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ON THE NATURE OF GRAMMATICAL CATEGORIES

A diachronic perspective
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Terminological note: In my recent work I have felt the need for a short, monomorphemic term for "grammatical morpheme", because I often want to refer to affixes, clitics, particles and auxiliaries — all grammaticized elements -- as a class. "Grammatical morpheme" is too long, as is "closed class item", which is often used in the psycho-linguistic literature. The only other existing candidate is "functor" which is simply too ugly to be used to refer to anything as cute and loveable as a grammatical morpheme. So I am going to use a term suggested by one of my colleagues, a word that is appropriate by virtue of being a "clipping" of the phrase "grammatical morpheme", but at the same time suggests something small, but solid and weighty: that term is "gram". So when the need arises in this paper, I will use the term "gram" to refer to grammatical morpheme.*

1. Structural and semantic mismatch in grammatical categories.

A minimal structural definition of a grammatical category would be that it is a closed class of mutually exclusive morphemes. In addition, however, we tend to expect a grammatical category to have at least two other properties, one structural and the other semantic: we expect the members of a category to occur in the same distributional position and have similar behavioral properties, and we expect the meaning of the members of the category to form oppositions in some sector of semantic space, such as aspect, tense or person. What I would like to argue in this paper is that while there are coherent semantic domains that tend to receive grammatical expression across languages, and while many languages have sets of closed class items or grams sharing structural properties, it is not usually the case that the members a structural class express meaning in the same semantic domain, or that the grams expressing semantic contrasts have similar expression properties.

Consider two examples from English: The first concerns the morphological exponence of the semantic category of tense. Tense is a commonly occurring grammatical category in the languages of the world. In English the Past Tense is expressed by a suffix, and by stem changes in nearly 200 irregular verbs. This contrasts with a Present Tense that has zero expression in all persons except third singular. The Future, also a commonly occurring tense, is expressed in American English principally by the auxiliary verb, will, occurring before an unmarked form of the main verb. Another grammaticized mark of future is the Progressive form of go followed by to and the main verb. An additional candidate for membership in the tense category is the English Perfect, expressed with a form of the verb have plus the Past Participle. Thus we have five grammaticized means of expressing tense: two suffixes, and three different sorts of auxiliary constructions. A coherent semantic domain is divided up among closed class items that are not at all structurally parallel.

But, one might protest, this is an extreme case: everyone knows that English is not typical as far as inflectional morphology goes. I will present evidence here from a survey of 50 unrelated and randomly selected languages that the situation we see in English IS typical: grams from the same semantic domain do not usually have structurally parallel expression. The reason for this is clear in the English case, and is the same in all cases: grammatical morphemes develop out of lexical morphemes by a gradual process of phonological erosion and fusion, and a parallel process of semantic generalization. Thus will developed from the OE main verb willan which meant "to want"; the main verb sources of have and going to still exist in the language; and the -ed suffix probably developed from a past or preterite form of do (Tops 1978). These members of the English tense system developed at different times (over a couple of millenia), at different rates, and independently of one other. It is not surprising, then, that they have such different expression properties.

Now consider a structural class in English: the modal auxiliaries: may, might, can, could, must, will, would, shall and should. These grams are mutually exclusive and share a number of well-known behavioral properties, such as lacking person agreement, undergoing inversion in questions, being immediately followed by negation, and so on.[1] To what extent do they form a semantically coherent set? If we require that they exclusively and exhaustively divide up some piece of semantic space, then this set fails. First, we note that will and shall, at least in British English, can legitimately be considered expressions of tense, while none of the other modal auxiliaries are. Even within the range of "modality" this set is far-ranging semantically. For instance, might expresses epistemic possibility, and has the whole proposition in its scope, as in:

(1) The keys might be on the kitchen table.

On the other hand, can makes a specific predication of an agent, either with regard to the agent's ability, or general enabling conditions affecting the agent.

(2) Frank can type faster than Hal.

(3) I can graduate in three years.

This is a type of "agent-oriented" or root modality, which is quite different from the epistemic modality of might, since it does not have propositional scope, and it does not give the speaker's evaluation of the potential truth of the proposition (Palmer 1979, Coates 1983, Bybee and Pagliuca 1984).

