

The gradual coalescence into "words" in grammaticalization¹

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1 Historical background

It has long been known that morphologically complex forms often arise from earlier syntactic phrases. In particular, function words often become morphological affixes, as in the examples in (1).

- | | | | | |
|---------------------|---|-------------------------------------|---|-----------------------|
| (1) Old High German | | Proto-Germanic (cf. Lahiri 2000) | | |
| <i>suoch-t-un</i> | < | <i>*sōki-dēd-un</i> | < | <i>*sōki dēd-un</i> |
| seek-PRET-3PL | | seek-PRET-3PL | | seek do.PRET-3PL |
| 'they sought' | | 'they sought' | | 'they did seeking' |
| | | | | |
| (2) Hungarian | | Proto-Hungarian (cf. Korhonen 1996) | | |
| <i>ház-ban</i> | < | <i>*ház bel-n</i> | | |
| house-INESS | | house guts-LOC | | |
| 'in the house' | | 'inside the house' | | |
| | | | | |
| (3) Spanish | | Latin | | |
| <i>dár-me-lo</i> | < | <i>dare mihi illud</i> | | |
| give.INF-me-it | | give.INF me.DAT that.ACC | | |
| 'to give it to me' | | 'to give me that' | | |
| | | | | |
| (4) Swedish | | Proto-Nordic | | Proto-Germanic |
| <i>hest-en</i> | < | <i>*hest-r-in-n</i> | < | <i>*hest-az in-az</i> |
| horse-DEF | | horse-NOM-DEF-NOM | | horse-NOM that-NOM |
| 'the horse' | | 'the horse' | | 'that horse' |
| | | | | (cf. Faarlund 2009) |

The function words become "glued" to a related content word, or "agglutinated", to use a term originally introduced by Wilhelm von Humboldt (1822). In this article, I will use the term **coalescence** for this diachronic process (cf. Jespersen 1922: 376, Lehmann 1995: 148).²

Historical linguists have long been interested in coalescence. Until well into the 19th century, it was widely thought that historical-comparative linguistic reconstruction offered a window into the earliest human language, and the idea that complex morphological forms derive from the concatenation of primitive

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² One reason for preferring *coalescence* to *agglutination* for the diachronic process is that the latter is more commonly used for a synchronic type. (And see Haspelmath (2009) for serious doubts concerning the coherence of "agglutination" as a typological concept, at least as traditionally understood. The traditional ingredients of "agglutination", lack of stem alternation, lack of cumulation, and lack of affix suppletion, do not seem to be significantly correlated.)

simple forms can be traced back to 18th century enlightenment works or earlier (Lehmann 1995: 1-2). The most prominent representative of this approach in the 19th century was Humboldt's protégé Franz Bopp (cf. Bopp 1833; cf. Stolz 1991), who presented the first comprehensive reconstruction of Proto-Indo-European and speculated extensively on earlier origins of reconstructed forms. For example, on the basis of Sanskrit *emi* 'I go', Greek *eīmi* 'I go' and Lithuanian *eimi* 'I go', he reconstructed **ai-mi*, deriving from the earlier independent elements **ai* 'go' and **mi* 'I'.

In the last third of the 19th century, with the rise of truly modern linguistics, glottogenic speculation was abandoned, and at the same time linguists realized that morphological forms were subject not only to unifying syntagmatic changes (coalescence), but also to unifying paradigmatic changes (analogical change). Many complex words in Indo-European languages could be traced back to analogical transformations (cf. Paul 1920: §242-243, Jespersen 1922: ch. 19), so the interest in diachronic agglutination dropped dramatically. Significantly, in Meillet's (1912) famous article on grammaticalization, almost no reference is made to the evolution of synthetic morphological forms from earlier syntactic phrases; instead, Meillet concentrates on the rise of function words from content words, i.e. on periphrastic constructions. Moreover, the creation of grammatical forms was less and less thought of as a general typological issue, and increasingly as a specific diachronic development in specific cases.

However, the more recent tradition of grammaticalization research, which is often seen as beginning with Givón (1971), again focused on diachronic agglutination. The new development here was primarily that data from non-Indo-European languages were also brought to bear on the issue (see also Hodge 1970 on Egyptian-Coptic, Tauli 1966 on Uralic), and these did confirm the earlier impression that inflectional and derivational affixes often derive from earlier independent function words. Thus, grammaticalization research begins with diachronic agglutination in three different periods: in the 18th century (enlightenment speculation), in the early 19th century (beginning historical-comparative studies), and in modern typologically oriented research.

