

# Ambiguity avoidance vs. expectation sensitivity as functional factors in grammatical change

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There is a long tradition of invoking ambiguity avoidance as a functional factor in explaining the rise of differential argument marking. But more recently, some authors have contrasted anti-ambiguity as a motivating factor with “predictability-based marking” or “expectation sensitivity”. Here I revisit the debate, starting out from the observation that ambiguity or indeterminacy is rampant in language use and language structures. It could not be otherwise because there is no way to specify every aspect of meaning that might conceivably be interesting. On the empirical side, I extend the discussion of functional motivations and pathways in differential argument marking to other kinds of differential coding, especially “differential discourse function” marking. I argue that in all these systematic differential-coding situations, expectation sensitivity provides a good explanation of the typological patterns and their diachronic motivations, while ambiguity avoidance is often irrelevant.

## 1. Introduction: Ambiguity and expectations

This short paper asks whether some well-known phenomena of differential grammatical marking are best explained by AMBIGUITY AVOIDANCE or by EXPECTATION SENSITIVITY. Consider differential object marking by a preposition (also called *differential object flagging*, Haspelmath 2026), as illustrated in (1b).

### (1) Spanish

#### a. (inanimate P)

*Vi la casa.*

I.saw the house

‘I saw the house.’

#### b. (animate P)

*Vi a la mujer.*

I.saw ACC the woman

‘I saw the woman.’

In Spanish, the object (patient, or P-argument) of a monotransitive verbs such as ‘see’ needs a special accusative preposition (or “flag”) if it denotes a human or other animate, but not if it denotes an inanimate.

The key question that I ask in this paper is: Do languages develop such patterns in order to help hearers avoid a potential ambiguity (because human referents are normally subjects), or do we find such tendencies because hearers expect humans to be subjects, and grammars are sensitive to such expectations, providing means to counter these expectations? The difference between ambiguity avoidance and expectation sensitivity may be subtle, but in this paper, I point to substantial evidence that ambiguity avoidance has been overrated in functional linguistics (in line with Wasow 2015), and also in

diachronic works that appeal to ambiguity as a relevant factor in language change (see also De Smet & Markey 2021; Zehentner 2022). It appears that many or most cases of asymmetric differential coding in grammar can be explained with reference to expectation sensitivity. As a slogan, one could formulate it as follows: *Grammars code most what hearers expect least* (this is taken up again in §9). The two types of explanation that I contrast here are also called “anti-ambiguity” or “counter-expectation” for brevity.

Ambiguity avoidance has often been invoked in works on functional explanations of grammatical patterns and grammatical change. A particularly prominent proposal has been the idea that word order develops in such a way as to avoid constituent-attachment ambiguities (see, e.g., Temperley 2003; Rohdenburg 2021), but ambiguity in argument marking has also long been on the agenda of functional and diachronic linguists (e.g. Plank 1980). I will begin the discussion in this paper with differential argument marking, but later I will also touch on other types of grammatical marking.

## 2. Does ambiguity avoidance explain differential argument marking?

Differential object flagging (DOF) of the Spanish type is extremely widespread in the world’s languages (Sinnemäki 2014). The pattern may make use of a variably used adposition as in Spanish, but it may also consist in an variably used case suffix, as in Turkish, so I use the more general term *flagging* (= case marking or adpositional marking). There is a long tradition of invoking ambiguity avoidance (“anti-ambiguity”) as a functional factor in explaining the rise of DOF patterns. A selection of quotations is given in (2).

- (2) a. Caldwell (1856: 271):  
special accusative flagging in Dravidian is employed “in order to avoid misapprehension”
- b. Comrie (1977: 16)  
“Differential case-assignment to subjects and direct objects serves the function of distinguishing subjects from direct objects... [Some] languages have differential case-assignment only where confusion between subject and direct object is particularly likely...”
- c. Aissen (2003: 437)  
“it is those direct objects which are most in need of being distinguished from subjects that get overtly case-marked”

In line with these quotations, functional linguists have often talked about a “discriminatory function” of case-marking (or flagging) (e.g. de Hoop & Narasimhan 2005; Malchukov 2008; Seržant 2019).