Some of the modal auxiliaries, in particular, must and should have both agent-oriented and epistemic uses (Horn 1972, Steele 1975). As agent-oriented modalities, they usually occur with human agents and active verbs, and indicate the deontic notions of strong and weak obligation respectively:

(4) I must read that article by Monday.

(5) I should read that article by Monday.

In their epistemic uses, they may occur with non-agentive subjects and stative verbs, indicating inferred certainty and probability respectively:

(6) This letter must be from Leonard.

(7) A gallon of paint should cover this wall.

While the epistemic and agent-oriented senses are clearly related, that they constitute different semantic domains is suggested by the fact that they may occur together in the same clause. In most dialects, it is syntactically unacceptable to combine modal auxiliaries such as might could and might should, but it is certainly not semantically unacceptable, and of course, in some dialects it is acceptable on all levels.

Another difference among the set of modal auxiliaries is in the way they interact with past tense. Both might and could were originally past tense forms, but might no longer conveys any sense of past time, while could still has this possibility:

(8) When I was six, I could do a backbend.

(9) *When I was six, I might do a backbend.

Similarly, should and would (with an exception to be mentioned just below) no longer have a past sense. In order to express past obligation or past condition, should and would have to be combined with have.

Would has the most synchronically miscellaneous set of uses: example (10) is a kind of "future in the past"; (11) shows would in its obligatory use in the apodosis of a hypothetical conditional; and (12) shows would taking on an aspectual function of habitual or characteristic action in the past (examples form the corpus studied by Coates 1983):

(10) The judge in the mail train robbery trial said to day that it was unlikely that the jury would be able to retire to consider their verdict until late next Tuesday.

(11) If I acted like that in front of him, I mean, that would be inexcusable.

(12) They used to have great arguments about some things and they'd both go away holding to their own views, and then the second would hear the first expounding the seconds' views.

Finally we can note that might, could, and may can all be used to express epistemic possibility and are practically synonymous in this one use:

(13) The keys might be on the kitchen table.

(14) The keys could be on the kitchen table.

(15) The keys may be on the kitchen table.

The foregoing is not a complete analysis of the modal auxiliaries in English. It is meant only to highlight the fact that these grams which have similar expression properties do not exhaustively nor exclusively divide any one piece of semantic space: shall and will make temporal reference, would has an aspectual use, several of them indicate epistemic modality and some indicate agent-oriented modality. They are not semantically mutually exclusive, nor are they all contrasting. However, I would not argue that the group of meanings expressed by these grams is a complete miscellany. Its systematicity, however, cannot be seen in any particular synchronic slice, it can only be seen in diachronic perspective. The modal verbs that survive into Modern English have a great deal in common semantically: they all originally had agent-oriented meaning and they have all been gradually developing epistemic uses, which entails an expansion of scope and a loosening of restrictions on subjects and main verbs with which they may occur (Shepherd 1982, Bybee and Pagliuca 1984). The development of future meaning by will and shall fits this pattern as well, and we can argue that the sense of prediction conveyed by these markers in their future uses is an epistemic use as well.

The observable lack of semantic cohesion in the synchronic system is due to the fact that although these grams are travelling similar paths, they are at different stages of development. Thus may and might are way ahead of the semantically very similiar can and could, and in general the original past tenses expand to embrace epistemic uses before their present tense counterparts do. The synonymy among some members of the set is due to the very common phenomenon of partial convergence in meaning with increased grammaticization. As meanings become more general and abstract in grammaticization, fewer semantic distinctions are made: so both will and shall become futures, and may, might and could all express epistemic possibility.

The evidence suggests, then, that there is no psychological organizing principle of language that tells all the grams in particular semantic domains to get into certain slots and arrange themselves for contrast and mutual exclusivity. It suggests, rather, a theory whose slogan might be "every morpheme has its own history", implying that individual grams undergo development without regard to other elements in the language. This does not mean, however, that anything goes. Rather the paths of development for individual grams are universal: the development of every gram I have mentioned so far -- from the future and perfect to the modalities is paralleled by similar developments in unrelated languages (see Fleischman 1982, 1983, Harris 1982, and Bybee and Pagliuca 1984, 1985). Moreover, these universal paths are governed by very general principles of semantic change.

