

NOTES ON RECENT DEVELOPMENTS OF LINGUISTIC PROTOTYPES IN COGNITIVE LINGUISTICS

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Abstract: The notion of 'prototypic category' derives from research in psychology, however, it has recently been adopted into linguistics to explain nuclear senses of words and different weightings in the specifying of the prototype. The paper reviews examples of categories and peripheries in the work of contemporary linguists such as Lipka, Aitchison, Fillmore and Leech and compares various processing mechanisms of matching to a prototype.

Keywords: prototype, categories, prototype match, cognitive, nucleus.

Our present approach draws on the general theory of natural categories, developed by Eleanor Rosch and her colleagues (Rosch et al., 1976) and extends it to the more recent work of contemporary linguists such as Lipka, Aitchison, Fillmore and Leech who have developed it as prototype theory, addressing semantic rather than purely formal aspects of language within the field of cognitive linguistics. Taking principled processes that depend on the 'real-world attributes' and characteristics of the perceiving apparatus itself (the implication being that only what can be perceived can be categorised and, all things being equal, that which is more easily perceived will be of greater significance to the categorisation process), the prototype theory proposed by Rosch et al. has offered, beginning with the 1970s, a principled approach to the exemplification of form and meaning relationships within language.

The two basic cognitive principles on which the prototype theory rests are the achievement of maximum differentiation, when the prototypical instance of a category distinguishes it from all other categories, and the avoidance of cognitive overload, potentially resulting from over differentiating and lack of flexibility in grouping items sharing important characteristics, whilst being in other respects unlike.

Development-wise, the principle of differentiation has been central to linguistic theory beginning with Saussure, who maintained that the language system is one in which "il n'y a que des differences" (Saussure 1953:166). The similarity between de Saussure's theory of language system, and the prototype theory of natural categorisation is to be found in Saussure's account of the 'value' of linguistic elements. The distinction between a denotative, connotative and global meaning does not appear with Saussure, however it is clear that he thinks of it when he explicitly suggests the distinction between value and signification. He quotes that the signification of the three verbs: craindre, redouter, avoir peur is the same, however, their value is not. In studying linguistic value, Saussure started from a game of chess, and he asked himself whether, in a game of chess, the chessman can be considered an element of the game. He argues that the value of a chessman consists in its relations to the other pieces and in the moves it makes, which are different from those of the other pieces. Its definition and its reality are not to be discovered by considering its composition, which tells what it is, rather by studying how it differs from the other pieces, which tells mostly what it is not. By analogy, according to him, linguistic values should be studied from two points of view, conceptual and material. Signification is defined as the association of a given sound with a given concept whereas the linguistic value of a term is established by studying the other terms of the linguistic system to which it is opposable, on both the paradigmatic and syntagmatic axes. The content of a term can be considered the

sum of signification and value. In comparing the English words *sheep* (the live animal) and *mutton* (the meat) with the French *mouton*, Saussure's classical exemplification of the difference between terms in two different systems indicates that, in some circumstances, these terms could clearly have the same signification; however, *mouton* is part of the system in which all the other members are the names of live animals OR the meat they provide, while *sheep* belongs to the lexical system, where all the others are names for live animals whereas *mutton* is in a set of food terms. It becomes thus clear that these terms do not have the same content, although they can be said to have the same signification in proper contexts.

Later, Chomsky, in his expanded generative transformational theory that he produced showed how deep structure determines meaning and surface structure determines sound. However, the most controversial element of Chomsky's grammar remains the semantic component, as he often admits, albeit he often sustained that the semantic component suffers from but few minor technical limitations. Generative semanticists argue that Chomsky's system cannot fully account for the interpenetration of semantics and syntax and his opposing critics George Lakoff and Charles Fillmore (some of them Chomsky's best students) unanimously agree that syntax and semantics cannot be clearly separated. They believe that the generative ingredient of a linguistic theory is the semantics, not the syntax and that the grammar rests on the meaning description of the sentence being only afterwards followed by a generation of the syntactic structures based on the introduction of syntactic and lexical rules.

More recently, and strongly associated with the West Coast Functional Grammar (represented by André Martinet, Michael Halliday, Simon Dik), the cognitive grammar school (associated with Ronald Langacker (1942–) and the construction grammar school (represented by Charles Fillmore (1929–2014) and its associates have construed the Saussurean sign as the centre-piece of grammar.

