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101. Grammaticalization and semantic reanalysis

Abstract

The article starts by describing grammaticalization—a kind of language change—on basis of examples and characterizations in earlier literature on language change. I argue that a full understanding of grammaticalization can only be achieved when we take compositional semantics and the syntax-semantics interface into account. The analysis of cases of grammaticalization as cases of semantic reanalysis not only allows to describe more precisely the synchronization of changes in meaning and structure. It also reveals why the resulting new units in language (morphemes, constructions, words) are often 'abstract' and in what sense such changes overwhelmingly but not necessarily are unidirectional. Section 4 offers a detailed account of the semantic reanalysis of German fast_1 *('solid, tight') to* fast_2 *('almost') which illustrates the general principles of sections 2 and 3. After contrasting the present analysis of grammaticalization with earlier proposals in the literature (section 5), section 6 addresses the reasons for semantic reanalysis. I propose that one driving factor is the urge to avoid accommodation of presuppositions which are costly and implausible. This I call the strategy to "Avoid Pragmatic Overload", an interpretive strategy of the hearer.*

1. Grammaticalization as a conspiracy of changes

Research in grammaticalization was inspired by the question "where does grammar come from?". While it is almost tautological that any communication system requires signals for entities, properties, relations ("content words"), grammatical structures don't seem to be required by signalling systems as such. Nevertheless, practically all natural languages

include grammatical structure of surprising complexity. Moreover, there is no correlation between the level of cultural achievements of a society and the level of grammatical complexity of the society's language. These observations suggest that our universal linguistic abilities drive us to collectively enrich signalling systems of content words with grammatical infrastructure. The present article takes a closer look into the semantic processes involved in these developments.

The prototypical instance of language change called 'grammaticalization' is a change where a word with independent content, preferably of one of the main lexical categories A, V or N, develops a new use with a comparatively more dependent, more abstract content, changed word class, typically of a functional nature, e.g. auxiliary, modal, preposition, particle or other functional word or even affix. The development of Latin and French future tense forms is often presented as a typical model case of grammaticalization.

(1) Expression of Future tense: *we will sing*

Pre-Latin		Latin		French
**kanta*	*b^{h}umos* →	canta-bimus		
sing	be-2Pl.pres.	sing-2Pl.fut.		
		cantare	*habemus* →	chante-rons
		sing	have-2Pl.pres.	sing-2Pl.fut.
				allons chanter → *?*
				go-2Pl.pres. sing

The semantic link between main verb ('sing') and embedding verb ('be', 'have', 'go') changes during the development. The grammatical status of the latter verb changes (from embedder to auxiliary verb), later also its morphological status (from independent word to affix). While it is usually a larger part of sentences which undergoes restructuring in such developments, it is often possible to spot one participant which is most involved, for instance the verb 'have' in the Latin > French change which turns from embedding verb via auxiliary to inflectional affix. 'Grammaticalization' is often used as if it affected exactly one word, clitic, or syllable. I will frequently talk about *items* as a cover term for 'construction', 'word', 'clitic', 'affix'; firstly because grammaticalization processes are assumed to affect all these parts of speech, and secondly because changes can turn for instance a 'word' into an 'affix', still the object will remain an 'item'.

The first studies in grammaticalization concerned the origin of grammatical structures like case endings, tense and aspect systems, determiners or classifiers. As the field broadened its focus, the need arose to replace the intuitive characterization of an item changing from "something less grammatical" into "something more grammatical" by a more specific characterization. One of the most sophisticated models, and one that is still in use (e.g. Fischer 2007) was developed by Lehmann in (1995/2002). Lehmann proposes three parameters of grammaticalization, each being realised in a syntagmatic and a paradigmatic dimension. The following table of criteria emerges (Lehmann 1995/2002: 110, Tab. 4):

Tab. 101.1: Lehmann's parameters of grammaticalization

	paradigmatic	*syntagmatic*
weight	integrity	structural scope
cohesion	paradigmaticity	bondedness
variability	paradigmatic variability	syntagmatic variability

Grammaticalization, according to Lehmann, is characterised by an *increase in cohesion* along with a *decrease in weight and variability* from older item to newer item. The system is to be read as a cluster of correlated features rather than a list of necessary and sufficient criteria. Cases of grammaticalization should show sufficiently many, but need not exhibit all of the listed tendencies.

The paradigmatic weight of a sign, or its integrity, measures its distinctness and independence of other signs both in terms of phonology and semantics. Hence both phonological reduction and semantic generalization (see below on bleaching) constitute a loss in integrity, according to Lehmann. The paradigmaticity of a sign reflects the degree to which it functions as part of a paradigm of signs of complementary distribution in certain contexts. Grammaticalization frequently involves a trend for an item to turn into part of a paradigm of fixed semantic and structural function. Paradigmatic variability, finally, concerns the question whether an item can be freely replaced by other signs of the same paradigm, or be left out altogether. A loss in paradigmatic variability means an increase in obligatoriness of a sign in certain contexts.

The syntagmatic weight of a sign, according to Lehmann, is its structural scope. He discusses various examples where either semantic scope or syntactic scope is at stake, the prime cases being former independent items that turn into affixes or clitics. The criterion of *reduced* scope is however easily challenged by all those cases where content words develop into propositional operators (most prominently the modal verbs in English), an observation that was taken up in Tabor & Traugott (1998). Syntagmatic bondedness measures the degree to which an item is dependent on the presence of other signs, or attaches to them in a morphophonologically significant manner. Syntagmatic variability, finally, reflects the degree to which an item has to hold a fixed position or can be freely moved around in the clause.

Lehmann demonstrates that typical traditional case studies in grammaticalization show the predicted kind of shifts in at least *some*, sometimes *most* of the given parameters. He suggests that an instance of language change should be called grammaticalization exactly if it shows enough of increased cohesion or decreased weight and variability, syntagmatically or paradigmatically.

A synopsis of known patterns of change revealed several typological near-universals of grammaticalization. Perhaps the most prominent and controversial is the unidirectionality hypothesis, the observation that the changes at stake tend to adhere to one direction. There are no known cases of inflexion affixes developing into content words, of tense forms being reinstalled as full verbs etc. The universal trends are often summarized in so-called *clines*, a small number of attested possible roads through the major grammatical categories, like the following:

(2) content word > function word > clitic > affix > ø
verb > preposition > affix > ø

Another observation concerned the fact that even at a more fine-grained level, similar or identical developments can be found repeatedly in different languages. Many languages, for instance, possess future tense forms that are based on a verb of volition/desire (type *will* future), future tenses that rest on the verb *to go*, complementizers based on deictics or the verb *say*, prepositions that derive from nouns for *back* and *front* etc. A very inspiring survey of attested pathways of grammaticalization was compiled by Heine & Kuteva (2002). Observations like these suggested that *grammaticalization* could be an independent mode of language change, subject to its own laws and generalizations, a linguistic process that is driven by autonomous rules that deserve investigation.

The main problem in developing a theory of grammaticalization consists in the fact that no given instance of language change carries the label "grammaticalization" on its sleeve. Hence if some instance of change looks similar to other cases of grammaticalization but contradicted some universal, it is never clear whether this means that the universal was falisified, or that the change was not an instance of grammaticalization in the first place. The emergence of discourse adverbials and other sentence level operators offers a typical battlefield in this debate. We know a wide range of pragmatic and logical markers which derive from content words, often along universal pathways. For instance, the complementizer *while* as well as German *weil* ('because') both derive from the noun *weile* ('time') used as a free genitive (*der Weile*$_{\text{GEN}}$ = 'at that time', see König & Traugott 1988, Traugott & König 1991). In terms of semantic development, we see a move from an independent concept to an abstract temporal or causal relation. The scope of the item, however, clearly increases in the development, and its status with respect to paradigmaticity is somewhat unclear—after all, there is no grammatical requirement to use temporal or causal subordinate clauses. So it is unclear whether this change is an instance of grammaticalization or not! Similarly, the content adjective *butan* ('outside') develops into the contrastive conjunction *but* (Merin 1996), and the prepositional phrase *in dede* ('in action', 'in what people do') turns into the discourse marker *indeed* (the Oxford English Dictionary OED offers rich track records of carefully dated uses of *but, indeed* and other functional words). Likewise, proximative particles like German *fast* ('almost'), which developed from the adjective *fast* = 'immovable, solid' (like the English adjective *fast* = 'speedy') are hardly part of the core grammatical system and yet, the changes in grammatical category as well as the loss of "concrete" meaning seems to put all these examples close to other instances of grammaticalization. Similarly, discourse particles arise by a change of category as well as a change towards a more abstract meaning while it is dubitable whether they are "more part of the grammar" after the change. As an example, consider the adjective *even/eben* (≈ 'flat', 'smooth') in English and German. In Modern High German, it developed a use as a modal where it serves to add a consoling undertone to the assertion:

(3) *Peter ist ein Junggeselle.* ('Peter is a bachelor'; neutral statement)
Peter ist eben ein Junggeselle. ('Peter is a bachelor, you can't help it'; justifying or excusingly)

The grammatical category of *eben* changes from adjective to particle (= a typical "elsewhere" category). In its new sense, it does not denote a specific property of Peter (Peter

is not a "flat bachelor") but adds a speaker comment aside of the at-issue content of the sentence (Potts 2005). Should this and similar language changes be classed as grammaticalization?

