Grammaticalization and Semantic Bleaching
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This paper is an attempt to unify our understanding of semantic change, and in particular to treat the semantic changes attendant on grammaticalization as describable and explicable in the terms of the same theoretical constructs necessary to describe and explain lexical semantic change in general. I will argue that the semantic phenomenon known as "bleaching" may well fall out of ordinary trends in semantic change, taken together with an independently motivated understanding of lexical and grammatical meaning domains.

In 1912, Antoine Meillet wrote an essay called "L'Evolution des Formes Grammaticales." In it he stated:

> The development of grammatical forms by progressive deterioration of previously autonomous words is made possible by...a weakening of the pronunciation, of the concrete sense of the words, and of the expressive value of words and groupings of words. The ancillary word can end up as an element lacking independent meaning as such, linked to a principal word to mark its grammatical role.

Meillet, tackling a subject so new that he used his innovative word "grammaticalization" in quotes, thought that weakening or loss of meaning was a way of describing the meaning-changes we often see accompanying the process of grammaticalizing a lexical item. He also thought that there was little *semantic* connection between prior lexical and later grammatical senses of a morpheme, although he himself quite insightfully discussed some of the semantic origins of negation-reinforcers in French.

The two questions raised by Meillet are still with us. First, are senses lost, or weakened, in grammaticalization, or what in fact happens to them? Second, to what extent are the directions (if not the occurrences) of such semantic developments regular or predictable? The second question has received attention from numerous scholars recently. Givon (1971 and elsewhere), Fleischman (1982, 1983), Bybee (1985), Anderson (1982), Genetti (1986), Bybee and Pagliuca (1985), Shepherd (1981), Sweetser (1984), DeLancey (1986) and others have all mapped directions of frequent semantic developments in grammaticalization. Traugott (1982, 1988, and elsewhere) has, in particular, argued that these shifts, like other meaning-shifts, follow a trend from propositional to textual to expressive, or (more recently) towards greater *situatedness* in the speaker's context.

The primary focus of this paper will be the first question: I shall attempt to define which aspects of meaning are lost in grammaticalization, and which are preserved. My claim is that an analysis of meaning-transfer as metaphorically structured will, for the range of cases I examine, allow us to predict which inferences are preserved across transfer of senses.

Generalization, abstraction, feature loss? - the case of Go-futures.

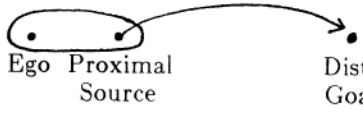
Bybee and Pagliuca (1985) suggest that *generalization* is an inherent characterization of grammaticalization sense-shifts. One of their primary examples is the frequent development of imperfect-markers from progressives and habituals; the imperfect is a broader sense, subsuming the earlier sense of progressivity or habitualness. Such an analysis would be readily understandable in terms of traditional "bleaching:" that is, in an objectivist feature-structured theory of meaning, a sense becomes more general by *losing features*. It is harder to see the development from root to epistemic modality as a process of generalization, since the epistemic sense does not in fact subsume the root sense. Bybee and Pagliuca argue here that generality is added when scope is increased; epistemic modality has scope over the whole sentence (and can often be paraphrased by "It must/may be the case that S"). However, this seems a rather different concept of generality than that involved in the example of the imperfect markers, and in this case we would be forced into the position that metalinguistic uses of a morpheme (e.g., negation (Horn 1985)) are invariably more general than content-uses.[1]

With the *Go*-future, it seems to me that we can no longer talk about generalization in the usual sense. Neither futurity (or future intention) nor physical motion is an instance of the other; nor is it at all evident that meaning is "lost" in the transfer from one of these senses to the other. And although it seems intuitively plausible to posit a genuine semantic category of imperfectivity, with subcategories including progressivity and habitualness, we would need some serious justification for a semantic category which just happened to have futurity and physical going as its two natural subclasses. What, then, is more "general" about the future sense of *go*? My proposed explanation will draw crucially on the recent work of Talmy, Lakoff and Brugman. Talmy (1985 and elsewhere) has argued that grammatical meaning is inherently topological and schematic, while lexical meaning is not; we can thus expect to find grammatical morphemes marking, for example, topological relations on a linear scale (A is greater than B), but not actual distances between points on the scale - or relative spatial position of two objects, but not the colors of the objects. Lexical meaning can (indeed, does) have topological aspects, besides the other aspects of rich lexical semantic content; grammatical meaning is restricted to the schematic structuring of meaning.[2] Lakoff (p.c.) has proposed that metaphorical mapping inherently projects the image-schematic topological structure of the source domain into the structure of the target domain (again, the claim is that other things *may* be preserved across a metaphorical mapping from one domain to another, but image-schematic structure regularly is).

