SEMANTIC CHANGE IN GRAMMATICALIZATION

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Abstract
In this paper, I want to establish semantic reanalysis as an independent mode of meaning change in language history. My point of departure will be cases of language change that have traditionally been classed as „grammaticalization", on one hand because we will find very nice instances of semantic reanalysis particuarly in that field, and on the other hand because I think that the notion of semantic reanalysis that I propose can be particularly helpful in elucidating some hitherto poorly understood semantic changes in grammaticalization. In order to achive this double purpose, to characterise semantic reanalysis and to demonstrate its power as a tool of diachronic analysis, the paper is organized in the following way: I will first briefly present some cases of grammaticalization, focussing mainly on the meaning changes they involve. I will next give an overview over previous proposals as to what kind of semantic processes underlie these changes, arguing that neither of them is fully convincing. I will then demonstrate how the meaning side of the changes in question can be analysed as semantic reanalysis in semantic composition. Finally, I will evaluate the emerging picture with respect to the common observation that the meanings of words in grammaticalization just „fade away" or „bleach".

1   When words turn into grammar

It has long been established that independent lexical „content" words can change their status in the sentence by being reanalysed as more bound, functional „grammatical" words. You can find many sophisticated proposals in the literature that aim at making this intuitive description of a development precise and I do not wish to add to them. I will take „grammaticalization" as a descriptive term that covers about any change of that kind. Let me give you some examples.

The Modern French phrase *ne pas* expressing sentence negation developed from Latin negation *ne* and the former full Latin noun *passum* meaning 'step'. The development must already have taken its start in Vulgar Latin from sentences corresponding to (1) where the noun can still be interpreted in this original sense. In Old French, *pas* was already in use to express emphatic negation with more than only verbs of movement, and for a long time it was one in a wide field of emphatic negations. Today, it has become the unmarked form of negation.

(1)   *pas*
        il   ne   va   pas
        he   not   go   step   = 'he does not go a single step'

(2)   *il   ne   rit   pas*
        he   not   laughs   PAS   = 'he does not laugh'

(3)   *il   n'a   pas   de   femme*
        he   not has   PAS   of-a   wife   = 'he does not have a wife'

The development is summarized in Posner (1997) while Lucien (1965) offers a detailed description of the history of negation in French. Similar constructions that express negation by means of reference to a small quantity are quite frequent; other examples are English ‚not a bit' or German ‚kein bißchen', ‚kein Meter' (colloquial). While these constructions retain their emphatic flavour, French *ne pas* has lost all pragmatic markedness. Tendencies in spoken French to give up *ne pas* in favour of the simpler *pas* have been reported since at least 100 years ago but *ne pas* has survived as the official negation which remains compulsory in many constructions even in spoken French.

The raise of the English *going to* future is often presented as one of the paradigm cases of grammaticalization. Plausibly, the development starts from purely motional uses of *go* like in (4), passes on to uses for motion-with-a-purpose (5), (6) which are usually ambiguous (in

terms of present-day English) between a motion- and a future-reading, and finally allows for unambiguous future uses like (7), (8).

(4) *John is going* *to Paris*
(5) — *to get a beer*
(6) — *to be married*
(7) — *to finish the talk at 5 o'clock*
(8) — *to like Paris*

Another way to express future tense has emerged in Central Eastern Bantu languages. Here, we find that the verb ‚say' is the basis for future constructions. Examples are given in (9) and (10):

(9) *Tumbuka:*
    wa-ti   *wa-lut-e*
    3sg-say   *3sg-go-FV*
    's/he will go (soon)'

(10) *Makonde:*
    a-t:í   *(a-)sum-é*
    3sg-say   *3sg-buy-FV*
    's/he will buy (soon)'

(FV= future vowel. Quoted from Botne, 1998)

An example closer to home is the German (weak) determiner *lauter*. It corresponds approximately to the English adnominal uses of *only* yet without being a focus particle. It derives from the adjective *lauter* (= 'pure') via uses where its syntactic position and morphological shape is ambiguous between adjective and determiner, like in (12). The uses in (13) are unambiguously determiners, mostly because the concept of purity, even far-stretched as it was in past centuries, never could extend to things like grades or old mushrooms.

(11) *Es* *war* *lauterer* *Wein* *im*   *Glas*
    it   *was* *pure*   *wine* *in the* *glas* = *'In the glas there was pure wine'*

(12) *Im*   *Glas* *war* *lauter*   *Wein*
    In-the *glas* *was* *pure/only*   *wine* = *'There was only/pure wine in the glas'*

(13) *lauter* *gute* *Noten,*   *lauter* *alte* *Pilze*
    only *good* *grades,* *only* *old*   *mushrooms*

Let me finally mention the case of German *selbst* where the old intensifier (E. –*self*) develops a new use as a focus particle (E. *even*). While all previous examples exhibited a visible cline from „content" word to „function" word, it appears difficult here to decide whether an intensifier is more or less grammatical than a focus particle. Yet, the meaning development that led from the former to the latter use of *selbst* is a clear case of semantic reanalysis (Eckardt, 2001/in press). This shows that semantic reanalysis ranges far beyond examples that have elsewhere been labelled „grammaticalization". But let me start by looking at these cases.