Emergent discourse particles are easy to find and occur in considerable number (Abraham 1991, Brinton 1996, Wegener 2002, Mosegaard Hansen & Rossari 2005 among others). What they share with other instances of grammaticalization is that an item with a comparatively more concrete meaning is reinterpreted to yield a more general, abstract item, accompanied by a change in the grammatical category and new distribution patterns. Unlike in classical grammaticalization, however, the resulting item is *not* part of the core grammar. Discourse particles specifically are clearly outside the range of what is classically considered as 'grammar'. They have to observe only very general syntactic restrictions, they are classically omissible (at least in terms of grammatical requirements), they are usually neglected in grammars as well as grammar theories, they have high scope over the full assertion (Tabor & Traugott 1998), they often do not contribute to the propositional content of the assertion, etc. (cf. also article 76 (Zimmermann) *Discourse particles*). So, accepting them as cases of 'grammaticalization' in the sense of Lehmann would evidently lead the Lehmann parameters to collapse.

However, leaving aside the degree of fit to Lehmann's parameters, scholars who work on the emergence of discourse particles repeatedly voice the intuition that particles emerge, like other "grammatical stuff", when words as part of an utterance loose their old sense and are re-assigned a new sense because the speaker apparently seemed to intend to convey just this extra bit of meaning (in the case of *eben*: wanted to console the listener). Different authors have adopted different positions with respect to this challenge. Many just take an agnostic stance (e.g. Fischer & Rosenbach 2000; Mosegaard Hansen & Rossari 2005), allowing for a 'narrow' and a 'wide' sense of grammaticalization. Others, most prominently Traugott, adopt a more interesting strategy. Traugott advocates the more inclusive class of changes (i.e. including the cline towards discourse particles) by postulating *subjectification* as an independent mode of semantic change (Traugott & Dasher 2002). She proposes that this mode of semantic change is shared by both typical instances of grammaticalization (e.g. the development of the English modals, Traugott 1989) and the cline to discourse particles. I will come back to this below.

The problem eventually boils down to the question: Do Lehmann's criteria – or similar lists – have the status of a *definition for grammaticalization* or of an independent *observation about grammaticalization*? In a very balanced special issue of Language Sciences in 2001, the papers Campbell (2001), Janda (2001), Joseph (2001), Newmeyer (2001) and Norde (2001) focus on exactly this question, and convincingly argue that cases of grammaticalization come about by the felicitous conspiracy of independent modes of language change in phonology, mophosyntax, and semantics. Specifically, Newmeyer (2001) offers a rich and well-chosen range of examples that reveal grammaticalization as the epiphenomenal result of semantic changes, structural reanalysis and phonological reduction. I will rest my discussion on this view, and will hence focus on the semantic processes of change that can be observed *predominantly, but not exclusively* in grammaticalization. In spite of the long tradition of research in diachronic linguistics, I think that the nature of semantic change as it accompanies syntactic reanalysis has not been fully understood so far. The semantic reorganization that is required in grammaticalization essentially operates at the syntax-semantics interface. Grammaticalization entails changes in the syntactic structure of the sentence, and as syntactic structure—as we believe—guides semantic

composition, it is to be expected that the compositional structure of the sentence needs to change as well, including the functional structure of the items involved. The investigation of semantic composition, and specifically the functional parts of semantic composition, has been focussed by the so-called "formal" semantic approaches. Truth conditional semantics has developed a level of exactness, explicitness and sophistication in the semantic analysis of meaning composition which has never been reached, as I think can fairly be said, by traditional frameworks of semantic description. I will propose that *semantic reanalysis* is at the heart of most instances of grammaticalization, and I will argue that none of the more traditional modes of meaning change that have been used in the debate captures exactly this process. I will then move on to illustrate semantic reanalysis in different types of language change, including but not restricted to cases of grammaticalization. For example, semantic reanalysis also underlies most changes from adverb to discourse particle, or prepositional phrase to discourse adverbial—so, this approach in some sense follows Traugott's argumentation (Traugott & Dasher 2002), however on the basis of a different mode of change. While Traugott takes subjectification as the driving force in grammaticalization, I will argue that the concept is not necessary to explain the common traits of many instances of structural reanalyses.

2. The semantic side to grammaticalization

Is grammaticalization a gradual process or discrete change? In this debate, authors standardly adopt the following two equations: Structural change = discrete change, and semantic change = gradual change (see for instance Fischer & Rosenbach's 2000 opposition of formal vs. functional approaches to language change in the introduction; Fischer 2007; Hopper & Traugott 1993), in turn concluding that any change that looks gradual must be semantically motivated. I want to challenge the assumption that semantic change be necessarily gradual, and suggest that the impression of "gradual change" is an epiphenomen of semantic interpretation and pragmatic enrichment.

First note that the meanings of words and sentences of earlier stages are only accessible as part of texts in old documents. We see the surface structure of the data, but we get neither a syntactic nor a semantic analysis (and, apart from translated text, no independent paraphrase). In the investigation of sources, researchers often report an intermediate stage of "gradual shift". Looking into matters in more detail, one finds that some of the utterances that contain the item-under-change seem to favour an analysis in terms of the *old* use of the item. Some of the sentences are plainly synonymous under the older or newer use of the item, and some seem to favour an interpretation in terms of the *new* use although they could still be possibly interpreted in terms of the older stage of the item. (So at the time, without knowledge of future developments, the hearer/reader might just have faced a quirky sentence.)

This gradual approximation of a new stage has been taken as evidence that language change in general be gradual. With the advent of more fine-grained structural descriptions, syntacticians proposed to analyze allegedly gradual shift from one major grammatical stage to another as a series of discrete steps between more finely distinguished grammatical stages. At the level of meaning, however, the terminology in use so far did not allow, nor suggest, similar series of small, descrete steps. Consequently, the claim that changes are gradual iff they are semantic changes is still unchallenged in the community. I think that this equation is severely mistaken.

The first problem seems to be that the difference between sentence meaning and word meaning is severely blurred in the debate. This can lead to the expectation that two sentences with more or less the same "message" on basis of more or less the same words entail that the word meanings be likewise identical, more or less. So, the common meaning of sentences like the following are taken as indication that meaning changes can be ignored.

(4) *Evans did not walk*
Evans did not walk a step
Evans did not understand 'a step'

The first two sentences exhibit a minimal pair of negative sentences with and without emphatic component ('*a step*'); the third one shows a fictivous extension of the emphatic use of '*a step*' to other contexts. In view of the fact that all three sentences are negations and contain *not*, one might conclude that the word '*a step*' doesn't play a role in the examples at all. This diagnosis has actually been proposed by Haspelmath (1999) who observes:

> One of the most widely discussed aspects of grammaticalization, the fairly dramatic semantic changes, has not been mentioned [in Haspelmath's paper] explicitely at all so far. The reason is that I am not sure that semantic grammaticalization is as central to the process as has generally been assumed. (. . .) For instance, the emphatic negation marker *pas* in older French has lost its pragmatic markedness and has become the normal negation marker, without any semantic changes in the narrow sense having taken place. (Haspelmath 1999: 1062)

This quote suggests that the semantic side of grammaticalization is virtually nonexistent and hence does not pose an interesting object for study at all. While Haspelmath rightly observes that the overall *sentence* meaning of the crucial examples does not change, he fails to acknowledge that the meaning change at the *word level* is considerable. We will see examples later where the meaning of an utterance before and after semantic reanalysis is practically identical even though the meanings of its parts have changed drastically. This observation is, of course, neither new nor surprising, and moreover is the exact analogue to structural reanalysis. The process was described by Langacker (1977: 58) as follows: "change in the structure of an expression or class of expressions that does not involve any immediate or intrinsic modification of its surface manifestation".