I now turn to the specific example of the *go*-future, and will use this example to clarify what is meant by image-schematic structure, and then to demonstrate that such structure is preserved in the metaphorical mapping from physical motion to futurity. The diagram below gives a

proposed image schema for *go*, which essentially consists of movement along a linear path from a source proximal to ego towards a goal which is distal. The diagram is not intended to be interpreted as a visual mental image, but rather as a schematic representation of certain topological aspects of meaning. For example, the linear continuity of a spatial path (you can't get to a point without traversing the points between your location and that point) is represented by the path-line in Diagram 1. Some of the other features will be discussed below.

Diagram 1. "Go"



The development of *go* into a future-marker is a common one crosslinguistically, so we might expect to find some strong motivation for such a shift. And in fact, the semantic domain of time appears to be metaphorically structured in terms of motion along a linear path, *independently* of the more particular semantic connection between going and futurity. Examples such as "the events *ahead*" or "day *after* day" clearly indicate the presence of such a metaphorical mapping in English, although it cannot be discussed in detail here (cf. Fillmore 1971, Lakoff and Turner (in press)).[3] Such evidence for an independent metaphorical mapping is added support for an analysis of the *go*-future as metaphorical in origin.

Let us note the **partial** nature of the mapping of inferences from *go* to future prediction or intention. For example, in travelling along a physical path, I can turn around and go back the way I came - or walk facing backwards rather than forwards - or vary the speed at which I travel. None of these are possible in our experience of time, which is inherently unidirectional (we cannot reexperience the past) and does not change speed. There is an observed partial *correlation* between my experiences of time and path-traversal: presumably, my experience of physical motion has taught me that I will reach points further from the path-source at later times than points closer to the path-source. Indeed, it is very possible that this correlation is part of my *prototypical* experience of time and motion. But my experience of time is not fully correlated with spatial paths, nor inevitably experienced only in terms of them. Time passes linearly whether I sit still or travel. Yet I can use the *go*-future to refer to non-motion events and actions. The metaphorical mapping of going onto futurity is general, and not partial like the experiential correlation: it goes beyond any relationship between time and some particular instance of spatial motion, and transfers the internal schematic structure of motion to that of time in general.

Which inferences *are* preserved in mapping going onto futurity? (1) The linearity of the relationship between locations: just as to get from one point in space to another, you have to traverse the intervening points,

so to get from one point in time to another you must pass through all times between the two. (2) The location of ego at the source of the linear path: the present is proximal in time, as our current location is proximal in space. (3) Movement away from this proximal source-location towards a distal goal: we cannot move from distal to proximal in space, nor can we move from some other time to the present (once we have arrived in the present, that is). The verb *go*, which is used precisely to indicate motion from proximal to distal in space, is thus a perfect choice for movement away from the present in time; and since (as mentioned above) we can't return to the past, any distal temporal goal must be in the future.

The preserved inferences (1)-(3) are precisely those which fall out from the topology of the image schema which I proposed for *go*; the metaphorical mapping of the image-schema from going to futurity preserves this topological structure, while allowing non-identity between target and source domain in other respects. Claudia Brugman has suggested to me that verbs which explicitly *highlight* areas of the semantics of motion which cannot be mapped onto time would be less likely sources for tense-markers - e.g., *lumber*, which explicitly marks rate and physical manner of progress, would be unlikely because it would require active *suppression* of explicit meaning about speed and manner. *Go*, on the other hand, does not foreground speed or manner, although of course we inevitably infer that physical motion *has* rate and may have some identifiable manner.[4] Therefore its image-schematic structure can be maintained in mapping onto the domain of temporal futurity.

The claim, then, is that a topologically structured image schema (leaving out such particulars as rate, manner, distance between source and goal) is abstractable from *go*, and coherently mappable onto the domain of futurity with preservation of the topology. In this mapping, we lose the sense of physical motion (together with all its likely background inferences). We gain, however, a new meaning of future prediction or intention - together with *its* likely background inferences. We thus cannot be said to have merely "lost" meaning; we have, rather, exchanged the embedding of this image-schema in a concrete, spatial domain of meaning for its embedding in a more abstract and possibly more subjective domain.

I shall argue that, for the *go*-future and the other cases I am about to examine:

(1) Meaning-transfers in historical semantic change, including grammaticalization, show preservation of image-schematic structure.

(2) Thus, precisely those inferences which are characterized topologically because of image-schematic structure are the inferences projected through these semantic shifts.

(3) This must mean that an image-schema is *abstracted* from the earlier lexical sense; such a schema would be potentially much more general than the fully fleshed-out lexical meaning.

(4) But if the image-schema is mapped onto some specific new domain, it thus gains a new particular (and more or less fleshed-out) sense.[5]

(5) In grammaticalization, the transfer is to a fairly abstract, topological domain (whatever domain of grammatical meaning may be involved); so there is less fleshing-out of meaning. However, the meaning of the new domain itself is still added.

Paths and Motion in other domains.