2 Meaning change in grammaticalization: Previous proposals

2.1 Bleaching

The earliest attempt to characterize meaning change in grammaticalization is based on the metaphor of meaning „fading away", „weakening" or „bleaching" in grammaticalization. This reflects the intuition that the meaning of content words are usually more concrete, more graspable, more precise, more often linked to real things, properties and activities than the meanings of the respective derived function words. Georg von der Gabelentz proposes this view in (von der Gabelentz, [1891] 1967:241):

"Was erst neu und selten war, wird dann alltäglich und damit verliert es an Kraft, verblasst, rückt schliesslich wohl gar in die Reihe jener abstracten Bestandtheile der Rede, die es hatte verbessernd und verstärkend ergänzen sollen (...). ... Was von den Formwörtern gilt, das gilt (...) auch von den Wortformen. Wo deren neue geschaffen wurden, da waren sie periphrastisch (…), frischere neue Farben deckten die <u>verblichenen</u> alten."

About fifty years later, Antoine Meillet (1958) writes

"<u>L'affaiblissement du sens</u> et l'affaiblissement de la forme des mots accessoires vont de par; quand l'un et l'autre sont assez avancés, le mot accessoire peut finir par ne plus être qu'un élément privé de sens propre, ... "

More recently, (Lehmann 1985/1995) provides an overview over work on grammaticalization since the early days where he still finds that "some of the core aspects of grammaticalization" comprise „<u>semantic depletion</u> and expansion of distribution ... ". Currently, bleaching is still a received term in research on grammaticalization as can be seen from Haspelmath (1998:318): "Grammaticalization comprises (...) the development of function words from content words, the development of affixes from function words, as well as a large number of concomitant changes (…) (e.g. <u>desemanticization</u>, …)." and Musan (2001:370): "The past participle hypothesis, however, only has to assume that *haben* and *sein* lost at least part of their original meaning by <u>semantic bleaching</u>, which is a general characteristic of grammaticalization in any case."

Yet, it has turned out to be extremely difficult to turn the bleaching metaphor into a formal characterization of meaning change. The first and simplest idea might be to spell out bleaching as meaning generalization. Different uses of the German *heben* (full verb) / *haben* (cognate auxiliary) that range from grasping over concrete to abstract possesion can serve as an illustration.

(14) GRASP   *Er hebt einen Stock* (South Germ.)   'he has/holds a stick'
      POSSESS   *Er hat ein Auto*   'he has/owns a car'
      ABSTR. POSS. *Er hat einen Schnupfen*   'he has a cold'
      ?   *Er hat recht*   'he is right'
      ?   *Er hat gelacht*   'he has laughed'

Other instances of grammaticalization, however, do not exhibit meaning generalization. The Bantu case, for instance, would require that the concept of SAYING can generalize to DO-IN-FUTURE. Yet, one can say a lot of things without any implications for future action. Similar problems would arise if one attempted to see NEGATION as a generalization of the notion of a STEP.

Lehmann (1985/1995) reports work by xx where *bleaching* is analysed as a move from concrete to abstract meaning. The raise of formal semantics, however, has taught us that in particular the so-called "abstract" meanings are quite frequently easier to characterize than the so-called "concrete" meanings. To illustrate the effect, consider the comparatively austere "concrete" meaning of E *will* in the sense of 'intention' with the precise meaning of *will* in the sense of a future auxiliary.

(15) $will_{int}$ = $\lambda x \lambda p(INTEND(x, p)$

      $will_{fut}$ = $\lambda p_{(s,t)} \exists t(now < t \& p(t))$

While future *will* involves a simple relation on the time axis (ignoring for the moment the modal component that arises due to the general uncertainty of prognoses about the future) the verb of volition involves a component of "inner will" which, although perhaps accessible through introspection, is hard to explicate. Such examples suggest that the opposition "concrete-abstract" does not corellate with "easy - tedious to spell out". Suspicion arises that whether or not a meaning is abstract is decided on more or less the same introspective basis as whether a meaning is pale or bleak — which means that we have merely replaced one term by another.

Another puzzle raised by 'bleaching' is the following. It is by now a widely held assumption that grammaticalization happens through a conspiracy of processes of phonological, morphological and syntactic changes that are generally operant in language change (Joseph, 2000). There is, for instance, no kind of phonological change which would be restricted to grammaticalization and never occur elsewhere. If we also assume that the semantic shifts in grammaticalization are instances of general patterns of semantic change, the question arises why only such modes of change apply that lead from narrow to general, or from concrete to abstract meaning. It is well-known that meanings can change in the opposite direction as well. We find meaning specialization, like in E *steorfan > starve*, in G *fasz* (container) > *Faß* (barrel), or in G *Kleid* (clothing) > *Kleid* (woman's dress). We also find concretizations, like in G *Bestellung* (order, as an activity) > *Bestellung* (the thing ordered), or in Germ. *Thing* (*causa* in lawsuit) > E *thing*, G *Ding.* In other words: "Bleaching" in meaning change is not as inevitable as "bleaching" if you think about stockings in your washing machine — a fact which is usually obscured by the force of the bleaching metaphor. Given that all these opposite trends in semantic change exist: *Why* do meanings in grammaticalization virtually always become "paler" - whatever the most appropriate way to spell out this notion may be?