From Eleanor Rosch's prototype-based conception of categorization and its psycholinguistic origins, prototype theory has moved in two main directions. On the one hand, Rosch's theory has been adopted by formal psycho-lexicology (information processing psychology), which tries to elaborate models for human conceptual memory and its functionality, whereas, on the other hand, beginning with the mid-1980s, prototype theory has been taken up in linguistics, making it possible for various types of prototype effects to be identified. Rosch extended Brent Berlin and Paul Kay's anthropological study of colour terms (1969) which held that languages select their main colour terms from a set of eleven, and that, in so doing, there is a hierarchy among these terms, on five identifiable levels (as qtd in Geeraerts, 2010). Departing from such observations on particular areas of the colour spectrum that are more salient than others, Rosch's theory developed a more general prototypical perspective of natural language categories, implying that a particular member of the category will occupy a central position mainly because it exhibits the most salient features. This led to the proposal of a general view of categorical structure:

when describing categories analytically, most traditions of thought have treated category membership as a digital, all-or-none phenomenon. That is, much work in philosophy, psychology, linguistics, and anthropology assumes that categories are logical bounded entities, membership in which is defined by an item's possession of a simple set of criterial features, in which all instances possessing the criterial attributes have a full and equal degree of membership. In contrast, it has recently been argued [...] that some natural categories are analog and must be represented logically in a manner which reflects their analog structure. (Rosch and Mervis 1975: 573)

Rosch's prototype theory was borrowed in linguistics in the early 1980s, and, in its general framework, prototypical categories exhibit degrees of typicality. In other words, not every member is an equal representative for a category; secondly, prototypical categories exhibit a semantic structure in the shape of a radial set of overlapping, clustered meanings; thirdly, prototypical categories are blurred at the edges and finally, they cannot be defined by means of criterial attributes. These characteristics do not co-occur, moreover such prototypicality effects may appear in various combinations and may have different sources. Often having often (in)determinate category referential boundaries, the concept of prototypicality is dominated by the concepts of non-discreteness (existence of demarcation issues) and non-equality (existence of an internal structure involving a core versus a periphery within a category).

However, with Georges Kleiber (1988; 1990), a refusal to consider prototypicality as situated both among senses and within senses indicates that there was little consensus over the stability of the distinction between the semantic level (of senses) and the referential level (of category members). Indeed, recent research in cognitive semantics has suggested that the borderline between both levels (of senses and referents) is not stable (Aitchison, 1987; Taylor, 1992; Geeraerts, 1993, 2010; Tuggy, 1993). They all argue that different polysemy criteria (a lexical item may be interpreted in a separate sense, without constituting a case of vagueness) may produce different results as per different contexts. Geoffrey Leech (1981:120), in his approach to "fuzzy meaning", indicates the difficulty in stating what persons are to be included among the classes denoted by girl and child. Elsewhere, he refers to the prototypes of chair and bird and in comparing them to the prototypical noun and verb, he claims it is possible to consider that "just as some chairs are less 'chairy' than others, and just as some birds are less 'birdy' than others, so some nouns are less 'nouny' than others, and some verbs less 'verby' than others" (Leech et al., 1982:26). Labov, on the other hand, exemplifies with the nouns cup and bowl and shows that the boundaries between cup and bowl are fuzzy and that the typical proportion for the use of cup may be considered a prototype. He further argues that despite its increasing width, anything filled with coffee may be called a cup. Likewise, Lipka (1987) and Aitchison (1987) in their examinations of the prototype concept hold that a decision on membership to the center or periphery of the category with such nouns as house, dog, fish is never easy and that context plays an extremely important role in the process. In exploring the extent to which any semantic specification may represent the stability semantic structure of the item, or alternatively, the result of a transient contextual specification, Geeraerts (2010) quotes the following example:

For instance, neighbour is not polysemous between the readings 'male dweller next door' and 'female dweller next door', in the sense that the utterance my neighbour is a civil servant will not be recognized as requiring disambiguation in the way that she is a plain girl (ugly or unsophisticated?) does. The semantic information that is associated with the item neighbour in the lexicon does not, in other words, contain a specification regarding sex; neighbour is vague (or general, or unspecified) as to the dimension of sex. This notion of 'conceptual underspecification' has to be kept distinct from three other forms of semantic indeterminacy. (2010:197)

Against the backdrop of semantic indeterminacy, Geeraerts examines a set of indeterminacy contrasts which helps explain semantic underspecification, as he terms it. These are referential indeterminacy, as evidenced by a noun such as knee, (holding that it is difficult to indicate accurately where the knee ends and where the rest of the leg begins), fuzzy or vague boundaries of categories, as illustrated by any term referring to colour, for

example, and thirdly, interpretative indeterminacy that occurs when interpretation is indeterminate and the statement is ambiguous.

