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What multifunctionality patterns tell us

Author's reply to Croft 2009 and van Trijp 2009a

Croft (2009) challenges my view that semantic maps reflect a number of diachronic mechanisms leading to the creation of novel constructions, but may not correspond to a universal arrangement of the relevant conceptual situations in terms of perceived relationships of similarity, as represented in a speaker's mind.

Some of Croft's arguments address my claim that typological markedness patterns do not reveal any perceived connection between different conceptual situations. Croft's first point is that my discussion provides an incorrect representation of the analysis of these patterns given in Croft 2003. In this analysis, he claims, typological markedness patterns reflect the token frequency of the relevant categories, e.g. the token frequency of the nominative as opposed to the accusative, not any similarity relationship between the conceptual situations pertaining to these categories. These relationships are rather represented by the links in the conceptual space on which the relevant categories are mapped. If this is the case, however, the notion of semantic map as such does not appear to be particularly relevant to typological markedness, because semantic maps are supposed to represent specifics links between particular conceptual situations, not the distributional patterns originating from the frequency of the categories encompassing these situations.

More importantly for the present discussion, Croft argues that, even if typological markedness patterns reflect frequency effects (rather than similarity relationships between the relevant conceptual situations), we still need semantic maps and conceptual spaces to account for a number of phenomena pertaining to these patterns. In particular, he argues that frequency effects do not account for the fact that grammatical categories (as defined by the distribution of a particular constructional scheme, e.g. zero case marking or the presence of plural inflection) always cover a continuous region on a conceptual space, even if categories covering discontinuous regions would have a higher token frequency. For example, Croft argues, we do not find languages where plural inflections applies to pronouns and nonhuman animate nouns but not to human animate nouns, even if the former category would have a higher token frequency. Hence, the distribution of plural inflection is determined not only by frequency, but also by conceptual space contiguity.

I find this argument problematic in two respects. First, the multifunctionality patterns described by semantic maps usually pertain to the uses of individual forms, e.g. a particular case marker or conjunction. Insofar as these patterns originate from the fact that the form is extended from one use to another, the various uses are not independent, and one may assume that speakers establish a connection between the relevant conceptuals situations. Typological markedness patterns, however, pertain to the distribution of constructional schemes, e.g. particular inflectional patterns, not individual forms, and

a constructional scheme may be used to encode a particular conceptual situation independently of the fact that it is also used to encode other conceptual situations. Hence there is no reason why the frequencies of the various conceptual situations should be counted together against the frequency of the conceptual situations encoded by different constructional schemes.

For example, in a number of languages (e.g. Ancient Greek) singular and plural display case distinctions not found in the dual. In the markedness theory developed by Greenberg and advocated by Croft (2003), this is naturally accounted for by the fact that both the singular and the plural are more frequent than the dual, and there is no reason to account for this patten by counting together the frequencies of the singular and the plural against the frequency of the dual. Likewise, as far as Croft's example is concerned, the fact that there are no languages where plural inflection is used for pronouns and nonhuman animate nouns but not for human animate nouns is plausibly accounted for by the higher frequency or saliency of both pronouns and human animate nouns with respect to nonhuman animate nouns, so there appears to be no obvious reason why the frequencies of pronouns and nonhuman animate nouns should be counted together against the frequency of human animate nouns. Hence the nonoccurrence of languages with plural inflection just for pronouns and nonhuman animate nouns cannot be taken as evidence that the distribution of plural inflection is determined by the conceptual contiguity of pronouns and human animate nouns, rather than by frequency alone.

More generally, Croft's arguments appear to be based on an underlying assumption that there is evidence for a conceptual space encompassing the various conceptual situations that play a role in typological markedness patterns, and that the distribution of the constructional schemes encoding these situations may be determined either by the structure of the conceptual space, or by frequency effects. Conceptual spaces are usually posited based on the fact that the relevant conceptual situations are encoded in the same way cross-linguistically. Typological markedness phenomena are indeed phenomena whereby different conceptual situations are encoded in the same way, in the sense that they are associated with the same constructional scheme (such as e.g. zero-marking, or the presence of particular inflectional distinctions). In most cases, however, this can plausibly be related to the relative frequency of the various situations (Croft 2003), so there is no evidence for a corresponding conceptual space independently of frequency effects.

Croft also argues that my analyis implies a sharper dichotomy than actually exists between the synchronic level of a speaker's linguistic knowledge and the diachronic level of the creation of novel constructions. The diachronic principles leading to the creation of novel constructions, Croft argues, must be based on a speaker's previous knowledge of their language, hence, if semantic maps reflect these principles, they must reflect a speaker's knowledge of their language.

This argument is based on a point that has been repeatedly made by Croft himself (1995, 2000) and other linguists working on language change from a typological perspective (see e.g. Hopper 1987, Heine, Claudi, and Hünnemeyer 1991, Hopper and Traugott 2003), namely that, contrary to what is traditionally assumed in generatively

oriented frameworks, the principles that lead to the creation of novel constructions are fully integrated in the linguistic system of adult speakers. While I fully subscribe to this point (Cristofaro to appear), I don't think it implies that semantic maps reflect a speaker's knowledge of their language, except possibly in a very generic sense.