I shall now discuss several other cases where the image-schematic structure is preserved across historical meaning-changes, and where the inferences preserved are those inherent in the topology of the image schema. The first case is taken from Genetti (1986), who describes the regular semantic development of postpositions as they become complementizers in various languages of the Bodic family. In these languages, nominalized verb forms are employed for subordinate clausal units; being nominalizations, the subordinate "clauses" were thus naturally subject to nominal case-marking, which has thus gradually developed senses equivalent to clausal subordinating conjunctions. Genetti shows that there are regular paths of semantic development from (a) allatives and datives to "until" or purpose-clause markers, (b) locatives and associatives to "when/while" temporal conjunction or to conditional markers ("if"), and (c) ablatives and ergatives to "since" in the temporal domain and/or to causal markers. She argues that this development can be explained by an understanding of *until/when/since* or *purpose/condition/cause* as being equivalent to abstract notions of Goal, Location, and Source. In diagram 2, I have given basic image schemata for goals, locations, and sources. Let us briefly examine the structure of the mapping from physical goal to Purpose.

Diagram 2. Postpositions (> Subordinators)


(ablatives, ergatives)


(allatives, datives)


(locatives, comitatives)

In addition to the mapping of space onto time (and coherent with it), there is a mapping of spatial motion onto the domain of intentional actions. Goals are mapped onto purposes, the shared topological properties being directed motion - through time or space - towards some endpoint. The chain of action leading to some purpose is linear; i.e., we have to do all the things which lead to the goal, before getting to the goal. And that particular chain of action ends when we attain the purpose, just as physical movement along a path ends when the physical goal is reached. The metaphorical use of the language of goals to refer to paths

in English is evidenced in examples like:

How *close* are you to finishing that paper?
On the way to writing that paper, I wrote two books.
We all want the perfect analysis, but we never seem to *get there*.
I seem to be getting *stuck*, just as I thought I was *getting somewhere*.

As with going and futurity, the mapping from goals to purposes is a partial one. We assuredly do not always have to move physically to achieve intended purposes; and purposes are inherently situated in the future, so that there is a unidirectionality to an action chain (inherited from the necessity of its unfolding in time) which does not belong to physical motion itself. Once again, it seems that only certain inferences have been preserved through the process of mapping between domains - and they are the inferences which fall out from the topology of the transferred image schema. A completely parallel story can be told for the mappings of sources onto causes, or locations onto logical conditions, following from an extension of the same metaphorical mapping of spatial motion onto event-chains.

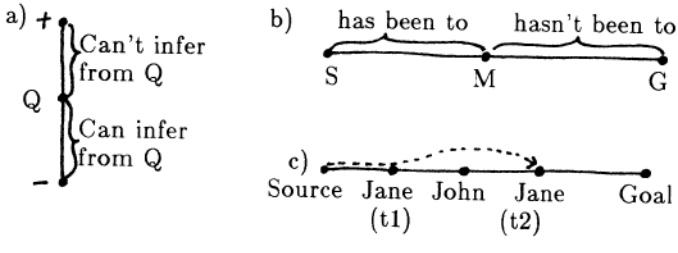
Why should the relationship between Bodic postpositions and subordinators be treated metaphorically, rather than saying (for instance) that there is some neutral abstract concept of source or goal which happens to apply equally to spatial motion and to temporal and causal/purposive structure? That is, why should I postulate that my abstract schema is abstracted *from* the spatial domain and mapped onto the others, rather than that it exists independently in some relationship to all the domains in question? One important fact explained by a metaphorical analysis is the unidirectionality of the shift: allatives and datives give rise to purpose-conjunctions, and not the other way around, which is explained by the assumption that a more abstract domain is being metaphorically structured in terms of a more concrete one (cf. Lakoff and Johnson 1980). The opposite direction of metaphorical mapping (not evidenced in Bodic) is not evidenced in English metaphorical examples either. Thus a unidirectional metaphorical mapping explains both (1) the direction of meaning-shifts and (2) the coherence between that directionality and the direction of mappings in lively metaphors for which we have independent evidence at least in English.

The Bodic example is not, strictly speaking, an instance of grammaticalization, in that the postpositions were presumably highly grammaticized entities before they developed a new semantic and syntactic role as subordinators. But this shift leads from a more concrete source domain of spatial relations to a more abstract and schematic target domain. And the example makes a further point which I consider crucial to any study of grammaticalization: namely, grammatical morphemes are not meaningless structural markers (cf. Bybee 1988, Traugott 1988). If the dative were simply a marker of some grammatical function not covered by nominative or accusative - a semantics-free marker left to do as syntactic whims or

opposition with other cases might dictate - then we would have no explanation for the regular development of dative markers into subordinators expressing purpose, rather than (for example) cause. We can only explain this regularity by attributing to datives a meaning connected with goals - and thus attributing to them that "*sens propre*" or independent meaning of their own which Meillet would claim they have forever lost.

