REANALYSIS VS. METAPHOR?
WHAT GRAMMATICALISATION *CAN* TELL US ABOUT LANGUAGE EVOLUTION

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We argue that studying grammaticalisation is useful to evolutionary linguists, if we abstract away from linguistic description to the underlying cognitive mechanisms. We set out a unified approach to grammaticalisation that allows us to identify these mechanisms, and argue that they could indeed be sufficient for the initial emergence of linguistic signal-meaning associations.

1. Introduction

Language evolution has a notorious data problem: its object of study is simply too far remote in the pre-historic past for any direct observation to be possible. In such situations, Ockham's razor recommends the assumption of the uniformity of process: that the mechanisms operating in the past are the ones still operating in the present. This would lead to the assumption that we should be able to learn something about the evolution of language from the study of language change, and in particular of semantic change leading to grammaticalisation (Heine & Kuteva, 2002a; Hurford, 2003). Grammaticalisation denotes the (unidirectional) process by which a discourse strategy, syntactic construction, or word, loses some of its independence of use and becomes more functional. It is usually accompanied by phonetic reduction and semantic bleaching and generalisation.

There is disagreement over whether the study of grammaticalisation can give useful insights into language evolution. Newmeyer (2006), for instance, criticises the assumption that the unidirectionality of grammaticalisation provides sufficient evidence that early human language contained only nouns and verbs. We argue that grammaticalisation is indeed worthy of evolutionary linguists' study, *if* one abstracts away from linguistic descriptions of individual phenomena to underlying psychological mechanisms. We thus support calls for a more cognition-oriented study of grammaticalisation (Heine, 1997; Kuteva, 2001; Tomasello, 2003):

> Exactly how grammaticalization and syntacticization happen in the concrete interactions of individual human beings and groups of human beings, and how these processes might relate to the other pro-

cesses of sociogenesis by means of which human social interaction ratchets up the complexity of cultural artefacts, requires more psychologically based linguistic research into processes of linguistic communication and language change. (Tomasello, 2003, p. 103)

The remainder of this paper falls into three sections. We first provide a unified approach to grammaticalisation, allowing us to identify the underlying cognitive mechanisms. We project these to study the emergence of a non-linguistic code, before exploring the implications of our approach for evolutionary linguistics.

2. Metaphor vs. reanalysis

Two competing kinds of accounts of grammaticalisation phenomena can be identified in the literature: those which emphasise metaphorical use (Heine, 1997), and those which emphasise reanalysis (Hopper & Traugott, 2003). We propose a unified approach based on an ostensive-inferential model of communication (Sperber & Wilson, 1995). Such a model emphasises the fact that in a given situation, a speaker and hearer assume common ground (Clark, 1996). Common ground includes, among other shared knowledge, the awareness of shared linguistic conventions and the recognition of what is relevant in a given situation, which allows the hearer to infer what the speaker intends to communicate on the basis of an ostensive stimulus provided by the speaker.

The grammaticalisation of the English construction *be going to*, which originally stood for SPATIAL MOTION, and then came to express INTENTION, as shown in Example 1, is one of the most cited examples in the grammaticalisation literature (Heine, Claudi, & Hünnemeyer, 1991; Kuteva, 2001; Hopper & Traugott, 2003), and is also a particular instance of grammaticalisation which is very common, both historically and cross-linguistically (Heine & Kuteva, 2002b).

(1)   a. We are going to Windsor to see the King.   (MOTION)

      b. We are going to get married in June.   (INTENTION, *not* MOTION)

    (examples from Bybee (2003, p.147)).

