995, Forthc.) the same kinds of syntactic criteria are outlined as were given in Section 3.3. to distinguish between VAdvs and SAdvs. VAdvs typically occur after the verb, SAdvs, either clause-initially (where they follow the Complementizer, if there is one) or within the auxiliary or (in some cases) clause-finally. An additional category, Discourse Markers (DMs), is discussed. DMs are items that "bracket" units of discourse (Schiffrin 1987). In a more restrictive definition of discourse markers building on Schiffrin's subclass of "discourse deictics", Fraser has defined discourse markers as the class of pragmatic markers that "signal a comment specifying the type of sequential discourse relationship that holds between the current utterance — the utterance of which the discourse marker is a part — and the prior discourse" (Fraser 1988: 21-22), and that is the definition used here. Whereas SAdvs have content-meaning, and are subject to truth conditions, DMs are primarily pragmatic in nature and serve to signal the speaker's attitude about the discourse relationship between what preceded and what follows.[12] More importantly for our immediate purposes here, DMs have structural properties. Typically they are disjunctive, requiring comma intonation, and they occur externally to SAdvs, as in:

(46)   a.   <u>So</u>, probably you don't approve.
        b.   I like it. <u>Indeed</u>, I love it.

Historically, it can be shown that many DMs in English derive from VAdvs, often via an SAdv stage. That they arise last is totally unexpected given the traditional view of grammaticalization as a condensing and fixing machine, since they not only have the widest syntactic scope but they also can occur in multiple positions in the clause, and furthermore, they require comma intonation. These characteristics, and the fact that they have primarily pragmatic rather than content meaning, have led some researchers to question whether adverbs with DM function can be considered as cases of grammaticalization. For example, in synchronic studies of adverbials like *y'know* that function as discourse markers in the broad sense first used by Schiffrin (1987), not the narrower one used here, Erman and Kotsinas (1993) label them cases of "pragmaticalization", and Vincent, Votre, and LaForest (1993) label them (synchronically) as cases of "post-grammaticalization". However, they are

syntactically and intonationally constrained, and even if not fully integrated into the clause, must be considered "part of the grammar of a language" (Fraser 1988:32). Furthermore, they show all the hallmarks of grammaticalization other than structural scope and variability reduction.

Here we discuss *anyway* in some detail from a syntactic perspective. Syntactically, *anyway* has at least two distinct uses in contemporary English, which we will label according to their senses without meaning to imply any particular semantic/pragmatic analysis thereby (for a detailed study of uses in Texas English, see Ferrara 1997). There is a concessive *anyway* (C-*anyway*) which means something similar to 'nonetheless', and appears to be restricted to the right periphery of a VP:

(47)   a.   In one instance a resterilizing service returned a pacemaker to Walton labeled "Not For Human Implant," but he sold it *anyway* and it was implanted in a patient.
            (23 June 1992 UPI)
        b.   They cooked the fish *anyway*, probably. (enclitic *anyway*)
        c.   They cooked the fish, probably/**anyway*. (enclitic *anyway*)

There is also a topic-resuming *anyway* (TR-*anyway*) which is used to signal a return to a previous topic and serves as a DM (48):

(48)   a.   So uhm — *anyway* just think about this offer.
            (London Lund Corpus, line 4,200)
        b.   *Anyway*, probably the enemy is surviving on birds and squirrels.

TR-*anyway* can occur in many syntactic positions, including before SAdvs, but it must be surrounded by pauses wherever it occurs. We again extend McCawley (1988)'s table of adverbs, to compare its distribution with other adverbials:

(49)   Distribution of PDE TR-*anyway*, C-*anyway*, and M-*any way* in comparison to various adverbs. (based on the table given by McCawley 1988 (p. 632)).

	□ The sailors	□ will not	□ have	□ scanned the horizon	□,	□.
perhaps	OK	OK	OK	??	*	OK
intentionally	*	*	OK	OK	OK	*
completely	*	*	?	OK	OK	*
TR anyway	OK	OK	OK	OK	*	OK
C anyway	*	*	*	*	OK	*
M in any way	*	*	??	??	OK	OK

In addition, there is also a phrase *any way* meaning 'in any manner, by any means', which contrasts with these *anyway*'s in permitting material to intervene between *any* and *way*, and functions like a manner adverb (we refer to it as M-*anyway*):

(50)   She did it *(in) any (old) way* she pleased.

We hypothesize that M-*anyway* can be characterized as in (51a), and C-*anyway* as in (51b). We are not aware of any complete generative analysis of DM's, but note they have some syntactic properties in common with the leftmost "E-node" posited for expressive adjuncts by Banfield (1973) and Emonds (1985), and recently argued for external topics in Mayan by Aissen (1992).[13] We therefore propose the tentative analysis for TR-*anyway* in (51c).[14]
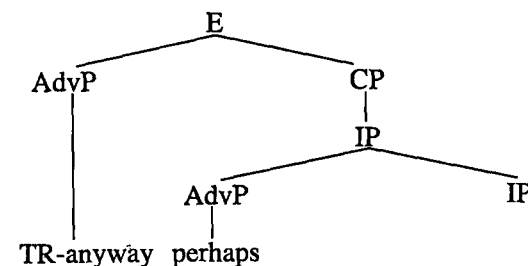
(51) a. PDE M-*anyway*.
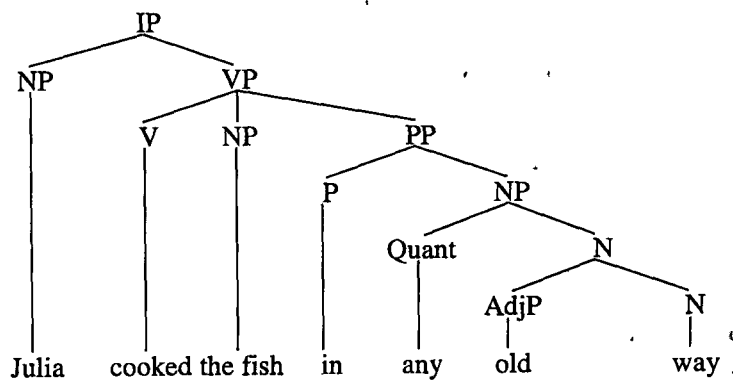
b. PDE C-*anyway*.
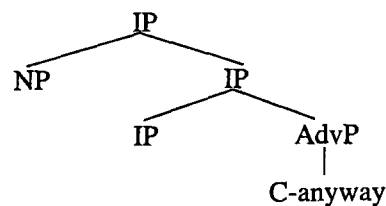
c. PDE TR-*anyway*.

