Workshop 'Ambiguity (avoidance) as a factor in language change'

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There is general agreement on the fact that ambiguity is abundant in language, and is present in all linguistic domains. That is, as Felser (2017: 271) points out, "strings of human speech sounds (or strings of graphemes) may be compatible – at least, temporarily – with more than one possible phonological, morphological, syntactic, semantic or pragmatic representation". In the linguistic literature, most attention so far has been paid to lexical and structural ambiguities, such as e.g. garden path sentences or PP-attachment. The role of ambiguity in language change has been extensively discussed in the literature, specifically its role as a crucial factor in both syntactic and semantic reanalysis (e.g. Evans & Wilkins 2000; Traugott 2012; Traugott & Trousdale 2013; Denison 2017; Felser 2017). Ambiguous instances are here often considered as 'bridging contexts', triggering new analyses of a structure or word if ambiguity is prevalent enough (cf. Winter-Froemel 2021: 12-14, positing a threshold of 50% of ambiguous contexts needed to instigate reanalysis). However, these assumptions have been criticised as 'logically flawed' (De Smet 2009: 1728), as ambiguity is the result rather than the motivation of reanalysis – in order for ambiguities to arise, the target interpretation must already be given (De Smet 2009: 1729). Despite calling for caution in attributing causal force to ambiguity and viewing it as the 'spark' of change, De Smet & Markey (2021: 21) nevertheless show that ambiguity can act as 'fuel' in the diffusion of innovations, as they may "spread more easily to contexts where the innovation is less conspicuous".

A related, yet slightly different question is the role of ambiguity avoidance as a cognitive pressure in language use and change (e.g. Stefanowitsch 2021): Studies into syntactic phenomena such as differential object marking (Fedzechinka et al. 2012; Iemmolo 2013; Levshina 2020; Tal et al. 2022), argument structure (e.g. Flack 2007; De Swart et al. 2008; Lamers & de Swart 2012 or MacWhinney et al. 2014; Kittilä et al. 2011; Kulikov et al. 2006), as well as e.g. Temperley (2003) on relative clauses suggest that there is a cross-linguistic tendency for ambiguity to be resolved, with 'trade-offs' between disambiguation strategies being frequently observed. A well-known example for such trade-offs is the history of English argument structure, where the decreasing disambiguation power of case marking appears to correlate with an increasing reliance on constituent order for identifying 'who did what to whom'. Explorations of the role of ambiguity avoidance in morphonotactic histories of languages (e.g. Baumann et al. 2019) as well as lexical and morphological homophony avoidance (e.g. Baermann 2011; Munteanu 2021) suggest that similar tendencies could be given in other domains.

Although such explanations are intuitively appealing and seem to hold in specific cases, they have not been extensively tested against empirical data, and existing results are somewhat inconclusive (cf. e.g. Fedzechinka et al. 2012; Levshina 2021; Zehentner 2021; De Cesare & Demske 2022). Furthermore, the cross-linguistic commonness of ambiguity as discussed by Wasow (2015) or Piantadosi et al. (2012) as well as the synchronic evidence (e.g. Ferreira 2006, 2008; Ferreira & Dell 2000; Ferreira et al. 2005; Roland et al. 2006, among others) call into question whether ambiguity avoidance can be considered a general, strong, potentially universal and stable cognitive mechanism in the first place, or whether it may only come into play in relatively restricted areas and under specific circumstances.

The present workshop aims to provide a platform for discussing both the role of ambiguity in language change as well as the role of ambiguity avoidance as a cognitive pressure triggering and/or shaping diachronic change. In particular, the workshop addresses the following questions (among potential other issues):

- Do ambiguous (bridging) contexts serve as (a) triggers of change, (b) the fuel for change, facilitating or accelerating change once an innovation has emerged, or (c) instead as the result of change (cf. De Smet 2009; De Smet & Markey 2021)?
- Does ambiguity (avoidance) affect different linguistic levels in similar ways, or are there differences between e.g. ambiguity effects in phonology versus syntax, or between the role of structural versus semantic/ lexical ambiguity (e.g. Winter-Froemel 2021)?
- Which changes are particularly prone to be affected by ambiguity (avoidance)? Is there a difference between linguistic phenomena at the same linguistic level?
- How does ambiguity affect comprehension and (how) are comprehension effects reflected in production?
- What is the role of the (individual) speaker or hearer regarding language change and ambiguity and how conscious/ unconscious are these processes?
- Are both ambiguity and ambiguity avoidance stable and quasi-universal factors in language change or does their effect interact with other factors impacting language change, both social and cognitive ones? For example, how does mode interact with ambiguity?
- How does ambiguity relate to vagueness and/or fuzziness, and where does this distinction come into play in regard to language change (cf. e.g. Denison 2017)?