Over the last few decades, grammaticalization research has broadened considerably, and the semantic-pragmatic changes occurring in grammaticalization have become very prominent (e.g. Traugott 1982, Heine et al. 1991, Bybee et al. 1994, and much subsequent work). Still, current characterizations of grammaticalization usually invoke the change from independent word to affix, i.e. from syntactic to morphological combination. Grammaticalization is often characterized as a transition (or cline) that includes the change from "syntax/word" to "morphology/affix" as one segment:

- (5) a. discourse > syntax > morphology > morphophonemics > zero
(Givón 1979: 209)
- b. content item > grammatical word > clitic inflectional affix
(Hopper and Traugott 1993: 7)
- c. phrases or words > non-bound grams > inflection
(Bybee et al. 1994: 40)
- d. unbound word > enclitic > inflectional affix > derivational affix
(Harris and Campbell 1995: 337)

- e. lexical verb > vector verb > auxiliary > clitic > affix > zero
(Fischer 2007: 182)

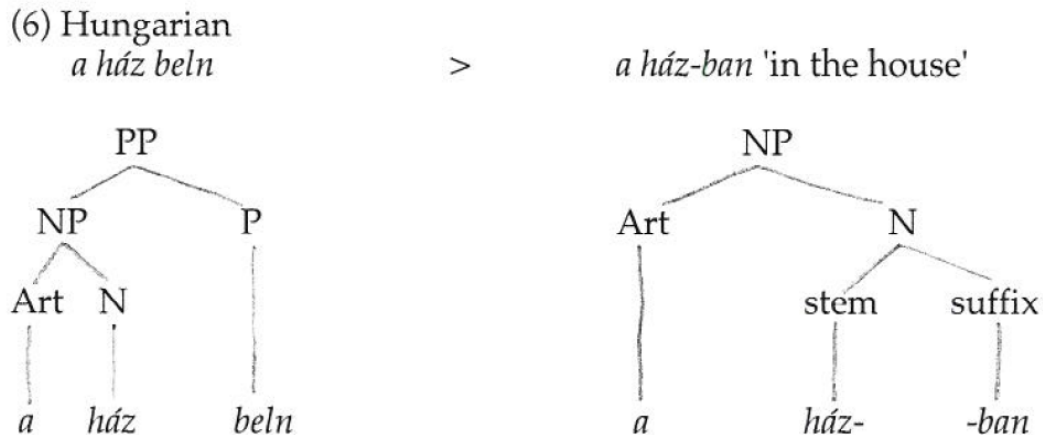
The present chapter thus focuses on one aspect of grammaticalization that is still considered important, even though it no longer occupies a centre stage in grammaticalization research. While the question of the origin of morphological patterns has receded into the background, the question of general constraints on diachronic change, in particular directionality of change, is vigorously debated (e.g. Haspelmath 1999, 2004, Idiatov 2008, Askedal 2008, Norde 2009, Börjars & Vincent in this volume), and coalescence has played an important part in these debates.³

2 Coalescence and reanalysis

One general point that has not been made so far is that the traditional notion of "gluing" function words to their hosts makes a highly problematic presupposition: That linguists have a consistent way of distinguishing between syntactic and morphological patterns, or in other words, that we know how to tell phrases apart from complex words, and affixes from simple words. This presupposition pervades naïve reflection on language, and it is also widespread in contemporary linguistics. In the days of structuralism, the word was widely considered a problematic notion, and linguists tried to avoid relying on this notion in their theories (cf. Schwegler 1990: ch.2, Albrecht 2002, Robins 2002). In current linguistics, the word notion and the morphology/syntax division are usually presupposed and rarely argued for (an exception is Dixon and Aikhenvald 2002). In a recent paper (Haspelmath 2010), I have examined a fair number of criteria for distinguishing words from phrases and affixes, and I conclude that no single criterion and no set of criteria yield a consistent, cross-linguistically applicable word notion. As a result, we do not have a cross-linguistically applicable distinction between syntax and morphology. This is also the reason why the word "word" is given in quotation marks in the title of this chapter.

So in this chapter, I will argue against the widespread simplistic view according to which the coalescence of phrases into complex words consists of an abrupt reanalysis from the syntactic level to the morphological level, whereby lexical categories become affixal categories (cf. 6).

³ Coalescence from function word to affix is also called *morphologization* (cf. Joseph 2003). Joseph tries to dissociate it from grammaticalization, which he sees as much broader and not very closely related to morphologization.



The reanalysis approach is consonant with what typical textbooks tell their readers (including Hopper and Traugott 1993: 40-48, Haspelmath 2002), but it is based on a highly simplified view of grammatical patterns that lacks any awareness of the difficulty of distinguishing between words and phrases. Instead, I argue that coalescence is a gradual increase in bondedness or tightness of combination, reflected in a variety of diverse changes that need not coincide perfectly. We will see some of these in the next section.

3 Ingredients of coalescence

The diachronic change by which independent function words become bound words (or clitics) and finally affixes involves many different aspects.⁴ It is only the spelling that makes it appear that the affix-word distinction is a simple binary contrast (word vs. affix), or perhaps a ternary contrast (word, written with a space; clitic, written with an equals sign; affix, written with a hyphen). In this section, I review a number of different parameters that are generally implicated in the word-affix distinction, and in coalescence of combinations of function word plus host.

3.1. Loss of prosodic independence

A common process is the loss of prosodic independence, leading to an item's inability to form a prosodic word of its own. For example, in colloquial German clitic personal pronouns, the vowel changes to schwa, which is not allowed as the only vowel of a prosodic word:

⁴ Since I do not think that words and affixes can be identified consistently across languages, I use the terms "word", "clitic" and "affix" in a loose sense here, referring to the kinds of things that are generally separated in linguists' notations by spaces, equals signs and hyphens, respectively. This is not satisfactory, but I cannot think of a better alternative for the purposes of this chapter.