2. A test of two hypotheses.

Thus we have two hypotheses to compare! One is a straw man hypothesis that I have constructed, but which I believe corresponds to some general notions that linguists have about the way grammatical categories behave. This hypothesis is the natural consequence of structuralism and says that grams forming contrasts in a specific semantic domain will have the same expression properties.[2] I will refer to this as the "structural coherence" hypothesis. The other hypothesis says that grams develop independently of one another and are not necessarily expressed in parallel fashion. This will be called the "independent development" hypothesis.

One way to test these competing hypotheses is to examine the position of grammatical morphemes in a number of languages to find out if grams expressing meaning in the same semantic domain tend to occur in the same position. For this test I used a stratified probability sample of 50 genetically and areally unrelated languages. Since this sample, which was designed by Revere Perkins (Perkins 1980), is representative of the languages of the world, but at the same time is free of known bias and randomly selected, valid inferences about the relative frequency of linguistic phenomena in the languages of the world may be drawn from it. I restricted my attention to verbal inflection in the 50 languages, i.e. obligatory affixes attached to the verb. Using reference grammars, I noted the position of the affixes with respect to the verb stem and other affixes, and I assigned each affix to a semantic category such as aspect, tense, mood, person or number, on the basis of the author's description of the function of the affix, and on the basis of the examples provided. It is important to note that I did not necessarily adopt the author's assignment of an affix to a category, since this is often idiosyncratic, rather I made the assignments myself using the generally accepted defintions found in the literature. To test the current hypothesis, I have considered only aspect, tense, mood and agreement, for which I have adopted the following general definitions!

aspect! the internal temporal constituency of the situation.

tense! the time of the situation with respect to the moment of speech or some other reference point.

mood! propositional scope modification of the degree of assertion! it includes imperative, optative, subjunctive, conditional and epistemics of possibility and probability.

agreement! agreement with the arguments of the verb.

The affixal expression of these categories in individual languages will fall into one of four possible cases!

I. A two-way distinction within a semantic category is expressed by an affix contrasting with a zero.

II. Two or more non-zero markers make distinctions within a semantic category and these markers occur in the same affixal position.

III. Two or more non-zero markers make distinctions within a semantic category, but these markers occur in different affixal positions.

IV. Affixes expressing different semantic categories occur in the same position.

The first case is neutral with regard to the competing hypotheses, since a zero occupies a position only by virtue of its contrast with a non-zero gram. The historical view of type I is that a single morpheme becomes grammaticized in a semantic domain where other grammaticized elements do not occur. If it becomes obligatory to signal a certain grammatical notion, then its absence becomes meaningful, creating a two-way contrast. Thus under the theory that each gram develops independently of any other, such cases are predicted to occur.

The remaining cases are the ones that provide the test of the hypotheses. If semantically contrasting grams seek structural parallelism, then there should be a majority of type II cases. If grams develop independently of one another, then there should be more type III cases, but type II cases would also be possible in situations where, for example, a set of auxiliary verbs expressing notions in the same semantic domain undergoes a parallel development. Type IV cases are also predicted by the "independent development" hypothesis, but not by the "structural coherence" hypothesis.

The stratified probability sample on which the hypothesis was tested contained thirteen languages with no grams meeting the definition of inflection (bound, obligatory morphemes) and three languages whose descriptions were not adequate to the current purposes. The hypotheses were tested on the remaining thirty-four languages.

We will consider first the results for aspect, tense and mood, starting with Type IV cases. The languages in which all inflections indicating aspect, tense ormood are in the same affixal position are Garo, Malayalam, Wappo, Yanomama and Zapotec. In Malayalam there are only tense and mood suffixes, in Yanomama, only tense and aspect, but in Garo, Wappo and Zapotec there are affixes for aspect, tense and mood. In each of these languages, the affixes occurring in the same position are also mutually exclusive, despite the fact that they are semantically in different domains. In a sixth language, Tiwi, the mood and aspect affixes are mutually exclusive eventhough they appear in different positions. These languages, then, do not provide support for the structural coherence hypothesis.