We now turn to an examination of the historical development of TR-*anyway*, C-*anyway*, and M-*anyway* (elaborating on Traugott Forthc.). As may be surmised from their form, the adverbial *anyway*'s ultimately derive from a directional construction:

(52) *hi ða æfter gereorde on heora <u>weg</u> ferdon.*
     they then after meal   on their way went.
     (c. 1000 Aelfric Hom 11, 10, 84.113 [DOE])

As an adverbial phrase, directional *any way* (without other modifiers) is often semantically ambiguous between path, manner, and extent. Guessing from its semantics and the lack of any evidence to the contrary, ME M-*any way* was probably a VP internal adjunct like OE directional *anyway* and PDE M-*anyway*:

(53) *Sche wolde 3et excusyn hir yf sche myth <u>in any wey</u>.*
     She wanted still excuse:INF her if she   might in any way
     'She still wanted to excuse herself if she could in any way.'
     (c. 1438 Kempe p. 1,227 [HC])

This adverbial phrase appears in the early 17th century unambiguously in the meaning of extent. The contexts are always negatives as in (54), quantified indefinites or other polarity items such as conditionals:

(54) that they bee not *any way* overloaded or discouraged.
     (1627 Brinsley, Ludus Literarius, p. 12 [HC])

The textual data show possible uses of C-*anyway* 'nonetheless' appearing first in the mid 17th century. In this meaning it is also at first used only in negative, conditional or indefinite contexts.

(55) a. For the word heir does not itself imply the children, or nearest kin of a man; but whomsoever a man shall *any way* declare, he would have to succeed him in his estate.
(1651 Hobbes, Leviathan LVI p. 182)

Note that this non-final use of C-*anyway* is ungrammatical in current English. It is probably not fully developed as a concessive at this stage. The clause-final concessive appears first in the mid 19th century:

(55) b. "I don't know whether the story about Lady Laura is true."
"He was always there... The mischief he has done is incalculable. There's a Conservative sitting in poor Kennedy's seat for Dunross shire."
"That might have been the case *anyway*."
"Nothing could have turned Kennedy out."
(c. 1848 Trollope, *Phineas Redux*)

We make the assumption that these 18th and 19th century C-*anyway*'s, like 20th century C-*anyway*, were VP adverbs.

The first clear examples of TR-*anyway* in our database are shown in (56). Each involves a return after a digression.

(56) a. It's queer; very queer; and he's queer too; aye, take him fore and aft, he's about the queerest old man Stubb ever sailed with. How he flashed at me! — his eyes like powder-pans! is he mad? *Anyway* there's something on his mind, as sure as there must be something on a deck when it cracks.
(1851 Melville, Moby Dick, p. 125)

b. He has ... possibly the feeling that he has 'balked' me — or that I am a detective from the enemies' camp. *Anyway*, he did not encourage conversation.
(1891 Beatrice Webb, Letters)[15]

Similar histories are outlined in the OED for related forms like *anyways* and *anyhow*.

The *anyway* episode also shows the three "hallmarks of grammaticalization". We have argued for a syntactic contrast between the original directional/manner *(in) any way*, the subsequent C-*anyway*, and the most modern TR-*anyway*. Traugott (Forthc.) identifies semantic and pragmatic differences between these three types and also notes that the loss of the preposition *in*

preceded the first evidence for C-*anyway* by at least one hundred years (thus exhibiting structural gradualness). Furthermore, as is typical of most recently grammaticalized elements (see Kroch 1989b; Bybee, Perkins and Pagliuca 1994; Tabor 1994a), TR-*anyway* is by far the most frequent type of *anyway* (Ferrara 1997).

We assume that Directional *anyway*, Manner *anyway*, and Extent *anyway* have been V-adverbs since their inception. There may have been subtle syntactic changes accompanying the semantic development from one to the next, but we do not have enough data on this part of the episode to assess it effectively. The developments from M-*anyway* to C-*anyway*, and from C-*anyway* to TR-*anyway* , on the other hand, clearly involve C-command Scope Increase. Using a plausible simplification of example (53) above, and following our analyses of M-*anyway* and C-*anyway*, we can make the following DSCs:[16]

(57) Diachronic String Comparison.
(a) M-*anyway*, (b) C-*anyway*, and (c) TR-*anyway*.
a.   [IP Sche   [VP excusyth [NP hir]   [PP in any wey]]]
b.   [IP She [VP   [VP excuses · [NP herself]   ] anyway]]
c.   [E   [IP She   [VP excuses [NP herself]   ]   ] anyway]