Another problem lies in the fact that a concept-based semantic analysis usually fails to represent the functional structure of words, structure that subsequently has to be relegated to constructions (e.g. Traugott 2008). Practically all literature on language change shares this feature. Hence, the terminological frameworks in use simply do not allow to represent many changes at the compositional level, changes that can severely alter the meaning of an item even on the basis of more or less the same conceptual ingredients (see the case study on *fast* in section 4). Isolated articles like von Fintel (1995), Kempson & Cann (2007), Merin (1996), or Zeevat & Karagjosova (2009) pose exceptions to this generalization. Generally, changes that yield functional words need to be described in terms of a semantic framework that can express the meaning of functional words. Concept-based semantic frameworks are notoriously vague at this point, supporting the misconception that semantic changes can not be discrete.

The present article aims at defining and defending the notion of semantic reanalysis. In the next section, I will characterize this process and point out differences to the modes of semantic change that were proposed in the literature, including

1. generalization or bleaching, going back to Paul (1880) and von der Gabelentz (1901)
2. metaphor (most prominently proposed by Heine, Claudi & Hünnemeyer 1991; Bybee, Perkins & Pagliuca 1994; and Sweetser 1990)
3. metonymy (e.g. in Hopper & Traugott 1993), soon made precise as
4. shift from implicature to literal content (with the side effect of strengthening, not predicted by the first two approaches)
5. semantic rearrangement of atoms of meaning, Langacker (1977)
6. subjectification, proposed by Traugott (1989), Traugott & Dasher (2002)

These earlier proposals can be criticised more succinctly once we know what an alternative proposal could look like.

3. Semantic reanalysis

I will start this section by taking a closer look at some examples. The first case concerns the reanalysis of a German adjective *voll* ('full') into the head of a complex determiner phrase that denotes quantities. The following two sentences illustrate the shift, which is one of those cases of grammaticalization that are currently under way (Sahel 2007; Traugott 2008 offers a description of the similar shift of *a lot of* in English). Both uses are part of Modern High German but the one in (6) is newer and derives from the older one in (5).

(5) *Ein Glas voll Weines stand auf dem Tisch.*
a glass full of-wine stood on the table
(6) *Ein Glas voll Wein muss in die Soße.*
a glass-full of wine must into the sauce

Simplifying the actual patterns a little bit, the contrast is the following: In (5), the referent of the subject argument is a glas. Reference is also made to wine, but only as part of the AP modification of the glas. The glas is available as discourse referent. The adjective *voll* assignes genetive case to its complement DP (*Weines*), and the adjective phrase modifies the head noun (*Glas*) of the subject DP. In (6), the referent of the subject DP is the wine, whereas no referent is introduced by *Glas*. Both the container noun *(Glas)* as well as the whole DP show nominative case, i.e. receive case by the verb. No genitive case is assigned. For ease of exposition, I will concentrate on these two kinds of use which were brought to my attention by Sahid Sahel.

In the use in (5), the adjective *voll* actually carries a highly complex functional load based on the conceptual core FILL, the relation of some container *x* being filled with substance or objects *y*. I will use FILL(x,y) for this binary relation. The adjective phrase *voll* DP_{GEN} arises by combining a complex noun NP with the FILL relation to yield a property. The following lambda term specifies the contribution of *voll* in uses like (5). (Note that the existential quantification over *Wein* is provided by the adjective; alternative formalizations could be envisaged.)

(7) $[[voll_{adj}]] = \lambda Q \lambda x[\exists y(\ FILL(x, y) \wedge Q(y)\ )]$

As a consequence, the adjective *voll* can combine with a property Q, leading to the property of being filled with some Q-object or substance (e.g. '*voll Milch*').

In the relevant use of (6), *voll* has likewise a complex functional load, but a different one. Now it has to combine with an existential noun phrase that denotes a potential container, like *eine Hand, mehrere Gläser* etc. It moreover has to combine with a numeral (*ein, zwei, . . .*) which agrees with the container noun. The result is a generalized quantifier. The lambda term in (8) offers a first approximation.

(8) $[[voll_{measure}]] = \lambda D \lambda P \lambda Q[\exists y\ (\ \Diamond[D(\lambda x.FILL(x, y)] \wedge P(y) \wedge Q(y)\ )]$

The rationale behind this semantic building block does not reveal itself easily. It can best be understood if we consider the intended result. Combined with a measure NP (e.g. '*ein Glas*') and a noun that denotes a substance ('*Wein*'), the result should denote a complex NP meaning ('there is wine that could possibly fill a glas, which does *P*'). The combination proceeds as follows:

(8′) a. $[[ein\ Glas]] = \lambda Q.\exists z[GLAS(z) \wedge Q(z)]$

b. $[[ein\ Glas\ voll]] =$
$\lambda D \lambda P \lambda Q'[\exists y(\Diamond[D(\lambda x.FILL(x, y)] \wedge P(y) \wedge Q'(y)])] (\lambda Q[\exists z(GLAS(z) \wedge Q(z))])$
$= \lambda P \lambda Q'(\ \exists y[\Diamond[\lambda Q[\exists z(GLAS(z) \wedge Q(z))] (\lambda x.FILL(x, y)] \wedge P(y) \wedge Q'(y)])$
$= \lambda P \lambda Q'(\ \exists y[\Diamond[\exists z(GLAS(z) \wedge FILL(z, y))] \wedge P(y) \wedge Q'(y)])$

c. $Wein \rightarrow \lambda w.WINE(w)$

d. $ein\ Glas\ voll\ Wein \rightarrow$
$\lambda P \lambda Q'(\ \exists y[\Diamond[\exists z(GLAS(z) \wedge FILL(z, y))] \wedge P(y) \wedge Q'(y)]) (\lambda w.WINE(w))$
$= \lambda Q'(\ \exists y[\Diamond[\exists z(GLAS(z) \wedge FILL(z, y))] \wedge \lambda w.WINE(w)\ (y) \wedge Q'(y)])$
$= \lambda Q'(\ \exists y[\Diamond[\exists z(GLAS(z) \wedge FILL(z, y))] \wedge WINE(y) \wedge Q'(y)])$

The result denotes the generalized quantifier that holds true of those properties Q′ such that there is something *y* that is wine, that can possibly be filled into one glass, and that has Q′. Note that as a consequence of the modal embedding of the container statement, the resulting semantic representation is still based on our old predicate FILL but we can explain that no real glas is referred to (and hence, no real glas has to be thrown into the sauce in sentence (6)). Let me repeat the old and new representation of *voll* below:

(7) old: $[[voll_{adj}]] = \lambda Q \lambda x[\exists y(\ FILL(x, y) \wedge Q(y)\ )]$
(8) new: $[[voll_{measure}]] = \lambda D \lambda P \lambda Q'[\exists y(\Diamond[D(\lambda x.FILL(x, y)] \wedge P(y) \wedge Q'(y)\ )]$

I think that this example nicely illustrates that the new measure head *voll* still rests on the property of *x* being filled with *y*, but integrates this property with the denotations of its sister constituents in a radically different manner. The full development of classifiers of the N-*voll* type would deserve an investigation in its own right. Interestingly, there are instances of the older meaning with the newer case assignment pattern; i.e (8) could *sloppily* be used to refer to a glas which has the property of being filled with wine. Obviously, many sentences are such that the two readings are practically synonymous. For instance,

Eine Flasche voll Wein stand auf dem Tisch (A bottleful / bottle full of wine was standing on the table) can only be true if the container is also present; otherwise the wine would not stand but float on the table. I will moreover leave it open whether N-*voll* ('N-full') turns into a complex quantifier at a certain point and looses all internal structure, as orthography may suggest.

Consider once again possible ambiguous uses of *N-voll* as the one above. Observations like these are typically refered to as "gradual meaning change" in the literature. A concept-only semantic analysis would presumanly not see much difference in terms of content at all; the different combinations would perhaps be relegated (without analysis) to constructions. The semantic values in (7) and (8) explicate the combinatorical structure of either item and reveal that the change in meaning is considerable.