2.2   Metaphor

A prosperous branch of research on grammaticaliztion, initiated by B. Heine, argues that meaning change in grammaticalization does indeed arise by independent mechanisms of semantic change, namely by metaphorical meaning shift (Heine 1993, 1997a,b). He, as well as others (see e.g. Haspelnmath (1990)) have observed that the same range of content words give rise to the same kinds of functional words in unrelated languages all over the globe. Similar grammaticalization patterns arise independently at different times and places, and conversely, the grammatical constructions of foreign languages, even though different from those in our mother language, usually have a motivated flavour about them once one has understood their etymological origin. Heine explains this by the fact that metaphors are based on universal human cognitive constants.

The metaphor account looks plausible in a considerable number of cases. Take the E *going-to* future as an example. It is certainly correct to observe that the notion of movement in space might be transfered to the notion of movement in time, hence *going to* future be metaphorically motivated. And, once we have established some such analogy by introspection, it is almost impossible to exclude that the analogy has indeed enhanced meaning change in the crucial period of grammaticalization. Other cases, however, lend themselves less easily to such an explanation. There is no plausible metaphor, for instance, that would lead from the notion of 'saying' to the notion of futurity, like in (9) and (10). Even Heine (1993) acknowledges that such data pose a challenge to his account. What kind of meaning change has taken place there?

I will not follow Heine's metaphor-based approach, but we need to keep in mind his observations about the universality of grammaticalization patterns. Whatever alternative analysis we adopt, it will have to explain grammaticalization on the basis of human capacities which are equally universal as our common way of conceptualizing the world.

2.3   Metonymy

Hopper + Traugott (1993), Traugott + Dasher (2002) propose an account of semantic change in grammaticalization which is based on metonymy as mode of meaning change. They present the *going-to* future as a paradigm case of grammaticalization and hypothesize that the development passed through the stages in (16) to (20).

(16)   *I am going to London.*

(17)   *I am going to see a doctor.*

(18)   *I am going to be married.*

(19) *I am going to like Bill*

(20) *I am going to finish the lecture at 5 o'clock.*

Example (16) is unambiguously reporting a motion, (17) and (18) are ambiguous — Hopper and Traugott in fact assume that change-of-state examples like (18) were the starting point of change — and in (19) and (20) we see an unambiguously futurate use without a motion component. In describing/analyzing the change, Hopper and Traugott (1993:2f.) make the following generalizations/observations (the alphabetic order reflects numbers in Hopper + Traugott; their points (e.),(f.) concern morphosyntactic observations):

(21) a. The change starts in a specific kind of context of use of the old construction (purportive use of *going-to*).
      b. Such contexts license an inference from plan to future action.
      c. Syntactic reanalysis takes place wherein (among other things) the progressive component gets lost.
      d. The change is manifested by new examples like in (19) and (20).
      g. The new future construction shows peculiar differences to *will*-future in *if-then* constructions, exhibited in examples like the following:
          If interest rates *are going to* / *will* climb, we'll have to change our plans.
      h. The original content word is comparatively general in its lexical field (*go* is an unspecific kind of motion, in comparison with *sneak*, *run*, *walk* etc.)
      i. There is loss of meaning components ('movement') along with gain of new meaning components ('future'); hence Hopper, Traugott and Dasher opt against a simple bleaching theory.

The points in (21) offer a faithful characterization of the example in question as well as grammaticalization in general. Yet, it is difficult to see why metonymy should be the underlying principle in the changes described by (21a) through (i). Hopper and Traugott argue that metonymy arises by "contiguity", usually understood as spatial, temporal, causal or mereological closeness of concepts. The authors extend the notion of contiguity to closeness between syntactic units in a sentence, and perhaps also closeness of sentence, meaning and context, and conclude somewhat vaguely that under such circumstances of general closeness, words are liable to change their meanings. This part of their account stands in strange contrast with their very concise and explicit observations elsewhere and leaves the reader with several open questions: On the one hand, it remains unclear why, under such general contiguity, a *particular* word or construction adopts a *particular* bit of meaning in grammaticalization. Why, for example, does *going-to* rather than the simple verb *go* come to express futurity? Certainly, language change will always involve a certain amount of unexplainable accident and yet, we have the gut feeling that this particular aspect in the grammaticalization of the *going-to* future is *not* an accident but a natural consequence of the development in question. I will show presently that this gut feeling can in fact be turned into part of a semantic analysis. On the other hand, mere contiguity of old word and new content can not be enough to initiate languag change. A vast number of phrases is regularly used to express implicatures which go beyond the literal content of the sentence. The well-known *Do you have a watch?* in the sense of 'tell me the time' is but the most common example. Nevertheless most of these phrases do not give rise to grammaticalizations of any sort. Why is that so? — Once again, one could counter this observation by pointing out that we state tendencies in language change but never make actual predictions. Yet, once again the gut feeling is that grammaticalization does not arise in these cases for good reason.

3   Semantic Reanalysis

In this section I will go through some examples of grammaticalization and show how we can understand meaning change as redistribution of the semantic load in semantic composition. The core idea is that a given proposition (= the understood content of the sentence) is composed from the literal meanings of the parts of the sentence. In order to compose some such target propostion, speakers can hold new hypotheses about the literal content of some part of the

sentence to "make things fit". It is at that point that meaning changes occur. Our first case is the development of French *ne pas* negation.