We illustrate our approach by presenting the underlying psychological mechanisms, for both speaker and hearer, of metaphor- and reanalysis-based accounts of this change. In the metaphor-based scenario, detailed in Example 2, a speaker intends to express INTENTION (2a). She uses the form for SPATIAL MOTION metaphorically[a], assuming that the hearer will realise that (i) spatial motion is irrelevant in the current context, and (ii) spatial motion often implies intention, which in turn *is* relevant (2b–f). The hearer realises that the literal meaning of the

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[a]There are many reasons for ad-hoc metaphorical use; these could be sociolinguistic (e.g. for prestige), or the speaker could simply not have a convention for the intended meaning in her code.

signal is irrelevant in the current context, and falls back on INTENTION, which he associates—and knows the speaker associates—with SPATIAL MOTION (2g–m).

(2)   Detail of the metaphor-based scenario.

Speaker:

(a) I want to express INTENTION.

(b) I have a construction which expresses SPATIAL MOTION, and the hearer shares this convention.

(c) SPATIAL MOTION is associated with INTENTION.

(d) SPATIAL MOTION is not relevant in the given context.

(e) Because we share common ground, the hearer will be aware of (b)–(d), and realise that I am aware of it too.

(f) Because of (e), I can use the construction for SPATIAL MOTION metaphorically to convey INTENTION.

Hearer:

(g) The speaker has expressed SPATIAL MOTION.

(h) SPATIAL MOTION is not relevant in the given context.

(i) SPATIAL MOTION often implies INTENTION.

(j) INTENTION would be relevant in the given context.

(k) I must assume that the speaker is co-operative.

(l) I must also assume that the speaker is aware that I know (g)–(k), and that I know of his being aware of it.

(m) From (g)–(l), I conclude that the speaker intends to convey INTENTION.

Both speaker and hearer remember that *be going to* has been successfully to express INTENTION; the more frequently *be going to* is used in this sense, the more deeply this new association will become entrenched (Langacker, 1987) in their knowledge. Such entrenchment eventually leads to the phenomenon of context-absorption, where a pragmatically inferred meaning becomes part of the lexical item's conventional, semantic meaning (Croft, 2000; Levinson, 2000; Kuteva, 2001; Traugott & Dasher, 2005). The entrenched meaning no longer needs to be inferred from its relevance in the given context, but can be retrieved instead from the shared conventions which make up part of language users' encyclopaedic knowledge.

In the reanalysis-based scenario, detailed in Example 3, the speaker uses *be going to* in its conventional sense to express SPATIAL MOTION—the expression of which she deems relevant in the given context (3a–e) The hearer, however, perceives things differently; he does not think that SPATIAL MOTION is relevant in the present situation but *does* believe that information about INTENTION would be

(3f). From the hearer's perspective, this appears to be exactly the same scenario as the metaphor-based scenario in Example 2. This time, the interlocutors make different adjustments to their codes: the speaker will further entrench the convention that maps *be going to* onto SPATIAL MOTION, whereas the hearer establishes a new, additional association between *be going to* and INTENTION.

(3)　　Detail of the renalysis-based scenario.

>　　Speaker:
>
>　(a) I want to express SPATIAL MOTION.
>　(b) I have a construction for the expression of SPATIAL MOTION in my linguistic code, and the hearer shares this convention.
>　(c) SPATIAL MOTION is relevant in the given context.
>　(d) Because we share common ground, the hearer will be aware of (b)–(c) and realise that I am aware of it too.
>　(e) Because of (d), I can use the construction to communicate SPATIAL MOTION.
>
>　　Hearer:
>
>　(f) performs the same reasoning as in (2g)–(2m) above.

A special case of the reanalysis-based scenario is one where the hearer, in the role of a language learner, does not have any existing mapping for *be going to* in his linguistic code. However, because he can work out from the context that the speaker intends to express INTENTION, he will create an association between that meaning and *be going to*. In contrast to the previous two scenarios, layering (the co-existence of an old and a new mapping, which yields polysemy) does not arise in the hearer's linguistic code in this case.