In other cases, we do find a real redistribution of conceptual content. The following steps recapitulate the development of *go + progressive + implicatures* into *going-to* as a future tense. In this case, the reanalysis has to refer to sentence level because I will assume that implicatures arise at the sentence level.

(9) *Emil is going to visit a priest.*

I will start with the semantic analysis of (9) in terms of the older movement reading of *go*.

(10) a. [[*go-*]]
$= \lambda e \lambda x \textsc{Go}(x, e)$

b. [[*to visit a priest*]] $= \lambda e \lambda x \exists e' (\ \textsc{Goal}(e, e') \wedge \exists y (\ \textsc{Priest}(y) \wedge \textsc{Visit}(x, y, e')))$

This is the goal-oriented interpretation of the *to* phrase, which provides a relation between people *x* and events *e, e*' such that there is some priest *y* whom *x* visits in *e*', and *e*' is the GOAL of some further event *e*. (I take a short-cut and will not use a PRO to mediate between matrix subject and the subject of the infintival clause). Next, the two relations can be intersected.

c. [[*go- to visit a priest*]] =
$\lambda e \lambda x (\ \textsc{Go}(\ x, e\ ) \wedge \exists e' (\ \textsc{Goal}(e', e) \wedge \exists y (\ \textsc{Priest}(y) \wedge \textsc{Visit}(x, y, e'))\ )$

We can now turn to the integration of the progressive aspect, which I will analyse in Reichenbachian terms as locating the event time τ(e) around the current reference time R.

d. [[Progressive *go- to visit a priest*]] =
$\lambda x (\exists e\ (\ R \subset \tau(e) \wedge$
$\textsc{Go}(\ x, e\ ) \wedge \exists e' (\ \textsc{Goal}(e', e) \wedge \exists y (\ \textsc{Priest}(y) \wedge \textsc{Visit}(x, y, e'))\ )\ )\ )$

Next, we integrate the tense information.

e. [[Present Progressive *go- to visit a priest*]] =
$\lambda x (\ R = S \wedge \exists e\ (R \subset \tau(e) \wedge$
$\textsc{Go}(\ x, e\ ) \wedge \exists e' (\ \textsc{Goal}(e', e) \wedge \exists y (\ \textsc{Priest}(y) \wedge \textsc{Visit}(x, y, e'))\ )\ )\ )$

Finally, we will apply this predicate to the subject of the sentence, the denotation of the name *Emil*.

f. [[*Emil* PRESENT PROGRESSIVE *go- to visit a priest*]] = $\exists e($ $R = S \wedge R \subset \tau(e) \wedge$ GO(EMIL,e) $\wedge \exists e'($ GOAL(e',e) $\wedge \exists y($ PRIEST(y) $\wedge$ VISIT(EMIL, y, e'))))

The literal content of example (10), represented in (10f), allows the default inference that the planned visit is imminent, assuming some world knowledge about Go and its goals. We can now proceed to the reanalysis process. The first step consists in an inference that hearers might standardly draw when presented with content like (10f). (11) captures the belief that 'seen from now, the proposition that Emil visits a priest will be true soon' or so. A similar step is assumed in most accounts of the development of *going to* future in English. My explication of semantic reanalysis will just make use of this "understood message" in a richer and more elaborate sense, as will become clear presently.

(11) Default inference:
$\exists p($ IMMINENT(now, p) $\wedge$ p = ^[$\exists y \exists e'($ PRIEST(y) $\wedge$ VISIT(EMIL, y, e'))])

The modal relation IMMINENT is supposed to hold true for those propositions which are bound to become true in the future, as far as we can tell at the time *now*. Interestingly, the inference (11) is not as yet temporally anchored, and hence the proposition in (11) does not lend itself to become the literal content of a sentence. The hearer who has decided to understand (10) as denoting something like (11) will first have to guess a reference time for (11), proceeding to (12). The move from (11) to (12) reflects the difference between a listener who subconsciously reasons "hm, (9) might entail something like (11)" to the listener who believes "hm, the speaker uttered (9) which *literally means something like* (11)—or, rather (12)".

(12) ($R = S \wedge \exists p($ IMMINENT(R, p) $\wedge$ p = ^[$\exists y \exists e'($ PRIEST(y) $\wedge$ VISIT(EMIL, y, e'))])

Now we can reason backwards, trying to build up (12) from the linguistic material in (9), leaving as much unchanged as possible. Hence, we leave the parts in (13) untouched.

(13) a. [[*visit*]] = $\lambda y \lambda e' \lambda z$(VISIT($z$, y, e'))
b. [[*a priest*]] = $\lambda Q \exists y$(PRIEST(y) $\wedge$ Q(y))
b. [[*Emil*]] = *Emil*
c. [[PRESENT]] = ($R = S$)

Yet, the derivation of (12) from (9) leaves a semantic chunk that is not as yet provided by any part of the sentence. Luckily, however, we also have a remnant phrase. At this point, the missing link depends on the assumed syntactic structure of the resulting construction. I will assume, conservatively, that the order of combination was still such that the *be going to* chunk is combined with the VP, and only then the subject NP enters the computation.

(14) remnant material ⇔ missing meaning
[[*be going to*]] $\lambda P \, \lambda x$[IMMINENT(R,^P(x))]

The futurate meaning (14) will take scope over the proposition *p* which arises by interpreting the root clause; the PRESENT tense takes scope over the constituent in (14). The composition of the parts in (13) and (14) can now proceed in the regular way, and will, as shown in (15), yield exactly the target proposition in (12). (If the reader attempts to do the composition of (13a) and (13b), note that it gives rise to the notorious type mismatch for object quantifiers. Presenting a full semantic derivation of the example would burden the article unnecessarily; for a standard treatment see Heim & Kratzer 1998.)

(15) a. $[[\textit{visit a priest}]] =$
$\lambda z \exists e' \, \exists y(\textsc{Priest}(y) \wedge \textsc{Visit}(z, y, e'))$

b. $[[\textit{b- going to visit a priest}]] =$
$\lambda P \, \lambda x[\textsc{Imminent}(R, \hat{} P(x))] \, (\lambda z \, \exists e' \, \exists y(\textsc{Priest}(y) \wedge \textsc{Visit}(z, y, e')) \,) \,)$
$= \lambda x[\textsc{Imminent}(R, \hat{} \, \lambda z \, \exists e' \, \exists y(\textsc{Priest}(y) \wedge \textsc{Visit}(z, y, e'))(x))]$
$= \lambda x[\textsc{Imminent}(R, \hat{} \, \exists e' \, \exists y(\textsc{Priest}(y) \wedge \textsc{Visit}(x, y, e')))]$

c. $[[\textit{Emil b- going to visit a priest}]] =$
$= \lambda x[\textsc{Imminent}(R, \hat{} \, \exists e' \, \exists y(\textsc{Priest}(y) \wedge \textsc{Visit}(x, y, e')))] \, (\textsc{Emil})$
$= [\textsc{Imminent}(R, \hat{} \, \exists e' \, \exists y(\textsc{Priest}(y) \wedge \textsc{Visit}(\textsc{Emil}, y, e')))]$

d. $[[\textit{Emil} \, \textsc{Present} \, \textit{b- going to visit a priest}]] =$
$(\, R = S \wedge [\textsc{Imminent}(R, \hat{} \, \exists e' \, \exists y(\textsc{Priest}(y) \wedge \textsc{Visit}(\textsc{Emil}, y, e')) \,)] \,)$

The analysis rests on the assumption that the subject has always scope over the future operator. This assumption is corrobated by corpus studies on the early uses of *going to* (see Krug 2000), which show that impersonal subjects, subjects in the scope of the future operator, and expletive subjects do not occur at an early stage (around 1600). The present analysis hence requires that we assume a further generalization of *going to* to a propositional operator for these cases. This illustrates how small discrete steps of change can create the impression of gradual semantic shift.

Taking stock, we find the following changes at the structural and semantic level. At the structural level, the status of the auxiliary *be*, and the gerund *-ing* have changed. In the conservative interpretation in (10), they contribute the progressive aspect. In the reanalysed interpetation in (15), they are part of the phrasal *be going to* construction. The structural status of the particle *to* likewise changed. In the older analysis, it figured as part of the embedded infinitive clause. In the reanalysed interpretation, it is an unanalysed part of the phrasal *be going to* construction. In the present case, hence, there is no continuity in the parts of the sentence such that we could spot one item that carries the change. However, we can—as is often done—at least parallel the meaning of the older *be going* and the newer *be going to* in the given sentences.