3.1   From step to negation

The origin of words which express negation has raised the curiosity of scholars at least back to Jespersen (1917). An excellent overview over the data in French is given in Foulet (1965) while the main development is recapitulated in most standard treatments of the history of French; Posner (1997) offers a very detailed picture. I will simplify matters somewhat in order to highlight the processes under scrutiny here; a full account should take Krifka (1995) into consideration. In particular I will not make use of the term "negative polarity item" in this paper, rather taking *ne pas* as a discontinuous expression denoting negation.

Consider example (22) as a sentence in Old French.

(22)   *Jean ne va pass(um)*

In a first step, it is easy to note that (22) has a certain literal meaning which can be composed systematically from the meanings of the parts of the sentence.

(23) $\Phi = \neg \exists x \exists e (\ WALK(\textit{Jean},\ e)\ \&\ MEASURE(e)=x\ \&\ STEP(x)\ \&\ |x|=1\ )$

In doing so, we will go through steps (23a) to (g):

(23)   a. $[[\ [\textit{Jean}\ ]_{NP}\ ]] = \textit{Jean}$

      b. $[[\ [\textit{va}\ ]_{V}\ ]] = \lambda x \lambda y \lambda e.(\ WALK(y,e)\ \&\ Measure(e,x)\ )$

      c. $[[\ [\textit{passum}\ ]_{NP}\ ]] = \lambda P \exists x (\ P(x)\ \&\ STEP(x)\ \&\ |x|=1\ )$

      d. $[[\ [\textit{va passum}]_{VP}\ ]]$
          $= \lambda y \lambda e \exists x (\ WALK(y,e)\ \&\ MEASURE(e)=x\ \&\ STEP(x)\ \&\ |x|=1\ )$

      e. $[[\ [\textit{ne}\ ]_{AdVP}\ ]] = \lambda P. \neg P$

      f. $[[\ [\textit{ne va passum}\ ]_{VP}\ ]] =$
          $\lambda y. \neg \exists x \exists e (\ WALK(\ y,\ e)\ \&\ MEASURE(e)=x\ \&\ STEP(x)\ \&\ |x|=1\ )$

      g. $[[\ [\textit{Jean ne va pas}\ ]_{S}\ ]] = \Phi$

This literal meaning can in more complicated cases, like those below, be replaced by an entailment but in the present case, we will only replace (23) by the logically equivalent but somewhat simpler (24).[1]

(24) $\Psi := \neg \exists e (\ WALK(\textit{Jean},\ e)\ )$

The equivalence follows by world knowledge and meaning postulates on events of walking and steps as a measure of walking events. Speakers will realize that the proposition in (24) can arise in an alternative manner if they leave the literal meaning and syntactic status of all but one word unchanged: the word *pas* is taken to be a unit with *ne* and change its meaning. The steps in (25)

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[1] I am not going to explore the changes in context change potential that may arise in replacing logically equivalent propositions. There may well be examples in language history where such changes in referentially available material makes all the difference, but not in our case.

show the composition (I will leave the semantics of the verb *va* unchanged and therefore need one step of existential closure of an argument place which is not ouvertly filled in the sentence).

(25) a. $[[$ *Jean* $]] = Jean$

b. $[[$ *va* $]] = \lambda x \lambda y \lambda e.($ WALK(y,e) & MEASURE(e,x) $)$

c. Existential closure:
$[[$ *va$_C$* $]] = \lambda y \lambda e. \exists x ($ WALK(y,e) & MEASURE(e,x) $)$

d. Logically equivalent (against appropriate theory) to
$[[$ *va* $]] = \lambda y \lambda e. ($ WALK$(y,e))$

(25a) and (25d) could easily be combined to yield (24) if only we had negation as a further meaning component. On the other hand, there is also remnant lexical material available in the sentence. Form and meaning are hypothetically equated like in (26):

(26)   remnant material $\Leftrightarrow$ missing meaning

$[[$ *ne   pas* $]]$ $\lambda P. \neg P$

It is at this point where reanalysis of the process of semantic composition, in brief "semantic reanalysis", takes place. (27a) and (b.) show the last two steps (type adjustments of the usual kind are generally omitted).

(27) a. $[[$ *ne va pas* $]] = \lambda y \neg \exists e ($ WALK(y,e) $)$
b. $[[$ *Jean ne va pas* $]] = \neg \exists e ($ WALK$($ *Jean, e* $)$ $)$

Note that (25) through (27) so far only lead to the diagnosis that French at this stage had two alternative *semantically equivalent* forms to express VP negation. In fact, *ne pas* was used as an emphatic negation for many centuries. We can account for this fact by applying bidirectional OT (Blutner, 2000) along the lines reported in Blutner (in press) for the "999/1000" case discussed in Krifka (2000). Briefly, one will assume that the "neat and narrow" negation ('not even do X in the least') is pragmatically marked in comparison to the "reasonably liberal" negation ('not do X to an extent worth considering'). Bidirectional OT will then predict that the marked linguistic form, here the morpho-syntactically more complex negation, will carry the marked meaning, here the neat and narrow negation — which is intuitively correct. This analysis has the further advantage that it will predict that the emphatic flavour of *ne pas* is lost as soon as the competing form *ne* is no longer in use: If *ne* is no longer a negation adverb in French, it also is no longer a competitor for *ne pas* to express unmarked negation. This exemplifies how the match of words and denotations moves to new optimal equilibra at each new language stage.