However, when we consider a wider range of phenomena, the anti-ambiguity explanation is no longer applicable. For example, differential flagging may occur not only with patient objects, but also with recipients, as in Neo-Aramaic, where only full nominals are flagged by the preposition *ta*. (This is somewhat similar to English, where personal pronouns are much more likely to occur without a preposition, as in the first translation of (3a).)



while typical subjects are animate, so ‘the woman’ is unexpected as object and the flag counters this expectation.

The two explanations are not completely unrelated, as I will discuss in the final section, but they are sufficiently distinct to allow us to distinguish them empirically on the basis of their predictions: The anti-ambiguity explanation predicts that extra marking of an argument should occur primarily when the other argument is not marked and ambiguity could therefore result, while the counter-expectation explanation predicts that extra marking should occur primarily in rarely occurring situations.

### 3. Ambiguity is overrated

Before looking at more instances of grammatical coding and language change, let us step back and reflect on the role of ambiguity in linguistic communication. It seems that avoiding ambiguity is not a major function of linguistic expressions, and that “ambiguity is overrated” (as noted famously by Wasow 2015, in a psycholinguistic context).

Linguists and philosophers who worked in the area of pragmatics have long emphasized that communication does not simply consist in the transmission of “sets of complete thoughts”. Or in other words, it is not merely encoding and decoding of linguistic expressions (cf. Bohnemeyer 2025). Mutual understanding in a communication situation is often very partial, and it comes about as much through contextual inference as through transmission of conventional meanings via learned symbols. Without a large amount of shared background and contextual knowledge, comprehension is very difficult. Putting it starkly, communication can be thought of as consisting primarily in filling in a few gaps in the interlocutor’s knowledge state. “Ambiguity” in the semanticist’s sense is not something that people often encounter outside of philosophy and linguistics seminars. It seems that the practical relevance of Grice’s maxim “Avoid ambiguity” is not very great, because our communicative acts always have some degree of vagueness or ambiguity. Consider the very natural exchange in (5), where speaker A’s question is very vague, and speaker B’s answer is very incomplete.

- (5) A: *What did you do over the weekend?*  
B: *I went to the zoo.*

Speaker B must have done a large number of things over the weekend, but the context makes it clear that A was interested in remarkable things, and going to the zoo is more remarkable than grocery shopping or cooking (let alone doing the dishes and the laundry). Basically, when we talk, we limit ourselves to transmitting relevant content, and we mostly say things that our interlocutors do not expect anyway from their contextual knowledge. Most communication is about novelty, and about countering expectations. One might think that ambiguity is a problem in particular with agents and patients, so that languages must have a way of distinguishing (6a) and (6b).

- (6) a. *The dog bit the postman.*  
b. *The postman bit the dog.*

However, if someone exclaims *Oh no! The postman! Our dog! He bit him! That’s terrible!*, the sentence *he bit him* is technically ambiguous, but from the context, one would of course interpret it as ‘Our dog bit the postman’, because in the opposite (totally unexpected) situation, the speaker would go to greater efforts to make clear who is agent and who is patient of the biting action.

To a substantial extent, the structures of languages can be understood as resulting from an efficient trade-off between speaker effort and hearer needs (more generally, producer effort and comprehender needs, to include sign languages). And what the comprehender primarily needs is signals about unexpected parts of messages. Producers must be sensitive to the comprehender's expectations.

Traditionally, linguists have not typically tried to measure comprehenders' expectations, and it is not easy. Instead, semanticists have focused on far-fetched ambiguities such as the scope ambiguity in the well-known advertisement slogan of the German dating agency "Parship" in (7).

