

# THE BEHAVIOUR-BEFORE-CODING PRINCIPLE IN SYNTACTIC CHANGE\*

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## 1. Introduction

One of the most important tasks in the study of language change is the discovery of constraints on possible structural changes. Although it has sometimes been claimed that there are no such constraints, and hence no principles of language change (e.g. Lightfoot (1979), (1999))<sup>1</sup>, there are of course a great many observed regularities in the way language change proceeds structurally. In this paper, I want to argue for a strong principle of change whose effects are observed in a wide variety of morphosyntactic changes, and which is stated in (1).

### (1) **The Behaviour-before-Coding Principle**

When a grammatical construction grammaticalizes, as a rule the behavioural properties change before the coding properties of the construction.

This principle is not entirely new. To a large extent, it can be thought of as a generalization of a principle that was discussed by Cole et al. (1980) in the context of changes in subject properties. The next section will review the claims of their paper and the evidence they provide for it, and in the subsequent sections I will show that it can be generalized and can then help us account for a potentially wide variety of other changes.

## 2. The acquisition of subjecthood

Cole et al. (1980) are concerned with the change from a nonsubject dative experiencer to an ordinary subject, which is attested in a number of different languages and must have occurred independently in them<sup>2</sup>. The main generalization about the way in which this change proceeds is given in (2):

\* An earlier version of this paper was presented at the first conference *New Reflections of Grammaticalization*, Potsdam, June 1999. It was at this conference that I first met Denis Creissels.

<sup>1</sup> See Haspelmath (1999) for more general critical remarks of Lightfoot's (1999) approach.

<sup>2</sup> But see now Eythórsson & Barðdal (2005) for a somewhat different view.

- (2) « behavioral subject properties are acquired historically prior to subject coding properties » (Cole et al. (1980, 719))

The terms *behavioural properties* and *coding properties* (of subjects) go back to Keenan's (1976) influential article on subject properties and the definition of the notion « subject ». Keenan distinguishes between properties which involve the behaviour of arguments in complex constructions such as reflexivization, equi-NP deletion and subject raising on the one hand, and straightforward morphosyntactic coding such as case-marking and verb agreement, on the other:

- (3) two kinds of subject properties according to Keenan (1976, 324)<sup>3</sup>

***behavioural properties***

- triggers reflexivization
- undergoes/triggers equi-NP deletion
- undergoes subject raising
- initial position

***coding properties***

- shows nominative case-marking
- controls verb agreement

The generalization in (2) can be illustrated most easily with data from Germanic languages, where Gothic represents the oldest stage, Icelandic represents an intermediate stage, and English shows the most advanced stage of the diachronic « acquisition of subjecthood ». In Gothic, the dative experiencer has almost no subject properties. In (4), we see that it is the nominative stimulus argument of *galeikan* 'like' (not the dative experiencer *imma* 'to him') that is omitted under coreference (« undergoes equi-NP deletion ») with the main-clause subject 'strive'.

- (4) Gothic (II Cor. 5:9, Cole et al. (1980, 721))

*inub-þis      usdaudjam...      waila    Ø      galeikan    imma*  
 because.of-this    we.strive      [well    Ø<sub>NOM</sub>    please.INF    him.DAT]  
 « Because of this we strive to please him well »

In Icelandic, the dative experiencer has several behavioural properties of subjects, for instance the relatively fixed preverbal word order (see (5a)), and the fact that the dative argument can undergo subject raising, as illustrated in (5b).

- (5) Icelandic (Cole et al. 1980, 723-724)

a. *Honum      líkar      þeir      bílar*  
 him.DAT    like.3PL    those    cars.NOM  
 « Those cars please him / He likes those cars »

<sup>3</sup> Keenan also uses the term « behaviour and control properties », and this term has been mostly used by Givón (e.g. (1995, 231), (2001, 177)).

- b. *Ég tel honum líka þeir bílar*  
 I believe him.DAT like.INF those cars.NOM  
 « I believe him to like those cars »

Many syntacticians regard the dative argument as « the real subject » here, but on this view, it is unexpected that it is dative-case-marked and does not control agreement. These coding facts often go by the names *quirky case* and *quirky agreement*. From the diachronic perspective of this paper, this synchronic mismatch between behavioural and coding properties is the result of the Behaviour-before-Coding Principle, which says that the two kinds of change are generally not simultaneous, but occur in a specific sequence.