Let us consider now the remaining languages, in which aspect, tense and mood are expressed in different positions. We find inflectional aspect signalled as follows:

Languages which have aspect expressed by:

I. one segmental morpheme contrasting with zero: 6 languages

Burushaski	Ojibwa
Logbara	Santa Cruz
Navaho	Temiar

II. two or more non-zero morphemes in the same position: 3 languages

Kutenai	Touareg
Tarascan	

III. two or more non-zero morphemes in different positions: 11 langauges

Georgian (2/2)	Serbo-Croatian (2/2)
Iatmul (4/2)	Sierra Miwok (4/2)
Kiwai (2/2)	Susu (3/2)
Maasai (3/2)	Tiwi (5/5)
Nahuatl (4/2)	Yukaghir (3/2)
Pawnee (4/3)	

In the third type, the numbers in parentheses following the name of the language indicate the number of distinctions made in the category (the first number) over the number of different positions. The survey shows that in languages where there are two or more non-zero inflections for aspect, it is more than three times as common to find these in different positions than in the same position.

Consider now languaages with have tense expressed by:

I. one segmental affix contrasting with zero: 6 languages

Diegueño	Navaho
Gilyak	Temiar
Maasai	Timucua

II. two or more non-zero affixes in the same position: 4 languages

Iatmul	Nahuatl
Kutenai	Susu

III. two or more non-zero affixes in different positions: 7 languages

Basque (3/2)	Sierra Miwok (4/3)
Burushaski (4/2)	Tarascan (4/4)
Georgian (4/3)	Tiwi (3/3)
Kiwai ((5/3)	

These figures show that there are more languages with tense expressed in different positions than there are languages with tense in the same position.

Now consider languages with mood expressed by:

I. one segmental affix contrasting with zero: 3 languages

Kwakiutl	Serbo-Croatian
Logbara	

II. two or more non-zero affixes in the same position: 4 languages

Acoma	Korean
Gilyak	Yupik

III. two or more non-zero affixes in different positions: 16 languages

Basque (3/2)	Navaho (3/2)
Burushaski (3/3)	Ojibwa (4/4)
Diegueño (3/3)	Pawnee (7/2)
Georgian (4/2)	Santa Cruz (4/2)
Iatmul (4/3)	Sierra Miwok (4/3)
Kutenai (4/3)	Tarascan (4/2)
Maasai (4/2)	Tiwi (4/3)
Nahuatl (3/3)	Yukaghir (7/2)

The existence of multiple positions for mood markers is far more common than the existence of a single position. Nevertheless, the sample contains some notable instances of parallel expression in the mood category: for instance, Siberian Yupik Eskimo has at least seven moods expressed in the same position. These appear to have derived from a parallel set of auxiliary verbs. Korean has a large number of sentence-ending suffixes that express mood and related evidential notions. Both Pawnee and Yukaghir have a large number of mood markers occurring in only two positions. Overall, however, the evidence from this survey does not support a hypothesis that attributes any particular structural coherence to grammatical categories. The results instead accord well with the hypothesis that grammatical markers are constantly developing from lexical items, sometimes individually, sometimes in more or less parallel sets, and that any particular synchronic slice will catch these grams at various stages in their development.

There is an interesting and easily explained difference between aspect, tense and mood markers on the one hand, and agreement markers on the other. When we consider the positional parallelism of person agreement markers we find that of twenty-six languages with three or more person agreement distinctions, only three languages do not have complete structural parallelism among these markers. Georgian and Toaureg (Berber) have both prefixes and suffixes for person agreement, and Maasai, which has prefixes for all persons, reduplicates the stem in the second plural form of certain paradigms. In more than half of the cases, however, the parallelism in question here involves only the first and second persons, since in the other cases the third person is zero. Of course, one of the reasons that agreement markers tend to be structurally parallel is that they evolve from pronouns which tend to occur in a fixed position before they become bound to the verb. The second reason, which distinguishes agreement markers from aspect, tense and mood markers more conclusively, is that aspect, tense and mood markers may undergo category changes during their evolution as will be illustrated below, while pronouns evolving into agreement markers tend to remain agreement markers.

3. Theoretical implications.

One possible implication of this study is that aspect, tense and mood are not cross-linguistically significant categories and the comparison I have tried to make is simply misguided. While it may well be true that aspect, tense and mood do not form discrete categories, it would certainly be wrong to claim that these semantic domains are without cross-linguistic significance. Before I began my study, I feared that the semantic content of grammatical categories in fifty unrelated and randomly chosen languages might be totally incomparable, but I was surprised and gratified to find that this was not so! rather despite difference in descriptive style among reference grammars, diversity of language typology, and other confounding factors, great similarities in grammatical meaning across languages was evident, and moreover fit in general, though not in every case, into one of the traditionally-defined grammatical categories, which include aspect, tense and mood. My conclusion, then, is that linguists have succeeded at least in sketching most of the relevant semantic domains for grammatical morphemes.