- | | | |
|--|---|--------------------------|
| (7) a. Older and standard German | | b. Colloquial German |
| <i>wenn du sie siehst</i> | > | <i>wenn de se siehst</i> |
| [du: zi:] | | [d★ z★] |
| 'if you see her' (lit. if you her see) | | 'if you see her' |

While there are four prosodic words in (7a), there are only two in (7b) ([vɛn d★ z★] and [zi:st]). Syntactically, nothing changes in (7a-b), but prosodically, a reduction has taken place at the later stage.

Another example is provided by Hungarian monosyllabic postpositions, which are in the vowel harmony domain of their complement: *a ház ban* [the house in] 'in the house', *a kéz ben* [the hand in] 'in the hand'. The postposition *ban/ben* derives from an earlier prosodically independent form **beln* (Korhonen 1996). In Hungarian spelling, the monosyllabic postpositions are written as suffixes, perhaps because vowel harmony domains are always joined orthographically. But syntactically, these prosodically integrated postpositions are virtually⁵ identical to other postpositions (e.g. *a ház mellett* 'beside the house'), so Creissels (2006) and Trommer (2008) have argued that they should not be regarded as suffixes, contra the representations in (2) and (6), which still follow the conventional (spelling-based) view (see also chapter 43 [The grammaticalization of adpositions and case marking], this volume).

Loss of prosodic independence can take many different forms, and have segmental or just suprasegmental effects. Simplistically, it is often thought of as merger of two prosodic words into a single type of prosodic word, but it is important to recognize that languages need not have just one single prosodic word (as is often implied). Different phonological regularities may be sensitive to different phonological domains, so we cannot in general say that an element is either a separate prosodic word or not (cf. Schiering et al. 2010). What all cases of prosodic grammaticalization share is that the function element becomes more dependent on its host.

Loss of prosodic independence is widely seen as independent of morphosyntactic change. That prosodic word domains are separate from morphosyntactic word domains is now generally recognized (e.g. Hall 1999). Grammaticalization involves both phonological and morphosyntactic changes, but these are not directly linked. It needs to be explained specifically why they tend to occur together.

3.2 Loss of positional variability

One often cited difference between words and affixes is the fixed position of affixes, but of course many function words are not free in their positioning at all, so when they turn into affixes, nothing changes. Thus, articles (cf. 4 above) and postpositions (cf. 2 above) are almost always positionally fixed, and auxiliary verbs (cf. 1) and subject and object pronouns (cf. 3) are also very often rigidly positioned with respect to their host, even when there is otherwise no reason to say that they are affixes.

⁵ A difference between monosyllabic harmonizing postpositions and polysyllabic non-harmonizing postpositions is noted in §3.4 below.

But there are also many cases of positional freedom, and a widespread view is that positionally variable elements are clitics, which may become affixes once their position is fixed. For example, in Portuguese, object pronouns are positionally variable (cf. 8a-b), and in Polish, subject person markers (such as *-śmy*) are variable in the past tense (cf. 9a-b). (In both cases, the order of the elements is not free, but the specific factors play no role here.)

(8) Portuguese (Luís 2009: 19)

- | | |
|---------------------------------|-------------------------------|
| a. <i>Ele quer-os.</i> | |
| he wants-them | 'He wants them.' |
| b. <i>Acho que ele os quer.</i> | |
| I.think that he them wants | 'I think that he wants them.' |

(9) Polish (Andersen 1987: 31)

- | | |
|---------------------------------------|--------------------------|
| a. <i>Nigdy tego nie myśleli-śmy.</i> | |
| never that not thought-PST.1PL | 'We never thought that.' |
| b. <i>Nigdy-śmy tego nie myśleli.</i> | |
| never-PST.1PL that not thought | 'We never thought that.' |

In Spanish, positional variability of the kind shown in (8a-b) was found in the medieval language, but it has disappeared in the modern language. Thus, many linguists now say that the Spanish object person forms are prefixes (e.g. Bonet 1995).

However, even in Spanish, some positional variability is left: Object person forms normally precede the verb, but in infinitives, gerunds and imperatives, they follow it (*me lo dio* [me it gave] 'gave it to me', vs. *dár-me-lo* [give.INF-me-it] 'to give it to me', cf. (3) above). Moreover, object clitics can optionally "climb up" to a higher verb (*Quiere dár-me-lo* 'He wants to give it to me', or *Me lo quiere dar*). Thus, the difference between Portuguese and Spanish is not as clear-cut as a reanalysis account would lead us to expect.⁶

In modern Polish, positional variability of subject person markers is greatly reduced compared to the situation in earlier Polish, as discussed in Andersen (1987). He notes that the frequency of the combination of the subject person markers with the verb increased gradually over the centuries. In modern Polish, the position on the verb (as in 9a) is thus much more common, and there are clear signs that the placement of the person marker on other constituents (as in 9b) is on its way out: Non-adjacency of person marker and verb "is more common in written than in spoken language, in speech more common in formal than in casual styles, and more usual in the speech of older than in that of younger people" (Andersen 1987: 30).

Such a gradual decrease in positional variability is hard to reconcile with the abrupt reanalysis scenario.