In many cases, multifunctionality patterns can be argued to originate from metonymization and generalization processes whereby a form receives a new meaning because the old and the new meaning cooccur in some of the contexts where the form is used. Croft argues that, if the contexts in which these processes takes place are assumed to be part of a speaker's knowledge of the use of the relevant forms, then these processes can be regarded as the result of similarity relationships between the conceptual situations involved in the process. For example, a context involving the two meaning components A and B is similar both to contexts involving only A and to contexts involving only B. Hence, if the extension of individual from the former to the latter is mediated by contexts involving both A and B, the whole process can be argued to be based on similarity.

However, in traditional analyses of metonymization and generalization (as proposed for example in Traugott and Dasher 2005 and Bybee, Perkins, and Pagliuca 1994), these processes do not occur because speakers establish a similarity-based connection between the old and the new contexts of use of a particular form. Rather, metonymization and generalizations are local processes that take place within the old context of use of the form. Metonymization is a process of form-meaning recombination whereby a meaning component that is part of the global context of use of a form comes to be associated with the form as such, while generalization is a process whereby only a subset of the meaning components originally associated with a form are activated. This means that, even if one assumes that the mechanisms that determine metonymization and generalization are somehow integrated in a speaker's linguistic system, these mechanisms originate from the fact that particular meanings may cooccur in some contexts, not from any perceived similarity between the relevant meanings. Thus, if the multifunctionality patterns described by semantic maps originate from these mechanisms, they provide evidence about a speaker's linguistic knowledge only in the very generic sense that speakers must know that some meanings can be combined in some contexts, not (contrary to what is usually assumed in the semantic map model) in the sense that they reveal specific similarities between meanings that are part of this knowledge.

This raises a more general issue of whether metonymization and generalization are actually independent of any relationships of similarity between the relevant conceptual situations. Van Trijp (2009a) argues that, at least for generalization, this may not be the case. Computational models suggest that the extension of a form from contexts involving several meaning components to contexts involving a subset of these components does not require a mechanism whereby the form loses some of its meaning components. Rather, the form can be extended from one context to another because of the similarity between these contexts, as determined by the fact that they share some meaning components. The advantage of this analysis, van Trijp argues, is that it does not imply that speakers innovate by altering the original meaning of a form. Insofar as they deviate from the established conventions of the language, such innovations are unmotivated, and it is not

clear how they could be propagated in a linguistic community, because speakers can never innovate with the certainty that other speakers will somehow produce the same innovations. According to van Trijp, this analysis is also consistent with a number of facts about semantic change, that is, speakers usually maintain both the old and the new uses of a construction for a long time, and loss of meaning does not necessarily lead to more grammatical behavior, nor to an expansion of the contexts in which a word can occur.

This analysis appears to be based on three general assumptions about language change, namely that conformance to convention represents the default choice in a speaker's use of linguistic expressions, that whether or not speakers produce a particular innovation may depend on the relative usefulness of that innovation, and that innovations spread in a linguistic community because different speakers innovate in the same way. All of these assumptions, however, have been challenged to at least some extent in the literature on language change (Croft 2000: chaps. 4-5 and references therein). In particular, it has been argued that there actually is no sharp distinction between innovation and convention in language use, and all language use is innovative to some degree. Due to the richness and open-endedness of the meaning to be conveyed in each communicative event, form-meaning mapping can never be entirely based on previous successful usages of the relevant expressions. Instead, form-meaning mapping will always be the result of a negotiation process between speaker and hearer, based on factors such as common ground and the joint perceptual and cognitive salience of particular meaning components in individual contexts. Because of the complexities inherent in this process, the formal and the meaning components of individual expressions can be recombined in novel ways. This leads to the processes that are usually regarded as instances of innovation proper, such as metonymization.

In this view, innovation is an unintended result of form-meaning (re-)mapping in complex linguistic units, rather than being related to communicative usefulness (in the sense of increasing communicative success and expressiveness, or reducing the cognitive effort required for semantic interpretation: cf. van Trijp 2009b). Propagation may take place either when different speakers produce the same reinterpretation or when they store instances of the new use which they have heard from other speakers, and reuse the form accordingly. This does not imply that speakers should discard the old uses of a form, nor that any shift in the meaning of a form should necessarily lead to more grammatical properties, or to an expansion in the contexts of use of that form.