The data presented above demonstrated that there is little structural coherence to grammatical categories language-internally. It would seem paradoxical, then, that ordering relations among these same categories would show regularities cross-linguistically. I have reported elsewhere (Bybee 1985a and 1985b) that the relative position of aspect, tense, mood and agreement inflections with respect to the verb stem is regular across languages, and governed by a semantic principle of relevance! the more relevant the meaning of the affix to the verb stem, the closer its position will be to the stem! thus aspect affixes are closer to the verb stem than tense affixes! tense affixes are closer than mood affixes and finally agreement inflections are the most peripheral (although in a substantial minority of languages, mood is outside of agreement). One might ask then, how it is possible, if these categories are not structurally significant language-internally, for them to contribute to these

cross-linguistic generalizations. The answer is that the generalizations hold for individual morphemes whose meanings put them in one of the semantic categories of aspect, tense, mood or agreement and not necessarily for classes or sets of morphemes.

This leads to a further question -- why do individual grams in particular semantic domains behave similarly across languages? If, as I believe, the types of change that create grammatical morphemes are universal, and the same or similar lexical material is worn down into grammatical material in the same manner in languages time after time, the result will be a similarity of meaning and expression type across languages for individual grams. As Givón 1971 argued, the position of a gram is largely determined by the position of its predecessor, the lexical item from which it evolved. The position of lexical items is partly determined syntactically and partly semantically: for example, items with propositional scope tend to occur in outer positions in the clause or phrase, while items with narrower scope tend to occur closer to the head, in this case the verb. Thus mood markers develop in outer positions, while aspectual markers develop in more inner positions, and so on. (See also Foley and Van Valin 1984.) The prediction is that a gram expressing a particular meaning will show more similarity to grams in other languages expressing a similar meaning than it will show to another gram in the same language expressing a meaning in the same "category". For example, future markers across languages will be more similar to one another than to other so-called "tense" markers (such as past) in the same language.

4. The evolution of grammatical meaning.

Grammatical meaning is the most abstract of all meaning, the least accessible to native-speaker intuition, and the most difficult for linguists to characterize. Yet the existence of grammatical meaning is a primary defining property of human language -- all languages have grams and if a language does not, as in the case of a developing creole, then it begins to develop them at an astounding rate. Just as we expect the other components of language -- syntax and phonology -- to have universal properties, so we expect grammatical meaning to be similar across languages. This similarity, I would argue, is more apparent in the diachronic whole than in the synchronic slice. Grammatical meaning (and grammatical form, for that matter) is not a static given in any language. It is rather dynamic, evolving and changing, in a mature language as much as in a creole.

The paths of development for grams that have been documented in unrelated languages suggest some general principles behind the development of grammatical meaning. Notice in the following examples that a single gram may transit more than one semantic category in the course of its development:

I. Futures developed from verbs of desire (such as will) or from desiderative affixes are extremely common, as are futures from verbs of movement in an imperfective or progressive aspect (e.g. English be going to). In Bybee and Pagliuca 1985 we list twenty documented cases of each development from languages around the world, and we fully expect to find

more. Less common are futures from obligation verbs (such as shall) or obligation constructions, with verbs of possession, such as ("to have to do"), the apparent source of the Romance synthetic future (Spanish cantará) and futures in the Kru languages (Marchese 1979), or a copula, as in ("I am to do"), which forms futures in Dakota, Ecuadorian Quechua, Korean and Latin.

II. Verbs indicating mental ability "know" or physical ability develop into markers of root possibility in English (can and may) and most other Germanic languages, in Romance languages (French pouvoir and Spanish poder), in Basque, Haitian, Khmer, Luiseño and Mandarin. Such grams continue to develop into markers of epistemic possibility.