Finally, in English the original dative experiencer of verbs like *like* (Old English *lician*) has acquired all subject properties, including the coding properties of nominative case-marking and agreement control, as illustrated in (6) (see Allen (1995) for a detailed description of the diachronic facts of English). In (6a), we see that the experiencer must be in the nominative case, and in (6b) we see that the other argument, which is in the nominative in Icelandic (see (5a)), cannot be in the nominative in English.

- (6) English  
 a. *He likes those cars* (\**Him like those cars*)  
 b. *I believe him to like her* (\**I believe him to like she*)

The relevant developments in Germanic are summarized in (7): Gothic shows the old patterns with respect to both behavioural and coding properties, Icelandic shows innovated behavioural properties of the experiencer argument, and English has the new properties throughout.

(7)		<b>behavioural</b>	<b>coding</b>
	Gothic	old	old
	Icelandic	new	old
	English	new	new

In the remainder of this paper, we will see a number of further situations that are parallel to (7) and also exemplify the Behaviour-before-Coding Principle.

### 3. Behavioural and coding properties: generalizing the concepts

#### 3.1. General definitions

The central observation that I would like to put forward in this paper is that the sequence of behavioural properties changing before coding properties, as described by Cole et al. (1980) for subject properties and summarized in (7), is much more general and applies to a wide variety of grammaticalization processes. But in order to apply these concepts more widely, we have to define them more generally, and I would like to propose the definitions in (8):

- (8) a. coding properties of constructions =  
*properties that are reflected in (inflectional) morphological distinctions, e.g. case, agreement morphology*
- b. behavioural properties of constructions =  
*syntactic properties without morphological reflexes*

This definition deviates somewhat from Keenan's (1976, 324) division, because for him, word order is a coding property.

Let us now look at two simple examples to see how these concepts can be applied. These examples are well-known from the literature and not particularly exciting, but they merely serve to provide an initial illustration of the Behaviour-before-Coding Principle.

### 3.2. From have-construction to periphrastic perfect

First we look at the change from a Latin *have* construction to the Romance periphrastic perfect, as exemplified by Latin *habeo librum scriptum* > French *j'ai écrit le livre* 'I have written the book'. There are two major grammatical changes here: the change in word order (the object following the main verb rather than the *have* verb), and the loss of number-gender agreement with the object of the participial form of the main verb. Word order is a behavioural property and agreement is a coding property, so we expect word order to change before agreement, and this is indeed what we find. In Old French, we still find the old Latin pattern with OV order, as in example (9a). But the pattern with VO order is also found, e.g. (9b). Now crucially, in Old French the agreement is still preserved even in this VO pattern, whereas it is completely lost in Modern French, as in (9c).

- (9) a. *Li reis Marsilies ad la culur muee* (Rol. 441)  
 « King Marsilie has changed his color »
- b. *Li emperere ad prise sa herberge* (Rol. 2488)  
 « The emperor has taken his camp »
- c. *J'ai écrit un livre*  
 « I have written a book »

Thus, again we see a pattern like that in (7) above, with three stages: Latin and more conservative Old French showing the old pattern, more innovative Old French showing a new behavioural pattern but the old coding pattern, and Modern French showing the new pattern throughout<sup>4</sup>.

<sup>4</sup> This is of course an idealization, because Modern French still preserves the object agreement in constructions where the object precedes the verb, as in object relative clauses, and when the object is a pre-verbal clitic.

(10)		<b>behavioural</b>	<b>coding</b>
	Latin, Old French (i)	old	old
	Old French (ii)	new	old
	Modern French	new	new

### 3.3. From adjective + mente 'mind' to adjectival adverb

The second example also comes from the Romance languages. Most Romance languages have adverbs formed from adjectives with a suffix *-mente* (or similar), derived from a Latin adjectival phrase with *mente* 'mind', so that for instance Latin *mente placida* 'with a placid mind' gives rise to Italian *placidamente* 'placidly, quietly'.

The Italian construction has two new behavioural properties compared to the original Latin construction: Word order is fixed in Italian, whereas it was free in Latin (both *mente placida* and *placida mente* were possible), and Italian no longer allows omission in coordinate constructions: While Latin allowed *placida et clara mente* 'with a placid and clear mind', Italian no longer allows *\*placida e chiaramente*. At first sight, this seems natural, because *-mente* is a suffix in Italian. However, things are more complicated: while *-mente* is also normally considered a suffix in Spanish, omission in coordinate structures is allowed: *clara y evidentemente* 'clearly and evidently'. French behaves like Italian in this regard (*\*placide et clairement*).