While we welcome more theoretically-focused contributions of such issues to the workshop, one main goal for the workshop is to discuss the role of ambiguity (avoidance) on the basis of empirical data, as well as possible methodological challenges. That is, we particularly invite empirical (corpus-linguistic or other) contributions on the impact of ambiguity in change, aiming to also address questions such as:

- How can we operationalise ambiguity (avoidance) in historical data? Which methodological problems may arise in data extraction and analysis in diachronic studies of ambiguity?
- What are possible options to assess the impact of ambiguity(avoidance) on specific changes, and how can we empirically address the question of causality in particular instances of change (cf. Winter-Froemel 2021; Zehentner 2021)?

Finally, the workshop intends to cover an as broad as possible range of languages and time-depths beyond Germanic/ Indo-European languages, and is neither restricted in terms of linguistic level of analysis nor regarding theoretical framework.

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The role of ambiguity at different stages of diachronic change

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This paper addresses the question of the relationship between ambiguity and reanalysis in syntactic change: Is ambiguity the prerequisite or the result of reanalysis (cf. De Smet 2009; De Smet & Markey 2021). It will be argued that there is no established chronological order between the two phenomena, and that ambiguity may both trigger change as well as result from change. Furthermore, attention will be paid to the notion of the (bridging) context. It will be shown that ambiguous interpretations often arise from paradigmatic analogical relations, and not from contextually induced pragmatic implicatures, as frequently assumed in the literature.

In Smirnova et al. (2019), we argued that ambiguity is crucial for the initiation of change. Using the grammaticalization of the German passive auxiliary *werden* 'become', we demonstrated how atypical and infrequent combinations triggered change due to their inherent ambiguity. At the same time, the initial reinterpretation of ambiguous combinations of *werden* with past participles of activity verbs resulted in a cascade of semantic reinterpretation processes that affected first combinations with accomplishment verbs and then with achievement verbs, the process we called diffusion. Importantly, those combinations had existed before and they only became ambiguous after the reinterpretation of *werden* and activity verbs had taken place. That is, we observe a "chain" of ambiguous contexts, where the resolution of one ambiguous interpretation triggers the next ambiguous context.

The present study will focus on German deictic adverbial elements *hin-/her*-P such as *heraus, hinaus* etc. In present-day German, they display multiple structural ambiguities and may be considered as adverbs, as verb particles as well as parts of circumpositions, see (1) – (3):

        ambiguous between adverb & verb particle
(1)   *Plötzlich kam er **heraus**.*
        Suddenly he came out.

        ambiguous between adverb, part of the circumposition, & verb particle
(2)   *Plötzlich kam er **aus** dem Wald **heraus**.*
        Suddenly he came out of the forest.

        non-ambiguous verb particle
(3)   *Das Buch kommt mit einer Startauflage von 30 Tausend Exemplaren **heraus**.*
        The book gets out with an initial print run of 30 thousand copies.

Though speakers of present-day German do not seem to face interpretation problems, as the structural ambiguity is not always tied with semantic ambiguity, alternative spelling variants in the corpus (e.g. *heraus gekommen* vs. *herausgekommen*) suggest that some speakers/writers are unsure as to the categorial status of these elements.

The present corpus study is based on the data from 1600 to present-day German (DTA-Kernkorpus & DWDS-Kernkorpus). Five pairs of *hin-/her*-adverbs (*hinaus–heraus, hinein–herein, hinauf–herauf, hinab–herab, hinunter–herunter*) will be analyzed with respect to their combinatorial potential. It will be shown that diachronically, ambiguity resides in local contexts of individual elements and only sometimes leads to reanalysis, which may but not need to be coupled with semantic reinterpretation. When the reanalysis takes place in one context, it is likely that ambiguity will arise in one or several other related contexts. That is, ambiguous contexts trigger further ambiguous contexts. Similar to the grammaticalization case of *werden* mentioned above, the ambiguity "chain"

relies heavily on paradigmatic analogical relations.