3.2   From motion to future

Let us now see how similar stages of analysis and re-analysis are passed in a more complex example. A sentence like (28) can express that John moved on in preparation for another event and receives the analysis given in (29a) through (f.).[2]

(28) *John is going to see the doctor*

(29) a. $[[$ *go-* $]]$
$= \lambda P_{(e,(e,t))} \lambda x \lambda e ($ GO(x,e) & $\exists e' ($ PREPARE(e,e') & $P(x,e')$ $))$

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[2]Note that I refrained from treating the modal nature of futurate statements for the sake of simplicity.

b. [[*to see the doctor*]] = λ*x*λ*e* (SEE(*x*, *doc*, *e*))

c. [[*go- to see the doctor*]] =
λ*x* λ*e* (GO(*x*,*e*) & ∃*e'* (PREPARE(*e*,*e'*) & SEE(*x*, *doc*, *e'*)))

d. [[PROGRESSIVE *go- to see the doctor*]] =
λ*x* ∃*e* (R ∈ τ(*e*) &
GO(*x*,*e*) & ∃*e'* (PREPARE(*e*,*e'*) & SEE(*x*, *doc*, *e'*)))

e. [[PRESENT PROGRESSIVE *go- to see the doctor*]] =
λ*x* . *R=now* & ∃*e* (R ∈ τ(*e*) &
GO(*x*,*e*) & ∃*e'* (PREPARE(*e*,*e'*) & SEE(*x*, *doc*, *e'*)))

f. [[*John* PRES.PROGR *go- to see the doctor*]] =
∃*e* (*R=now* & R ∈ τ(*e*) &
GO(*John* ,*e*) & ∃e' (PREPARE(*e*,*e'*) & SEE(*John* , *doc*, *e'*)))

Note that this analysis involves the following independent factors: TENSE, ASPECT, tenseless verb + nominal arguments. (30) and (31) show that we can freely change tense and aspect.

(30)   *was going to see the doctor*
[[PAST.PROGRESSIV *go- to see the doctor*]] =
λ*x* ∃*e* (R < *now* & R ∈ τ(e) &
GO(*x*,*e*) & ∃*e'* (PREPARE(*e*,*e'*) & SEE(*x*, *doc*, *e'*)))

(31)   *went to see the doctor*
[[PAST *go- to see the doctor*]] =
λ*x* ∃*e* (R < *now* & τ(*e*) ∈ R &
GO(*x*,*e*) & ∃*e'* (PREPARE(*e*,*e'*) & SEE(*x*, *doc*, *e'*)))

The case is more intricate than the previous one because here, like in many other cases, it is not the literal meaning of the sentence that undergoes reanalysis. Instead, the sentence is understood to convey a proposition that arises as an entailment of the literal meaning in the context of utterance (Grice (1975, 1978), also Levinson (1983)). Hopper and Traugott hypothesize that sentences like (32), uttered in a situation where one comments on the bridegroom's leaving the house, may be the turning point in the grammaticalization of *going-to*. They speculate that in such a situation, the man's imminent new situation in society may have been more relevant than his actual movement out of the house and hence the implicature.[3]

(32)   John is going to be married

In brief, from the literal (33) we infer (34).

(33)   ∃*e* (*now* ∈ τ(*e*) &
GO(*John* ,*e*) & ∃*e'* (PREPARE(*e*,*e'*) &
∃*y*(WOMAN(*y*) & MARRY(*John*,*y*,*e'*)))

(34)   ∃*e'* (*now* < τ(*e'*) & INEVITABLE(*now*,*e'*) &
∃*y*(WOMAN(*y*) & MARRY(*John*,*y*,*e'*))

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[3]In view of the great inobtrusiveness of grammaticalization, the fact that one can hardly ever locate the turning point in any source text, it must be counted as another variant of the universality puzzle (sec. 2.2) that speculations like this are usually widely accepted as the most plausible story.

(34) can be composed from the literal content of *be married*, *John*, and the present tense, given that the *be going to* phrase is reanalysed like in (36). (35a) through (f.) show the derivation.

(35) a. $[[\ \textit{be married}\ ]] = \lambda x \lambda e'(\ \exists y(\ \text{WOMAN}(y)\ \&\ \text{MARRY}(x,y,e'))\ )^4$

     b. $[[\ \textit{John}\ ]] = \lambda P(P(\textit{JOHN}))$

     c. $[[\ \text{PRESENT}\ ]] = (\ R = \textit{now}\ )$

(36)   remnant material $\Leftrightarrow$ missing meaning

        $[[\ \textit{be going to}\ ]]$

$$\lambda P_{(e,(e,t))}\ \lambda x.\exists e(\ R < \tau(e)\ \&$$
$$\text{INEVITABLE}(R,e)\ \&\ P(x,e)\ ))$$

(35) d. $[[\ \textit{be going to be married}\ ]] =$
$$\lambda x\ \exists e\ (\ R < \tau(e)\ \&\ \text{Inevitable}(R,e)\ \&\ \exists y(\ \text{WOMAN}(y)\ \&\ \text{MARRY}(x,y,e)))$$

     e. $[[\ \text{PRESENT}\ \textit{is going to be married}\ ]] =$
$$\lambda x\ \exists e\ (\ R = \textit{now}\ \&\ R < \tau(e)\ \&$$
$$\text{INEVITABLE}(R,e)\ \&\ \exists y(\ \text{WOMAN}(y)\ \&\ \text{MARRY}(x,y,e)))$$

     f. $[[\ \textit{John}\ \text{PRESENT}\ \textit{is going to be married}\ ]] =$
$$\exists e\ (\ R = \textit{now}\ \&\ R < \tau(e)\ \&$$
$$\text{INEVITABLE}(R,e)\ \&\ \exists y(\ \text{WOMAN}(y)\ \&\ \text{MARRY}(\textit{JOHN},y,e)))$$

The *going-to* future construction is complex enough to discuss another puzzle of grammaticalization. Reanalysis takes place in some isolated examples, used in some singular contexts. Yet, what happens there must be enough for a speaker to predict more or less the full syntactic and semantic behaviour of the new construction "under grammaticalization", because there is usually no phase of ouvert variation and change.