Clearly, the transition from M-*anyway* to C-*anyway* involves scope increase, as does the shift from C-*anyway* to TR-*anyway*.[17]

In sum, the examples of *instead* and *anyway* provide evidence that although discourse use is without question an issue in the development of the different syntactic and semantic functions of the constructions in question, they do not exemplify the kinds of changes from "loose" to "tight" syntax that Givón (1979) and others seem to have had in mind when they characterize grammaticalization as an instance of discourse > syntax. In each case a construction originated in a syntactically structured context. Through use in discourse, most particularly relatively fixed formulae, the constructions acquired new meaning (*in stede* 'in the location of' > 'in role of'; *any way* 'any path' > 'any extent'). Once these semantic changes had occurred, the constructions became eligible for use in topicalizations and other movement rules, and eventually for base-generation as SAdvs (*instead*) or DMs (*anyway*), etc. Full NP status and topicalization are and have been available for the full lexical nouns from which these forms developed throughout the history of English, e.g.:

(58) As for his deeds, they did not match his intentions.

but the forms and uses discussed entered the language at different times and in an order which appears to be entirely generalizable:

(59) VAdv > SAdv (> DM)

The later constructions are disjunct in the case of DMs, and therefore do not illustrate tighter syntax; each stage involves C-command Scope Increase.

4. Conclusions

4.1. Summary

We started by noting that structural unidirectionality, as usually interpreted, seems troubled by some hard-to-dismiss counterexamples. We went on to observe that there is a need for careful formalization of claims about unidirectionality. We proposed one system for doing this: diachronic string comparison, combined with a synchronic definition of scope-change based on C-command. Using our formulation to give one explicit interpretation to Lehmann's scope decrease claim, we showed that the latter claim is clearly violated in a number of cases (consistent with the suggestions of Joseph and Janda 1994; Janda 1995; Campbell 1991, and others cited in Section 1). We noted that instead of Scope Decrease, these cases exhibited C-command Scope Increase.

4.2. The plausibility of Scope Increase as a generalization.

Most of the evidence we have presented here appears to support a generalization about structural unidirectionality that is opposite to the generalization that most previous research on the topic has considered. We think that the number of cases consistent with this hypothesis makes it well worth investigating further. Some others of a different type that are particularly relevant include the changes from monoclausal → biclausal structures, and subordinate clause → independent clause cited in Section 1. However, we acknowledge that the C-command Scope Increase Hypothesis is not likely to prove universal—the example of the development of conjunctive *instead of* has shown this already.

It remains to test the hypothesis against changes that are often considered prototypical of grammaticalization, for example, the development of auxilia-

ries. Although there is no question that morphophonological bonding is characteristic of many processes of auxiliation (see Bybee 1985; Bybee, Perkins and Pagliuca 1994), recent syntactic analyses of the syntax of auxiliation raise questions about such claims as: "An auxiliary of the 'have' or 'be' type starts as a main verb which takes a nominalized VP as a complement; that is, it starts at the clause level. When it has become an auxiliary, it functions at the VP level" (Lehmann 1995[1982]:144). It is unquestionably true that from a morphological perspective inflectional (e.g., tense) affixes on verbs descend from syntactically independent periphrastic forms (e.g. *dicere habeo* 'say:INF have:1Pers' > Fr. *dirai* 'say-FUT:1Pers'), arguably via a clitic stage. Syntactically, however, this set of changes is more complex. Roberts (1993) analyses the early stage of this development in Sardinian (in which *aio* corresponds to *habeo*) as:

(60) **Diachronic String Comparison.**
Latin perfect to early Romance future (based on Roberts 1993: 235)
a. [IP [VP   *dicer* t_i]   *habeo_i*]
b. [IP [VP/TP *dicere*   ]   ^*aio*   ]

This analysis demonstrates C-command Scope Increase, provided we evaluate the syntactic changes at the level of D-structure. While it is difficult to align the kinds of shells we have been using with the various levels into which the once unitary INFL node have been split (AgrP, TP, etc.), it is worth noting that Roberts' primary proposed mechanism for grammaticalization is "movement chain elimination", which involves eliminating the D-structure to S-structure movement in favor of base-generation in the S-structure position. Since most movement is upward in parse-tree structure, this hypothesis looks somewhat consistent with a scope-increase viewpoint, under the assumption of comparison at D-structure. Clearly, though, more work needs to be done on these cases before a conclusion can be reached.

Even if the syntactic changes characteristic of auxiliation were to evidence something like C-command Scope Increase on a systematic basis cross-linguistically, it must still be acknowledged that not all changes can be accounted for in terms of morphological bonding and syntactic Scope Increase. For example, the expressions *sort of* and *kind of* (*sorta, kinda*) have developed degree adverbial uses that contrast with historically prior (and still co-existent Noun-Prep uses (Tabor 1994a, 1994b). Starting in the early 19th century, the following comparison becomes possible:

(61) **Diachronic String Comparison.**

Noun-Preposition' to Degree Modifier *sort of.*

a. [NP a [N <u>sort</u> [PP <u>of</u> [NP [AdjP   [Adj breezy]] [N day]]]]]

b. [NP a   [NP [AdjP <u>sort-of</u> [Adj breezy]] [N day]]]

Tabor presents quantitative evidence suggesting that constructions of this form played a central role in the development of the new usage. Here, however, the two items that have changed their syntactic status, *sort* and *of*, have decreased their C-command scope. We know of no way to distinguish this case from the others we have considered on independent grounds, so it remains a challenge to the Scope Increase Hypothesis. There are other reasons as well to be cautious about the result at this point. For one, our claim is somewhat limited in its purview, because we must be able to perform diachronic string comparison in order to evaluate it. This means that there may be some changes that show the "hallmarks of grammaticalization" that we identified in Section 2, but for which we cannot say that constructional scope either increased or decreased.