Two important conclusions can be drawn from our analysis of the metaphor- and reanalysis-based explanations of the grammaticalisation of *be going to*. First, both scenarios are based on the *same cognitive processes*: (i) those involved in ostensive-inferential communication—in particular the assumption of common ground, including knowledge of shared linguistic conventions and the recognition of what is relevant in the given context; (ii) the automatisation-based process of entrenchment. Second, the difference between the scenarios is not that only one of them uses metaphor, but rather that the (infelicitiously named) metaphor-based scenario relies on common ground having been successfully established between speaker and hearer, whereas the reanalysis-based scenario describes a situation where, although common ground is assumed by the interlocutors, there is actually a *mismatch* between their respective discourse contexts (Kuteva, 2001). The metaphor-based scenario is thus speaker-oriented, focusing on the speaker as the source of linguistic innovation, while the reanalysis-based account is hearer-oriented. Depending on which of the two perspectives one takes, however, either scenario can be regarded as a special case of the other.

3. Reconstructible meanings

How can we project these scenarios to language evolution? First, we step back to see how ostensive-inferential communication works—independent of language. We note that communication is inherently task-oriented; humans do not communicate "just so," but to do something, to achieve a goal or solve a task (Austin, 1962). The task-orientedness of communication entails that once a speaker has made manifest her intention to communicate, the hearer will have certain expectations as to what are plausible things to communicate in the given situation. In this way, a hearer discerns what is relevant from what is irrelevant in a given situation (as in the scenarios for the grammaticalisation of *going to* above), and the speaker can likewise anticipate what the hearer is likely to infer.

In the simplest case, in Fig. 1(a), making manifest one's communicative intention may suffice for the hearer to be able to infer the information one wants to communicate. The hearer's reasoning may go as follows: my conspecific exhibits behaviour that does not make sense unless she intends to communicate; therefore she intends to communicate something; in the current situation, the only thing that would make sense for her to communicate is that there is some danger around; therefore, she is communicating that there is some danger around. Note that the speaker's and hearer's assumptions can be different (i.e. there can be a contextual mismatch): if the perlocutionary effect does not differ, this may go unnoticed, and speaker and hearer will map the produced stimulus onto different utterance meanings. In Fig 1(b), for example, as long as the hearer runs and hides, it does not matter that the speaker thought she was communicating the presence of lion, while the hearer assumed that hyena were around.

Of course it is not always possible to reduce the set of plausible utterance meanings to a single one; in such cases, the hearer needs some assistance in selecting the right one, namely a *clue*. The hearer's reasoning might run along the following lines (see Fig. 1(c)). Because it does not make sense otherwise, I must interpret the speaker's behaviour as an attempt to communicate. In this situation, the only things that would make sense for her to communicate are to tell me that there is danger and to specify whether this danger is a lion or an eagle. She is communicating, so there is danger, but how can I decide if it is a lion or an eagle? The speaker must realise my dilemma, and so her ostensive stimulus will contain a clue. She is growling: lions growl, eagles don't (hyenas growl too, but this is irrelevant as there are no hyenas around at this time of year); therefore, she is communicating that there is a lion.