A second case which I would like to examine involves two different semantic sources for comparative markers. One of these developments is the use of a verb meaning "pass, go past;" it is common in many African languages (Greenberg 1983 and Childs, p.c.) to say "Mary is taller than Susan" by saying the equivalent of "Mary passes Susan in height." The Swahili verb root *-pita-* (meaning both "pass" and "surpass") is an example of such usage. (Note English examples like *surpass* as well.) The mappings of image schemata are a little more complex than in the case of the *go*-future, but still quite straightforward. In diagram 3, the schema (a) is that of a linear scale; this schema is shared by all words with so-called scalar semantics, including expressions of quantity and degree.

Diagram 3. "Pass" > Comparative



The topology of the scale defines certain inferential patterns: if you have four eggs, then you have three eggs, but you don't necessarily have five. A lower point on the scale is inferable from a higher one, but not vice versa (cf. Fauconnier 1975, Fillmore, Kay and O'Connor 1988). A scalar quality or property, such as height, works the same way:

A: I want to be on a basketball team.
B: Well, are you six and a half feet tall?
A: Hell yes, I'm six nine!
*Hell yes, I'm six one!

The topology of such a scale is mappable (cf. Lakoff 1987, p. 458) onto that of a linear path, and the same inferential patterns are observable for linear paths. If I started at point S on diagram (3b), and am now at M, then I have necessarily been to all the points to the left of M on the path, but not necessarily passed through any points to the right of M.

The semantics of passing belong in the domain of linear paths, and the semantics of the comparative belong in that of scalar predicates. But as we have just seen, the two are topologically equivalent. Mapping a

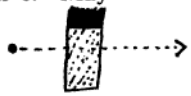
scale of tallness onto a path (see diagram 3c), we see that in order for Jane to be "far taller" than John, she must be *a significant distance further along* the path from zero height to infinity than he is. This means that in gaining height, Jane (or her measurements, to be exact) at some point "passed through" the position on the scale currently corresponding to John's height.[6]

The question arises whether at least some ablatives of comparison can be explained in the same way. If the primary sense of an ablative case is movement away from some location, a major secondary sense is the resulting location at a distance from the source location. Ablatives thus not infrequently express both concepts like "She went away *from New York*," but also ones like "Her house is three miles *from campus.*" Ablativity thus involves movement away from, and/or (possibly consequent) location at a distance from, some landmark. The landmark and the thing located relative to it are distant because the path traversed between them has length. Mapping this path once more onto the semantics of scalar predicates, it might be possible to see an ablative used for the standard of comparison (as in "Jane is taller John-abl.") as an expression of separation of Jane and John's locations on a path, and hence their difference on a scale of height mapped onto the path.

Modality and the shift towards epistemic senses.

The gradual development of the English modal verbs from various non-modal senses to root modal senses, and from those to added epistemic senses has been accompanied by a grammaticalization process: the modals are syntactically restricted, morphologically "defective," and in general are clearly no longer completely independent lexical items. Their meaning and their syntax alike have become dependent on the meaning and the syntactic presence of a main verb and a clause to modify. The following is a suggested force-dynamic analysis of the development of an epistemic possibility sense of *may* from a root possibility sense. (Note that this is not supposed to diagram the shift away from the original sense of OE *magan* in the non-modal realm.)

Diagram 4. "May"



As suggested in Talmy (1988) and Sweetser (1982, 1984), I take modality to be analyzable as the extension (to an abstract domain) of basic understanding of force-dynamic concepts of forces and barriers. In such a theory, *may* would be viewable as a potential barrier which is *not* actually barring some potential path. This assumes that actions and events can be metaphorically seen as paths: we have seen that this is a common metaphorical mapping, examples being displayed in the last couple of sections of this paper. The result of an unbarred metaphorical path

is that the participant (ego) is not restricted from some course of action towards some future goal; or that events are not restricted from progressing towards some future result.

How is this root modal sense of possibility extended to a further sense of epistemic possibility, and (later still) to a sense of permission? Let us first note the partial correlation between the inferences to be drawn from root and epistemic possibility. Assume that epistemic *may* means that the speaker neither believes the proposition to be certain nor discounts the possibility of finding out that it is true. Then if something is possible in the root sense (if nothing prevents it from happening), and if a speaker *knows* that nothing prevents it, the speaker might reasonably treat a statement about this possible event as epistemically possible (i.e., neither espouse it as a certainty nor discount it as certainly false). But of course, as with the other cases we have examined, the mapping of inferences is a partial one: it is not the case in the real world that anything which is *not barred* from happening is epistemically possible. For example, I could know that nothing prevents you from doing something, but I could also know that you in fact are not doing it. So an epistemic certainty can exist regarding a course of events which (in the root modal sense) is possible.

Similarly, in examining the permission sense of *may*, we can see that if nothing but the speaker's authority was likely to prevent some course of action, then a statement that the action was *possible* would be appropriate, and would constitute giving permission. The speaker's authority may well *not* be the sole factor involved: many things which are impossible in fact are not impermissible. Likewise, plenty of things which are not permitted or permissible turn out to be possible anyway; people just do them without permission. Comparing epistemic possibility with permission, there are even more obvious differences: for example, permission has an interpersonal dimension lacking in either of the other senses of *may*, a relationship of authority between a permission-giver and a permission-recipient. So the mapping of inferences is once again only a partial one.

