

CHAPTER 6

USAGE-BASED THEORY AND GRAMMATICALIZATION

JOAN L. BYBEE

1. INTRODUCTION

This chapter treats grammaticalization in the context of usage-based grammar. Setting the topic in this way, however, does not accurately reflect the relationship between the phenomenon and the theory. It is not so much that usage-based theory offers a particular perspective on grammaticalization, but more that our understanding of usage effects on grammar has been greatly informed by research on grammaticalization. In other words, research on grammaticalization more than any other phenomenon has led researchers to a usage-based approach to grammar.

The basic tenet of usage-based theory is that language structure is created as language is used (Barlow and Kemmer 2000; Bybee and Beckner 2009; Bybee 2010). The mechanisms that create grammar, which will be discussed below, are all in operation in language use. The use of the same sounds, words, and patterns over thousands of usage-events has an impact on the cognitive storage and processing of linguistic experience that gives language its structure. As a result, then, linguistic structure is emergent from language use (Lindblom, MacNeilage, and Studdert-Kennedy 1984; Hopper 1987). Some of the sources of data and factors that are considered in usage-based theory that are often neglected in more structural

approaches are the effects of frequency of use, the patterning of linguistic structures within the discourse context, and the pragmatic inferences that accompany language used in interaction. Because language change and, in particular, grammaticalization is traced back to small changes that take place in actual usage-events, the theory provides a natural account of the gradualness of change. This chapter surveys how usage effects propel grammaticalization on the phonetic, semantic, and syntactic dimensions, focusing on the structural changes. By understanding how structure, such as constituent structure, emerges from cognitive representation, we are able to demonstrate that seemingly discrete grammatical features can change gradually in grammaticalization.

The mechanisms to be treated in this chapter are chunking of contiguous units, phonetic reduction due to neuromotor automatization, semantic generalization, pragmatic inferencing, and growing autonomy with its loss of compositionality and analysability. It will be shown that the loss of analysability is the mechanism behind decategorialization and reduction in constituent structure. In connection with this proposal, it is argued that reanalysis in grammaticalization is unidirectional, and results in a loss of constituent structure.

2. CHUNKING AND PHONETIC REDUCTION

Speaking is at least in part a neuromotor activity. As a consequence, repetition or practice leads to increases in fluency. Sequences of units or word strings that are often produced together, such as *going to*, *have to*, *want to*, *in spite of*, *in back of* become units or chunks in their own right. They are stored and processed together (Boyland 1996; Ellis 1996). Another consequence of speech as a neuromotor activity is that repeated sequences—either within a word or across words—become more efficient, and the individual articulatory gestures reduce in magnitude and also increase their degree of temporal overlap (Browman and Goldstein 1992; Mowrey and Pagliuca 1995). As a result, frequent phrases, including those that are grammaticalizing, undergo phonetic reduction, as seen in such phrases as *gonna*, *wanna*, and *hafta* (Krug 2000). The cases just cited are rather salient cases in which alternate spellings have arisen, but there is also reduction in other cases, such as in the pronunciation of the modal *can* in English, which is often reduced to a velar with a syllabic nasal (Bybee 2003).

The evidence that chunking is the result of co-occurrence and that phonetic reduction is more extreme under high frequency is that both processes occur independently of grammaticalization. Chunks can be formed from items that are not semantically or grammatically related, as when prepositions fuse with

determiners: for example, Spanish *a* ‘to’ + *el* ‘the, masc. sg.’ becomes *al* (similar examples are found in German and French). These function words frequently occur together in the same order, and this is what leads to their fusion. Other examples are the contraction of the English auxiliary elements with the subject, as in *I’m*, *I’ll*, and *I’ve* and the contraction of *not* with the preceding auxiliary. Such sequences can be shown to be of very high frequency, and the higher the frequency the greater likelihood of reduction (Krug 1998; 2000; Bybee 2002). Thus frequency of use is a major factor in phonetic reduction in grammaticalization. (For proposals about how this reduction is modeled in a usage-based framework, see Bybee 2000; Pierrehumbert 2001.)

3. LOSS OF COMPOSITIONALITY AND ANALYSABILITY LEADING TO SEMANTIC/PRAGMATIC CHANGE

.....