Indeed, the extent to which prototype theory rests on the very structural similarities between the referential and semantic levels subverts, according to Taylor (1989), the foundations of the classical, Aristotelian theory of categorization, based on which categories are homogeneous unities with clearly marked boundaries and two (member and non-member) degrees of membership. In other words, in the classical view, things either belong or do not belong to a category as distinct from the prototype theory in which categories are not homogeneous, and their boundaries are fuzzy. Nonetheless, the complication arises when one tries to find and place a constraint so as to guarantee category boundaries, knowing that otherwise, if unrestricted, a category would encompass an infinite number of entities. A possible solution to this problem may represent the identification of essential attributes for categories. Such a

proposal leaves the door open for encyclopedic semantics in that it does not restrict the number of elements that may ultimately become part of a semantic characterization under certain conditions, but at the same time it makes categories manageable by placing some limitations on them. The proposal does not involve that membership in a category is a matter of all or nothing and does not impose rigid boundaries on categories, either (i.e. categories are still fuzzy). However, it guarantees at least one form of category boundary. (Mendoza and Aransaez, 1998:259)

It would be interesting for the purposes of this paper to pursue Rosch's development of the prototype into what may be termed more recently as the "grammar(s) of expectancy" based on what Lakoff (1987), borrowing from Charles Fillmore, calls Idealised Cognitive Models (1982) and which stand out as "essentially prototypical, informational interactive structures, as opposed to grammatical or lexical entities" (1982:48). As early as 1982, Lakoff envisages his research to have "[...] produced overwhelming support for prototype theory, or more properly for the need to develop further the theory of natural categorization along the lines of Rosch's results"(1987:44). He examines various issues with prototypical category membership and identifies several boundary phenomena wherever category membership becomes unpredictable and rests entirely on context-specific variations and communicative purpose. Lakoff's notion of 'interpretive frame' view frames as the best knowledge construct or 'idealized cognitive model' (ICM), whereas metaphor and metonymy are other more linguistically relevant forms of ICM that should be situated firmly within semantic description. In other words, it may be asserted that the major innovation of the prototype categorization model in cognitive semantics is represented by the new role attributed to exposure, conspicuity and salience in semasiological structure description, followed next by an array of qualitative relations among elements expressed by metaphor and metonymy, and as more recent development, possibly not the last, in the form of an introduction of a quantifiable centre-periphery relationship as part of the semasiological architecture. The same idea, as expressed by Lakoff, yet somewhat along a different perspective is adopted by Ronald Langacker (1987) who argues that semantic characterizations should depend on the criteria of centrality and network organization. Both proposals, Lakoff's and Langacker's, are based on the rejection of the truth-conditional approach to meaning, thereby embracing an encyclopaedic view of semantics. However, Lakoff remains a leading figure of the discipline, alongside Langacker and Gilles Fauconnier (1994), being the first to suggest the substitution of objectivism, involving, in his view, the manipulation of abstract symbols and representing the traditional, atomistic, logical view of language, also labelled "Aristotelian semantics" or the "checklist theory of

semantics" with experiential realism, defined by 'cognitive models and involving prototypes and imaginative mechanisms such as metaphor and metonymy.

It has thus become evident that the prototype theory has been apt to respond to linguists' needs, having provided a new perspective to linguistic investigation inclusive of the semantic dimension. William Labov focused insistently on boundary phenomenon in his experimental studies. He notices that beyond the phrase, in the field of discourse analysis, the most important progress came from sociologists. Coşeriu (1991) would have put it more simply: significance makes the text, whereas Carmen Vlad (2000) deems the primordial goal of text linguistics as resting on the confirmation and justification of meaning (textual-discursive) hence, text linguistics remains the linguistics of meaning, the hermeneutics of sign mechanisms and text-discourse. Labov argues that

Instead of taking as problematical the existence of the categories, we can turn to the nature of the boundaries between them. As linguistics then becomes a form of boundary theory rather than a category theory, we discover that not all linguistic material fits the categorical view: there is greater or lesser success in imposing categories upon the continuous substratum of reality. (1973:143)

The 'greater or lesser success in imposing categories' in Labov's acceptance here refers particularly to Rosch's degrees of prototypicality, but from a somewhat different, opposing angle. Labov attempts to solve the issues associated with categorisation by addressing the boundary theory, in contrast to Rosch's approach in which categorisation is to be foregrounded against the backdrop of the boundary theory. Furthermore, starting from Berlin and Kay's (1979) examination of linguistic hedges (such as loosely speaking and strictly speaking), Lakoff stresses the issue of prototypicality degrees by indicating several linguistic terms in his experimental studies that are expressive of various degree of prototypicality, such as sort of and kind of as non-representative members of a category, and par excellence for prototypicality. He sustains that "if words can fit the world, they can fit it either strictly or loosely, and the hedges strictly speaking and loosely speaking indicate how narrowly or broadly one should construe the fit" (1982:44).

Extended to discourse and textual levels of analysis, prototype theory can be further exploited in concepts such as 'story, grammars', 'frames', 'schema', 'scripts', 'scenarios' and 'schemata' pertaining to the so called grammars of expectancy in which production of messages entails expectancies about reception and subsequent decoding. Since the focus of prototype theory revolves around the relationship between meanings and concepts, it remains the most productive framework for the understanding of present-day lexical semantics and the central point of interest in cognitive semantics.

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