What does appear once again to be preserved in these mappings between domains is the topology of the image schematic structure. The inferences which *must* be preserved to maintain consistency with this topological structure are the inferences which are preserved. Thus, the fact that giving permission neither prevents the action permitted nor requires it means that the person to whom permission is given is (within the social-constraint world of the permission) not constrained to act or to refrain from action. Although in a given situation, social and other factors may be at variance, root *may* signals a topologically equivalent situation in the root modal world: whatever factors make an action or event possible mean that the action or event is neither prevented nor forced to occur. And finally, in the epistemic world, epistemic *may* indicates that the speaker's reasoning processes are neither forced to some conclusion nor definitively barred from eventually reaching that conclusion.

Why should we not assume that some more general sense of possibility has been extended to cover all three of the senses mentioned above, rather than assuming mappings between the three senses? First, because the senses are still distinct: that is to say, epistemic *may* does not in fact subsume the root sense of *may*, nor does the later permission sense subsume the others (or become subsumed by them). As we have seen, the different senses may even have different truth values for a given proposition in a given context. Claims that the epistemic sense is more general than the others reduce, I think, to the claim (cited above) that the epistemic sense is more abstract and applies to the utterance as a whole: it has higher scope than the other uses.[7]

However, the higher scope of the epistemic modals follows from the domain-shift involved in mapping a root modal sense onto a meaning in the domain of the speaker's reasoning processes. Root modality often expresses some relationship between the described event or action and one of the described participants. Epistemic modality, on the other hand, obligatorily involves expression of the speaker's attitude towards the whole expressed proposition about some event or situation. General principles of predication and modification suggest that epistemic modality should thus have higher scope.[8] The question of difference in generality between the root and epistemic modals remains a separate issue, and one which depends on having a set definition of generality.

Finally, I would like to discuss Traugott's (1982) example of the semantic development of *again* in English. *Again* is related to *against*, and once meant "facing, opposite to." It subsequently took on a meaning of "in response to" (as in *King Mark seyd but lytyll agayne*, meaning "King Mark said little in reply"); then it developed a sense of return of an object to a previous possessor (*Give me my horse again*); and finally the current sense of repetition (*Sing it again!* - i.e. repeat the action a second time). I would like to suggest that an image-schematic treatment can readily bring out regularities in this development. Suppose that the sense of "opposite, facing" involves the placement of some entity so that it "faces" (i.e., it is physically aligned towards) some previously aligned object which is aligned in the opposite direction (i.e. towards the entity "facing" it). Speech exchange involves directed activity from each of two participants towards the other, so there may at least be some parallel in image-schematic structure between these two senses. But now, let us suppose that the relevant image-schematic structure of a *reply* is traversal of a path between Speaker and Hearer, with the presupposition of previous traversal of a path from H to S. (Reddy 1979 gives strong evidence, independent of the present argument, for the metaphorical structuring of speech exchange as objects traversing spatial paths between S and H.) That is to say, *reply* carries with it the understanding (shown in diagram 5 as a dotted line) that a previous utterance has gone the opposite direction in the speech world. The reply (the solid line) is aligned *relative to* that previous utterance.

Diagram 5. "Again"

In the physical world, the same basic structure is evident in the "give me my horse again" example. An object is described as traversing a path from person A to person B; and that object is assumed to have previously traversed the path in the opposite direction from B to A. In contrast with the "against" sense, this meaning involves transfer (whether physical motion from one location to another, or abstract transfer from one "domain" of possession to another) rather than just relative location or alignment. In contrast with the "reply" sense, this sense involves an object rather than an utterance being "transferred." So "transformations", or regular relationships linking related image-schematic structures (cf. Lakoff and Brugman 1988) are involved, as well as metaphorical mappings, in linking the senses of *again.*

Finally, in "sing it again," we see another instance of action being treated as traversal of a path towards a goal; and an image-schematic structure involving *retraversal* of an already-travelled action or event path is marked by *again.* Although surely not identical in image-schematic structure, the different senses of *again* can be seen as sharing important aspects of structure at this level: path-retraversal is present in all but the original sense, and bidirectionality was present in that sense as well. We may note that there are few obvious inferential connections between opposition and replies or iteration: there may be correlations, however, such as the fact that people talking to each other canonically (though not necessarily) face each other. Also when an object is returned to a previous possessor, the possessor then has a second period of possessing that object. But a reply is not a second instance of the same speech act (i.e., it is not a repetition). Mappings of image-schematic structure allow these very different types of event-structure to be seen as parallel despite lack of surface inferences in common.