(7) *Every eleven minutes a single falls in love through Parship.*

There is a joke that capitalizes on the ambiguity by mentioning the poor single who has to take a break from the dating app after falling in love thousands of times.<sup>1</sup> But it seems that such scope ambiguities rarely lead to problems in communication, probably because the context usually makes it very clear which scope reading is intended.

These general considerations may lead us to be somewhat skeptical about anti-ambiguity explanations of grammatical marking patterns, and to take expectation sensitivity seriously as an alternative explanation.

#### 4. Language change often creates ambiguity

While ambiguity avoidance has sometimes been mentioned as explaining aspects of change, the creation of ambiguity or multifunctionality is also frequently observed. For example, in lexical-semantic change, where semantic extension and metaphorical or metonymic shift is rampant. Illustrative examples are very easy to find, e.g. in the language of science:

<i>table</i> 'piece of furniture'	>	'tabular diagram'
<i>paper</i> 'material for writing'	>	'short scientific work'
<i>flag</i> 'cloth for signalling'	>	'case-marker or adposition'

Semantic change is also very common in grammatical markers. Multifunctionality patterns have often been discussed in cross-linguistic research under the heading of "semantic maps" (Georgakopoulos & Polis 2018). An example of a set of meanings typically associated with dative markers is shown in Figure 1.

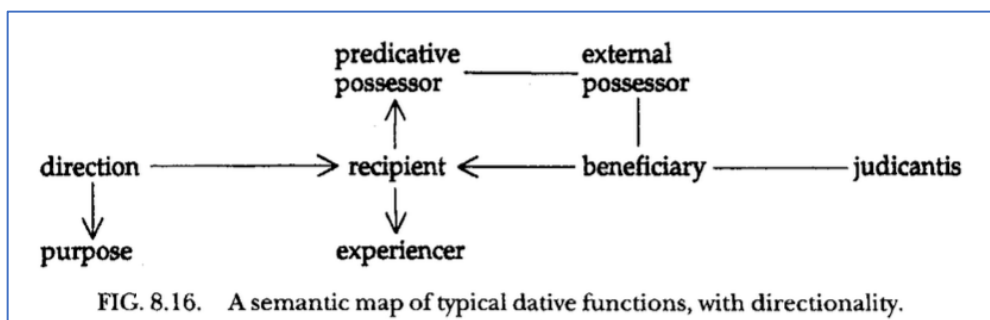


Figure 1 (from Haspelmath 2003: 234)

<sup>1</sup> <https://www.der-postillon.com/2015/11/single-der-sich-alle-11-minuten.html>

Such diagrams have often been said to show “polysemy patterns” (i.e. ambiguity patterns), but in many cases, the language-particular forms show indeterminacy (or “vagueness”, or “underspecification”). (For this reason, it is better to use the general term *coexpression*, and to call these diagrams *coexpression diagrams*, Haspelmath 2023a.)

It could be that ambiguity/polysemy is somehow dispreferred,<sup>2</sup> but indeterminacy cannot be dispreferred, because all expressions are indeterminate to some extent. Lexical semanticists have often noted that ambiguity/polysemy and indeterminacy are very hard to distinguish, so it would be odd to claim that ambiguity/polysemy is a problem for comprehension. Syntactic ambiguities may be easier to distinguish from indeterminacy, but one may wonder whether they are really so much more relevant to successful communication. For lexical polysemy/indeterminacy, it has been noted that it is very often completely unproblematic, and perhaps even efficient (Piantadosi & al. 2012; Gibson et al. 2019). The same may be true for indeterminacy that arises in grammar: It may be efficient that Spanish does not use its accusative preposition *a* when the object is inanimate (as in *vi la casa* ‘I saw the house’), because the “role ambiguity” is not problematic for communication.

## 5. Expectation sensitivity explains differential object flagging better

After these general considerations about ambiguity in communication, let us now go back to the phenomena of differential argument marking. I will argue that there are a range of observations that are compatible with expectation sensitivity, but not with ambiguity avoidance.