Once word sequences such as *be going to* or *in spite of* have become frequent enough to be accessed from cognitive storage and produced as units, they begin to become autonomous from the words or morphemes that compose them. Both chunking and increase in autonomy are gradual processes, and the formation of a chunk (a storage and accessing unit) does not necessarily mean that speakers are no longer aware of the component parts and their meanings. That is, a sequence of words can become automated as a chunk through usage while a transparent relationship with the words in other contexts is maintained. Thus transparent prefabricated expressions or collocations that are not highly frequent, such as *it is interesting to note*, *bright daylight*, or *several times*, constitute chunks while still maintaining strong connections to component words. Over time, however, increases in frequency strengthen the sequential relations within the chunk while weakening the relations of component members to cognates elsewhere (Hay 2001; Beckner and Bybee 2009; Bybee 2010).

The more holistic processing of a chunk, then, leads to the assignment of pragmatic function and meaning to the whole unit, downgrading the contribution of meaning from the components. For example, a phrase such as *in spite of* has a meaning as a whole expression, of ‘overcoming obstacles’ (1) or ‘concessive or counter expectation’ (2) (and sometimes both), which cannot be assembled by accessing the meaning of its parts.

- (1) Michelle and I have a different kind of a marriage, for today, like we always do, *in spite of* the obstacles, regardless of the circumstances, we move forward. (COCA 2008)

- (2) And that's pretty pervasive in the United States, *in spite of* what you hear. (COCA 2008)

The original meaning of *spite* 'defiance, contempt' is not appropriate to the contexts of its modern use within the phrase. Originally, the object of *in spite of* was a person, such as an enemy, but later the meaning generalized to obstacles of various sorts—people, laws, cultural conventions, physical obstacles. Semantic generalization leads to extension to new contexts of use and further bleaching of the original meanings. With so much of the original meaning depleted, the expression is open to reinterpretation in context. An inference that is often available is that given an obstacle, one would not expect the statement to be true (Hoffman 2005; Beckner and Bybee 2009). Consider this example where both meanings are available:

- (3) Some would say he's done very well *in spite of* being black. (COCA 2008)

That is 'being black' is both an obstacle and a counter-indication. As pointed out by Traugott in various publications (Traugott 1989; Traugott and Dasher 2002) sentences such as (3) with the obstacle meaning also convey by inference the counter-expectation meaning. If such inferences are frequently made, they become part of the meaning of the phrase, allowing sentences such as (2) which have only the counter-expectation meaning. Note again that frequency or repetition is important to this process of meaning change, not because it causes it, but because only by repetition can the change be implemented.

4. GRADUAL CONSTITUENT STRUCTURE AND CATEGORY CHANGE

.....

In terms of grammatical change, a number of researchers have defined grammaticalization as 'reanalysis'—a change in constituent organization or category membership. A major paradox that has arisen in studies of grammaticalization is the apparent gradualness of change in the face of before-and-after comparisons that show major changes in grammatical structure. Since structural categories and constituents are assumed in most theories to be discrete, it is difficult to explain how they could change gradually. However, if we acknowledge the robust facts that languages are always changing and that grammaticalization is gradual, we must admit that even synchronic categories are not discrete (Heine 1993; Haspelmath 1998). Categories are not discretely distinct from one another; for instance,

auxiliaries are not always separable from verbs, and items within categories can have different features—one verb might become an auxiliary earlier than another.

Change in category membership is referred to by Hopper (1991) as ‘decategorialization’ because it is typically the case in grammaticalization that nouns and verbs are the lexical items that change their category within constructions and move into or create new more grammaticalized categories. For example, when the noun *spite* loses its noun features, it becomes part of a complex preposition. A noun within a complex preposition in English tends to lose the ability to be pluralized, to be modified with an adjective, to take a range of determiners, and to occur freely with other prepositions. Another way of thinking about this is to say that as the phrase *in spite of* becomes more autonomous from its component parts, it loses its association with them, or it loses analysability (Langacker 1987). Earlier when the phrase *in spite of* was used it would activate other instances of the three component words. However, as a chunk such as this is used more, the activation of the independent noun *spite* becomes weaker until a point is reached in which the new chunk *in spite of* is completely autonomous from *spite*. At this point, there would be no reason for *spite* to maintain any of its noun properties.