(16) $[[\textit{be going}]]_{\text{OLD}} \quad \rightarrow \quad \lambda e \lambda x(R \subset \tau(e) \wedge \textsc{Go}(\, x,e \,) \,)$
$[[\textit{be going to}]]_{\text{NEW}} \quad \rightarrow \quad \lambda P \lambda x[\textsc{Imminent}(\, R \, , \hat{} P(x))]$

Comparing old and new in (16), we can trace all changes that have been proposed in the literature. A simple intransitive turns into an aspectual which relates a proposition (to be built up from VP and the subject) to the time of reference, stating that the proposition is bound to become true, as far as can be said at the reference time R.

The crucial observation is that the new meaning did not arise in any way by looking hard at the old meaning in (16), extending it in a metaphoric sense, sensing metonymic

relations between walking and futurity, generalizing the notion of walking, or anything the like. $(16)_{NEW}$ arose by attributing a missing chunk of meaning to a suitable chunk of form. This was done in (14), and the motivation for (14) is simply to come from (13) to (15d) in a compositional manner. If you find this spooky, acknowledge that we perform similar tasks in very innocent situations. Suppose that your spouse enters the flat, accompanied by a dark stranger that you have never seen before, and you hear him say (17):

(17) "Meet my old school mate Toni!"

You will infer in this situation that you are supposed to meet the stranger, and the best compositional way to derive this proposition from the sentence in (17) is by assuming that the word *Toni* refers to the dark stranger. What is special about the guessed correspondence in (14), in contrast to (17), is that the intended denotation is not conveyed by an act of ostension (= pointing to things in the world). The denotation in (14) only becomes salient as filling the gap between two other denotations; it's a spandrel, so to speak. The concept Toni, in contrast, could be conveyed without further linguistic knowledge by simple deixis. The intended denotation in (14) is "waiting for a property concept, waiting for an individual concept, attributing former to latter and stating the imminence of the resulting proposition". Such a denotation can *necessarily* only arise after speakers have mastered the art of functional and syntactic composition.

Another advantage of this analysis lies in the fact that it can help to resolve the tension between gradual changes at the surface, and discrete steps of change, as assumed in reanalysis. Old and New denotation in (16) are not similar at all, and the analysis implies that the latter arose in one step, without any gradual intermediate stages. Meaning change in semantic reanalysis is discrete. This does not contradict the justified observation that *sentences* can receive very similar interpretation in the old, and the new analysis (particularly if we count in pragmatic implicatures).

After these examples, I will now turn to a general characterization of semantic reanalysis. Consider an utterance *u* with speaker *S* and interpreter *H*. I will refer to the language system (lexicon, grammar, phonological forms) before utterance *u* as the "old" language system. The language system of the interpreter *H* after having parsed *u* will be an instance of the "new" language system (so we restrict attention to utterances where something changes).

i. The utterance *u* is uttered, and can be understood, in terms of a structural analysis in terms of the *old language system*. In this interpretation, it will convey some proposition ϕ_{old} as its literal content.
ii. There are several dimensions in which *u* can transcend this old state. On the semantic side, the utterance *u* can be understood in the utterance context with a richer or different meaning ϕ_{new}. ϕ_{new} may come about as ϕ_{old} plus implicatures. ϕ_{new} may also come about by interpretative processes outside the core language system, in the extreme case by chance guessing.
    On the syntactic side, the hearer may see the possibility for a different structural analysis of the utterance (see the *voll* example). Both changes can co-occur.
iii. The hearer hypothesizes a second possible syntactic/semantic analysis for *u*. All parts of the utterance need to contribute denotations such that the regular semantic composition (possibly with a new structural backbone) of these parts yields ϕ_{new}.

iv. Most parts of the sentence contribute conservatively in iii., that is according to their old lexical entry. Some parts can be attributed a new meaning by the interpreter in order to achieve iii. Specifically, the hearer will assume that some parts should contribute *those* denotations that are missing in order to come to the understood meaning ϕ_{new} in a compositional manner.

These steps pertain to single utterance interpretations. Evidently, the occurrence of just one single situation of this type is not sufficient to make a language change. However, if a suitable number of utterance situations support the hypothesized "new" meanings for old word forms in iv., the new entry is permanently adopted into the lexicon of the speaker community. Note that the described utterance situation is a true turning point. The speaker of *u* is still confidently using the *old language system*. The interpreter derives a hypothetical *new* language system on basis of this utterance. This narrow conception of semantic reanalysis, hence, does *not* rest on creative intentions of the speaker *S* in the above utterance situation.

Another aspect of this analysis is that semantic reanalysis is not necessarily restricted to shifts from content word to grammar. Semantic reanalysis can recruit parts of a sentence for denotations that are considered 'grammar', but the process can equally well couple an item with information about the current discourse moves, information about logical coherence, scalar information, and in rare cases even independent conceptual content. (For instance, novels by A. McCall Smith use a version of English where the adverbial *late* 'former' has turned into an adjective *late* 'dead' with both attributive and predicative use.) The result may be of a kind that suggests a radically different word class for the new item, or only mild changes. I will review more examples below.

It is still open what leads the interpreter *H* to hypothesize a new semantic derivation for the utterance. The mere presence of implicatures can't be sufficient, because we know a wide range of conventionalized implicatures that have resisted semantic reanalysis over long periods. Little can be said about cases of simple error. Many actual instances of semantic reanalysis suggest that the urge to *Avoid Pragmatic Overload* often plays a rôle: Assume that *u* in the old sense ϕ_{old} requires unwarranted presuppositions. The speaker makes his utterance under the assumption that the interpreter will accommodate them. The interpreter may see this possibility but considers the required accommodations implausible. As an interpretive alternative, *H* hypothesizes a new message ϕ_{new}, leading to reanalysis. A survey of examples suggests that this constellation might typically arise for "fashion words" associated with high status. Fashion words are cognitively salient and tend to be over-used, with the side effect of not always perfectly matching the intended message. It would be a fascinating task to find out whether this kind of "premium access" bears similarity to priming and can block lexical access to other, semantically more appropriate items. Suitable psycholinguistic investigations would lead to a better understanding of the synchronic mental processes that feed language change.

4. More examples

We have seen an example for structure-driven semantic reanalysis at the beginning of section 3. Another nice example is the reanalysis of the participle (genitive) *währendes* into a preposition. The Deutsches Wörterbuch (Grimm 1885–1962, DW) attests the following context of change.

(18) a. während*es* Krieges
lasting$_{\text{GENITIVE}}$ war$_{\text{GENITIVE}}$ “while the war was lasting”

b. *während des Krieges*
during$_{\text{PREP}}$ the$_{\text{GENITIVE}}$ war$_{\text{GENITIVE}}$ “while the war was lasting, during war”

In this case, reanalysis is presumably driven by structural factors. The original (18a) was a free genitive NP in an appositive sense, an increasingly rare construction that has survived only in few fixed collocations in German ([*stehenden Fußes*]$_{\text{GEN}}$ “standing foot’s ” = ‘immediately, without even sitting down’, [*blutenden Herzens*]$_{\text{GEN}}$ “bleeding heart’s” = ‘with bleeding heart’). The homonymy of *d+es* (genitive affix) and *des* definite article (masc.) offered the basis of a new analysis as a prepositional phrase, at least for nouns of masculine gender.

The earlier participle belongs to the verb *währen* (‘go on for a long time’, ‘continue’) Definiteness of the NP (*Krieges*) and temporal co-occurrence (of ‘war’ and the events in the main clause for (18a)) is part of the meaning of the free genitive appositive, which introduces concomitant circumstances in a general sense.

The newly emerging preposition *während* requires a complement that denotes an event or a time interval, and turns it into a temporal modifier for events (or time frames). The new preposition follows the compositional pattern of other prepositions and therefore allows for more types of argument NPs, e.g. NPs that denote time intervals and even quantified NPs as arguments (e.g. *während der meisten Sitzungen* = ‘during most of the sessions’ would not have an analogue in the old construction). The new meaning of the PP is also more concise than the denotation of the older appositive, in that unspecific concomitance is replaced by succinct temporal inclusion. For a formal spell-out of the semantic steps, see Eckardt (2011).