The cognitive mechanisms underlying these instances of communication are identical to those described in section 2 for grammaticalisation. This equivalence also extends to the entrenchment of the signal-meaning association and thus to the emergence of a convention. In all cases, the meanings which come to be associated with signals are those which can be reconstructed from the stimuli in context.
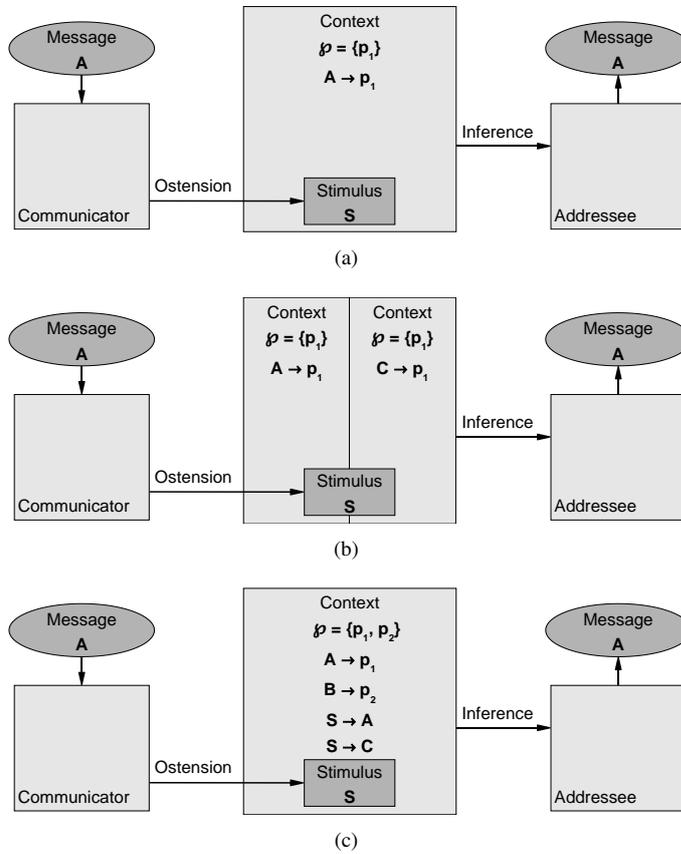
Figure 1. The reconstruction of meaning in ostensive-inferential communication, where $\wp$ is the set of plausible intended perlocutionary effects in a given situation. (a) If only one thing makes sense to be communicated, e.g. that there is some danger around (A), then the recognition of a conspecific's intention to communicate suffices to infer what she attempts to convey. (b) Contextual mismatch: the speaker means A (e.g. that there is a lion), the hearer infers C (e.g. that there is a hyena). Because both have the same perlocutionary effect p_1 (e.g. climbing a tree), the hearer's misinterpretation goes unnoticed and communication does not fail. (c) In situations where more than one thing is plausible, the speaker must additionally provide a clue. For instance, it might make sense to communicate that there is a lion (A) or an eagle (B): if there is a lion, one must climb (p_1); if there is an eagle, one must hide (p_2). Growling (S) serves as a clue: it is the sound made by lions ($S \rightarrow A$)—and by hyenas ($S \rightarrow C$), but this is irrelevant in the given context.

Every speaker innovation can only be propagated through hearer reconstruction; semantic reconstructibility therefore constrains the types of form-meaning mappings which can persist over time (Smith, 2008).

3.1. *Burling's scenario revisited*

Burling (2000) makes a case for a scenario of the emergence of linguistic symbols that is reminiscent of the reanalysis-based explanation of the grammaticalisation *be going to* we have given above. He suggests that symbols arise from situations in which one individual erroneously interprets a conspecific's behaviour as an ostensive stimulus. In our model, this would be represented as an extreme, but nevertheless ordinary, case of contextual mismatch: the hearer interprets the interaction as communicative but the speaker does not. Because the supposed ostensive stimulus will not have the properties of a proper clue, the hearer will only be able to infer a plausible meaning if there is only one relevant thing that would make sense to be communicated in the given context, and if their reaction does not expose the misunderstanding. Burling concludes that comprehension runs ahead of production: "[C]ommunication does not begin when someone makes a sign, but when someone interprets another's behaviour as a sign" (Burling, 2000, p.30). This interpretation must be rejected on the basis of our analysis of the psychological underpinnings of the equivalent reanalysis-based scenario of grammaticalisation in section 2. Although in Burling's scenario, the hearer does indeed infer something not implied by the speaker, he does so not on a whim, but under the assumption that the speaker is inviting him to make those very inferences. Rather than one being prior to the other, therefore, production and comprehension mirror each other: whatever a hearer can infer, a speaker can imply. Communication is inherently co-operative (Grice, 1975; Clark, 1996; Tomasello, 2003), and while Burling's "reanalysis-based" account cannot be ruled out, its "metaphor-based" counterpart is equally possible. Both should be seen as instances of the same set of underlying cognitive mechanisms: ostensive-inferential communication and entrenchment.