⁶ Moreover, as we will see in section 3.5, Portuguese object person forms sometimes show morphophonological idiosyncrasies in combination with different host shapes, which makes them look less clitic-like than the Spanish object person forms.

3.3. Loss of interruptibility

Another feature of affixes that distinguishes them from clitics is the immediate adjacency to their host. In modern French, object person forms are always immediately adjacent to the verb, whereas in Old French, object pronouns and verb were sometimes interrupted by other words, as illustrated in (10), where the word *plus* intervenes between the object pronoun *te* and the verb. Modern French would render this as *qu'il te fasse adorer plus*.

(10) Old French (*La vie de Saint Eustache* 335, de Kok 1985: 570)

ke il te plus face aorer
 that heyou more make adore
 'that he make you adore more'

Thus, one would say that the increasing uninterruptibility of the combination shows that it has become an affix. Like positional variability, interruptibility can be a gradual matter: Sometimes only very few items can intervene between a function word and a content word, and it is difficult to say at which point the transition to affixhood would have taken place. Such a scenario of a gradually decreasing set of intervening elements is not compatible with a reanalysis as in (6).

3.4 Loss of wide scope over coordination

Affixes are often said not to allow wide scope over coordination, as opposed to clitics (e.g. Lehmann 1995: 150). (Alternatively, such patterns may be described by coordination ellipsis of the grammatical element.) For example, in French it is not possible for object person forms to have scope over coordinated verbs, Miller (1992) takes this as evidence for the affixal status of these pronouns, which have their origin in free personal pronouns in Latin:

(11) French (Miller 1992)

**Pierre les voit et écoute.* (OK: *Pierre les voit et les écoute.*)
 'Pierre sees and hears them.'

Likewise, the German infinitive marker *zu* no longer allows coordination ellipsis. This was possible in earlier German (cf. Haspelmath 1989: 297):

(12) Early New High German (M. Luther, Ezekiel 19.6)

der gewonet auch die leute zu reissen und fressen
 who learned also the people to catch and eat
 'who learned to catch and devour the people'

In modern German, the infinitival marker must be repeated with each coordinand (*zu reißen und zu fressen*), so it behaves like a prefix.

Another well-known case of loss of coordination ellipsis concerns the adverb-forming suffix *-mente* in Romance languages: In Spanish, it can be ellipsed when two adverbs are coordinated, but in Italian, this is no longer possible.

- (13) a. Spanish *dulce- y afectuosa-mente*
 b. Italian **dolce- e affettuosa-mente* (OK: *dolcemente e affettuosamente*)
 'sweetly and affectionately'

But sometimes, the evidence is contradictory. In Serbian, the future-tense marker can be ellipsed in coordination (cf. 14a-b), in contrast to the present-tense person marker (cf. 14c). This is fully expected, as the future-tense marker was recently grammaticalized from an auxiliary meaning 'want'.

- (14) Serbian (Milićević 2005: 45)
- a. *Peva=ćemo i igra=ćemo.*
 sing=1PL.FUT and dance=1PL.FUT
 'We will sing and we will dance.'
- b. *Peva=ćemo i igrati=Ø.*
 sing=1PL.FUT and dance
 'We will sing and dance.'
- c. *Peva-mo i igra-mo.* (**Peva-mo i igra.*)
 sing-1PL.PRS and dance-1PL.PRS
 'We sing and dance.'

However, the future-tense marker behaves like an affix in that it affects the shape of the stem (cf. *igra=ćemo* in (14a), not **igrati=ćemo*).

In Hungarian, the monosyllabic postpositions (which, as we saw earlier, are within the vowel harmony domain of their host) do not allow coordination ellipsis:

- (15) Hungarian (É. Kiss 2002: 184)
- a. *a ház nál és a garázs nál*
 the house at and the garage at
 'at the house and at the garage'
- b. **a ház és a garázs nál*

This might be taken as evidence for their affix status, but it conflicts with the observation that *nál* 'at' occurs with no preceding host when the complement is a pronoun suffix (*nál-am* 'at me', *nál-ad* 'at you', etc.).

Thus, while the loss of wide scope over coordination does seem to be a widespread concomitant of grammaticalization, we cannot derive the facts from a simple reanalysis scenario.

3.5 Acquisition of morphophonological idiosyncrasies

When clitics turn into affixes, one may expect them to develop morphophonological idiosyncrasies of a kind that is not found with combinations of words. For example, when English *not* fused with preceding verbs, it was not only reduced to *n't*, but also affected the shape of the verb stem in many cases: *do* vs. *don't*, *shall* vs. *shan't*, and so on (cf. Zwicky and Pullum 1983). And conversely, the shape of the grammaticalizing element is typically invariable as long as it is a clitic, but becomes subject to idiosyncratic alternations

once it turns into an affix. For example, the Portuguese object person forms vary depending on the form of the verb that precedes them:

- (16) *leva-o* 's/he takes him'
levam-no 'they take him'
levá-lo 'to take him'

In a simplistic view of the syntax-morphology difference, this could be derived from a reanalysis as in (6): "Lexical" phonological interactions are possible only in the morphological component, not in the syntactic component (cf. Anderson 1992 for such an architecture of the grammar). But grammatical systems are more complicated. The Portuguese object person forms in (16) do not behave like affixes in that their order is variable (cf. 8 above), so that they commonly precede the verb, and when they do, they may have wide scope over coordination, and certain other words may intervene between them and the verb (Luís 2009: 18-19). Similarly, the Bulgarian definite article, grammaticalized from a former demonstrative, shows quite a bit of morphophonological variability (determined by the properties of its host word). However, it occurs not only on nouns, but sometimes on adjectives or quantifiers that precede the noun. According to Bermúdez-Otero and Payne (2010), the generalization is that it occurs on the head of the first immediate constituent within the NP.