We do not, however, recommend abandoning the investigation of structural unidirectionality in the study of grammaticalization. The exact nature of individual changes needs to be understood, and the question remains to be answered whether there are generalizations to be made about particular classes of change.

Furthermore, there is a diachronic-theoretical reason to prefer the C-command Scope Increase Hypothesis over scope-decrease hypotheses: it is more consistent with independently motivated evidence for unidirectionality in pragmatics/semantics and statistical distributional change. In particular, the change from being a marker of something in the world (referential) to being a marker of something in the language (non-referential) is expected to increase the scope of a formative since functional (language-based) markers generally mark whole classes of lexical (world-based) markers. The change from being less abstract to more abstract is also naturally correlated with grammatical scope because more abstract meanings apply to a wider variety of circumstances. The change from being a low frequency word to a high frequency word is aligned with Scope Increase in our sense because increasing the set of cooccurrence possibilities of an item tends to increase the number of occurring situations in which it is used. There is also a reason to expect a correlation between greater C-command scope and less phonetic substance, for most functional morphemes are short. This last, somewhat noisy generalization,

may be due to the fact that an efficient code (that is, one that minimizes the average message length) should use less bandwidth for more frequent messages (e.g., Hamming 1980).

Given these overarching reasons to be interested in Scope Increase claims, and the large number of cases consistent with it, we think the hypothesis is worth looking into further.

4.3. On the putative isomorphism between synchronic and diachronic "grammaticalization clines."

One of the methodological assumptions of much synchronic work from the perspective of grammaticalization has been that historical development and synchronic position on a cline of grammaticality will in general coincide, in other words, that there is isomorphism between historical development and synchronic relations among polysemous items.

This assumption may have its more distant origins in the hypothesis that ontogeny recapitulates phylogeny (for a summary of views since the 19th century, see Baron 1977; Harris and Campbell 1995:29-30 trace the idea back to the 17th century). Evidence for the hypothesis that ontogeny recapitulates phylogeny in language acquisition has become less and less convincing, leading one of its major original proponents to currently find the parallels illusory, (see Slobin 1994, reassessing Slobin 1977). The assumption of a synchronic-diachronic isomorphism in grammaticalization has its more immediate origins in Givón's "Today's morphology is yesterday's syntax", and his hypothesis cited in (1) in Section 1. Givón's proposals were widely explored, not only in historical syntax but also in semantics (e.g., Bybee 1985; Heine, Claudi and Hünnemeyer 1991; several papers in Traugott and Heine 1991). It promoted many studies of internal reconstruction (e.g., Traugott 1988) and cross-linguistic lexical and typological work (e.g., Bybee, Perkins and Pagliuca 1994; Heine et al. 1993). However, it was early shown that putative syntactic matches (e.g.; OV > VO, as proposed in Givón 1971) can be falsifiable because of the phenomenon of second position and other properties of cliticization (Steele 1977). Also, putative semantic matches can be falsified if the relationship between core or salient and derived meanings changes over time (Michaelis 1993).

A related kind of isomorphism is proposed by Lehmann (1995[1982]), and also Heine, Claudi and Hünnemeyer (1991): that between diachronic

change and typological panchrony. Lehmann's panchronic approach permits typological work to be done locating typologically but not necessarily historically related elements on a "grammaticalization scale". Of this scale Lehmann says it is "a theoretical construct along which functionally similar signs types [sic] are ordered according to their degree of grammaticality" (Lehmann 1995[1982]: 25), as measured by six structural paradigmatic and syntagmatic parameters. He also says that the diachronic approach permits historically related items to be measured on a "grammaticalization channel", defined as "a frequently recurring route which signs with a given function may take when they are grammaticalized in language change" (ibid). This distinction between grammaticalization scale and grammaticalization channel is extremely useful. However, by Lehmann's own admission, he sometimes uses them "interchangeably" (ibid.). Indeed it is the confusion over the two that leads, in part, to Lehmann's claim cited in section 3.2 about the gerund in English. His conflation of the two terms seems to presuppose that his synchronic cline is always lined up with the diachronic order-of-emergence facts. But, as we noted in the case of the gerund, this is false.

The example of the gerund highlights the importance of testing any hypothesis regarding matches. Historical evidence is the main testing ground. When no historical evidence is available, reconstruction based on an assumption of unidirectional isomorphism especially in the domain of Scope Decrease must be considered hypothetical, not factual, and should be framed as a testable hypothesis. Bybee, Pagliuca, and Perkins, for example, argue that form-meaning correlations based on a principle of semantic relevance of one element to another (which predicts closeness to the stem of a verbal affix) intersect form-meaning correlations based on degree of grammaticalization (which predicts degree of bonding); such that: "(w)e would then expect grams that are older — i.e., that have undergone more development — to be closer to the stem, more fused and shorter or more reduced in segmental material than younger grams of equal relevance" (Bybee, Pagliuca, and Perkins 1991:33). This is a properly testable hypothesis about matches.