Methodologically, the paper will discuss some problems that arise when dealing with diachronic corpus data, namely the problem of detecting ambiguous contexts in the data.

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Losing one's senses: causes of obsolescence in lexical semantics

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While the general mechanisms of semantic extension are relatively well-understood (e.g. Geeraerts 1997; Traugott & Dasher 2005), the reverse side of the process – semantic loss – has been theorized less thoroughly. The present paper proposes one recurrent pattern of change that gives rise to obsolescence in lexical semantics.

Theoretical background: The proposed mechanism hinges on two assumptions. First, it is hypothesized that polysemy can be sustained as long as senses can be distinguished in usage. Typically, distinguishability is safeguarded by contextual clues: as long as different senses occupy different contextual niches (e.g. specific genres, specific collocational schemas, etc.) they do not give rise to ambiguity, so that polysemy at word-level is sustainable. This predicts that contextual overlap between senses is what gives rise to obsolescence. Contextual overlap is particularly likely to arise when semantic extension is caused by contextually-driven inferences as opposed to, for instance, metaphor. Second, the different senses of a word are linked into radial networks, organized around one or more core senses, from which peripheral senses are derived (e.g. Evans 2005). It can therefore be predicted that the loss of a core sense will affect any peripheral senses derived from (and synchronically motivated by) it. In combination, then, the emergence of a new sense through contextual implicatures is likely to threaten the source sense of the change, which in turn is likely to threaten any other senses derived from the core sense. This results in a cascade of obsolescing senses.

Empirical evidence: The proposed mechanism is supported here through a number of case studies on English evaluative adjectives. For these, radial networks are first proposed based on the relevant entries in the Oxford English Dictionary. Next, the diachronic predictions of the above model – particularly, the predicted sequence of semantic extensions and losses – is tested against diachronic corpus evidence, drawing on data from Early English Books Online.

By way of example, the adjective *strange* initially had a core sense 'foreign' (1) that motivated various derived senses, including 'unfamiliar' (2), 'unfriendly, uncomplying' (3). However, through pragmatic implicature the sense 'unfamiliar' gave rise to new extensions 'exceptional, abnormal' (4). Contextual overlap with the original core sense 'foreign' caused loss of the latter, which was accompanied by the loss of other extensions from it, particularly the sense 'unfriendly, uncomplying'.

(1) your excellent renome shyneth as well in *strange* regions as with in the royame of england (1472, EEBO) ['foreign']
(2) than was no cocko / betwene the eest and west to laye wronge egges / within a *straunge* nest
     ['unfamiliar']
(3) ffor i trowe i was neuer *straunge* to doo for you / that laye in my power (1481, EEBO) ['unfriendly, uncomplying']
(4) to whom did happe maruailous and *strange* aduentures (1532, EEBO) ['exceptional, abnormal']

The mechanism proposed and documented here offers one recurrent and internally driven scenario for semantic obsolescence and explains, at least in part, why some polysemies are sustained over long periods, while others are diachronically unstable.

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Structural ambiguity in language comprehension and production

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Ambiguity has often been argued to play a role in language change, but the psycholinguistic mechanisms and cognitive constraints that might facilitate ambiguity-related change are as yet poorly understood. Here I will discuss structural ambiguity from the perspectives of real-time sentence comprehension and production.

During sentence comprehension, local syntactic ambiguities as in the garden-path sentence *The log floated down the river sank* can give rise to processing difficulty. The initial omission of disambiguating sentence material (*The log that was floated…*) may lead comprehenders to misanalyse the first part of the sentence. Coming across the disambiguating word or phrase (here, the verb *sank*) later on will disrupt comprehension and trigger computationally costly structural and semantic revision processes. Garden-path effects reflect comprehenders' tendency to parse locally ambiguous strings of words as if they were unambiguous. This allows for processing to be fast and incremental but carries the risk of computing erroneous analyses. Erroneous local parsing decisions may be licensed by the grammar (as in the case of garden-path sentences) or not. In the latter case, maintaining rather than correcting an unlicensed analysis may sometimes be the more resource-friendly option, especially if the analysis is structurally economical and does not result in misinterpretation. Note that parsing errors can also occur if the input is unambiguous, and that misanalyses that find their way into the grammar may result in more rather than less ambiguity (compare De Smet, 2009).