First, differential object flagging (DOF) may be innovated in languages and situations where there is an existing accusative distinction. In Spanish, the accusative preposition *a* was added not only to full nominals such as *la mujer* ‘the woman’, where the Latin accusative case distinction (nominative *mulier*, accusative *mulier-em*) had been lost. It was also added to personal pronouns, where the distinction was preserved, e.g. *yo* ‘I’ vs. *a mi* ‘me’, *tu* ‘thou’ vs. *a ti* ‘thee’ (where the Latin contrasts *ego* vs. *me*, *tu* vs. *te* had been maintained). Now one could say that the preposition *a* is added here because of system pressure, but very strikingly, Portuguese has a more restricted system of special object flagging where the new accusative marker *a* is added ONLY to personal pronouns (e.g. *a mim* ‘me’, *a ti* ‘you’). These are higher in referential prominence, so it is not surprising that they show more accusative flagging than full nominals from a counter-expectation perspective, but from an anti-ambiguity perspective, Portuguese-like systems are unexpected. Another case where a language has redundant differential object marking is Ge’ez (Semitic), which innovated the accusative preposition *la* for animate objects, even though the old Semitic accusative *-a* was preserved (see Rubin 2005: 107).

Another phenomenon that cannot be explained by ambiguity avoidance is that DOF is occasionally manifested in shorter vs. longer accusative marking. Asymmetric coding usually means overt vs. zero coding, but occasionally it can mean short vs. long coding. A case in point is Evenki, a Tungusic language, which has a definite accusative suffix -

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<sup>2</sup> A reviewer feels that the ambiguity avoidance argument is presented here “as somewhat of a strawman”, suggesting that proponents of the ambiguity-avoidance account would counter that “what is to be avoided is not so much ambiguity itself, but rather the cognitive burden required to resolve that ambiguity”. However, one would still need to distinguish clearly between the cognitive burden of ambiguity, of indeterminacy, and of lack of expectedness. It seems to me that the cross-linguistic facts strongly indicate that it is lack of expectedness, not indeterminacy/ambiguity, that involves a burden that must be countered by extra coding.

*va*, and a shorter indefinite accusative suffix *-a* (or *-ja*) (Nedjalkov 1997). Further similar cases have been collected by Keine & Müller (2010).

Finally, some languages also show differential object marking when the subject is ergative. For example, Hindi has a differential accusative flag =*ko* used with definite P-arguments, as in (8a) (see also Arkadiev 2009: 158). This marker is also used under the same conditions when the subject is ergative-marked, as is the case in the perfective past form, as in (8b).

(8) Hindi (de Hoop & Narasimhan 2005: 327)

a. *Wo bakre=ko bec-taa hae.*  
 he.NOM goat=ACC sell-IPFV be.3SG  
 ‘He sells the goat.’

b. *Us-ne bakre=ko bec-aa.*  
 he-ERG goat=ACC sell-PFV.3SG  
 ‘He sold the goat.’

While the case marking split is conditioned by tense-aspect in Hindi, it is conditioned by nominality in Dyrirbal, where full nominals show ergative marking (but no accusative marking), and 1st and 2nd person pronouns show accusative marking (but no ergative marking). This is partially illustrated by (9a-b).

(9) Dyrirbal (Pama-Nyungan) (Dixon 1994: 10; 130)

a. [*ɲuma-Ø*]<sub>P</sub> [*yabu-ɲgu*]<sub>A</sub> *bura-n*  
 father-ABS mother-ERG see-NONFUT  
 ‘Mother saw father.’

b. [*ɲana-na*]<sub>P</sub> [*ɲuma-ɲgu*]<sub>A</sub> *bura-n*  
 we-ACC father-ERG see-NONFUT  
 ‘Father saw us.’

In (9b) we see that accusative marking and ergative marking is used also where there is no danger of ambiguity. But a personal pronoun in patient role is unexpected, and a full nominal in agent role is unexpected, so the coding is motivated by expectation sensitivity. The overall result is the universal tendency in (10).