- (17) Bulgarian (Bermúdez-Otero and Payne 2010)
- | | |
|-------------------------------------|------------------------------|
| a. <i>knigi-te</i> | 'the books' |
| b. <i>interesni-te knigi</i> | 'the interesting books' |
| c. <i>mnogo-to interesni knigi</i> | 'the many interesting books' |
| d. <i>tvārde interesni-te knigi</i> | 'the very interesting books' |

Thus, even though in general morphophonological idiosyncrasies mostly occur with grammaticalized elements that exhibit affix-like behaviour in all respects, there are some cases which do not conform to the simplest picture.

3.6 Conclusion

The different criteria by which clitics and affixes are normally distinguished do not always coincide perfectly. This means that the changes cannot be derived from a simple architectural bifurcation of grammar into syntax and morphology, as is often assumed. Viewing coalescence as an abrupt reanalysis from a syntactic pattern to a morphological pattern does not do justice to the full richness of the attested phenomena in grammaticalization. In fact, as I have argued in Haspelmath (to appear), the non-coincidence of the various criteria for syntactic vs. morphological status makes the very idea of a syntax-morphology distinction highly doubtful. Combinations of signs have different degrees of tightness, and it is not at all clear that this continuum can usefully be divided into two parts (syntax vs. morphology) or three parts (free words vs. clitics vs. affixes).

4 Linearity and relevance

A crucial question that has not been raised so far is what kinds of elements coalesce in grammaticalization. Function words become affixes on content words that we call their hosts, but what are suitable hosts?

All linguists know that certain combinations of content words and grammatical formatives are very common, so much so that they rarely ask why this should be so. Consider the combinations in (18).

- (18) a. Noun + number marker / case-marker / article / possessive index
 b. Verb + voice marker / aspect marker / tense marker / mood marker
 /negation marker / argument index
 c. Adposition + argument index

All of the cases of coalescence that we considered so far in this article were of one of these types, and this is not due to the bias towards European languages. There are two reasons why the combinations in (18) are the most common ones:

- (19) a. Linear Fusion Hypothesis: "items that are used together fuse together"
 (Bybee 2002: 112)
 b. Relevance Hypothesis: "affixation is more likely when the stem and gram
 form a coherent semantic unit" (Bybee et al. 1994: 22)

Clearly, both hypotheses are correct at some level. In many cases, they apply simultaneously, and so their effect is reinforced. A general iconic principle requires elements that are relevant⁷ to each other to occur next to each other, so number markers normally occur next to their nouns, and case-markers, articles and possessive indices normally occur next to their noun phrases. Likewise, voice-markers, aspect markers and argument indices are expected to occur next to their verb. Tense, mood and negation are somewhat different, because they concern a unit that is larger than the verb (a verb phrase, predication, or clause). Traditionally, the verb is regarded as the head of this unit, and this is often thought to be the reason why these grammatical markers tend to coalesce with the verb.

But Linear Fusion sometimes counteracts Relevance. When function words occur next to the most relevant content word, they may still fuse with a word on the other side. An example comes from English, where the aspect and modality auxiliaries *be*, *have* and *will* (or rather their reduced forms *'m*, *'s*, *'re*, *'ve*, *'ll*) may fuse with the preceding subject rather than with the following verb. Zwicky and Pullum (1983) claimed that these are clitics with no idiosyncratic effects on their hosts, but this is not always so. The reduced future-tense marker *'ll* combined with the personal pronouns behaves differently from *'ll* combined with full NPs:

- (20) a. *she'll do it* (*she'll* monosyllabic, rhymes with *fill*)
 b. *Lee'll do it* (*Lee'll* disyllabic, rhymes with *real*)

⁷ "Relevance is the extent to which the meaning of a grammatical category affects the inherent meaning of the lexical stem with which it is associated" (Bybee et al. 1994: 22)

Thus, *she'll*, *he'll*, *we'll* etc. are coalesced units, not unlike person-TAM complexes in other languages such as Hausa or Wambaya:

(21) a. Hausa (Chadic; Newman 2000: 570)

Kaa daawoo?
 2SG.M.COMPL return
 'Have you returned?'

b. Wambaya (Australian; Nordlinger 1998: 138)

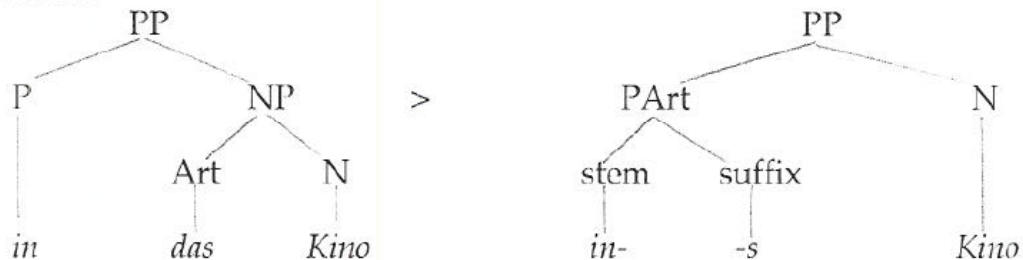
Ngajbi ngi-my-a.
 see 1SG.Å-2.P-NONFUT
 'I saw you.'