Let us note that other linguistic structures in English support a path-retraversal understanding of repetition and replying. For instance, one "gets back" an answer in English, just as one "gets back" a physical object which is retransferred to one's physical neighborhood or possession (cf. Sweetser 1987). Someone repeating a goal-oriented series of actions can be said to be "covering the same old ground;" or a request for repetition can be phrased as "would you run through that from the start, one more time?" This independent evidence for a metaphorical model of replies in terms of path-retraversal gives added weight to an explanation of the semantics of *again* in terms of such a metaphorical model.

Conclusions.

In the test-cases we have examined, we have seen that certain kinds of inferential structures are preserved across meaning-shifts. My claim has been that it is precisely the (metaphorically structured) image-schematic inferential structure which is preserved, rather than any other aspects of inferential structure which happen to be present. That is, given the assumption that metaphorical mapping of image-schemas structures meaning-transfer, there is motivation for the apparently whimsical mapping of some inferences and not others into the new semantic field.

I have also suggested that there is a sense in which grammaticalization involves loss of meaning, and another sense in which it does not. Whenever abstraction occurs - for example, when an image-schematic structure is abstracted from a lexical meaning - there is potential loss of meaning. The image schema does not have the richness of the lexical meaning in the source domain. Thus *go*, for example, has a much richer meaning than simply the schema presented in Diagram 1. But if the abstracted schema is transferred from the source domain to some particular target domain, then the meaning of the target domain is *added* to the meaning of the word: thus an instance of *go* which has lost the sense of physical motion has gained the sense of futurity, intention, or prediction.

There is nothing unique about the semantics of grammaticalization, from the point of view of semantic change. Semantic change from one lexical meaning to another may also involve abstraction of a reduced, topological meaning-structure, and metaphorical mapping of that structure onto a new (target) domain of meaning. The target domain of a metaphorical mapping may be quite concrete, or very abstract. It is perfectly possible for the same pair of domains to be in reversed source-target relationships for different metaphors. For example, taking two fairly concrete domains, it is possible to metaphorically talk about a machine as a human, or a human as a machine. ("My car was complaining all the way up that hill," "The computer was lying in wait to mess up that file," as opposed to "My memory banks are scrambled this morning," "I'm going into high gear on that project at last.") Different mappings are involved in the different metaphors - in particular, human *emotions* and *intentions* are mapped onto machines, while machine properties such as mechanical efficiency or data-structures are mapped onto humans. In neither of these cases would we want to say that meaning is (overall) "lost" in the metaphorical transfer. Mapping human emotions onto a computer does not mean that we map even a full human emotional structure, let alone our knowledge of human physiology, onto the machine. But we do use our general understanding of machines to fill in whatever is not mapped from the source domain.

Returning to the question of grammaticalization, my claim is that the meaning shifts involved in grammaticalization are necessarily shifts towards a relatively abstract and topological domain of meaning, since

those are the meanings that we use in grammatical systems. This being the case, there will be less "fleshing out" of the transferred image-schematic topology when the transfer is into a domain which centrally refers to the topological aspects of meaning, rather than to some of the other aspects of rich lexical meaning.

The advantage of such an analysis is that we need not necessarily posit different mechanisms for lexical semantic change and "grammaticalizing" semantic change. The same sorts of meaning-transfers would automatically produce different results, given the different natures of the semantic domains involved.

Finally, it is interesting to note that this volume shows a good deal of consensus in rejecting the viewpoint that grammatical morphemes lack meaning, or are unrelated in meaning to their lexical sources. It is certainly true that grammaticalization may result in semantic (and phonological) shifts which completely separate the grammatical morpheme from its lexical source (e.g., the French future endings whose lexical source is "have" are no longer linked in any way to the verb *avoir* in speakers' minds). But this is to a lesser degree true of any meaning-change: speakers certainly do not carry in their heads the semantic history of lexical morphemes, any more than they do so for grammatical ones. The phonological erosion which is often involved in grammaticalization[9] may speed the process of dissociation between lexical and grammatical uses of a morpheme; but it is perfectly possible for lexical senses of a morpheme to become dissociated from each other as well. This possibility does not vitiate the claim that there are motivated connections between adjacent stages of any semantic history, or the claim that grammatical meaning is real meaning.

Meillet's view of a "dégradation" or deterioration of meaning (with its rather pejorative connotation) seems to have been replaced by an understanding of grammatical meaning as distinct from, but related to, its lexical sources. Grammaticalization thus becomes a rich mine of data about structures of the meanings of lexical source domains: that is, if *go* is a likely source-domain for futurity, that says something about the meaning-structure of *go*, as well as about the semantics of futurity or intention. Grammaticalization may be seen as laying bare the deeper structural characteristics of earlier lexical meanings of morphemes.

Footnotes

0 I am grateful to many of the scholars cited herein for past discussions which have helped shape my understanding of grammaticalization. This volume in itself should make it clear to what an extent this paper depends on recent work in the areas of both grammaticalization and metaphorical structures in word meaning. Particularly helpful comments and reactions to the paper have come from Claudia Brugman, Joan Bybee, George Lakoff, Vassiliki Nikiforidou, Dan Slobin, Len Talmy, and Elizabeth

Traugott. Tucker Childs kindly provided information on Bantu comparative structures.