(10) *The role-reference association universal* (Haspelmath 2021b):

Deviations from usual associations of role rank and referential prominence tend to be coded by longer grammatical forms if the coding is asymmetric.

The usual associations (i.e. the frequent occurrences) of high-ranking roles (A and R) with referentially prominent arguments, and of low-ranking roles (P and T) with non-prominent arguments, lets us expect more coding when the argument occurs in an unexpected role.<sup>3</sup> This makes similar predictions as the anti-ambiguity explanation, because ambiguity may arise when agent and patient arguments are referentially similar, especially when both are animate (‘a woman saw a man’), or both are definite (‘the stone broke the hammer’), or both are personal pronouns (‘I love you’). However, the counter-

<sup>3</sup> In Arkadiev’s (2009) approach, this is referred to as “paradigmatic discrimination”; the general conclusion in his paper is basically the same as here.

expectation explanation lets us expect still more grammatical coding, because it is good if unexpected situations are highlighted specifically even if there is no ambiguity.<sup>4</sup>

That unexpectedness is strongly associated with extra marking has been discussed also from a quantitative, corpus-based perspective, e.g. by Fenk-Oczlon (2001) and Jaeger (2010). In the present paper, my focus is on the qualitative aspects.

## 6. Expectation sensitivity also explains differential R flagging (DRF)

Above in §2 we already saw that recipient objects (R-arguments) may also be flagged differentially. English has a well-known alternation between a double object construction (as in 11a) and a prepositional dative construction (as in 11c), and in some contexts, the latter must be used.

- (11) a. *She gave me the money.*  
 b. ?*She gave me it.* (*She gave it to me.*)  
 c. *She gave it to her brother.* (\**She gave her brother it.*)

Again, one might think that ambiguity avoidance contributes to explaining the extra dative preposition, as in the case of differential patient flagging. And indeed, some potentially ambiguous combinations without prepositional coding seem to be bad in all varieties of English (?\**they promised you me*). However, ambiguity does not explain the badness of this sentence, or of the less confusing sentence \**She gave her brother it* (in 11c), because the order of recipient and theme is quite rigid in English (see Gast 2007 for some relevant discussion). But the difference between the two sentences in (11c) falls under the generalization of (10), so it can be understood from the perspective of expectation sensitivity: It is unexpected that the recipient is a full nominal while the theme is a personal pronoun, because these associations deviate from what is usually found in texts. Bulga

French has somewhat similar restrictions with personal pronouns in ditransitive constructions, as illustrated in (12a-d). While personal pronouns can be weak and preverbal when the T-argument is 3rd person, this is not possible when a 1st or 2nd person is a T-argument, as in (12c-d).

- (12) a. *Il me la présentera.* ‘He will introduce her to me.’  
 b. \**Il me te présentera.*  
 c. *Il me présentera à toi.* ‘He will introduce me to you.’  
 d. *Il te présentera à moi.* ‘He will introduce you to me.’

One might suspect that the unacceptability of (12b) is due to its ambiguity: In 1st and 2nd person weak pronouns, there is no contrast between accusative and dative forms, so one would not know what (12b) means.

However, the ban on 1st/2nd person weak pronouns in T role also extends to situations where the R is 3rd person: French does not even allow \**Il me lui présentera* ‘He will introduce me to him’, even though this would be completely unambiguous. French is thus analogous to English, which does not allow \**She gave her brother it*, even though this

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<sup>4</sup> It should also be noted that ambiguity is almost never “intolerable” for grammars, as had been thought in the past (e.g. Moravcsik 1978). There is always SOME context available to help comprehenders, and if a misunderstanding arises, there are ways of repairing it.



would be unambiguous. Both languages require an extra dative preposition (*to* in English, *à* in French) to signal the unusual (unexpected) situation.