Such elements resemble auxiliaries, but in Hausa and Wambaya, all verb forms require such person-TAM complexes, and in English, one normally says that *will* is an auxiliary, not that *she'll* is an auxiliary. Anyway, these cases illustrate the effect of Linear Fusion where its effect goes against the expectation of Relevance. The auxiliary (*wi*)*ll* frequently cooccurs with a following verb, but also with a preceding subject, so it could fuse or coalesce with either. According to Relevance, one would expect it to fuse with the following verb (on the assumption that aspect and mood are more relevant to the verb than to the subject), but here it fuses with the preceding subject.⁸ The importance of frequency of linear adjacency for coalescence has been emphasized by Krug (1998), who studied the rate of contraction of English auxiliaries with the subject, and found that more frequent combinations show more contractions.

Another case where Linear Fusion wins over Relevance is combinations of prepositions with articles in some Romance and Germanic languages, e.g. French (*de + le > du*, *à + le > au*), Italian (*in + il > nel*, *di + l > della*), and German (*zu + dem > zum*, *in + das > ins*, etc.). Here, too, it is particularly the most frequent combinations that coalesce (cf. Nübling 2005), and the Relevance Hypothesis would have predicted a coalescence with the noun, not with the article.

Coalescence of this type that defies Relevance is a challenge for the simple reanalysis scenario of (6), but for reasons that are different from the reasons we saw in section 3. At first sight, the hypothetical reanalysis in (22) looks similar to

(23) German



⁸ It is possible that for some reason, fusion of function words with a preceding host is generally preferred to fusion with a following host (Bybee et al. 1990, Hall 1992). However, it seems to me that the general "suffixing preference" that was already observed by Greenberg (1957) is not as well-established as these authors assume, because much of the evidence for it comes from orthographic representations, and these could well be shaped by an orthographic suffixing bias of Western linguists (ultimately due to the fact that Latin had more suffixes).

the reanalysis in (6).

The problem here is of course that the tree on the right-hand side is not a syntactic tree that anyone would be happy to posit, because syntactic constituents are normally expected to match semantic constituents. To describe such patterns, a more powerful descriptive apparatus, where morphology and syntax are more independent of each other (e.g. Autolexical Syntax, Sadock 1991), would be required. The very fact that Linear Fusion can override Relevance shows that the simplest case, where formal tightness of combination correlates closely with semantic tightness of combination ("relevance"), is not the general case.⁹

The extent to which coalescence is determined by simple frequency of occurrence is not known yet. So far, too few studies of coalescence have examined corpus frequencies and correlated them with observed cases of fusing elements. This is difficult to do, because coalescence is not easy to observe in attested texts. We can often infer that coalescence must have taken place, but we rarely have large enough corpora from earlier periods to test specific hypotheses about the causes of coalescence. Thus, we will have to use more indirect methods for exploring the respective roles of Linear Fusion and Relevance.

5 Conclusion

Coalescence of function words with nearby content words is a widespread phenomenon in languages, and it is often assumed that most affixes ultimately have their origin in fused function words. This process was once at the centre of linguists' attention in grammaticalization studies, but as it is difficult to study in attested texts, it is less important in current empirical work. However, anyone who wants to understand the synchronic morphosyntactic patterns of languages needs to be aware of the general tendencies of coalescence, and we need a better understanding of them if we want to understand synchronic systems. Due to the influence of spelling and tradition, many linguists still think of morphosyntactic structure as strictly divided into morphology (internal structure of words) and syntax (structure of word combinations), but since we do not have a workable definition of the word as a general unit of languages, this is not helpful. There are various senses in which sign combinations can be more or less tight, and these do not correlate perfectly, either diachronically (as seen in section 3 of this chapter) or synchronically (as shown in Haspelmath 2010). Future research will have to investigate whether further constraints on the coalescence of linguistic elements can be found.

References

Albrecht, Jörn 2002. Das Wort im europäischen Strukturalismus. In D. A. Cruse, Franz Hundsnurscher, Michael Job, and Peter Rolf Lutzeier (eds.), *Lexicology: An International*

⁹ A reviewer suggests that coalescence may only be caused directly by frequency of occurrence, and that Relevance is just one of the factors behind frequency of occurrence.