1 Horn argues convincingly that the difference between content and metalinguistic negation is not the meaning of the negation, but its interpretation as being applied to the utterance, rather than to the content.

2 More detailed discussions of image-schematic structure and image-schematic transformations are to be found in Lakoff (1987) and Lakoff and Brugman (1988). Related work on the relationship between lexical and grammatical meaning is to be found in the work of Ronald Langacker (e.g. Langacker (1987)).

3 Fillmore demonstrates that in fact English (like many other languages) has two distinct metaphorical spatial models of time. One involves a stationary ego, towards whom events are moving in linear sequence: this is evidenced by usages like *the days to come, bygone days, the following weeks* The other involves a moving ego going forward into the future along a timeline: this is the one I take to motivate *go*-futures, and which is exemplified in usages like *the weeks ahead.* As Fleischman (1982) points out, *come*-futures as well as *go*-futures are attested, presumably motivated by the other possible spatialization of time.

4 *Go* is a superordinate-level verb of motion, by Rosch's criteria (1977 and elsewhere); unlike basic-level verbs such as *walk*, we have no image or motor program particularly associated with *going*, for instance. Van Oosten (1986) has argued that *sit, stand* and *lie* are basic-level verbs of physical position, and hence become grammaticized in expressions of location. The generalization seems to be that lexical items naming *subordinate*-level categories are not the ones likely to be grammaticized; and a cursory examination of the semantically commonest auxiliary verbs (*have, be, take, give, make, come, go*) certainly includes no subordinate-level items.

5 This is the difference between generalization of meaning and metaphorical meaning-shift. In the first case, a morpheme broadens its class of referents to cover some class which subsumes its old meanings; this may occur (perhaps in the imperfect/progressive case cited above) by abstracting out "central" aspects of the morpheme's meaning, and applying the morpheme to cover all referents involving those central aspects, whether or not the referents also fit the other specifications involved in the older sense. In the second case, the schema abstracted from the morpheme's meaning is mapped onto some other domain of meaning which need not be "adjacent" to the original one (in the sense of both being subclasses of some higher category); there might well be closer semantic applications of the image schema for "go" than futurity, but futurity is the domain onto which it is mapped.

6 The coherent structure of this metaphorical mapping in English can be seen from many examples mapping scalar properties onto paths. For example, "I have *far more* than John" is coherent with cases like "living

beyond my means" or "*nearly* as much as John."

7 I have elsewhere discussed the methodological question of abstractionist vs. metaphorically structured analyses, for the modals in particular - cf. Sweetser (1986).

8 Morphologically (cf. Bybee 1985), the scope difference between root and epistemic modality is often iconically reflected in their position in the clause: epistemic markers tend more often than root modal markers to be either sentential modifiers or verbal morphology, while root modals tend to occur more often than epistemic ones as auxiliary verbs. Assuming that the verb is the element whose modifiers and morphology are most likely to be semantically interpreted as applying to the sentence as a whole, the syntax and the semantics map onto each other fairly tidily here: higher semantic scope is represented by higher syntactic scope.

9 Langacker (1987) would argue that semantic and phonological dependency structures are parallel because the form is an icon for the meaning; reduced (cliticized, etc.) phonological form represents semantic dependency.

Bibliography

Anderson, Lloyd (1982) The 'perfect' as a universal and as a language-particular category. In *Tense-aspect: Between semantics and pragmatics*, ed. Paul J. Hopper. Amsterdam: John Benjamins. Pp. 227-264.

Brugman, Claudia and George Lakoff (1988) Cognitive Topology and Lexical Networks. In *Lexical Ambiguity Resolution*, eds. G. Cottrell and S. Small. Palo Alto: Morgan Kaufman.

Bybee, Joan L. (1985) *Morphology: A study of the relation between meaning and form.* Amsterdam: John Benjamins.

_____ (1988) Some implications of the process of grammaticization for the understanding of grammatical meaning. (this volume)

Bybee, Joan L. and William Pagliuca (1985) Crosslinguistic Comparison and the Development of Grammatical Meaning. In *Historical Semantics/Historical Word Formation (Trends in Linguistics: Studies and Monographs 29)*, ed. J. Fisiak. Berlin: Mouton. Pp.59-84.

DeLancey, Scott (1986) Toward a History of Tai Classifier Systems. In C. Craig ed., *Noun Classes and Categorization (Typological Studies in Language)*. Amsterdam: John Benjamins.

Fauconnier, Gilles (1975) Pragmatic scales and logical structure. *Linguistic Inquiry* 6, 353-375.

Fillmore, Charles J. (1971) The Santa Cruz Lectures on Deixis. Distributed by the Indiana University Linguistics Club.