Another striking case is Modern Greek, which has preverbal weak object pronouns, like French. Unlike French, however, Greek has preserved the accusative/dative distinction in all singular forms, so that there is never any ambiguity. For (13b) it is very clear that it would mean ‘she gave you to him’ because of the unambiguous dative and accusative form. However, Greek does not allow (13b), which has an unusual association of roles and referential prominence. Instead, (13c) must be used, with a full personal pronoun taking an extra accusative suffix.

(13) Modern Greek

a. *su ton éðose*  
 you.DAT him.ACC gave  
 ‘she gave him to you’

b. *\*tu se éðose*  
 him.DAT you.ACC gave  
 ‘she gave you to him’ (cf. French: *\*elle te lui donna*)

c. *tu éðose esé-na*  
 him.DAT gave you-ACC  
 ‘she gave you to him’

More generally, such “person-case effects” are independent of ambiguity and obey the generalization in (10) (see Haspelmath 2004; 2021b).

In this connection, it is also worth noting that recipients are typically similar to agents in terms of referential prominence (as noted by Zehentner 2022; Seržant 2025): They tend to be human, definite, and 1st or 2nd person. Thus, ambiguities may arise here, and one might expect languages to show special marking to counter such ambiguities. However, there are many languages with no flagging at all, and there is no tendency for the R-argument to be marked when the A-argument is unmarked. If ambiguity avoidance were an important functional factor, one might expect unmarked recipients to occur only when the A-argument is ergative, as in Pitjantjatjara, but not when the A-argument has no flag, as in Kilivila.

(14) Pitjantjatjara (Pama-Nyungan; Bowe 1990: 24)

*Mingma-ngku tjitji mai u-ngu.*  
 woman-ERG child[ABS] bread[ABS] give-PST  
 ‘The woman gave the child bread.’

(15) Kilivila (Oceanic; Senft 1986: 110)

*E-seki luleta yena guyau.*  
 he-gives his.sister fish chief  
 ‘The chief gives his sister the fish.’

In (14) and (15), both the A and the R are human and definite, so they cannot be distinguished on the basis of their referential features. But languages employ special agent coding (such as ergative flagging) and special recipient coding (such as dative flagging, e.g. English *to*) on the basis of role information and unexpectedness, not on the basis of distinguishability within a sentence.

## 7. Expectation sensitivity also explains differential place marking

Next, let us look briefly at yet another type of differential argument marking: differential place marking, as discussed in Haspelmath (2019b). This phenomenon has not been widely discussed yet, but it is very widespread in the world's languages. For example, Modern Greek has a locative preposition *s(e)*, which can be omitted (together with the definite article) when the location is a place noun, as in (16).

- (16) *Páo (s-to) yrafío/sxolío.*  
 I.go (to-the) office/school  
 'I am going to the office /to (the) school.' (Terzi 2010: 173)

And Maltese uses the locative preposition *f(i)*- 'at, in' only with non-placenames, as seen in (17a-b).

- (17) Maltese (Stolz et al. 2017: 463)
- a. *Jghallem Ghawdex.*  
 3SG.M.IPFV.teach Gozo  
 'He teaches on Gozo (an island).'
- b. *Jghallem f-l-iskejjel ta-l-Gvern.*  
 3SG.M.IPFV.teach in-the-schools of-the-government  
 'He teaches in the schools of the government.'

Place nouns and place names are not more easily distinguishable from subjects than common non-place nouns, so their reduced coding can only be explained by expectation sensitivity: With place nouns and place names, we expect that the role will be locative (or allative), and therefore the flagging is more redundant and can be omitted. On the other hand, some languages also have extra marking when the place is human. An example is Italian, where the preposition *a* 'to' is restricted to inanimate goals, as in (18a). When the spatial goal is animate, differential marking by the preposition *da* is required, as in (18b).