4.4. The limits of grammaticalization

Lehmann and others have implied that unidirectionality involving structural condensing is an appropriate criterion for identifying a class of language change phenomena that form a natural topic of study (from not grammatical to

grammatical, or from less grammatical to more grammatical, to paraphrase Kuryłowicz 1965). We have argued, however, that the notion of structural compacting, including scope-reduction, has been too vaguely articulated up to now. Because of this, we propose using other criteria — semantic and syntactic reclassification, increase in abstraction and non-referentiality, gradual step-by-step change — to identify the phenomenon of grammaticalization. We also propose taking structural unidirectionality as a hypothesis to be tested. We have argued for the viability of this approach by showing how it is possible to define an explicit unidirectionality hypothesis and test it on a wide range of cases. Indeed, our C-command Scope Increase Hypothesis, which has come against relatively few exceptions so far, makes a claim that is opposite to that of the structural unidirectionality hypotheses and assumptions that have previously been proposed. We take this as evidence that structural unidirectionality (in any formulation) is not an appropriate presupposition at this stage in the development of the field. We do not mean to imply that no formulation will ever become a reasonable background assumption, but we believe that it is crucial — indeed it is one of the most fascinating challenges in the field — to establish the plausibility of an explicit theory before making an assumption along these lines. We offer the present paper as a step in that direction.

NOTES

1.   Elizabeth Traugott thanks Roger Lass for inspiration derived from lengthy correspondence about various aspects of unidirectionality.

2.   If one adopts the analysis of Kemenade (1987); Kroch (1989b); Pintzuk (1991), and others for OE, then *wille* in (6a) moves up to the INFL position (the lexical daughter of I') in the surface structure. On this view, our claim about C-command Scope Increase is still tenable, but the comparison of scopes must be applied to the D-structure representations of strings (i.e., before movement), and we must assume that the modern modals are base-generated in the INFL position.

3.   The results of Kroch (1989a, 1989b) indicate that one must use some caution in assessing the gradualness of a change which can only be observed through the medium of historical texts: after all, it may be that some uses of a new construction fail to appear in the texts at an early date simply because they are rarely used. However, we can use several methods to avoid this pitfall: (1) if the texts show an incremental progression for construction X, and we find that there is a current construction Y, with similar semantics that is still, based on negative felicity and/or grammaticality judgments, in one of the earlier stages of X, then we can be fairly confident in the chronology of the historical record; (2) as Kroch

(1989b) notes, if we find that the texts show an ultimately low-frequency usage appearing earlier than a high-frequency usage, then it is likely that the luck of the draw reflects the real chronology; (3) if a construction or formative starts out unattested, then becomes significantly attested during the transition period, and finally becomes ungrammatical again, we can be fairly confident of an intermediate grammatical stage.

4. We do not exclude the possibility, however, that a word may gradually reduce its range of cooccurrence possibilities. The reduction of English *brethren* from meaning brothers in general to members of certain male religious groups was probably a gradual change but it did not result in a shift in grammatical status, only in lexical subclass.

5. The main periods of English are: Old English (OE) 700-1150, Middle English (ME) 1150-1500, Early Modern English (EMdE) 1500-1750, Modern English (MdE) 1750-.
    Our main data bases are:
    a) *The Dictionary of Old English Corpus in Electronic Form* (Cameron et al. 1981) (DOE).
    a) *The Helsinki Corpus of the English Language* (see e.g., Rissanen et al. 1993) (HC)
    b) The on-line *Oxford English Dictionary* (OED)
    c) *The Middle English Dictionary* (MED)
    Stanford Academic Text Services made access to these and a variety of other computerized corpora possible.

6. Zwicky (1987) argues that the modern -*s* is still lexically combined with its host because of examples like *The boy who sold only a few apples/*apples's hat* in which the plural marking on the embedded noun blocks the appearance of the possessive marker on the subject noun phrase.

7. The reason for this unclarity is briefly mentioned in 4.3.: interchangeable use of "scale" (synchronic term) and "channel" (diachronic term).

8. At the same time, the spelling of the present participle ending -*ende/-inde* also changed to -*ing*.

9. The boxes designate potential positions for adverbials; the final position is reserved for "parenthetical, after-thought" uses of adverbials, as in *She drew the sculpture well, probably / *intentionally / *completely*. In the afterthought uses, there is high stress on the preceding phrase while the adverb has low stress.

10. In this and the following examples, the *instead of* version is from the United Press International Top Stories on the date given; alternatives have been added.

11. SAdvs have been attested in English since its inception (see Swan 1988).

12. Blakemore (1987) introduced the useful term "procedural" for such functions.

13. This suggestion was originally made in Mendoza-Denton's (1994) study of the development of topic-specifying *concerning*-NP constructions.

14. A fuller analysis would specify additional structural analysis for the positions which *anyway* can enter.

15. Thanks to David Denison for making available *A Corpus of Late Modern English Prose* (Department of English, University of Manchester, compiled by David Denison with Graeme Trousdale and Linda van Bergen, 1994), from which this example comes.

16. (57) abstracts away from changes in the syntactic position of *anyway*.

17. The hypothesis that TR-*anyway* developed from C-*anyway* rather than M-*anyway* is pragmatically motivated in terms of a shift from contentful counter-expectation to pragmatic metatextual (DM) counter-expectation (see also the developments of *indeed, in fact, after all*, etc.).

REFERENCES

Abney, Stephen P. 1987. *The English Noun Phrase in its Sentential Aspect*. Unpublished Ph.D. dissertation, MIT.

Aissen, Judith. 1992. "Topic and focus in Mayan." *Language* 68: 43-80.

Banfield, Ann. 1973. "Narrative style and the grammar of direct and indirect speech." *Foundations of Language* 10: 1-39.

Baron, Naomi S. 1977. *Language Acquisition and Historical Change*. New York: North-Holland.

Biber, Douglas and Edward Finegan. 1988. "Adverbial stance types in English." *Discourse Processes* 11: 1-34.