With *spite* having lost its noun properties, then, the constituent structure of the phrase has also changed. *Spite* would no longer be the object of the preposition *in* nor the head of the phrase that *of* + NP modifies. Beckner and Bybee (2009) and Bybee (2010) argue that loss of analysability is the same as loss of constituent structure. That is, in a usage-based grammar, constituent structure is the result of chunking (Bybee 2002) and constituent structure internal to a chunk is maintained by the cognitive association of the words or morphemes in a chunk to other instances in cognitive storage of the same words or morphemes. Since these associations can be weaker or stronger, depending upon the frequency of use, of the chunk, contexts of use and meaning, constituent structure can change gradually.

Various syntactic tests for decategorialization or collapsing of constituent structure can be applied. Besides the tests for the categoriality of a noun in a complex preposition mentioned above, there are tests for degree of unit-hood of the chunk (Bybee and Torres Cacoullos 2009; Torres Cacoullos and Walker, Chapter 18 below). Some of these overlap with categoriality tests. For example, the adjacency measure of Bybee and Torres Cacoullos (2009) and Torres Cacoullos and Walker (Chapter 18) takes into account the ability of the elements in the chunk to be separated by intervening words. In their examples, the ability of a subject to follow *estar* ‘to be (located)’ in the Spanish Progressive construction is taken to indicate a lower degree of unithood for *estar* + participle. It could also be taken to indicate the continued categoriality of *estar* as a verb whose subject can follow it.

Another series of tests involve coordination. Torres Cacoullos and colleagues show in the papers cited above that the ability of *estar* in the Spanish Progressive construction to occur with conjoined participles declines gradually from the 13th to

the 19th centuries. Beckner and Bybee (2009) look for evidence of coordination with *in spite of* in the 360 million-word Corpus of Contemporary American English (COCA). One type of conjoining would give evidence for internal structure for *in spite of*: if this phrase could share its *of* with another such phrase, that would show that the phrases are still analysable. A search of the corpus turned up seven such examples, all from written sources.

- (4) Last July after she beat out a field of 67 applicants in a nationwide search, President Anderson feels that she was chosen for the job, not *because or in spite of* the fact that she is Black and a woman, but simply because she was the most qualified applicant. (1992)

However, the same corpus yielded thirty-five cases in which *of* is repeated, arguing for the lack of analysability of this phrase.

- (5) the dogma of self-expression says that the gifted child can flower *in the absence of or in spite of* art education.

Also we find that multiple instances of *in spite of* are frequently conjoined by repetition of the whole phrase. (6) is one characteristic example:

- (6) *In spite of* motorbikes, *in spite of* karaoke music, *in spite of* the stink of gasoline fumes that seeps into each kitchen. (2005)

In the COCA, there are thirty-eight examples of this type, with no counterexamples in which only subparts of *in spite of* are conjoined. In addition, the fact that *in spite of* can be conjoined with simple prepositions as in (7) suggests that it is functioning as a unit.

- (7) Commitment is healthiest when it is not *without* doubt, but *in spite of* doubt. (1991)

The conjoining of *in spite of* with a simple preposition indicates that another type of analysability is coming into play—the association of the phrase *in spite of* with the preposition construction. Having become autonomous from the noun *spite*, the phrase it occurs in cannot be analysed as two prepositional phrases; now it is analysed as one.

The important point about the corpus data, however, is that they show variation: a few examples show the analysability or separability of *spite* from *of*, while the majority of examples show that *in spite of* is a single unit, functioning as a preposition. Thus the change in constituent structure, which is a result of the loss of analysability, is gradual and still ongoing in contemporary English.