While ambiguity can create problems for language comprehension, it should not normally be a problem for speakers or writers as the message to be conveyed is perfectly clear to them. Avoiding to produce structural ambiguities may be motivated by audience design considerations, however. A speaker/writer seeking to avoid ambiguity would have to (i) be aware of which syntactic encoding variant of the message to be conveyed is ambiguous and likely to cause comprehension difficulties, and (ii) decide in favour of an unambiguous structural variant even if this variant is not the easiest one to produce. As real-time language production is incremental with limited planning scope, and subject to cognitive and memory-related constraints (MacDonald, 2013), this kind of audience design is more likely to be applied during writing than during speaking. Evidence for speakers' choosing to avoid syntactic ambiguity is indeed relatively scarce (Ferreira, 2008; Wasow, 2015).

In summary, while ambiguities tend to be resolved unconsciously during comprehension, avoiding structural ambiguity in language production would seem to require potentially costly, and possibly conscious, planning. Psycholinguistic models that propose a tight link between real-time production and comprehension (Gambi & Pickering, 2017) might offer a more integrative perspective on ambiguity avoidance, however.

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Text-type specific conventions, subordinate environments and ambiguity (avoidance) in Medieval Spanish passive *se*-constructions

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The Latin reflexive pronoun *se* has knowingly developed into a middle marker in the Romance languages and can mark today a wide variety of constructions. In Spanish, it serves e.g. as a marker of (non-)oppositional middles, anticausatives, passives and impersonal active constructions (cf. Sansò 2011, De Benito Moreno 2022 among many others; for a typology of *Middle Voice Systems* cf. Inglese 2021). It is known that already Medieval Spanish texts exhibit constructions that are to be classified as passive *se*-constructions. In these, a theme subject (in this case *el pan* 'the bread' in (1)) agrees with the verb (cf. Lapesa 1950, Monge 1955, Ricós 1995, Bogard 2006 among others).

(1)   verán   por los ojos cómmo   se   gana   el   pan
       see.FUT.3PL by the eyes how   REFL earn.PRS.3SG the bread
       'They will see by the eyes how bread is earned.' [*Cid*, 90]

However, from about 1250 onwards, structures are found that move away from the passive interpretation on formal grounds, e.g. constructions in which no theme subject is expressed anymore. This creates more and more ambiguous environments that open up the way for what should rather be analyzed as impersonal active *se*-constructions (cf. Giacalone Ramat & Sansò 2011 for an extensive study on similar developments in Old Italian).

It has been posited in the literature that the development of impersonal active *se*-constructions involves a reanalysis of the *se*$_{passive}$ V subject structure to *se*$_{imp}$ V object$_{(former\ subject)}$ structure (cf. Bassols de Climent 1948, Monge 1955, Detges & Waltereit 2002, Martins 2005 among others), i.e. the fact that on the surface level, the post-verbal subject of a passive *se*-sentence occupies a position shared (on the surface level) by the object of transitive SVO configurations, seems to provide crucial, ambiguous grounds to fuel a reanalysis which then leads to visible changes, e.g. instances in which the lexical subject is dropped, not readily identifiable or not necessary anymore.

An analysis of legal texts (CORDE, 1250-1400 C.E.) reveals new insights on passive *se*-constructions on several levels: On a general, textual level, these texts exhibit a style that tries to avoid ambiguity in that lexical DPs are often further specified by the use of relative clauses (cf. Temperley 2003) to make clear e.g. which legal party is being referred to, whose belongings are at stake, etc.