Sometimes, metaphoric extension and semantic reanalysis work hand in hand. A recent study by Heine & Miyashita (2006) traces the development of *drohen zu* in German to become a marker of unwelcome-futurate. They distinguish four different current stages, illustrated below.

(19) *Karl droht seinem Chef, ihn zu verklagen.*
Karl threatens to.his boss him to sue
‘Karl threatens to sue his boss’ (volitional)

(20) *Uns droht nun eine Katastrophe.*
to.us threatens now a disaster
‘A catastrophy is treatening’

(21) *Das Hochwasser droht die Altstadt zu überschwemmen.*
The flood threatens the old-town to flood
‘The flood threatens to flood the old town.’

(22) *Mein Mann droht krank zu werden.*
my husband threatens sick to become
‘My husband is about to become sick’

Clearly, the old lexical verb *drohen* (‘threaten’), description for a kind of verbal or non-verbal aggression, has been extended to a so-called semi-modal (Eisenberg 1999). I

propose that two semantic shifts interact in this case. First, there is clearly a metaphoric component that allows to extend the behavioral concept *threat* to inanimate subjects. When we talk about a "threatening thunderstorm", we conceptualize the black clouds that approach at the horizon as an animate subject which volitionally causes the emotional impression that we feel. To the extent that the metaphor of some animate threatening agent is implausible, hearers will consider the more plausible *new* structural analysis of the clause, one that takes the denoted state of affairs in total as the threat. In terms of syntax, *drohen* is then close to a modal verb (or semi-modal). In terms of meaning, *drohen* denotes a modal of *unwelcome futurate* and takes scope over the rest of the sentence. It is at this point that structural and semantic reanalysis takes place. After the change, sentences like (22) are truely structurally ambiguous. (22) in the old meaning of *drohen* states that my husband—somewhat irrationally—utters a threat to the end that he will volitionally become sick. (22) in the new sense of *drohen* states that there is a state of affairs 'my husband sick' which is presently imminent, and which the speaker does not like. This turns *drohen* into something like an anti-buletic modality. Like all threats, *drohen* leaves it open wether the state of affairs is likely to become true, or just possible. After all, we utter threats in order to influence other peoples' behaviour—the ideal threat is the one that we need not exert.

The old Germanic adjective *fast* in the sense of 'firm', 'solid', 'immovable' has been subject to an interesting development in German. In modern German, its descendant *fast* is an proximity adverb 'almost' (while the umlaut variant *fest* still carries the original sense). The German proximity adverb *fast* derives from the degree comparative *fast = hard, very much,* . . . like in English "grip fast" (which, in English, turned into the adjective for *with high speed*, see the extremely comprehensive study by Stern 1921). How can a word that denotes "very much so" turn into a word that means "almost, but not actually"? The authors of DW (Grimm 1885–1962: Vol.3, 1348–1350) offer a very detailed database for the stages of the development.

The old use *fast* in the sense of "tight", "firmly" was used for physical or metaphorical links between things (used c1500–c1700):

(23) a. *sölh pflicht halt fast*
this duty hold fast
b. *halt fast den pfluog*
hold the plough fast / tightly

From this intensifying use with verbs that report maintenance of contact, *fast* was extended to a generalized degree adverb, roughly like *very*, *much*$_{adv}$. (It is from this point that *fast* in English was reduced again to high degrees of speed for movement verbs).

(24) *dis ler und trost mich* FAST ERQUICKT
this lesson and consolation revives me very much
(25) *wenn du gleich* FAST *danach* RINGEST, *so erlangest du es doch nicht.*
even if you struggle for it hard, you will not attain it

It is also in this sense that we find it with participles and adjectives, such that *fast schön* at that time meant 'very beautiful', and *not* like ModHG "almost beautiful".

Interestingly, the DW faithfully reports on examples where "die bedeutung sehr in die von *fere* (= Latin *almost*) ausweich(t)", i.e. where the meaning strongly tends to 'almost' rather than 'very'. The quoted examples offer very nice evidence in which sense the intensifying 'very' sense became shifty.

(26) *weil er fast hundertjerig war*
he was *very much*?/ *almost*? hundred years old
(27) *kamen darauf fast um zwo uren*
(they) arrived there *very much*?/ *almost*? at two o'clock /*sharp*?
(28) *das fast nicht ein balken vergessen war*
that *very much*?/ *almost*? not a single log was forgotten

In the long run, the two different readings were correlated with the stem-umlaut difference and *firmly* was conventionally expressed by *fest* whereas *fast* was reserved for the new meaning *almost*. I will use $fast_{deg}$ to refer to the degree adverb, whereas $fast_{prox}$ will be used for the proximity adverb.

In order to understand the change that occured in the wake of examples like (26) to (28), let us look at the older meaning of *fast* in the sense of *very much*. Without aiming at a full analysis of modern *very much* or *sehr*, I propose the following representation: $fast_{deg}$ can combine with a scaled property *P* and states that the event/entity talked about is at the high end of the scale.

(29) $fast_{deg}$ *hungrig*
"be hungry to a degree which is high on the scale of possible degrees of hungriness"

It still contrasts with "absolutely" or "extremely", hence it is plausible to allow for higher values on the P scale.

(30) $fast_{deg}$ *hungrig*
"be hungry to a degree which is high on the scale of possible degrees of hungriness, with (possibly) some higher degrees"

Let us assume that the degrees are represented as a linear order <. This leads to the following representation for older $fast_{deg}$:

(31) $fast_{deg}$
$\text{FAST}(\lambda x \lambda s \text{P}(s,x))$
$:= \lambda x \lambda s[\text{P}(s,x) \wedge \text{MOSTy}(\text{P}(s,y) \rightarrow y<x) \wedge \exists z(\text{P}(y,z) \rightarrow x<z)]$

In prose, $fast_{deg}$ takes a property *P* as its argument, and maps it to that subproperty which comprises those entities which have the property *P,* and are more *P-ish* than most but not all other entities in terms of the relevant ordering. This is reflected by the use of the ordering relation < which is supposed to cover up for more intricate ways to determine the

degree of *P*-ness of a given object *a*. The semantic representation predicts that $fast_{deg}$ can only apply to *gradable* properties *P*. (As an aside, note that the given definition needs to be complemented by a clause which ensures that FAST-P denotes a convex area on the scale. I would like to thank Hans-Martin Gärtner for clarifying discussions, for details see Eckardt 2007.)

The quotes in (26)–(28) and similar ones in the DW have in common that the pragmatic support for the use of $fast_{deg}$ in the *very much* sense is lacking. Consider an example like (26). The property of "*being 100 years old*" does not commonly refer to degrees. Degrees can, perhaps, be introduced, like in contexts where different 100 year olds show typical properties of the very old to various degrees. In such a situation, one might state that "Jones is so very much a 100 yearer". The incompatibility between *fast* and the property *be 100 years old* hence is a conceptual one, not one of grammar. However, nothing in the quoted contexts seems to have warranted such a scale. An utterance like (26') in a context without support for a suitable scale creates a *pragmatic overload.*

(26′) Er war $fast_{deg}$ 100 Jahre alt.

The speaker might have trusted in the intensifying use of $fast_{deg}$. We can but guess. He might have had the intention to refer to a scale ranging from "*around 100 years*", to "*very close to 100 years*" and culminating in "*exactly 100 years*". This is indeed a scale, and one that would predict that "*very much 100 years old*" in this sense means "*exactly 100 years old*". The use of such a scale would have warranted a conservative use of $fast_{deg}$, but one that the contemporary reader (as well as the authors of the DW) did not find very plausible. A pretty insalient scale would have to be accessed in order to get this reading. Instead, listeners hypothesized a pragmatically leaner reading which rests on a new meaning: $fast_{prox}$. And in fact, the reanalysis is minimal. In order to see this, we need to consider a semantic representation of the proximal adverbs. In (32), we see a suitable denotation *Almost* for *fast* in its new, 'almost' sense (a detailed discussion is offered in Eckardt 2007; for a fuller record of data in the change of *fast* see Eckardt 2011).