- Handbook on the Nature and Structure of Words and Vocabularies*, vol. I, 138-143. Berlin: de Gruyter.
- Andersen, Henning 1987. From auxiliary to desinence. In Martin Harris and Paolo Ramat (eds.), *Historical development of auxiliaries*, 21–52. (Trends in Linguistics, Studies and Monographs, 35.). Berlin: Mouton de Gruyter.
- Anderson, Stephen R. 1992. *A-Morphous Morphology*. Cambridge: Cambridge University Press.
- Askedal, John Ole 2008. 'Degrammaticalization' versus typology: Reflections on a strained relationship. In Thórhallur Eythórsson (ed.), *Grammatical Change and Linguistic Theory: The Rosendal Papers*, 45–77. Amsterdam: Benjamins.
- Bermúdez-Otero, Ricardo and John Payne 2010. There are no special clitics. To appear in Alexandra Galani, Glyn Hicks, and George Tsoulas (eds.), *Morphology and Its Interfaces*. Amsterdam, Philadelphia: Benjamins.
- Bonet, Eulàlia 1995. Feature structure of Romance clitics. *Natural Language and Linguistic Theory* 13, 4: 607-47.
- Bopp, Franz. 1833. *Vergleichende Grammatik des Sanskrit, Zend, Griechischen, Lateinischen, Litauischen, Altslawischen, Gothischen und Deutschen*. Berlin: Dümmler.
- Bybee, Joan L. 2002. Sequentiality as the basis of constituent structure. In T. Givón & Bertram F. Malle (eds.), *The evolution of language out of pre-language*, 109–134. Amsterdam: Benjamins.
- Bybee, Joan L., William Pagliuca and Revere D. Perkins 1990. On the asymmetries in the affixation of grammatical material. In William Croft, Keith Denning, and Suzanne Kemmer (eds.), *Studies in Typology and Diachrony: Papers Presented to Joseph H. Greenberg on His 75th Birthday*, 1-42. Amsterdam: John Benjamins.
- Bybee, Joan L., Revere D. Perkins and William Pagliuca 1994. *The Evolution of Grammar: Tense, Aspect, and Modality in the Languages of the World*. Chicago: University of Chicago Press.
- Creissels, Denis 2006. Suffixes casuels et postpositions en hongrois. *Bulletin de la Société de Linguistique de Paris* 101, 1: 225–72.
- de Kok, Ans 1985. *La place du pronom personnel régime conjoint en français: une étude diachronique*. Amsterdam: Rodopi.
- Dixon, Robert M. W., and Alexandra Y Aikhenvald (eds.) 2002. *Word: A Cross-Linguistic Typology*. Cambridge: Cambridge University Press.
- É. Kiss, Katalin. 2002. *The syntax of Hungarian*. Cambridge: Cambridge University Press.
- Faarlund, Jan Terje 2009. On the history of definiteness marking in Scandinavian. *Journal of Linguistics* 45, 3: 617-39.
- Fischer, Olga. 2007. *Morphosyntactic Change: Functional and Formal Perspectives*. Oxford: Oxford University Press.
- Givón, Talmy. 1971. Historical syntax and synchronic morphology: An archaeologist's field trip. *Chicago Linguistic Society* 7: 394–415.
- Givón, Talmy. 1979. *On Understanding Grammar*. New York: Academic Press.
- Greenberg, Joseph H. 1957. *Essays in Linguistics*. Chicago: University of Chicago Press.
- Hall, Christopher J. 1992. *Morphology and Mind: a Unified Approach to Explanation in Linguistics*. London: Routledge.
- Hall, Tracy A. 1999. The phonological word: a review. In Tracy A. Hall and Ursula Kleinhenz (eds.), *Studies on the phonological word*, 1–22. Amsterdam: Benjamins.
- Harris, Alice C. and Lyle Campbell 1995. *Historical Syntax in Cross-Linguistic Perspective*. Cambridge: Cambridge University Press.
- Haspelmath, Martin 1989. From purposive to infinitive – a universal path of grammaticalization. *Folia Linguistica Historica* 10, 1-2: 287–310.
- Haspelmath, Martin 1999. Why is grammaticalization irreversible? *Linguistics* 37, 6: 1043–68.
- Haspelmath, Martin 2002. *Understanding Morphology*. London: Arnold.