- (18) Italian
- a. *vado a-lla chiesa*  
 I.go to-the church  
 'I go to the church'
- b. *vado da-l poliziotto*  
 I.go to-the policeman  
 'I walk up to the policeman'

This is in line with the prediction that referent types which are not expected for a particular role tend to get extra coding (a preposition consisting of two segments rather than just one). Humans used as places are potentially confusable with humans in agent function, but since the allative preposition *a* cannot be omitted in Italian, the only conceivable alternative to (18b) would be *\*vado al poliziotto*. But this would not be ambiguous, and hence ambiguity avoidance does not explain the contrast in (18a-b).

## 8. Expectation sensitivity also explains other cases of function-content associations

Finally, expectation sensitivity also explains all kinds of other common types of differential coding, where no confusability or ambiguity is involved, e.g. special coding of possession with alienable nouns, special coding of singular with aggregate nouns, or special causative coding with agentive or transitive verb meanings (Haspelmath 2021a).

One other type of differential coding that I will briefly highlight here is the coding of discourse function (predication, reference or modification) with different semantic kinds of roots (action roots, object roots, and property roots). As noted by Croft (1991; 2003), languages tend to have extra coding when a root occurs in an unexpected discourse function. For example property roots in predication function require an extra marker (a copula, as in (19b)), and action roots and object roots require an extra marker in modification function (a relativizer, as in (20b), and a genitive flag, as in (21b)). Such extra markers are called *function indicators* (Haspelmath 2023b).

- (19) property root
- a. modification function  
*big houses*
  - b. predication function  
*The houses **are** big.*
- (20) action root
- a. predication function  
*The rabbit jumped away.*
  - b. modification function  
*the rabbit **that** jumped away*
- (21) object root
- a. reference function  
*We saw a tree.*
  - b. modification function  
*the trunk **of** the tree*

These types of coding patterns have not generally been subsumed under differential coding, but if we broaden our view to include them, we can see that expectation sensitivity explains these patterns, too. The reason is that there are usual associations of function and content in these situations, too: Property roots tend to be used in modification function, action roots in predication function, and object roots in reference function. Thus, they fall under a still more general universal, which can be formulated as in (22).<sup>5</sup>

- (22) *The function-content association universal:*  
Deviations from usual associations of function and content tend to be coded by longer grammatical forms if the coding is asymmetric.

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<sup>5</sup> As a reviewer observes, there are some similarities between this generalization and Rohdenburg's (1996) Complexity Principle ("in the case of more or less explicit grammatical options the more explicit one(s) will tend to be favored in cognitively more complex environments"). However, what exactly is "cognitively complex" is not as easy to determine as discourse frequencies of associations between function and content.

In many of the kinds of situations that are relevant here, omitting the function indicators (the elements in boldface in (19)-(21)) would not lead to ambiguity. If English had no copula for predicative adjectives (“The houses  $\emptyset$  big”), the word order would make the meaning clear. If it did not have a relativizer, there would still be no ambiguity in most cases (“We caught the rabbit  $\emptyset$  jumped away”). And the same with nouns or nominals in modification function (“the trunk  $\emptyset$  the tree”). The illustrations here come from English, but the general pattern holds cross-linguistically: Adjectives are typically juxtaposed in modifying function but often need a copula in predicative function, verbs typically need a relativizer in modifying function, nouns typically need a possessive marker in modifying function, and so on (Croft 1991).

These typological patterns provide a very indirect argument against anti-ambiguity explanations for diachronic change, but since the understanding of diachronic change also relies on indirect inferences, these considerations seem highly relevant to the broader picture. And while it is of course in principle possible that differential coding of arguments is due to ambiguity avoidance, whereas differential coding of discourse function has a different explanation, it is more parsimonious to apply the broader explanation to all cases. There are of course studies of diachronic changes in the relevant domains that attempt answer the question of what factors drive the changes (e.g. Melis & Flores 2009 on Spanish differential object marking), but it seems that such studies of individual changes need to be complemented by cross-linguistic and cross-constructural considerations as emphasized in this paper.