(32) a. *Almost* is an operator that can combine with property concepts of arbitrary arity, including zero (i.e. propositions). The argument will be written as $\lambda\overline{x}\lambda s P(s,\overline{x})$ where $\overline{x}$ is a vector of variables. This reflects that *Almost* can combine with propositions, relations, properties; in other words: the new item is very flexible in semantic composition.

b. The operator *Almost* poses the following presuppositions on its argument and context of use:

a. There is a conceptually salient SUPERPROPERTY of P, Π such that $\lambda\overline{x}\lambda s P(s,\overline{x}) \subset \lambda\overline{x}\lambda s \Pi(s,\overline{x})$

b. The elements of the superproperty can be compared in terms of a PRE-ORDER **<**:
For any a, b, c and s, s', s" such that $\Pi(s,a)$ and $\Pi(s',b)$ and $\Pi(s'',c)$:
transitivity: $<\overline{a},s> < <\overline{b},s'> \wedge <\overline{b},s'> < <\overline{c},s''> \rightarrow <\overline{a},s> < <\overline{c},s''>$
asymmetry: $<\overline{a},s> < <\overline{b},s'> \rightarrow \neg(<\overline{b},s'> < <\overline{a},s>)$

c. The argument taken by *almost* has to cover the maximal part in Π with respect to the order. MAXIMALITY of P: for all $\overline{x}, \overline{y}, s, s'$: $P(s, \overline{x}) \wedge \Pi(s', \overline{y}) \rightarrow <\overline{y},s'> \leq <\overline{x},s>$

In prose, ALMOST applies to a property *P* by making reference to a superproperty of *P*, like for example *P* = 'be 100 years old' with superproperty 'be *n* years old, for some *n*'. The superproperty here is naturally ordered by *n* (so, 'be 5 years old' would count less than 'be 10 years old' etc.)

If all these requirements are supported either by world knowledge or contextual background, *almost* can apply and maps *P* to the property ALMOST(*P*).

(33) ALMOST ($\lambda\overline{x}\lambda s P(s,\overline{x})$)
$:= \lambda\overline{x}\lambda s[MOST<\overline{y},s'>(\Pi(s',\overline{y}) \rightarrow <\overline{y},s'> < <\overline{x},s>) \wedge$
$\forall<\overline{z},s''>(P(s'',\overline{z}) \rightarrow <\overline{x},s> < <\overline{z},s''>)]$
'all those *x* that are high in the superproperty, though they do not reach the maximal *P*
region'; in our example 'all those *x* of high age but below 100'.

The present analysis of *almost* reveals that an intensifier *very* (see (31)) only needs minimal adjustments in meaning in order to turn into the proximal adverb, and it moreover predicts that such adjustments should be made in response to exactly those uses that define the turning point. It turns out that the conceptual core of the item did not change much. Confronted with examples like (26) that lack a scale, hearers addressed a scale on a derived superproperty Π instead of the original property P, and applied just the old denotation of $fast_{deg}$ to that superproperty. (34) reveals that the actual meaning change at the level of the modifier was really minimal.

(34) $fast_{prox}(P) := fast_{deg}(\Pi)$

In other words, $fast_{deg}$ modifies a scalar property P exactly in the same way as $fast_{prox}$ modifies a derived scalar property Π. It should be noted that ALMOST is *not* the widely used modal analysis that goes back to Sadock (1981). Among other disadvantages of the Sadock analysis, only the operator presented here allows to understand the semantic relation to older $fast_{deg}$.

5. What semantic reanalysis is not

Generalization or bleaching have been proposed to be the driving force in grammaticalization. Is semantic reanalysis the same as *generalization*? I would argue against this identification. Semantic reanalysis *can* lead to an increased range of application for some word. We saw an instance in the case of *drohen* where a property of persons turned into a propositional operator. Other modals show similar developments. Yet, the essence of semantic reanalysis lies in a changed compositional structure of sentences; extensions can, but need not happen. Grammatical meanings have also been claimed to be more abstract than content words, and hence arise by *bleaching*. I suggested in the discussion of the *going to* future that the denotations of grammatical words become salient as spandrels between content word meanings and clause meanings (Givón 2009: 316). This can explicate in which sense these meanings are abstract, without postulating a new type of meaning change. On somewhat different grounds, Traugott (1988) argues that grammaticalization involves enrichments as well as generalizations and hence *bleaching* alone does not suffice.

Metaphor was proposed to be the semantic shift in grammaticalization by Heine, Claudi & Hünnemeyer (1991), Bybee, Perkins & Pagliuca (1994), Sweetser (1990), Stolz (1994) and others. We saw in the case of *drohen* that metaphor can be the first step of a development. However, I proposed that the grammaticalized form follows later, driven by avoidance of pragmatic overload when the original metaphor is used without conceptual support. Other examples of semantic reanalysis clearly show that metaphor need not figure in the process at all, like in the stories of *voll*, *fast*, *während, a lot of*, or *selbst, lauter* (Eckardt 2006), the *say*-based futures in Bantu languages (Uche 1996/1997; Botne 1998) and many other cases.

Metonymy was proposed by Traugott, and most detailed in Hopper & Traugott (1993) as the process accompanying grammaticalization. The authors identify the pairing of a certain syntactic structure with a certain *supposed* literal meaning as the true source of grammaticalization. In order to justify the classification as metonymy, the authors count the coupling of form and meaning as an instance of *contiguity*. Contiguity is the term traditionally used for conceptual closeness in metonymic shifts like from container to thing contained, from author to book, from disease to patient, etc. I think that semantic reanalysis differs substantially from metonymy because the two kinds of 'closeness' are distinct. Metonymy rests on contiguity relations between things in the world which hold true independently of language. Containers and the things contained are close concepts, no matter whether we talk about this fact or not. In contrast, semantic reanalysis rests on incidential 'closeness' between words and possible contents. For example, the closeness between the word *go* in the progressive form and the possible content: *imminent future* can only ever arise because people talk. To put it more drastically, a dog can master the contiguity between container and thing contained, but certainly not the contiguity between *going-to* and imminent future. (While I do not deny a dog's understanding for fixed phrases like *we're going to go out for a walk*, there is no evidence so far that dogs possess function words or morphemes.)

Traugott in collaboration with König, Schwenter, Dasher and others (Traugott 1988, 1989; Schwenter & Traugott 2000; Traugott & König 1991; Traugott & Dasher 2002) comes very close to the notion of semantic reanalysis; specifically when Traugott & Dasher (2002) point out that the reclassification of information from implicature to literal content of an utterance is the initiating step in the change. They also can capture the effect of *strengthening*, not predicted by analyses of grammaticalization in terms of generalization / bleaching.

As early as 1977, Langacker made a first attempt at describing semantic reanalysis as *semantic redistribution of atoms of meaning* over the parts of clauses. He discusses the origin of functional morphemes and words in several Indian languages. The approach was fraught by the problem that the relevant "conceptual chunks" that play a role in grammaticalization are arguably not atoms—most of them only become salient as spandrels. This might be the main reason why the proposal, otherwise very much in line with his characterization of structural, morphosyntactic reanalysis was never taken up in later years.

Finally, Traugott in a series of papers proposes *subjectification* as a general mode of meaning change. Subjectification is diagnosed when the speaker, hearer or other aspects of the utterance situation turn into parameters of the message. For instance, in the emergence of

epistemic readings for modals, Traugott points out that the modal base refers to the epistemic alternatives of the *speaker*. Hence the utterance (35) is more subjective in that the speaker relates the proposition to her epistemic base whereas (36) boldly asserts the proposition as true in the real world Portner (2009).

(35) *Tom must be Susan's new husband.*
(36) *Tom is Susan's new husband.*

Likewise, items that are reanalysed as discourse markers often convey a propositional attitude of the speaker, like in the following.

(37) *Tom is indeed a genius.*
(38) *Tom ist eigentlich ein angenehmer Mensch.*
Tom is *actually* an agreeable person

I think that these observations involve two interacting factors. One factor is semantic reanalysis, a process where—under suitable circumstances—*any* salient possible denotation can be coupled with an item. This part has nothing to do with a desire to express the subjective. On the other side, however, the numerous instances of emergent discourse particles offer strong evidence that emotional undertones may be *one strong source* for denotations that hearers find salient. Semantic reanalysis is a "denotation recruiting" process, drawing on several sources for new denotations: the new denotation can convey emotional information, or the spandrel consists of temporal information, or the spandrel consists of scalar information, or quantity information, and so on. Against this background, we can describe cases of semantic reanalysis without the need to sense subjectification as a justificational label all over the place (see e.g. the attempts in Visconti 2005 to diagnose subjectification in the emergence of *even* synonyms in Italian).