Bickerton, Derek. 1984. "The language bioprogram hypothesis." *The Behavioral and Brain Sciences* 7:173-221.

Blakemore, Diane. 1987. *Semantic Constraints on Relevance*. New York: Blackwell.

Brinton, Laurel J. 1990. "The development of discourse markers in English." In Jacek Fisiak (ed.), *Historical Linguistics and Philology*, 45-71. Berlin: De Gruyter.

Brinton, Laurel J. 1996. *Pragmatic Markers in English: Grammaticalization and Discourse Functions*. Berlin: Mouton de Gruyter.

Bullen, James. 1995. "The histories of English connectives: A study of the paths and processes by which words have acquired connective uses in Middle and Modern English." Honors subthesis, Australian National University.

Bybee, Joan L. 1985. *Morphology: A Study of the Relation between Meaning and Form*. Amsterdam/Philadelphia: John Benjamins.

Bybee, Joan L. and William Pagliuca. 1985. "Cross-linguistic comparison and the development of grammatical meaning." In Jacek Fisiak (ed.), *Historical Semantics and Historical Word Formation*, 59-83. Berlin: de Gruyter.

Bybee, Joan L., William Pagliuca, Revere D. Perkins. 1991. "Back to the future." In Traugott and Heine (eds), Vol. II: 17-58.

Bybee, Joan, Revere Perkins, and William Pagliuca. 1994. *The Evolution of Grammar: Tense, Aspect, and Modality in the Languages of the World*. Chicago: University of Chicago Press.

Cameron, Angus, Ashley Crandell Amos, Sharon Butler, Antonette diPaolo Healey. 1981. *The Dictionary of Old English Corpus in Electronic Form*. University of Toronto: Dictionary of Old English Project.

Campbell, Lyle. 1991. "Some grammaticalization changes in Estonian and their implications." In Traugott and Heine (eds), Vol. I: 285-299.

Chomsky, Noam. 1965. *Aspects of the Theory of Syntax*. Cambridge, MA: MIT Press.

———. 1970. "Remarks on nominalization." In Rodney A. Jacobs and Peter S.

Rosenbaum (eds), *Readings in English Transformational Grammar*, 184-221. Waltham, MA: Ginn.

Curme, George O. 1912. "The history of the English gerund." *Englische Studien* 45: 249-280.

Dasher, Richard. 1995. *Grammaticalization in the System of Japanese Predicate Honorifics*. Unpublished Ph.D. Dissertation, Stanford University.

Davies, Mark. 1994. "Parameters, passives, and parsing: Motivating diachronic and synchronic variation in Spanish and Portuguese." *Parasession on Variation and Linguistic Theory, Chicago Linguistics Society* 30: 46-60.

Einenkel, Eugen. 1913. "Zur Geschichte des englischen Gerundiums." *Anglia* 37: 382-392.

Emonds, Joseph. 1971. "The derived nominals, gerunds and participles in Chaucer's English." In Braj B. Kachru, Robert B. Lees, Yakov Malkiel, Angelina Pietrangeli, and Sol Saporta (eds), *Issues in Linguistics: Papers in Honor of René Kahane*, 185-198. Urbana: University of Illinois Press.

Emonds, Joseph. 1985. *A Unified Theory of Syntactic Categories*. Dordrecht: Foris.

Erman, Britt and Ulla-Britt Kotsinas. 1993. "Pragmaticalization: The Case of *ba!* and *you know*." *Studier i Modern Språkvetenskap*. Acta Universitatis Stockholmiensis, New Series 10, 76-93.

Ernst, Thomas Boyden. 1984. *Toward an Integrated Theory of Adverb Position in English*. Indiana University Linguistics Club.

Evans, Nick. 1988. "Odd topic marking in Kayardild." In Peter Austin (ed.), *Complex Sentences in Australian languages*, 219-266. Amsterdam/Philadelphia: John Benjamins.

Ferrara, Kathleen. 1997. "Form and function of the discourse marker *anyway*: Implications for discourse analysis." *Linguistics* 35: 343-378.

Fischer, Olga. 1992. "Syntax." In Norman Blake (ed.), *The Cambridge History of the English Language: Vol. II 1066-1476*, 207-408. Cambridge, UK: Cambridge University Press.

Fraser, Bruce. 1988. "Types of English discourse markers." *Acta Linguistica Hungarica* 38:19-33.

Givón, T. 1971. "Historical syntax and historical morphology: An archeologist's field trip." Papers from the *Chicago Linguistic Society* 7: 394-415.

———. 1979. *On Understanding Grammar*. New York: Academic Press.

———. 1991. "Serial verbs and the mental reality of 'Event': Grammatical vs. cognitive packaging." In Traugott and Heine (eds), Vol. I: 81-127.

Greenberg, Joseph H. 1991. "The last stages of grammatical elements: Contrastive and expansive desemanticization." In Traugott and Heine (eds), Vol. I: 301-314.

Haegeman, Liliane. 1994[1991]. *Introduction to Government and Binding Theory*. Oxford: Blackwell.

Hagège, Claude. 1993. *The Language Builder: An Essay on the Human Signature in Linguistic Morphogenesis*. Amsterdam/Philadelphia: John Benjamins.

Hamming, Richard W. 1980. *Coding and Information Theory*. Englewood Cliffs, NJ: Prentice-Hall.

Hanson, Kristin. 1987. "On subjectivity and the history of epistemic expressions in English." Papers from the *Chicago Linguistic Society* 15: 23-52.