- Haspelmath, Martin 2004. On directionality in language change with particular reference to grammaticalization. In Olga Fischer, Muriel Norde, and Harry Perridon (eds.), *Up and Down the Cline: The Nature of Grammaticalization*, 17–44. Amsterdam, Philadelphia: Benjamins.
- Haspelmath, Martin 2009. The agglutination hypothesis: a belated empirical investigation. In Sergio Scalise, Elisabetta Magni, and Antonietta Bisetto (eds.), *Universals of Language Today*, 13–29. Berlin: Springer.
- Haspelmath, Martin 2010. The indeterminacy of word segmentation and the nature of morphology and syntax. *Folia Linguistica*
- Heine, Bernd, Ulrike Claudi and Friederike Hünemeyer. 1991. *Grammaticalization: A Conceptual Framework*. Chicago: University of Chicago Press.
- Hodge, Carleton T. 1970. The linguistic cycle. *Language Sciences* 13: 1–7.
- Hopper, Paul J. and Elizabeth C. Traugott. 1993. *Grammaticalization*. Cambridge: Cambridge University Press.
- Humboldt, Wilhelm von 1822. Über das Entstehen der grammatischen Formen und ihren Einfluss auf die Ideenentwicklung. *Abhandlungen der Akademie der Wissenschaften zu Berlin*. 31–63.
- Iadiatov, Dmitry 2008. Antigrammaticalization, antimorphologization and the case of Tura. In Elena Seoane and María José López-Couso (eds.), *Theoretical and Empirical Issues in Grammaticalization*, 151–169. (Typological Studies in Language, 77). Amsterdam: Benjamins.
- Jespersen, Otto 1922. *Language: Its Nature, Origin and Development*. London: Allen and Unwin.
- Joseph, Brian D. 2003. Morphologization from syntax. In Brian D. Joseph and Richard D. Janda (eds.), *The Handbook of Historical Linguistics*, 472–492. Malden, MA: Blackwell.
- Korhonen, Mikko 1996. Typological drift in the Finno-Ugrian languages with special reference to the case system. In Tapani Salminen (ed.), *Typological and Historical Studies in Language by Mikko Korhonen*, 195–206. (Mémoires de la Société Finno-Ougrienne, 223). Helsinki: Finno-Ugrian Society.
- Krug, Manfred 1998. String frequency: a cognitive motivating factor in coalescence, language processing and linguistic change. *Journal of English Linguistics* 26, 4: 286–320.
- Lahiri, Aditi 2000. Hierarchical restructuring in the creation of verbal morphology in Bengali and Germanic: Evidence from phonology. In Aditi Lahiri (ed.), *Analogy, Levelling, Markedness: Principles of Change in Phonology and Morphology*, 71–123. Berlin: Mouton de Gruyter.
- Lehmann, Christian. 1995. *Thoughts on Grammaticalization*. Munich: Lincom Europa.
- Luís, Ana R. 2009. Patterns of clitic placement: Evidence from ‘mixed’ clitic systems. In Patience Epps and Alexandre Arkhipov (eds.), *New challenges in Typology: Transcending the Borders and Refining the Distinctions*, 11–34. (Trends in Linguistics, Studies and Monographs, 217.). Berlin: de Gruyter.
- Meillet, Antoine 1912. L'évolution des formes grammaticales. *Scientia* 12(26). 6: 384–400.
- Milićević, Jasmina 2005. Clitics or affixes? On the morphological status of the future-tense markers in Serbian. In Wolfgang Dressler, Dieter Kastovsky, Oskar E. Pfeiffer, and Franz Rainer (eds.), *Morphology and its Demarcations: Selected Papers from the 11th Morphology Meeting, Vienna, February 2004*, 39–52. Amsterdam, Philadelphia: Benjamins.
- Miller, Philip 1992. Postlexical cliticization vs. affixation: coordination criteria. *Chicago Linguistic Society* 28: 382–96.
- Newman, Paul 2000. *The Hausa Language: An Encyclopedic Reference Grammar*. New Haven: Yale University Press.
- Norde, Muriel 2009. *Degrammaticalization*. Oxford: Oxford University Press.
- Nordlinger, Rachel 1998. *A Grammar of Wambaya, Northern Territory (Australia)*. Canberra: Pacific Linguistics.

- Nübling, Damaris 2005. Von *in die* über *in'n* und *ins* bis *im*. Die Klitisierung von Präposition und Artikel als „Grammatikalisierungsbaustelle“. In Torsten Leuschner, Tanja Mortelmans, and Sarah De Groot (eds.), *Grammatikalisierung im Deutschen*, 105–131. Berlin: de Gruyter.
- Paul, Hermann. 1920. *Prinzipien der Sprachgeschichte*. 5th ed. Halle: Max Niemeyer.
- Robins, R.H. 2002. The word in American structuralism. In D. A. Cruse, Franz Hundsnurscher, Michael Job, and Peter Rolf Lutzeier (eds.), *Lexicology: An International Handbook on the Nature and Structure of Words and Vocabularies*, vol. I, 138-143. Berlin: Walter de Gruyter.
- Sadock, Jerrold M. 1991. *Autolexical Syntax: A Theory of Parallel Grammatical Components*. Chicago: University of Chicago Press.
- Schiering, René, Kristine Hildebrandt and Balthasar Bickel. 2010. The prosodic word is not universal, but emergent. To appear in *Journal of Linguistics*.
- Schwegler, Armin 1990. *Analyticity and Syntheticity: a Diachronic Perspective with Special Reference to Romance Languages*. Berlin: Mouton de Gruyter.
- Stolz, Thomas 1991. Agglutinationstheorie und Grammatikalisierungsforschung. Einige alte und neue Gedanken zur Entstehung von gebundener Morphologie. *Zeitschrift für Phonetik, Sprachwissenschaft und Kommunikationsforschung* 44, 3: 325–38.
- Tauli, Valter 1966. *Structural Tendencies in Uralic Languages*. The Hague: Mouton.
- Traugott, Elizabeth C. 1982. From propositional to textual and expressive meanings: Some semantic-pragmatic aspects of grammaticalization. In Winfred P. Lehmann and Malkiel (eds.), *Perspectives on Historical Linguistics*, 245–271. Amsterdam, Philadelphia: Benjamins.
- Trommer, Jochen. 2008. "Case suffixes", postpositions, and the phonological word in Hungarian. *Linguistics* 46, 2: 403–37.
- Zwicky, Arnold M. and Geoffrey K. Pullum. 1983. Cliticization vs. inflection: English n't. *Language* 59, 3: 502–13.