6. Avoid Pragmatic Overload

In the final section, we will consider the factors in utterance contexts that set reanalysis into motion. What is it that turns a potential change into an actual change? Proposals in recent years mostly are based on "conventionalization" (Lehmann 2002, Diewald 2002, Heine 2002) which, in the absence of a definition, suggests something like the adoption of a habit. This view does not explain why sentences *S* that were formed according to the rules of an older grammar L_{old} should ever be reanalysed in the first place. Sentence *S* under the older grammar was very well capable of expressing all the content that the speaker intended to convey. Hence, speakers could have maintained a habit of using certain phrases or constructions without any incentive to reanalyse anything, or "conventionalize" new language uses.

As an alternative to the habit view, I propose that the desire to *Avoid Pragmatic Overload* (APO) can start reanalysis (Eckardt 2009, 2011). In the present section, I will illustrate this proposal with some examples. Consider once again the development of *fast* to a proximity adverb. Examples like (26)–(28) turn up at a time when only the older (intensifying) reading should have been available. They violate the presuppositions of the intensifying adverb in that the modified properties are not gradeable. While unsupported presuppositions in general can be accommodated by the hearer, matters are different in the present

case. There is no salient scale for the property of "being 100 years old"; the speaker may have had some kind of scale in mind but whatever it was, it is not generally available. The hearer faces an instance of pragmatic overload. She could hypothesise suitable information and accommodate the unwarranted and unperspicious presuppositions. Alternatively, she can believe that the speaker meant to use the words and phrases of the utterance in a different, novel way. Under this alternative assumption, the hearer will parse a reanalysed version of the original utterance. (To repeat: the changes are still effected by semantic reanalysis, but the hearer undertakes reanalysis as an alternative to a pragmatically overloaded reading.)

Uses of words or constructions that rely on unwarranted presuppositions can be observed in many other instances of change. I will list some examples, pointing out the unwarranted presuppositions without further discussion; for an extensive discussion see the respective references.

The change of *selbst* from intensifier (*-self*) to focus particle (*even*) was antedated by uses like (39). The intensifier presupposes that the associated referent can be conceptualized as the center in a range of peripheral objects. This is what is violated in (39); the bees do not make a good center in a periphery of happy entities, neither the range of alternatives mentioned (wind, field, flowers) nor any other (Opitz 1978; see Eckardt 2007: ch. 6 and Eckardt 2001).

(39) *Bald kömpt der scharpffe Nord gantz vnverhofft gebrauset*
Quer vber Feld daher / pfeifft / heulet / singt vnd sauset /
Vnd nimpt die Lilie mit Vngestümme hin;
Die liebliche Gestalt bricht nichts nicht seinen Sinn.
Das grüne Feld beginnt vmb seine Zier zu trawren /
Die andern Blumen auch muß jhre Schwester trawren /
Die Bienen *fliegen* selbst *vor Schmertz vnd Trawrigkeit*
Verjrrt jetzt hin / jetzt her / vnd tragen grosses Leyd.

'(. . .) Soon comes the sharp north (wind) browsing quite unexpectedly / over the field, hissing, howling, singing and whistling / and takes the lily with violence / the lovely figure can not break his mind / The green field begins to mourn for its embellishment / the other flowers likewise must feel sorry for their sister / THE BEES THEMSELVES, FOR GRIEF AND SORROW, FLY ERRING NOW HERE NOW THERE / and carry great mourning.'

We can hence assume that APO motivated the reader to search for another interpretation of the crucial passage.

Another case is offered in Visconti (2005) who dicusses a similar development of Italian *perfino.* The original meaning was 'to-the-end', localizing a given entity at the endpoint of a presupposed temporal, spatial or abstract scale. The item developed a new use in the sense of 'even'. (40) shows the crucial kind of examples at the turning point, quoted in Visconti as the stage between the older, and the 'even' scalar use.

(40) *. . . in acqua, in neve, in grandine o pruina: a tutto il ciel s'inclina, perfino a quel che la natura sprezza.* ('Water, snow, hail or frost: To everything bends the sky, even to that which nature despises.') (Visconti 2005: ex. 17)

perfino in its older sense presupposes a scale of things and refers to its end point; however, the listed alternatives in the given example (water, snow, hail, frost) are not plausibly ordered on any motivated scale. In order to supply a scale against which the semantic contribution of *perfino* can be made, hearers seem to have resorted to the scale of likelihood. If we understand *perfino* relative to this scale, the resulting message will be that some referent is located at the endpoint of this scale. In other words, the state of affairs is reported as being the most unlikely among given alternatives—and hence APO leads straight to the *even*-use of *perfino.*

Another range of examples that create pragmatic overload can be found in the development of German *lauter* (*merely*; use around 1500) towards a quasi-determiner 'many/only'. The unwarranted presupposition of *merely* in an example like (41) consists in the claim that *devils* be a minor variant of *saints*.

(41) *(. . .) die barfuosser haben vil gelts außgeben dem Bapst, das sy den Franciscum iren Abgott auch moechten in des hibsch Register bringen, O ain kostliche eer das gewest wer,*
(. . .) 'the barefooted friars (= Franciscans) spent much money to the pope that they might also get Franciscus, their idol, into that nice register, O a fine honour this would have been, . . . '

sodoch	*lautter*	*Teuffel*	*solten*	*darinn*	*begriffen*
asyet	lauter	devils	should	therein	comprised
seyn	*und*	*kain*	*haylig*		
be	and	no	saints		

It is a subtle mismatch, but, as further developments showed, a substantial one. Rather than believing that devils could be conceptualized as fake-saints, the hearers hypothesized an instance of the newer 'many'/'only' use of *lauter,* hence understanding that 'only and many devils' were on the list, instead of the intended but infelicitous 'barely devils, no saints'.

These case studies suggest that the principle to *Avoid Pragmatic Overload* can indeed offer a plausible analysis for the initial phase of change. For instance, the authors of etymological dictionaries frequently offer examples at the turning point between older and newer meaning of a word that seem to fit the *APO* principle very well. A full analysis would need to start from attested older uses, and a tenable semantic/pragmatic analysis of these. Next, the actual uses in the crucial period need to be traced carefully in search for utterances where, to the best of our knowledge, we find that the item was used with unwarranted presuppositions that are moreover hard to accommodate. Driven by the APO principle, the reader may have searched for another plausible interpretation of the utterance, and often it can be seen that only minor supposed changes in structure and meaning yield a result that the hearers at the time must have found more convincing.

It is not an accident that the *Avoid Pragmatic Overload* principle echoes Lightfoot's principle to avoid structural complexity, first formulated in Lightfoot's (1979) reconstruction of the development of the modal system in English and echoed in later work (Lightfoot 1991, 1999, van Gelderen 2004). Lightfoot proposes that children at certain crucial

historical stages ignore the older complex syntactic structure of certain constructions in favour of a simpler new structural analysis. This analysis is still one of the most plausible assumptions in syntactic change, in spite of the problems that it raises for verification in historical data. It is assumed to operate during language acquisition, where virtually none is known for historical times. The principle to *Avoid Pragmatic Overload* can be understood as the semantic counterpart of Lightfoot's principle.

7. Summary

The present article took its start from grammaticalization, viewed as a special kind of language change. While the restructuring at the morpho-syntactic level is well-understood in many cases, the nature of the changes at the semantic side has only been tentatively addressed in traditional theories of language change. I argue that a compositional semantic theory is necessary to capture and investigate changes in the semantic composition of phrases and sentences that accompany morpho-syntactic restructuring. I introduced the core mechanisms in semantic reanalysis on basis of an example in section 3. While semantic reanalysis is of good service in analysing prototypical cases of grammaticalization, I argued in section 4 that this mode of change is by no means limited to changes that would classically count as grammaticalization. I presented more examples (*drohen, während, fast*) which illustrate the range of possibe applications for semantic reanalysis. Section 5 argues why semantic reanalysis is not simply a new word for modes of semantic change that were proposed earlier in the literature. Specifically, I argued that it is different from *generalization, bleaching, metonymy* and *subjectification.* The final section addresses the question of *why* hearers would assume new compositions for old messages of old sentences—innovation seems surprising, given that the older language system must already have been capable of conveying exactly the same messages (by literal content plus entailments) in exactly the old words. I suggest that the point of innovation is often defined by cases where the intended entailments are costly to derive. I call these cases instances of *pragmatic overload*. According to this picture, innovation arises essentially due to hearer's lazyness, or the attempt to *avoid pragmatic overload.*

8. References

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