Now crucially, both French and Italian, which have innovated with respect to this type of behaviour (as opposed to the more conservative Spanish), are conservative with regard to coding: the feminine form of the adjective is still used to derive the adverb, and thus in a sense the agreement morphology is still there. We see the beginning of the loss of this coding feature in French, where some adjectives such as *évident* do not use the feminine form (*évidemment*, not *\*évidemment*). I do not know of any Romance language that has completely lost this coding feature, but in any event we also see here the behavioural changes preceding the coding changes. The sequence of changes is again summarized in tabular format in (11).

(11)		<b>behavioural</b>	<b>coding</b>
	Latin, Spanish	old	old
	Italian	new	old
	French (incipient)	new	new

## 4. The acquisition of verbhood: From verb-noun to verb in periphrastic constructions

The next example that I would like to discuss is a little more complicated and less well-known. It concerns the change from a verbal noun to a verb in Welsh, in periphrastic constructions such as (12) (from Borsley (1993)).

- (12) *Mae Rhiannon yn canu 'r anthem* [= Borsley's 2]  
 is Rhiannon in singing the anthem  
 « Rhiannon is singing the anthem »  
 (lit. perhaps: « Rhiannon is in the singing of the anthem »)

Among Celtic linguists, there is disagreement over how to describe the verbal noun (or *verb-noun*) – whether as a noun or as a verb. Willis (1988) claims that it is a noun, while Borsley (1993) argues that it is a verb after all. What these linguists overlook is that this case represents a typical case of grammaticalization in progress, where a verbal noun gradually acquires verbhood, i.e. verbal properties.

But we can say more than that. Crucially for my argument here, the verbal properties of Welsh verbal nouns are generally behavioural properties, whereas the coding properties point to nominal status. For instance, the nominal object is coded like a possessor, as shown in (13). (All the examples in this section are from Borsley (1993)). The complement clause in (13a), with the complement verb coded as a verb-noun, apparently has the same structure as the possessive noun phrase in (13b), i.e. its object is coded like an adnominal possessor, and its original sense must have been « Emrys tried his seeing ».

- (13) a. *Ceisiodd Emrys ei weld* [= Borsley's 5a]  
 tried Emrys 3SG.M seeing  
 « Emrys tried to see him »
- b. *Gwelodd Emrys ei wraig* [= Borsley's 6a]  
 saw Emrys 3SG.M wife  
 « Emrys saw his wife »

Another coding property of the verb-noun is that it can be preceded by different prepositions, as illustrated in (14). (14a) is literally « She is after going home », and (14b) is literally « He was on going ».

- (14) a. *Mae hi wedi mynd adref* [= Borsley's 30]  
 is she after going home  
 « She has gone home »
- b. *Roedd ef ar fynd* [= Borsley's 31]  
 was he on going  
 « He was about to go »

Finally, the verb-noun undergoes the same mutation (i.e. morphophonological sandhi) processes as nouns, e.g. after prepositions. This is illustrated in (15), showing that the labial nasal alternates with a voiced fricative (spelled *f*) after the preposition *ar*.

- (15) a. *ar fynd* (< *mynd*) [= Borsley's 67]  
 on going  
 « about to go »

- (15) b. *ar fynydd* (< *mynydd*) [= Borsley's 66]  
 on mountain  
 « on a mountain »

On the other hand, the verb-noun patterns like a verb with respect to a number of behavioural properties. First, it cooccurs with an adverb, not with an adjective, as is illustrated in (16). A construction with an adjective lacking the adverb-marker *yn* and following the verb-noun immediately as in noun phrases, is ungrammatical (*\*Mae Rhiannon yn canu hyfryd*).

- (16) *Mae Rhiannon yn canu yn hyfryd* [= Borsley's 41]  
 is Rhiannon in singing ADV pleasant  
 « Rhiannon is singing pleasantly »

Second, constructions with ordinary nouns and with verb-nouns show different coreference possibilities. Thus, (17a) (literally « He is in his hitting ») can only mean *He is hitting him*, i.e. the reflexive meaning is excluded. But with nouns, as in (17b), the reflexive meaning is possible, as in its English translation.