Fillmore, Charles J., Paul Kay, and Mary Catherine O'Connor. (1988) Regularity and Idiomaticity in Grammatical Constructions: the case

of *Let Alone.* (Report no. 51, Cognitive Science Program, Institute of Cognitive Studies, University of California at Berkeley)

Fleischman, Suzanne (1982) *The Future in Thought and Language.* Cambridge: Cambridge University Press.

Fleischman, Suzanne (1983) From pragmatics to grammar: Diachronic reflections on complex pasts and futures in Romance. *Lingua* **60**, 182-214.

Genetti, Carol (1986) The Development of Subordinators from Postpositions in Bodic Languages. *Proceedings of the Twelfth Annual Meeting of the Berkeley Linguistics Society*, eds. D. Feder, M. Niepokuj, V. Nikiforidou, and M. Van Clay. Pp. 387-400.

Givon, Talmy (1971) Historical Syntax and Synchronic Morphology: an Archeologist's Field Trip. *Papers from the Seventh Regional Meeting of the Chicago Linguistic Society*, pp. 394-415.

Greenberg, Joseph H. (1983) Some areal characteristics of African languages. In *Current Approaches to African Linguistics (vol. 1)*, ed. Ivan Dihoff. The Netherlands and Cinnaminson, NJ: Foris Publications. Pp. 3-21.

Horn, Laurence R. (1985) Metalinguistic Negation and Pragmatic Ambiguity. *Language* 61:1, pp. 121-174.

Lakoff, George (1987) *Women, Fire and Dangerous Things: What Categories Reveal about the Mind.* Chicago: University of Chicago Press.

Lakoff, George and Mark Johnson (1980) *Metaphors We Live By.* Chicago: University of Chicago Press.

Lakoff, George and Mark Turner (in press) *More than Cool Reason: a field guide to poetic metaphor.* Chicago: University of Chicago Press.

Langacker, Ronald (1987) *Foundations of Cognitive Grammar (Volume I: Theoretical Prerequisites).* Stanford: Stanford University Press.

Meillet, Antoine (1912) L'Evolution des Formes Grammaticales. *Scientia (Rivista di scienza), XII:XXVI,6.* Reprinted (1965) in *Linguistique Historique et Linguistique Générale.* Paris: Librairie Honoré Champion.

Reddy, Michael J. (1979) The Conduit Metaphor. In *Metaphor and Thought*, ed. Andrew Ortony. Cambridge: Cambridge University Press.

Rosch, Eleanor (1977) Human Categorization. In N. Warren, ed., *Studies in Cross-Cultural Psychology.* London: Academic.

Shepherd, Susan C. (1981) *Modals in Antiguan Creole, Child Language, and History.* Stanford University Ph.D. dissertation.

Sweetser, Eve E. (1982) Root and Epistemic Modals: Causality in Two Worlds. *Proceedings of the Eighth Annual Meeting of the Berkeley*

Linguistics Society, eds. O. Gensler and M. Macaulay, pp. 484-507.

_____ (1984) *Semantic Structure and Semantic Change: A Cognitive Linguistic Study of Modality, Perception, Speech Acts, and Logical Relations.* University of California at Berkeley Ph.D. dissertation. (Revision to appear as *From Etymology to Pragmatics.* Cambridge University Press.)

_____ (1986) Polysemy vs. Abstraction: Mutually Exclusive or Complementary? *Proceedings of the Twelfth Annual Meeting of the Berkeley Linguistics Society*, eds. D. Feder, M. Niepokuj, V. Nikiforidou, and M. Van Clay.

_____ (1987) Metaphorical Models of Thought and Speech: a comparison of historical directions and metaphorical mappings in the two domains. *Proceedings of the Thirteenth Annual Meeting of the Berkeley Linguistics Society*, eds. Jon Aske, Natasha Beery, Laura Michaelis, and Hana Filip. Pp. 446-459.

Talmy, Leonard (1985) Lexicalization patterns: semantic structure in lexical forms. In *Language Typology and Syntactic Description (Vol. 3: Grammatical Categories and the Lexicon)*, ed. Timothy Shopen. Cambridge: Cambridge University Press. Pp. 57-148.

_____ (1988) Force Dynamics in Language and Cognition. *Cognitive Science* 12:1.

Traugott, Elizabeth Closs (1982) From propositional to textual and expressive meanings: Some semantic-pragmatic aspects of grammaticalization. In *Perspectives on historical linguistics*, eds. W. P. Lehmann and Y. Malkiel. Amsterdam: John Benjamins. Pp. 245-271.

_____ (1988) Pragmatic Strengthening and Grammaticalization. (this volume)

Van Oosten, Jeanne (1986) Sitting, Standing, and Lying in Dutch: A Cognitive Approach to the Distribution of the Verbs *Zitten, Staan,* and *Liggen.* In *Dutch Linguistics at Berkeley*, eds. Jeanne Van Oosten and Johan P. Snapper. Berkeley: Dutch Studies Program, University of California at Berkeley. Pp. 137-160.