4. Conclusion

We have shown that grammaticalisation can indeed answer questions relevant to evolutionary linguists, if one moves away from linguistic classification to investigating its underlying psychological mechanisms. We have argued that the same cognitive processes that lead to grammaticalisation phenomena could also have been sufficient for the initial emergence of linguistic signal-meaning associations.

We thus neither endorse nor attempt to disprove Newmeyer (2006)'s specific criticism of the use of grammaticalisation as a source of information about language evolution. Our approach is different from both his approach and the approaches of those he criticises. We claim that the merit of studying grammaticalisation, and in fact any semantic change (Traugott & Dasher, 2005), for insights

into language evolution, lies in the underlying cognitive processes it makes visible, which *can* be applied to investigate the origins of language.

References

Austin, J. L. (1962). *How to do things with words.* Oxford: Oxford University Press.

Burling, R. (2000). Comprehension, production and conventionalisation in the origins of language. In C. Knight, M. Studdert-Kennedy, & J. R. Hurford (Eds.), *The evolutionary emergence of language: Social function and the origins of linguistic form* (pp. 27–39). Cambridge: Cambridge University Press.

Bybee, J. L. (2003). Cognitive processes in grammaticalization. In M. Tomasello (Ed.), *The new psychology of language: Cognitive and functional approaches to language structure* (Vol. 2). Erlbaum.

Clark, H. H. (1996). *Using language.* Cambridge: Cambridge University Press.

Croft, W. (2000). *Explaining language change: An evolutionary approach.* Longman.

Grice, H. P. (1975). Logic and conversation. In P. Cole & J. Morgan (Eds.), *Syntax and semantics 3: Speech acts.* New York: Academic Press.

Heine, B. (1997). *Cognitive foundations of grammar.* New York: Oxford University Press.

Heine, B., Claudi, U., & Hünnemeyer, F. (1991). *Grammaticalization: A conceptual framework.* Chicago: University of Chicago Press.

Heine, B., & Kuteva, T. (2002a). On the evolution of grammatical forms. In A. Wray (Ed.), *The transition to language* (pp. 376–397). Oxford: Oxford University Press.

Heine, B., & Kuteva, T. (2002b). *World lexicon of grammaticalization.* Cambridge: Cambridge University Press.

Hopper, P. J., & Traugott, E. C. (2003). *Grammaticalization* (Second ed.). Cambridge: Cambridge University Press.

Hurford, J. R. (2003). The language mosaic and its evolution. In M. H. Christiansen & S. Kirby (Eds.), *Language evolution* (pp. 38–57). Oxford: Oxford University Press.

Kuteva, T. (2001). *Auxiliation: An enquiry into the nature of grammaticalization.* Oxford: Oxford University Press.

Langacker, R. W. (1987). *Foundations of cognitive grammar: Theoretical prerequisites* (Vol. 1). Stanford, CA: Stanford University Press.

Levinson, S. C. (2000). *Presumptive meanings: The theory of generalized conversational implicatures.* Cambridge: Cambridge University Press.

Newmeyer, F. J. (2006). What can grammaticalization tell us about the origins of language? In A. Cangelosi, A. D. M. Smith, & K. Smith (Eds.), *The Evolution of Language* (pp. 434–435). World Scientific.

Smith, A. D. M. (2008). Protolanguage reconstructed. *Interaction Studies*, *9*.

Sperber, D., & Wilson, D. (1995). *Relevance: Communication and cognition* (Second ed.). Oxford: Blackwell.

Tomasello, M. (2003). On the different origins of symbols and grammar. In M. H. Christiansen & S. Kirby (Eds.), *Language evolution* (pp. 94–110). Oxford: Oxford University Press.

Traugott, E. C., & Dasher, R. B. (2005). *Regularity in semantic change.* Cambridge: Cambridge University Press.