Harris, Alice C. and Lyle Campbell. 1995. *Historical Syntax in Cross-Linguistic Perspective*. Cambridge, UK: Cambridge University Press.

Heine, Bernd, and Mechthild Reh. 1984. *Grammaticalization and Reanalysis in African Languages*. Hamburg: Helmut Buske.

Heine, Bernd, Ulrike Claudi, and Friederike Hünnemeyer. 1991. *Grammaticalization: A Conceptual Framework*. Chicago: University of Chicago Press.

Heine, Bernd, Tom Güldemann, Christa Kilian-Hatz, Donald A. Lessau, Heinz Roberg, Mathias Schladt, and Thomas Stolz. 1993. *Conceptual Shift: A Lexicon of Grammaticalization Processes in African Language*. Afrikanistische Arbeitspapiere 34/35. University of Cologne: Institut für Afrikanistik.

Hopper, Paul J. and Elizabeth Closs Traugott. 1993. *Grammaticalization*. Cambridge, UK: Cambridge University Press.

Houston, Ann. 1989. "The English gerund: Syntactic change and discourse function." In Ralph W. Fasold and Deborah Schiffrin (eds), *Language Change and Variation*, 173-196. Amsterdam/Philadelphia: John Benjamins.

Jackendoff, Ray. 1972. *Semantic Interpretation in Generative Grammar*. Cambridge, MA: MIT Press.

———. 1977. *X-bar Syntax. A Study of Phrase Structure*. Cambridge, MA: MIT Press.

Janda, Richard D. 1980. "On the decline of declensional systems: The overall loss of OE nominal case inflections and the ME reanalysis of *'-es*-as, *his*." In Elizabeth Closs Traugott, Rebecca Labrum and Susan Shepherd (eds), *Papers from the 4th International Conference on Historical Linguistics*, 243-252.

———. 1995. "From agreement affix to subject 'Clitic' — and Bound Root: *-mos > -nos* vs. *(-)nos(-)* and *nos-otros* in New-Mexican and other Regional Spanish Dialects." Papers from the *Chicago Linguistic Society* 31: 118-139.

———. 1996. "The alledged unidirectionality of grammaticalization vs. the discontinuity of language transmission." Paper delivered at the LSA Annual meeting, San Diego.

Jeffers, Robert J. and Arnold M. Zwicky. 1980. "The evolution of clitics." In Elizabeth Closs Traugott, Rebecca Labrum and Susan Shepherd (eds), *Papers from the 4th International Conference on Historical Linguistics*, 221-231. Amsterdam/Philadelphia: John Benjamins.

Joseph, Brian D. and Richard D. Janda. 1994. "The how and why of diachronic morphologization and demorphologization." In Michael Hammond and Michael Noonan (eds), *Theoretical Morphology: Approaches in Modern Linguistics*, 193-210. San Diego: Academic Press.

Jucker, Andreas (ed.). 1995. *Historical Pragmatics*. Amsterdam: John Benjamins.

Kemenade, Ans van. 1987. *Syntactic Case and Morphological Case in the History of English*. Dordrecht: Foris.

Kroch, Anthony S. 1989a. "Function and grammar in the history of English; Periphrastic DO." In Ralph W. Fasold and Deborah Schiffrin (eds). *Language Change and Variation*, 134-172. Amsterdam: John Benjamins.

———. 1989b. "Reflexes of grammar in patterns of language change." *Language Variation and Change* 1:199-244.

Langacker, Ronald W. 1990. "Subjectification." *Cognitive Linguistics* 1: 5-38.

Lees, Robert B. 1960. *The Grammar of English Nominalizations*. The Hague: Mouton. (Also supplement to International Journal of American Linguistics 12).

Lehmann, Christian. 1988. "Toward a typology of clause linkage." In John Haiman and Sandra Thompson (eds), *Clause Combining in Grammar and Discourse*, 181-225. Amsterdam/Philadelphia: John Benjamins.

Lehmann, Christian. 1995[1982]. *Thoughts on Grammaticalization*. Munich: LINCOM EUROPA (originally published as *Thoughts on Grammaticalization: A Programmatic Sketch, Vol. 1*. University of Cologne: Arbeiten des Kölner Universalienprojekts 49).

Langacker, Ronald. W. 1977. "Syntactic reanalysis." In Charles N. Li (ed.), *Mechanisms of Syntactic Change*, 57-139. Austin: University of Texas Press.

Lightfoot, David. 1979. *Principles of Diachronic Syntax*. Cambridge, UK: Cambridge University Press.

———. 1991. *How to Set Parameters: Arguments from Language Change*. Cambridge, MA: MIT Press.

Kuryłowicz, Jerzy. 1965. "The evolution of grammatical categories." Repr. in Jerzy Kuryłowicz, 1976, *Esquisses linguistiques*, Vol. II: 38-54. Munich: Fink.

McCawley, James D. 1988. The Syntactic Phenomena of English. Chicago: University of, Chicago Press, Vol. II.

McConnell-Ginet, Sally. 1982. "Adverbs and logical form: A linguistically realistic theory." *Language* 58: 144-187.

Mendoza-Denton, Norma. 1994. "*Concerning*-NP constructions." MS, Stanford University.

Michaelis, Laura. 1993. "'Continuity' within three scalar models: The polysemy of adverbial *Still*." *Journal of Semantics* 10: 193-237.

Mitchell, Bruce. 1985. *Old English Syntax*. Oxford: Clarendon, II Vols.

Nichols, Johanna and Alan Timberlake. 1991. "Grammaticalization as retextualization." In Traugott and Heine (eds), Vol. I: 129-146.