III. "Perfects", which indicate a past action with resulting state, or more generally, with current relevance may be formed with verbs meaning "finish" in African languages such as Bari, Ewe, Duala (Heine and Reh 1982), Temne (Wilson 1961) and the Kru languages (Marchese 1979), in Haitian and Mauritian Creole, in Spanish (acabar de), in Mandarin, Palaung and Tok Pisin. In Swahili, on three separate occasions a verb meaning "finish" has developed into a perfect (Givón 1973, Voeltz 1980). In Palaung the original lexical meaning of the auxiliary appears to have been "to throw away". Korean also has a perfect auxiliary from the lexical verb "to throw away". In Indo-European languages, perfects are formed with an auxiliary "have" or "be" plus a past participle. Examples may be found in English, Dutch, German, Spanish, Italian, Portuguese, French, Bulgarian, Macedonian, Hindi, Urdu, Punjabi (Comrie 1976) and Balochi (Barker and Mengal 1969). Outside of Indo-European such constructions are found in Finnish, Georgian (Comrie 1976), and Kui (Winfield 1928). No matter what their original source, the next step for perfects is to lose the sense of "current relevance" and become general past or perfective markers as in French and Italian, in Kru languages, and in Mandarin (Anderson 1982, Harris 1982). Such developments appear to be underway currently in Dutch and German.

IV. Progressives are commonly formed with the copula (Blansitt 1975 lists twenty-nine different languages with such a structure) or from postural verbs such as such as sit, or stand, as in Diegueño, Diola Fogny, Mundu, and Tarahumara (Blansitt 1975) or occasionally from verbs of motion, such as go in Diegueño, or the Mouroum dialect of Mundu. Comrie 1976 cites such constructions in Yoruba and Celtic as developing into markers of general imperfective aspect, by taking on habitual functions along with the progressive. The same sequence of developments apparently occurs in Kui (Winfield 1928) and in Kuwaa (Marchese 1979). In Maninka-kan (Heine and Reh 1982) the progressive has developed into a present tense.

These are just a few examples to highlight the cases that have already received some attention in the literature. Lexical sources and common paths may be identified for other grammatical markers, such as reflexives and middles (Croft, Shyldkrot and Kemmer 1985), causatives, passives, iteratives, inchoatives and so on.

In the independent development theory, grammaticization is always in progress and may occur despite existing elements in a language. This is why it is so common to find more than one grammaticized means for expressing very similar notions in a language. While a structuralist view of grammatical meaning leads us to expect a one-to-one relation between grams and grammatical notions, the facts of natural language are quite different: new grams seem to develop despite the existence of old grams in similar functions. Consider these examples:

In American English we have will and gonna, which are interchangeable in certain contexts. In Spanish and French, a synthetic future exists, but a go-future has also developed.

American English can is now used for permission, along with may. Could has recently developed an epistemic possibility use despite the prior existence of may and might for this use (see examples (13), (14) and (15)).

Dutch hebben gewerkt "to have worked" is often interchangeable with the simple past werkte; in French the passe compose developed alongside of and eventually replaced the passe simple.

In these cases no two grams are precisely synonymous in all uses,[3] but they have enough overlapping functions to falsify the notion that grams only exist in languages in sets of contrasting oppositions.

The perspective I have presented to you, then, suggests that there can be a universal theory of grammatical categories if diachronic development is taken into account. If a gram in a particular language at a particular time is viewed as transiting a stage of development along one of a set of universal paths, then we can stop worrying about whether a particular gram is "tense" or "aspect" or "mood" and begin wondering why the same sorts of developments occur in languages over and over again, and why the general domain of aspect, tense and mood or the other verbal triad of valence, voice and agreement are so important that grams to mark them continue to develop time after time. What are the cognitive processes and communicative necessities that inch the semantic changes along a particular path over decades and centuries? What are the mechanisms of change that make a particular item grow more frequent, generalize in function and become more abstract in meaning? It seems to me that these are the important questions we are now in a position to ask from a cross-linguistic and diachronic perspective.

FOOTNOTES

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1. This statement requires qualification: (1) as I will mention in the text just below, in some dialects modal auxiliaries are not mutually exclusive, and (2) the class of modal auxiliaries is not so well-defined as this statement implies: need and ought must be considered at least marginal members of this class.

2. By "structuralist" I mean any theory which takes as its primary object of study the "structure" behind the synchronic system. This, of course, includes the generative paradigm, whose goal is to describe this structure.

3. In Bybee and Pagliuca 1985 we argue that even highly grammaticized forms such as will and shall in English retain some of their original lexical meaning. Thus we would not expect complete synonymy among grammatical morphemes.

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