## 9. Closing remarks: Diachrony and functional motivations

I have argued that expect is more convincing as a motivating factor for a variety of grammatical coding phenomena than anti-ambiguity, but neither of these is a complete explanation. As emphasized by Seržant (2019; 2025), these factors influence language use, and one needs to assume a process of conventionalization (or grammaticalization) that somehow turns usage preferences into grammatical regularities. I have nothing to say here about the process of conventionalization, unfortunately, and I regard it as a significant gap in our knowledge. It cannot be excluded that there are additional unknown factors that make certain kinds of conventionalization more likely than others.

It should be kept in mind that quite generally, functional-adaptive explanations have a crucial diachronic component (Greenberg 1969; Bybee 1988; Haspelmath 1999). If languages did not change all the time, there would be no way for tendencies in language use to become grammaticalized. It is only because language structures are somewhat malleable that tendencies of language use can give rise to adaptation: More adapted structures have a higher chance of survival in all the variation, as in biological evolution. But this does not mean that most language change is adaptive. In fact, most change may well be non-adaptive or random, and the fact that it often seems functional to us may be due to the perspective that we are taking. Thus, while diachrony is crucial to functional explanation of the type explored here, there is no simple connection between functional motivations and specific changes.

Differential coding patterns can come about in two ways: By the rise of a new marker, such as the Spanish accusative preposition *a* in (1), or by the dropping of a marker that used to be obligatory such as the Greek preposition *s(e)* in (16). For the modern Indo-European languages, we can generally identify the source of the new markers, but we cannot predict the pathways (thus, we do not know why Macedonian chose the differential object marker *na* ‘on’, and why Afrikaans chose the differential object marker *vir* ‘for’).

For non-Indo-European languages, such as Umpithamu and Dyirbal, we generally have no idea where the markers come from. All we can see is that they show a strong tendency to obey the predictions that come from the function-content association universal (in (22) above): When a particular kind of form defined by its content has a strong association with a particular kind of function (whether argument role or discourse function), languages often omit the function marking (i.e. the flagging with argument nominals, or the function indicators in the cases of §8) when the function is expected on the basis of the semantic content.

The argument is thus that the changes must be adaptive because we see an adapted pattern in the results. Unfortunately, we cannot observe the adaptation directly in the changes because the changes are too diverse (Haspelmath 2019a). While Bybee (1988) and Cristofaro (2019) have argued that one should be able to demonstrate the functional-adaptive value of particular changes, I do not think that this is the case. In biological evolution, too, the changes are often random, and it is only in the fit between the surviving systems and the environmental needs that we can demonstrate adaptation. Similarly in linguistics, when we observe a systematic functional pattern, we can infer that it came about by adaptation even if we do not understand the nature of the changes that led to it.

The role of expectation sensitivity in explaining grammatical coding patterns can be formulated in the following slogan:

*Grammars code most what comprehenders expect least.*<sup>6</sup>

This slogan is of course inspired by Du Bois's (1985) "Grammars code best what speakers do most", and it modifies it in two ways: It talks about "coding most" (i.e. by grammatical markers), rather than the "coding best" (which is somewhat vague), and it generalizes "what speakers do most" to "what comprehenders expect least", because expectation does not always result from high frequency in language use. Purely contextual expectations may lead to short coding, too, though the focus in this paper has been on argument marking and discourse function patterns where frequency asymmetries have been prominent in the typological literature.

Since functional explanations are generally hard to demonstrate, I have not conclusively shown that anti-ambiguity explanations play no role, and I certainly do not want to rule them out entirely. In many situations, they make similar predictions, because in many cases, potentially ambiguous patterns (e.g. transitive clauses with a definite human agent and a definite human patient) are also the ones that occur least frequently and are therefore the least expected. Thus, in this paper I focused on those instances, such as differential place marking, where there is no ambiguity, and where only expectation sensitivity can explain the patterns that we find.

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<sup>6</sup> First proposed on Twitter in 2023: <https://twitter.com/haspelmath/status/1697908122256351468>

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