(2)   Et aquellas   cosas   que   se   pueden   uender […]
       and those   things COMP   REFL   can.PRS.3SG   sell.PTCP
       'And these things which can be sold' [*Fuero de Soria*, p.161]

Interestingly, it appears that precisely this text-type specific tendency seems to favor the use of passive *se*-constructions. This is reflected in that between 80% and up to 90% of all passive *se*-sentences of the quantitatively analyzed legal texts are found in subordinate constructions as shown in (2)). This is much higher than the occurrence of passive *se*-constructions in subordinate environments in e.g. scientific texts (showing greater variance, 30% to 60% depending on the text). The novel data are significant because the high text-type specific occurrence of passive *se* in subordinate structures and specifically relative *que* bring two important ingredients for the further development of impersonal active *se* to the table:

i)   *se* is forced into a preverbal position in these subordinate contexts – as opposed to main clause configurations where at this stage *se* could also be found in post-verbal positions cf. Fontana 1993, Bouzouita 2008, MacKenzie 2019 i.a. – thus fixing the *se* + verb linearization in

passive *se*-constructions which in turn has been viewed to be crucial for an SVO (re-)interpretation.

ii) in structures like lexical DP + *que* + *se* + verb, the connection between the lexical DP as the subject of a passive sentence is weakened because the DP is positioned outside the subordinate structure that contains the *que* + *se* + verb complex. This syntactic configuration seems to be connected to a higher frequency of elliptic structures in later legal texts.

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Sound changes tend to reduce morphotactic ambiguity

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Our paper discusses ambiguity in the semiotic relation between phonotactic shapes and morphotactic structures. We hypothesize that such ambiguity is dispreferred because it impedes the processing and the acquisition of morphological regularities (Korecky-Kröll et al. 2014; Post et al. 2008), and that it might, therefore, be a significant factor in the actuation and implementation of phonological changes.

To test that hypothesis, we investigated three English sound changes and asked whether they reduced or increased the morphotactic ambiguity of the phonotactic shapes they affected. To measure morphotactic ambiguity, we used appropriate corpora (such as the EEBO, the PPCME, the PPCEME, and the LAEME Corpus) to establish type and token frequencies of word forms with pre- and post- change shapes. Then we determined the proportions of morphologically simple and complex items among word shapes before and after the changes. Our prediction was that the changes should significantly skew the distribution of complex vs. simple items among words with the same phonotactic shapes, so that some word form shapes would become increasingly indicative of morphotactic complexity and others of simplicity.

The sound changes we investigated were (a) the Middle English lenition (or voicing) of final /s/ in noun plurals (ModE *stone*[z] < OE *stan+a*[s]), genitives (ModE *man*[z] < OE *monn+e*[s]), and third person present indicatives (ModE *sin*[z] < Northern ME *sinne*[s]; Ringe 2003); (b) Early Middle English Open Syllable Lengthening (MEOSL), which lengthened short non-high vowels in open disyllables of words regularly if they became monosyllabic (EME /makə/ > /maːkə/ > /maːk/ 'make'), but only rarely in disyllables whose second syllable remained stable (EME /bodi/ > */boːdi/ 'body'; Mailhammer, Kruger & Makiyama 2015, Minkova & Lefkowitz 2020); as well as (c) the (sporadic) devoicing of past tense /d/ after sonorants in forms such as *spoilt* or *burnt* (Lahiri 2009; Wełna 2009).

The findings from all three studies provided considerable support for our hypothesis. (a) The lenition of plural /s/ significantly reduced the morphotactic ambiguity of forms in which the plural morpheme surfaced as /z/ (i.e., after vowels and sonorants). After the change, the vast majority of these items were complex, while forms ending in sonorants or vowels followed by /s/ were predominantly simple (Baumann, Prömer & Ritt 2019). (b) MEOSL and its failure to affect open disyllables had the combined effect that disyllabic wordforms with heavy first syllables became increasingly indicative of morphologically complex words, while disyllables with light first syllables strongly signalled morphologically simple words (Matzinger & Ritt 2021). Finally, (c) the irregular past tense forms produced by the devoicing of final /d/ after sonorants were – at least for a while – slightly less ambiguous than their regular competitors, since these shared the shapes of many simple items ending in voiced /d/ (such as *wind, round, build*, or *bold;* Baumann, Prömer & Ritt 2019).