In our example, we see that first of all, the meaning of the tenseless phrase "*b- going to*" changes considerably. What does this predict about the use of the phrase in new sentences? Firstly, the movement event gets lost as a referential argument of the sentence. This means that, for instance, all event modifications that could previously be used with reference to the motion event become ungrammatical.

(37)   *John is carefully going to like Paris*

Secondly, our analysis shows that *be* plus gerund morphology under the new analysis do not contribute progressive aspect. There is simply no part of (34) which would state that something is in progress. Consequently, progressive is lost as an independent aspectual component of the sentence and we expect that it can no longer be exchanged for simple aspect. This is borne out by examples like (38) and (39) which are ungrammatical.

(38)   *John went to understand the theory*

(39)   *John has gone to like Paris*

Once the movement event is missing, subsequent semantic restrictions on the embedded sentence can be given up as well. Sentence (40) reports motion and is bad, while (41) in its futurate interpretation is well-formed.

(40)   *John went to finish the lecture at 5 o'clock*
(41)   *John was going to finish the lecture at 5 o'clock.*

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[4] I take "be married" in the original construction as a passive, not as a state description.

The present tense, however, makes a nontrivial meaning contribution to the overall proposition. The *going-to* future states that something is imminent. Imminence can change over time whereas simple futurity is backward-entailing:

(42)   *John will be at Stanford.*
       Backward-entailing: If *S* is true at *t* and *t' < t,* then *S* is also true at *t'*.

(43)   *John is going to be at Stanford.*
       <u>Not</u> backward-entailing: *S* might be true today but have been false yesterday.

If we apply this difference to *if-then* sentences, we will predict that *going-to* sentences, being in the present tense, are allowed as an *if*-clause, whereas *will*-future sentences are not.

(44)   If interest rates are going to / *will climb, we'll have to change our plans.

The detailed and explicit semantic analysis of the case will hence tie together several seemingly unrelated features of the new future construction and predict that no variations should arise in the data with respect to these points. This is empirically correct.

3.3   Saying and Doing, Purely and Only

The previous section has shown that the more sophisticated payoffs of a formal analysis of semantic reanalysis require a very good understanding of syntax and semantics of the language in question in its synchronic stages. Nevertheless it is interesting that semantic reanalysis can also offer a plausible basis for more exotic cases like the abovementioned *say* future in Eastern Bantu languages. A sentence like (45) might have its origin from a counterpart with the literal meaning "she says she will go".

(45)   Tumbuka
       wa-ti   wa-lut-e
       3sg-say   3sg-go-FV
       's/he will go (soon)'

It honors the cultures in question (e.g. in Mosambique, Simbabwe, Malawi) that a plausible inference of (45) in this sense must have been 'she will go soon'. Like in the case of *going-to*, the embedding verb 'say' is reanalysed as future marker to allow speakers to derive the futurate proposition in an orderly fashion. Here we also find an answer to the universality puzzle. The universality of pragmatic inferencing will allow us to draw the plausible links between literal contents and implicatures/entailments. But only our universal bias towards systematic semantic composition will allow us to understand that semantic reanalysis occurs in the attempt to compose these entailments from the sentence material in a literal way.

A better understanding of etymology can also be helpful in grasping the nature of exceptions to the rule. The German determiner *lauter* (= 'purely', 'only') is peculiarly different from other determiners. Consider the examples in (46) where *lauter* is contrasted with a weak quantifier (*einige* = 'some') and a strong quantifier *alle* (= 'all').

(46)   a.   Lauter Perlen   waren   in   der   Schachtel.
             'purely' pearls   were   in   the   box

       b.   Einige Perlen   waren   in   der   Schachtel.
             some   pearls   were   in   the   box

       c.   Alle Perlen waren in der Schachtel.
             all   pearls were   in the box

The strong quantifier *alle* quantifies over a set of pearls, introduced by its noun complement *Perlen*, and asserts that all elements in this set have the property provided by the nuclear scope, viz. are in the box (*in der Schachtel*). The weak quantifier *einige* in its proportional reading quantifies over a set of pearls, introduced by its noun complement, and asserts that some of

them have the property in the nuclear scope, viz. are in the box. The weak quantifier also has an indefinite reading in which noun and verb phrase denotation are combined by conjunction ('be a pearl and be in the box'), the determiner asserts that this set contains more than one element. Generally, we see that if a determiner like in b. and c. has a restrictor then the restrictor is contributed by the noun complement of the determiner. Matters are different in (a.). In its most systematic reading, (46a) states that all the things in the box were pearls. *lauter* denotes the universal quantifier, but its noun complement provides the nuclear scope, and the rest of the sentence, here: the VP, describes the restrictor. The determiner *lauter* is hence a hybrid in the world of determiners. It is a true quantifier, like *all*, but it does not presuppose the existence of the set of objects denoted by its noun complement. It is therefore sometimes classed as a weak quantifier (Heim, p.c.) which is again misleading because it fails to show the well-known indefinite/proporional ambiguity of other weak quantifiers. *Lauter* is often synonymous to ad-nominal *nur* (= 'only') but it is clearly not a focus particle as it does not allow a full NP to its right:

(47) Nur / *lauter   die   Männer gingen   baden.
      only / *lauter   the   men   went   to-bathe

      Nur / *lauter   zwei Frauen tranken Kaffee.
      only / *lauter   two   women   drank   coffee

While *lauter* is hence an oddity in the world of determiners, its properties are fully systematic once we consider its grammaticalization. It derives from an adjective *lauter* which could mean among other things (see Grimm 1885, Goebel 2000) 'pure', 'unmixed', 'clear'. As long as this adjective was used with the common inflection its morphology signalled its word class clearly ((48a)). However, uninflected adjectives are allowed as a stylistic variant in certain contexts. In such contexts like (48b), syntactically thinking *lauter* might be an adjective as well as a determiner.

(48) a.   Im   Glas   ist   lauter-er   Wein
           in-the glass   is   pure-nom.sg.indef.male wine

      b.   Im   Glas   ist   lauter   Wein
           in-the glass   is   pure-ø   wine

Both (48a.) and (b.) literally state that "the liquid in the glass is pure, unmixed wine". In a common situation involving wine in a glass[5], this will imply that "all there is in the glass is wine". In a semantic analysis of (48b.) the speaker has the following components available by literal meaning:

(49) a. $[[\ Wein\ ]] = \lambda x.\text{WINE}(x)$

      b. $[[\ ist\ ]] = \lambda s \lambda y.\ \text{IS-IN}(s,y)$

      c. $[[\ im\ Glas\ ]] = \lambda P.\exists s(\ \text{IN-GLAS}(s)\ \&\ P(s)\ )$

      d. $[[\ im\ Glas\ ist\ ]] = \lambda y.\exists s(\ \text{IN-GLAS}(s)\ \&\ \text{IS-IN}(s,y)\ )$

Hence the two crucial sets in the universal statement are provided by the noun (49a.) and the verb plus PP (49d.). A denotation for *lauter* like in (50) will turn these in the required universal statement. Note that the "missing meaning" not only contributes the universal quantifier but also regulates the contribution of N and verb+PP by appropriate order of lambda abstraction over *P* and *Q*.

(50)   remnant material   ⇔   missing meaning
             ([[lauter]]N) verb+PP) $\lambda P \lambda Q.\text{ALL}x(Q(x),P(x))$

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[5] In particular, in such a situation there are no other things like frogs, strawberries, etc. in the glass.

We can easily turn (49a) and (49d) into the target proposition (51).

(51) [[*im Glas ist* [*lauter Wein*]]] =
      ALLx ($\exists s$(IN-GLAS(s) & IS-IN(s,x)), WINE(x))

In particular, we see that the contribution of N and VP to the quantification, being unusual in terms of the general grammar of quantifiers, follows quite naturally.

So far we have remained safely in the realm of examples which arguably are cases of grammaticalization. In retrospect, it is plausible that such examples usually will require semantic reanalysis: Linguists are apt to class an instance of language change as grammaticalization as soon as a word changes its grammatical-syntactic status. Such a change in syntactic position / grammatical category however usually requires that the other parts of the sentence combine with the changed item in a new way – syntactically speaking but also semantically speaking. Semantic reanalysis, however, is exactly the process in which the semantic contribution of parts of the sentence, *and* their interaction with other material in the sentence, gets redefined. Let me now move on to examples of semantic reanalysis which show that semantic reanalysis can occur (a) without visible cline on the content-function axis, and (b) even without any change in the grammatical status of the word at all.

4   Semantic reanalysis without grammaticalization

The German focus particle *selbst* (= even) derives from the intensifier *selbst* which is cognate to English *N-self* intensification. On the basis of an appropriate semantic analysis of intensifying *selbst* this change can be captured as a reanalysis of sentences like (52):

(52)   Einstein   selbst   weiß   das   nicht
       Einstein   himself   knows   that   not   = 'Einstein himself does not know this'

The reanalysis involves the move from the (old) literal meaning of (52) in (53a.) to the newly understood content and presuppositions in (53b.) You can see that the change in context requirements, presuppositions and assertion are extremely subtle.

(53)   a.   Literal (old) content of (52):
            Contextually derivable: A set of alternatives to Einstein in which he is central
            { *Einstein*} $\cup$ { $x\,|\,x$ is a person in the periphery of *Einstein*}
            Presupposition: For all alternative persons x, the proposition 'x does not know this'
            is more likely than the literally stated 'Einstein does not know this'
            Assertion: 'Einstein does not know this'
            Entailment: All alternative persons x do not know this either.

       b.   New (target) content of (52):
            Contextually derivable: A set of alternatives to Einstein
            { *Einstein*} $\cup$ { $x\,|\,x$ is a person among the contextual alternatives of *Einstein*}
            Presupposition: The alternative propositions 'x does not know this' are ordered on a
            scale according to probability, and 'Einstein does not know this' is at the most
            improbable end of the scale.
            All alternative propositions hold true.
            Assertion: 'Einstein does not know this' holds true as well.