Finally, another contribution to the gradual changes that result in reanalysis is the fact that different collocations involving a grammaticalizing construction can change at different rates. It is well known that constructions with specific items in them change at different rates for different items. For example, the English modal

auxiliaries grammaticalized at different times, with *shall* and *may* leading *will* and *can* (Plank 1984) and English complex prepositions such as *in spite of*, *in back of*, *in front of* have different properties (Hoffman 2005). More recently, Bybee and Torres Cacoullos (2009) argue that certain frequent prefabs formed on grammaticalizing constructions lose their analysability earlier than less frequent uses. For instance, in Middle English *can* was still used to express mental ability or knowledge. With a verb such as *seye/ayn* ‘to say’, *can* would mean having the knowledge to say. However, a collocation frequently used by Chaucer in the *Canterbury Tales*, the sentence *I kan sey yow namoore*, has *can* expressing root possibility. This sentence is used as a rhetorical device to end a description, not because the narrator has exhausted his/her knowledge, but because s/he does not want to hold up the tale with further description.

5. IS REANALYSIS IN GRAMMATICALIZATION UNIDIRECTIONAL?

.....

Heine and Reh (1984) and Haspelmath (1998) have made the point that reanalysis is not unidirectional, while grammaticalization is. A simple example of a reanalysis that goes in both directions is the change of the assignment of the /n/ in English *a naperon* to *an apron* vs. *an ekename* to *a nickname*. However, when change in constituent structure occurs in grammaticalization, it appears to always reduce the number of constituents in the grammaticalizing construction. This follows from the principles just discussed: the more a sequence is used as a unit the more its internal structure is reduced, or as Hawkins (2004) puts it: frequency reduces complexity. The reduction in constituent structure combined with the oft-noted directionality in category change, as when the more lexical nouns and verbs become the more grammatical prepositions, auxiliaries, etc., provides the means of viewing reanalysis within grammaticalization as unidirectional.

In the example of *in spite of* discussed above, as *spite* loses its status as a noun, the whole sequence becomes a preposition. Its internal structure will eventually be lost (cf. the prepositions *behind* and *beyond* which derived in an analogous way)—a reduction of constituent structure. When a lexical verb becomes an auxiliary within a construction in which another lexical verb served as the complement to the finite verb, the complement verb becomes the main verb of the clause. The change is from a structure with two verb phrases to a single verb phrase containing an auxiliary and a lexical verb. This is a reduction in the number and status of the constituents. When a verb becomes a preposition, as for example *during* has, a

verb phrase becomes a prepositional phrase; there may be the same number of constituents, but the change is from a more lexical constituent to a more grammatical one.

Heine and Reh (1984) and Heine, Claudi, and Hünneymeyer (1991) see reanalysis in grammaticalization as failing the unidirectionality test, based on examples in which it is argued that a main clause becomes a subordinate clause in comparison to examples in which a subordinate clause becomes a main clause. I would argue in contrast that if we consider the entire construction that has grammaticalized, both types of cases result in a reduction of constituent structure. Consider an example of the first type, which occurs in the well-known development of complementizers. Heine et al. (1991: 180) give the example of the Faroese demonstrative *tadh* which can be used as in (8) as the object of the main verb or as in (9) introducing a subordinate clause.

- (8) eg sigi tadh: hann kemur
 I saw that: he comes
- (9) eg sigi at hann kemur
 I say that he comes

Hopper and Traugott (2003) provide evidence that English *that* became a complementizer in a comparable way, leading to the change of a main clause to a subordinate clause. Examples such as (8) have two independent main clauses; in (9) that structure is reduced such that the second clause functions as the object complement to the first verb. In these cases, it is not so much that a main clause becomes a subordinate clause as that two main clauses reduce to a main clause cum subordinate clause.

The second type of example—in which a subordinate clause becomes a main clause in Heine et al.'s analysis—can perhaps more realistically be seen as cases in which a main clause reduces to a modifier of the erstwhile subordinate clause. This can also be analysed as a reduction in constituent structure, as the 'before' state has two clauses while the 'after' state has one. That is, if one takes into account the entire construction, the change is a reduction. Heine et al.'s example (1991: 217f., also cited in Heine and Reh 1984) from Teso (Eastern Nilotic) involves negation as in (10):

- (10) mam petero e-koto ekiṅok
 not Peter 3SG-want dog
 'Peter does not want a dog'

Heine et al. (1991) point out that this sentence is derived from **e-mam petero e-koto ekiṅok*; 'It is not Peter who wants a dog' in which the main clause is *e-mam petero* where *mam* means 'not to be'. Teso is usually VSO, but (10) is SVO because *mam* was originally a verb which was followed by the subject. As *mam* is now the

negative marker and no longer inflected for 3SG, the construction has only one clause. Another example of a similar change occurs in English when earlier main clause verbs such as *I think* and *I guess* become epistemic markers modifying a main clause (Thompson and Mulac 1991).