Our findings suggest that sound change tends to reduce morphotactic ambiguities and to be blocked where its implementation would increase them. Our paper describes our methods and our findings in greater detail, and relates our study to extant research on morphontotactics (Dressler & Dziubalska- Kołaczyk 2006, 2010; Baumann & Kaźmierski 2018), on the way in which sound changes interact with the frequency of phonotactic patterns in the lexicon and in use (Wedel 2006; Blevins 2009;Kelley & Tucker 2017), and on principles underlying the way in which languages exploit the design space of phonotactically well-formed sound patterns for building actual words and word forms (Tamariz 2004, 2008; Vitevich 2005; Reali & Griffiths 2009; Monaghan et al. 2014; Pierrehumbert 2016; Dautriche et al. 2017).

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Ambiguity avoidance and DOM

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Since a transitive clause has two arguments (A and P), it must be ensured that the hearer will be able to discern which of the arguments should be interpreted as A and P, respectively. Moreover, other potential misinterpretations, such as one NP modifying the other NP – if both are adjacent to each other – or both NPs being coordinated (without a conjunction), should be excluded. There are many ways in which ambiguity avoidance may be implemented in a particular language or even in a particular sentence, with flagging being one of them:

(1) Ambiguity avoidance of P flagging (economy subsumed)
     In a transitive clause, the A and the P argument must be sufficiently disambiguated, e.g. by word order, agreement, voice, world knowledge, and it is only if they are not that there is dedicated P flagging.

A number of researchers have argued that there is only little or no evidence for (Aor P) flagging systems being driven by ambiguity avoidance as defined in (1) cross- linguistically (*inter alia*, Aissen 2003; Malchukov 2008; various papers in de Hoop& de Swart 2008). Levshina (2021) shows on the basis of the large-scale AUTOTYP database that there is no statistically significant effect of ambiguity avoidance observable for flagging because there are only very few languages in which flagging is primarily driven by ambiguity avoidance. Sometimes even in these languages, ambiguity avoidance does not serve the purpose of ambiguity avoidance between A and P alone: a function inherited from the source construction and often some ongoing conventionalization of the most frequent ambiguity avoidance patterns override the discriminatory function to various extents. Having said this, it has been repeatedly suggested that flagging might also serve the ambiguity avoidance, especially if A and P have similarly ranked input (cf., *inter alia*, Comrie 1978, 1989; Dixon 1994; Silverstein 1976; Kibrik 1997). Bossong (1985: 117) even assumed that the emergence of DOM is primarily due to ambiguity avoidance.

In this paper, I will provide qualitative evidence for the claim that ambiguity avoidance does operate across genealogically and areally diverse DOM systems. At the same time, I will also argue that its impact is mostly weakened by other competing processes to which it is subordinate, the effect being that there is only marginal evidence for it in the synchronic distribution.

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Ambiguity avoidance vs. expectation sensitivity as functional factors inlanguage change and language structures: Beyond argument marking

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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 (e.g. Caldwell (1856: 271), who suggested that special accusative marking in Dravidian is employed "in order to avoid misapprehension"). But more recently, some authors have contrasted anti-ambiguity as a motivating factor with "predictability-based marking" or "expectation sensitivity" (e.g. Haspelmath 2019: §8; Tal et al. 2022: §1.2; see also Zehentner 2022 for discussion).

In this presentation, I will revisit the debate, also making reference to Grice's "Avoid ambiguity" maxim and recent psycholinguistic perspectives such as Wasow (2015), as well as the recent typological perspective of Seržant (2019). My critique of the anti-ambiguity explanation will start out from a discussion of the concepts of ambiguity, polysemy, and indeterminacy (= vagueness), which are not often kept apart clearly. Especially in (lexical) semantic-map research (e.g. Georgakopoulos & Polis 2021), "polysemy" (which should be the same as ambiguity) is often conflated with indeterminacy. But indeterminacy is of course rampant in language structures, and 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 will extend the discussion of diachronic motivations and pathways from argument marking to other kinds of differential coding, such as alienable vs. inalienable contrasts (e.g. Koptjevskaja-Tamm 1996), independent vs. dependent possessor forms (e.g. Michaelis 2019), causative vs. anticausative marking (e.g. Haspelmath 2016; Inglese 2022), and plurative vs. singulative marking (e.g. Grimm 2018). I will 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. This is a very indirect argument in favour of anti-ambiguity explanations, but since the understanding of diachronic change typically relies on indirect inferences, these considerations seem highly relevant to the broader picture.

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