This view provides a relatively straighforward explanation of why certain contexts might trigger the loss of meaning postulated in traditional accounts of generalization. Different components of the global meaning of a particular form may have different prominence in different contexts, which may lead to the obliteration of the less prominent component and the consequent extension of the form to contexts involving only the more prominent components (although the old meaning of the form may be maintained in other contexts). For example, in discussing the development of progressive constructions, Bybee, Perkins, and Pagliuca 1994: 292 suggest that these constructions may initially be used to express temporal involvement in an activity that takes place at a specific location

(such as e.g. 'he is fishing', 'he is bathing'). For certain activities, however, location may be less prominent (e.g. 'he is helping someone'), so the construction may be reinterpreted as expressing temporal involvement only. In this sense, generalization is akin to metonymization, because both processes involve an unintended, context-driven reinterpretation of the relevant forms (the difference being that in generalization all of the relevant aspects of meaning are presumably associated with the form as such from the beginning, rather than being associated with the context as a whole). In fact, the relative contextual prominence of individual meaning components has been argued to be a driving factor in metonymization (Langacker 1993, Croft 2000: 160-1, among others).

These arguments do not exclude that generalization may be based on similarity, they only show that, in principle, there actually are factors that may trigger loss of meaning in particular contexts, so this represents a plausible alternative to the scenario outlined by van Trijp. As is observed by van Trijp, linguistic data only show the outcome of certain processes, not the processes themselves. Hence, in order to argue that a given process is responsible for some particular outcome, positive evidence would be needed that that outcome actually originated from the relevant process, rather than from other possible ones (incidentally, this means that, in order to demonstrate that generalization does not involve loss of meaning, one should demonstrate that loss of meaning would not yield the observed outcome, not so much that other processes would yield the same outcome). It is however worth pointing out that the similarity based processes described by van Trijp and others (see e.g. Wälchli 2009) suggest a rather different picture from that assumed in traditional versions of the semantic map model.

The conceptual spaces underlying semantic maps are usually assumed to provide a representation of a universal arrangement of different conceptual situations in a speaker's mind, which encompasses all of the conceptual situations in the space. For example, a conceptual space of the form A-B-C provides a representation not only of the arrangement of A with respect to B and of B with respect to C, but also of the reciprocal arrangement of A and C (see section 3 of my paper for a discussion and critique of this view). However, the similarity-based processes described by van Trijp and others are based on the presence of specific meaning components in highly particularized contexts, and they do not actually reveal any relationship involving other meaning components of these contexts, nor other contexts in which the relevant forms can be used. For example, in the analysis of Heine, Claudi, and Hünnemeyer (1991: 65-78), the development form body part term to spatial relation term takes place in specific contexts where the body part term may actually be used to refer to the whole area where the body part is located, rather than the body part as such (e.g. 'prepare the back of the house' = 'prepare the place behind the house'). This reveals that contexts encompassing the same spatial component can be encoded in the same way, rather than any association between body part terms and spatial notions as such. Likewise, in the examples proposed by Croft (2009), the multifunctionality pattern involving comitative and instrumental presumably originates from contexts where an accompanying entity plays a role in the accomplishment of the action (e.g. 'the blind man crossed the street with his dog', rather than 'the pantomimist gave a show with the clown'). Again, this reveals that contexts that share an instrumental meaning can be

encoded in the same way, rather than a more general relationship between comitative and instrumental. Thus, even if these are similarity-based associations (rather than processes of loss of meaning), what they illustrate are local connections based on the well-known iconic principle whereby conceptual entities that share some specific meaning component can be encoded in the same way, rather than the broader networks of conceptual relationships that are usually postulated in the semantic map model.

References

Bybee, Joan, Revere Perkins, and William Pagliuca (1994). *The evolution of grammar*. Chicago and London: The University of Chicago Press.

Cristofaro, Sonia (To appear). Language universals and linguistic knowledge. In J. J. Song (Ed.), *Handbook of Linguistic Typology*. Oxford: Oxford University Press.

Croft, William (1995). Autonomy and functionalist linguistics. *Language 71*, 490–532.

Croft, William (2000). *Explaining language change: an evolutionary approach*. Harlow, Essex: Longman.

Croft, William (2003). *Typology and universals. 2nd edition*. Cambridge: Cambridge University Press.

Croft, William (2009). What do semantic maps tell us? *Linguistic Discovery*. This issue.

Heine, Bernd, Ulricke Claudi, and Friedericke Hünnemeyer (1991). *Grammaticalization*. Chicago: University of Chicago Press.

Hopper, Paul (1987). Emergent grammar. In *Proceedings of the thirteenth annual meeting of the Berkeley Linguistic Society*, pp. 139–57.

Hopper, Paul J. and Elizabeth C. Traugott (2003). *Grammaticalization. Second edition*. Cambridge: Cambridge University Press.

Langacker, Ronald W. (1993). Reference-point constructions. *Cognitive Linguistics 4*, 1–38.

Traugott, Elizabeth C. and Richard B. Dasher (2005). *Regularity in Semantic Change*. Cambridge: Cambridge University Press.

van Trijp, Remi (2009a). Cognitive mechanisms need to be operationalized. Comment on 'semantic maps and mental representation' by Cristofaro (2009). *Linguistic Discovery*. This issue.

van Trijp, Remi (2009b). Grammaticalization and Semantic Maps: Evidence from Artificial Language Evolution. *Linguistic Discovery*. This issue.

Wälchli, Bernhard (2009). Similarity semantics and building probabilistic semantic maps from parallel texts. *Linguistic Discovery*. This issue.