- (17) a. *Mae ef yn ei daro* [= Borsley's 107]  
 is he in 3SG.M hitting  
 « He<sub>i</sub> is hitting him<sub>j/\*i</sub> »  
 b. *Mae ef yn ei dy* [= Borsley's 109]  
 is he in 3SG.M house  
 « He<sub>i</sub> is in his<sub>i/j</sub> house »

Finally, while NPs can be preposed when topicalized in Welsh, much as in English, this is not possible with combinations of verb-noun and object. Thus, we get the contrast between (18), where topicalization is fine in (18b), and (19), where topicalization is not good in (19b). Again, Welsh patterns much like the English counterpart.

- (18) a. *Mae Gwyn yn darllen llyfr Emrys* [= Borsley's 78]  
 is Gwyn in reading book Emrys  
 « Gwyn is reading Emrys's book »  
 b. *Llyfr Emrys y mae Gwyn yn ei ddarllen* [= Borsley's 79]  
 book Emrys PRT is Gwyn in 3SG.M reading  
 « Emrys's book Gwyn is reading »
- (19) a. *Mae Gwyn yn ceisio canu 'r anthem* [= Borsley's 80]  
 is Gwyn in trying singing the anthem  
 « Gwyn is trying to sing the anthem »  
 b. *\*Canu 'r anthem y mae Gwyn yn ei geisio* [= Borsley's 81]  
 singing the anthem PRT is Gwyn in 3SG.M trying  
 « To sing the anthem Gwyn is trying »

The Welsh verb-noun is thus intermediate between a fully nominal derivative of the verb and a fully verbal form. An example of a fully nominal action noun is the German verbal noun in *-ung*, illustrated in (20). With *-ung* nominalizations, all behavioural and coding properties are nominal, even in constructions like (20), which semantically are close to a progressive periphrasis.

- (20) *Der Architekt ist bei der Veränderung der Pläne*  
 the architect is at the changing the.GEN plans.GEN  
 « The architect is (lit.) at the changing of the plans »

An example of a former action noun that is now fully verbal is the English *-ing* form in the progressive periphrasis, as in (21). Here all behavioural and coding properties are verbal.

- (21) *The architect is changing the plans* (\**changing of the plans*)

Thus, again we have three types of languages, one with only old patterns exemplified by German, one with mixed patterns exemplified by Welsh, and one with completely new patterns, exemplified by English.

(22)		<b>behavioural</b>	<b>coding</b>
	German <i>-ung</i>	old	old
	Welsh	new	old
	English <i>-ing</i>	new	new

### 5. From preposition to possessive verb

The next case concerns the change from a locative preposition to a possessive verb, as attested in Maltese and other modern Arabic vernaculars. This is an instance of what Leon Stassen has called *HAVE-drift* (Stassen (2001, 956)), i.e. the general tendency for intransitive possessive constructions to become transitivized.

Have-drift in Maltese has become widely known through Bernard Comrie's (1982), (1989, 219-225) description. The relevant locative preposition is *għand* 'near, at' (going back to Proto-Arabic *ʕind*), and the original construction must have been something like (23), where the possessor is left-dislocated and taken up by a resumptive pronoun (as the complement of the locative preposition) in the main clause. In Classical Arabic, this is the only possible structure.

- (23) Pre-Maltese (Arabic)  
*Maria, għand-ha baqra*  
 Maria at-3SG.F cow  
 « Maria, there is a cow at her place (i.e. she has a cow) »

This construction has become (24) in Maltese, which is the normal way of saying *Maria has a cow*.



- (24) *Maria għand-ha baqra*  
 Maria have-3SG.SUBJ cow  
 « Maria has a cow »

Here the word *għandha* not only translates as a verb in English, but it also shows some behavioural properties of Maltese verbal constructions. For example, the possessor argument obligatorily precedes *għand-*, just as the subject of a transitive verb obligatorily precedes it. A construction such as (25), whose counterpart is perfectly normal in Classical Arabic is not (i.e. no longer) possible in Maltese.

- (25) \**Għand Maria baqra*  
 at Maria cow  
 « Maria has a cow / Near Maria is a cow »

Even more strikingly, the possessum argument can be a reflexive pronoun, as shown in (26). This would of course be quite impossible if *għand-* were still a locative preposition in this construction.

- (26) *Lisa għand-ha lilha nnifisha*  
 Lisa have-3SG.SUBJ to.her her.self  
 « Lisa has herself » (Haspelmath & Caruana 2000, 251)

But when it comes to coding properties, *għand-* is still very much a preposition. It does not show tense-aspect distinctions like other verbs, and its person-number suffixes are very different from the verbal person-number markers. So again, Maltese *għand-* is halfway between preposition and verb, and the innovative properties are behavioural, while the conservative properties are coding properties. However, there is one verbal property of Maltese *għand-* that must be considered a coding property: negation is expressed by the circumfix *m(a)...x*, as with verbs (see (27)).