The speaker will know that (52), read with a stressed intensifier, will express (53a). But she can hypothesize that (52) can convey (53b) *if* the stress is relocated from *selbst* to *Einstein* and if the intensifyer is reanalysed as focus particle. Going through the respective steps will show that the hypothesized new meaning for *selbst* conforms exactly with current focus semantic analyses of the particle *selbst* in German (Eckardt, in press). The example, intricate as it is in its own right, shows moreover that reanalysis can take place without grammatical cline. It will be

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hard to offer a plausible measure for the relative degree of functionality of intensifiers versus focus particles and I take them, without further discussion, to be roughly equal in status.

The previous example, although without grammatical cline, involved a change in syntactic category. I will now turn to cases of semantic reanalysis where the syntactic nature of the word in question remains unaffected. Specifically, I will discuss the case of *fast* for which Stern (1921) offers rich and detailed source material. In its oldest meaning, *fast* means 'immovable, solid, fixed', refering to concrete objects. It was then metaphorically transferred to describe a mental attitude of a human agent in an activity, like in 'Wepeth faste and ys sory' (1450AC, see OED, **fast** *adv.*, section 1d.). This reading was perhaps reached via the adverbial use of *fast* with *sleep* where 'sleep fast' implies immovability, yet without volition (see OED, **fast** *adv.*, section 1b.). The important turning point, however, is the use of *fast* with verbs of movement, like *run fast*, *ride fast*, etc. In such uses, the crucial entailment can be drawn from 'determinedness of mind' to 'high speed':

(54)   *George ran fast*
         lit.: 'George ran with immovable determination'
         entail.: 'George ran with high speed'[6]

Like in all the examples above, the hearer will realize that the entailed proposition can be computed as the *literal* meaning of sentence (54) if the word *fast* is hypothetically understood to mean 'with high speed'. Hence, semantic reanalysis takes place. Syntactically, the word *fast* remains an adverb and its semantic composition with the rest of the sentence is left unchanged. The change of *fast* is but one in a wide field of examples which are commonly classified as metonymy. A very insightful early description of these cases can be found in Stern (1931). His characterization of the process of change, although lacking the tool of compositional semantics, comes close to our account of semantic reanalysis.[7]

5   Conclusion

In this paper, I have developed an account of semantic reanalysis in language change. I started by analysing instances of meaning change in examples that are traditionally classed as cases of grammaticalization, and argued that the notion of semantic reanalysis, as spelled out in the paper, can elucidate the changes in question better than previous accounts in the literature. We then proceeded to cases of semantic reanalysis without grammatical cline. This proves that semantic reanalysis is a mode of meaning change in its own right and neither tied to syntactic reanalysis nor to grammaticalization.
Let me finally come back to the bleaching puzzle, raised in section 2.1. Why and in what sense do meanings bleach, in grammaticalization? Curiously, this puzzle remains. We investigated semantic reanalysis and got an idea of the its range. We have in particular seen examples where new meanings in semantic reanalysis are not paler or weaker than the old ones. The case of *fast* ist of particular interest here. If there is any trend visible at all, one would be tempted to say that 'quickly' is a more concrete notion than a property that refers to the hypothesized state of mind of the agent. Which brings us back to the question: Why do we get the impression that the result of meaning change by semantic reanalysis *in grammaticalization* is usually "paler" than the original meaning?

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[6]Like in grammaticalization, we can only hypothesize about the contexts in which meaning change took place. Only rarely do we find the crucial kind of example with high frequency in texts, or can trace that unambiguous new examples spread from a certain type of text to general language use. Hence, other examples where "immovably" implies "quickly" can be conceived of.

[7]At that point, a note on the history of theories might be in place. Remember that Hopper and Traugott faithfully claim that meaning change in grammaticalization occurs by means of metonymy. Interestingly, they take Stern (1931) as one main reference for the claim that their wide notion of 'metonymy' has predecessors in the literature. However, while Stern in fact *does* list a considerable number of examples that are traditionally classed as metonymy, he himself carefully avoids the term and uses the label "permutation". I think that this is significant; although Stern deliberately builds up his own terminology for classes of meaning change, he does not fail to point out correspondences between his terminology and traditional terms in other cases (eg. Stern's nomination ≈ metaphor).

I can only propose a preliminary and informal answer; yet one that one could not even formulate without notions like "semantic composition" and "semantic reanalysis". It is this: In examples like the ones in section 3, the semantic parts of a given proposition are related to words and constructions in a sentence. While most semantic parts will correspond to given words in their traditional meaning, some word(s) may be reinterpreted *to provide the missing bit of meaning which turns the given parts into the target proposition.* The reanalysed word(s) get their meaning, so to speak, by subtraction. This kind of denotation, we may speculate, goes far beyond what is usually discussed as an example for a "concept" - meanings that arise by ostension, or by conjunctive definition or in other ways relating to the observable world. Denotations-by-subtraction are moreover essentially only accessible to *speaking* agents, unlike concepts like 'sausage' or 'walk' which are presumably also mastered by higher animals.[8] Functional words acquire meaning by subtraction. This may be the deeper reason for the ghostly impression they leave on the observing linguist.

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[8] I am aware that this claim would require extended philosophical and psychological sophistication to foster into a scientific thesis.

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