Onodera, Noriko Okada. 1995. "Diachronic analysis of Japanese discourse markers." In Jucker (ed.), 393-437.

Pagliuca, William. 1994. "Introduction." In Pagliuca (ed.), ix-xx.

Pagliuca, William (ed.). 1994. *Perspectives on Grammaticalization*. Amsterdam/Philadelphia: John Benjamins.

Pintzuk, Susan. 1991. *Phrase Structures in Competition: Variation and Change in Old English Word Order*. Unpublished Ph.D. dissertation, University of Pennsylvania.

Poutsma, Hendrick. 1923. *The Infinitive, the Gerund and the Participles of the English Verb*. Groningen: Noordhoff.

Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech, and Jan Svartvik. *A Comprehensive Grammar of the English Language*. London: Longman.

Radford, Andrew. 1988. *Transformational Grammar: A First Course*. Cambridge, UK: Cambridge University Press.

Ramat, Paolo. 1992. "Thoughts on degrammaticalization." *Linguistics* 30:549-560.

Reinhart, Tanya. 1981. "Definite NP anaphora and C-command domains." *Linguistic Inquiry* 12: 605-635.

Rissanen, Matti, Merja Kytö and Minna Palander-Collin (eds). 1993. *Early English in the Computer Age: Explorations through the Helsinki Corpus*. Berlin: Mouton de Gruyter.

Roberts, Ian G. 1993. "A formal account of grammaticalization in the history of Romance futures." *Folia Linguistica Historica* 13: 219-258.

Schiffrin, Deborah. 1987. *Discourse Markers*. Cambridge, UK: Cambridge University Press.

Schwenter, Scott A. and Elizabeth Closs Traugott. 1995. "The semantic and pragmatic development of substitutive complex prepositions in English." In Jucker (ed.), 243-273.

Slobin, Dan I. 1977. "Language change in childhood and in history." In John MacNamara (ed.), *Language Learning and Thought*, 185-214. New York: Academic Press.

———. 1994. "Talking perfectly: Discourse origins of the present perfect." In Pagliuca (ed.), 119-133.

Steele, Susan. 1977. "Clisis and diachrony." In Charles N. Li (ed.), *Mechanisms of Syntactic Change*, 539-579. Austin: University of Texas Press.

Swan, Toril. 1988. *Sentence Adverbials in English: A Synchronic and Diachronic Investigation*. Tromsø-Studier i Språkvitenskap X. Oslo: Novus.

Sweetser, Eve E. 1990. *From Etymology to Pragmatics: Metaphorical and Cultural Aspects of Semantic Structure*. Cambridge, UK: Cambridge University Press.

Tabor, Whitney. 1992. "Reanalysis is early." Paper presented at the Annual Meeting of the Linguistic Society of America, Philadelphia.

———. 1993. "Rule frequency and syntactic innovation." Paper presented at the Annual Meeting of the Linguistic Society of America, Los Angeles.

———. 1994a. *Syntactic Innovation: A Connectionist Model*. Unpublished Ph.D. dissertation, Stanford University.

———. 1994b. "The gradual development of degree modifier *Sort of* and *Kind of*: A corpus proximity model." Papers from the *Chicago Linguistic Society* 29: 451-65.

Tajima, Matsuji. 1985. *The Development of the Gerund in Middle English*. Tokyo: Nan'un-do.

Traugott, Elizabeth Closs. 1982. "From propositional to textual and expressive meanings; Some semantic-pragmatic aspects of grammaticalization." In Winfred P. Lehmann and Yakov Malkiel (eds), *Perspectives on Historical Linguistics*, 245-271. Amsterdam/Philadelphia: John Benjamins.

———. 1988. "Is internal semantic-pragmatic reconstruction possible?" In Caroline Duncan-Rose and Theo Vennemann (eds), *Rhetorica, Phonologica, Syntactica: A Festschrift for Robert P. Stockwell from his Friends and Colleagues*, 128-144. New York: Routledge.

———. 1995. "The role of the development of discourse markers in a theory of grammaticalization." Paper given at the International Conference on Historical Linguistics 12, Manchester.

———. Forthc. "Constructions in grammaticalization." In Richard D. Janda and Brian D. Joseph (eds), *A Handbook of Historical Linguistics*. Oxford: Blackwell.

Traugott, Elizabeth Closs and Bernd Heine (eds). 1991. *Approaches to Grammaticalization*. Amsterdam/Philadelphia: John Benjamins, II Vols.

Traugott, Elizabeth Closs and Ekkehard König. 1991. "The semantics-pragmatics of grammaticalization revisited." In Traugott and Heine (eds), Vol. I: 189-218.

Vincent, Diane, Sebastião Votre, Marty LaForest. 1993. "Grammaticalisation et postgrammaticalisation". *Langues et Linguistique* 19: 71-103.

Visser, F. Th. 1966. An *Historical Syntax of the English Language, Part II*. Leiden: E.J. Brill.

Warner, Anthony. 1990. *English Auxiliaries: Structure and History*. Cambridge, UK: Cambridge University Press.

Wasow, Thomas and Thomas Roeper. 1972. "On the subject of gerunds." *Foundations of Language* 8: 44-61.

Wright, Joseph and Elizabeth M. Wright. 1928[1908]. *Old English Grammar*. London: Oxford University Press.

Wyld, Henry C. K. 1953. *A History of Modern Collbquial English*. Blackwell: Oxford: Blackwell (repr. with additions; first ed. 1920).

Zwicky, Arnold M. 1987. "Suppressing the Zs." *Journal of Linguistics* 23: 122-148.