- (27) *M' għand-u-x ktieb*  
 NEG have-3SG.SUBJ-NEG book  
 « He doesn't have a book »

Thus, *għand-* seems to be a little further advanced toward verbhood than just halfway.

But in Tunisian Arabic (data from Maik Gibson, LINGUIST List, Vol. 110-680), the development seems to be even more advanced, because *ʕand* already shows an incipient form of normal verbal agreement. To form its past tense, *ʕand* is combined with the auxiliary verb *kaan* ('be') in Tunisian, and *I had X* is *kaan ʕand-i X* (see (28b)), where the possessor subject agrees with the object X. But besides this more conservative pattern, there is also an innovative pattern, where *kaan* agrees with the possessor argument, as seen in (28c).

- (28) Tunisian Arabic
- |    |                                  |  |                                |
|----|----------------------------------|--|--------------------------------|
| a. | present tense                    | $\text{\textit{\textcircled{S}}and-i X}$ | « I have X »                   |
| b. | past tense ( <i>old</i> )        | $\text{\textit{\textcircled{S}}and-i X}$ | « I had X » (agreement with X) |
| c. | past tense ( <i>innovative</i> ) | $\text{\textit{\textcircled{S}}and-i X}$ | « I had X » (agreement with I) |

This innovative pattern is only a first step toward the more general acquisition of verbal coding properties, but again the whole process follows the familiar behaviour-before-coding sequence:

(29)		<b>behavioural</b>	<b>coding</b>
	Classical Arabic $\text{\textit{\textcircled{S}}ind}$	old	old
	Maltese $\text{\textit{\textcircled{S}}hand-}$	new	old
	Tunisian $\text{\textit{\textcircled{S}}and}$	new	new (incipient)

## 6. The change from biclausal cleft to monoclausal focusing construction

My last example concerns the change from a biclausal cleft construction to a monoclausal focusing construction, i.e. a case of *clause fusion* in Harris & Campbell's (1995, 172) terminology. Heine & Reh (1984, 165-168) discuss the results of such a change in the Cushitic language Rendille (spoken in northern Kenya), whose focusing marker  $-\acute{e}$  (postposed to the focused constituent) must derive from a copula in a cleft construction. Two examples are given in (30). Heine & Reh hypothesize that  $-\acute{e}$  comes from a copula  $*a\acute{h}i$ , which is still attested in the modern paradigm  $a\acute{h}i$  'I am',  $t-i\acute{h}i$  'you are',  $y-i\acute{h}i$  'he is'.

- (30) Rendille (Cushitic (Oomen 1978, 48))
- |    |  |   |
|----|--|---|
| a. | $\text{\textit{\textcircled{S}}nam}$           | $\text{\textit{\textcircled{S}}a-y\acute{im}\acute{i}}$ |
|    | boy  | FOC-came  |
|    | « The boy came »                               |   |
| b. | $\text{\textit{\textcircled{S}}nam-\acute{e}}$ | $\text{\textit{\textcircled{S}}y-im\acute{i}}$          |
|    | boy-FOC  | he-came   |
|    | « THE BOY came »                               |   |

The focusing marker  $-\acute{e}$  is still synchronically identical to the copula  $-\acute{e}$ , so  $\text{\textit{\textcircled{S}}nam-\acute{e}yimi}$  must originally have meant something like « it is the boy that came ». Nowadays most coding properties point to a normal monoclausal structure. The marker  $-\acute{e}$  has no verbal properties (such as tense-aspect marking), and there is no relative marker. So in Rendille the process of fusing an original cleft construction into a single clause with a focusing marker has been completed.

Now let us compare this situation to English cleft sentences, which are usually thought of as being biclausal, consisting of a relative clause and a copula clause. But that is not the whole story, because even in English, cleft sentences have some monoclausal properties. And just as we expect by the Behaviour-before-Coding Principle, these properties are behavioural properties. A recent discussion

of English clefts is found in Meinunger (1998), who in fact claims that they are monoclausal on the basis of the behavioural evidence.

One such behavioural property is the binding behaviour of pronouns. Reflexivization is possible in (31a) and in (31b), but (31c) is impossible, as expected if the construction is monoclausal.