Thus it appears that the fact that some main clauses can become subordinate and some subordinate clauses become main clauses does not provide an argument against the unidirectionality of reanalysis when it accompanies grammaticalization. Rather, if we take into account the whole construction that is undergoing change and argue that the change in grammaticalization is the loss of constituent structure, then we can see the syntactic changes in grammaticalization as reductions in parallel with the phonetic and semantic reduction that are characteristic of grammaticalization (Bybee, Pagliuca, and Pagliuca 1994).

6. UNIDIRECTIONALITY IN GRAMMATICALIZATION

.....

There has been much discussion of whether or not grammaticalization is unidirectional, with the conclusion being that, with a few relatively well-defined exceptions, it is. In contrast, there has not been a consensus on why grammaticalization is unidirectional. The unidirectionality occurs at all levels: phonetic change in grammaticalization is reductive, as mentioned above; semantic change follows certain well-defined paths from lexical to grammatical, losing features of meaning or adding certain inferences; and, as I argued above, morphosyntactic change follows a course of decategorialization, loss of analysability, and gain in autonomy, leading to a reduction in constituent structure.

In the preceding I have shown how frequency of use figures in the operation of all of the mechanisms of change. Thus as long as frequency is on the rise, changes will move in a consistent direction. In Bybee (2008: 00), I explain it as follows:

The inherent directionality of grammaticization is directly related to the mechanisms of change that propel the process and these mechanisms are all a part of language use. Changes related to increases in frequency all move in one direction and even decreases in frequency do not condition reversals: there is no process of de-automatization or de-habituation, subtraction of pragmatic inferences, etc. Once phonetic form and semantic properties are lost, there is no way to retrieve them. Thus grammaticization is unidirectional.

When a grammaticalizing construction ceases to rise in frequency, various things happen, but none of them is the precise reverse of the process. For example, when *shall* decreased in frequency due to the rise of *will* and *be going to* as indicators of future in American English, it was for a time frozen in certain phrases, particularly questions, *shall we go?* or parentheticals, *shall we say*, and eventually used very little

in the speech of the young generation, but there are no mechanisms that would cause it to retrace its path of change. As Greenberg (1991) points out, old affixes, which have been bleached of meaning and lost their analysability, become part of lexical items. Again, there are no mechanisms of change that would cause them to run backwards on a grammaticalization path.

Thus the explanation for unidirectionality can be found in the mechanisms of change. As I emphasized above, these mechanisms of change are operative in language use and applied repeatedly to frequent items and constructions.

7. LANGUAGE AS A COMPLEX ADAPTIVE SYSTEM

.....

The emphasis on mechanisms of change has several consequences. First, the mechanisms provide the explanation for the way grammatical structures and meanings come into existence and therefore provide an explanation for why languages have grammar and why grammar takes the shape it does. Second, since the mechanisms of change have their basis in the processing mechanisms that are operating as language is used, they provide a level at which universals may be formulated: the mechanisms are common to all languages and they are operating whenever people are speaking the world over. Third, the view of linguistic structure as emergent from the repetitive operation of a few mechanisms (all of them domain-general: see Bybee 2009; 2010) allows us to view language as a complex adaptive system (Larsen-Freeman 1997). In this view, linguistic structure is not universal, nor is it given in advance in any way. Rather, the mechanisms of change are universal and their application creates common paths of change (grammaticalization paths are one example). As I have argued here, the mechanisms of change can operate independently of one another; thus grammaticalization itself is an emergent phenomenon—only when increases in frequency spur all the mechanisms to work together do we recognize an instance of grammaticalization. In this view, too, language is dynamic and ever-changing; each time period and each language is unique, but each one shares many properties with other languages because it has been created by the same forces operating in similar contexts.