- (31) a. *What Pedro<sub>i</sub> saw was a picture of himself<sub>i</sub>*  
 b. *What Maria<sub>i</sub> is is important to herself<sub>i</sub>*  
 c. *\*What she<sub>i</sub> claimed was that Maria<sub>i</sub> is innocent*

Another behavioural property that points to monoclausal status is the restriction that the tense of the copula and the tense of the full verb must be identical, as illustrated in (32).

- (32) *What Maria read was (/ \*is) a book about gibbons.*

A language that contrasts with English in this regard is German. German also has *wh*-clefts, but they are used much less commonly, and this seems to be the reason why they do not behave in a monoclausal way yet. Thus, the counterparts of (31a-b) are impossible (or at least much worse) in German (see (33a-b)), and the counterpart of (32) is possible (see (34)):

- (33) a. *??Was Pedro sah, war ein Bild von sich*  
 « What Pedro saw was a picture of himself »  
 b. *\*Was Maria ist, ist sich wichtig.*  
 « What Maria is, is important to herself »

- (34) *Was Maria las, ist ein Buch über Gibbons*

Thus, again we see three stages with the same overall pattern:

(35)		<b>behavioural</b>	<b>coding</b>
	German <i>wh</i> -cleft	old	old
	English <i>wh</i> -cleft	new	old
	Rendille <i>-é</i> focusing	new	new

## 7. Further issues

The description of the concrete examples above was sketchy and schematic in many ways, but it was not the purpose of this paper to provide a full account of all the known data and factors playing a role in these changes, because the changes themselves are only exemplary. The purpose of this paper is to provide some initial plausibility for a general law of language change, and thereby hopefully to stimulate further research that might validate or disprove the

Behaviour-before Coding Principle. In this last section, I would like to briefly address a few questions that immediately come to mind.

### **7.1. Is the Behaviour-before-Coding Principle new?**

If it has the far-reaching implications that I have suggested in this article, could it be that nobody else discovered this principle before? As far as I am aware, that is indeed the case, but of course, the idea that not all sub-processes of a syntactic change or a grammaticalization change occur simultaneously is fairly widespread. For example, Heine et al. (1991, 213) assert that « conceptual / semantic shift precedes morphosyntactic and phonological shift ». However, my Behaviour-before-Coding Principle is different from this, because it claims that even within morphosyntactic change a particular sequence is universally observed.

### **7.2. Are all these examples instances of grammaticalization?**

Over the last fifteen years, more and more morphosyntactic changes have been subsumed under the general heading of *grammaticalization*, and this paper, too, was originally presented at a grammaticalization conference. But do all of the cases cited here actually fall under grammaticalization?

Probably nobody would doubt that the cases of the periphrastic perfect, the deadjectival adverb, the acquisition of verbhood and the clause fusion of cleft constructions represent cases of grammaticalization. However, what about the acquisition of subjecthood by dative experiencers and the case of *have*-drift in Arabic vernaculars and Maltese?

In particular the change from dative experiencer to subject is often presented as a kind of abrupt reanalysis rather than a grammaticalization, but in Haspelmath (1998) I have argued that this change can be subsumed under grammaticalization without major problems. In particular, in contrast to typical cases of reanalysis, this change is structurally gradual, and it is clearly unidirectional. The same can be said for the change from locative preposition to possessive verb. To be sure, in this latter case, there is not one single element that becomes a grammatical item, or that becomes more grammatical. The preposition *ʃand* becomes a possessive verb, but it does not become *more grammatical*.

However, in recent years the view has become more and more widespread that it is entire constructions, not isolated lexical items, that undergo grammaticalization (see, e.g., Bybee (2003), Traugott (2003)). Thus, under this broader view of grammaticalization, the changes discussed here can be subsumed under this type of morphosyntactic change.

### 7.3. Why should coding properties change only after behavioural properties?

This last question is of course the biggest and most interesting question. Unfortunately, I do not have an answer to it, but I did not want to finish this paper without at least raising this issue. It probably has to do with the fact that constructions involving morphology are generally tighter and hence less prone to change than looser constructions, so that a change in a tighter construction implies a change in a looser construction. The terms “tight” and “loose” are very vague here, and the greater proneness to change of loose constructions is something that may correspond to many linguists' intuitions, but is not something that we know for sure. Thus, while this paper hopes to have made some progress towards a restrictive theory of possible language changes, there is still a lot of work to be done to follow it up.

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