

Prototype theory: Prospects and problems of prototype theory

Dirk Geeraerts (Originally published in 1989 in *Linguistics* 27(4): 587–612)

The traditional approach: Semantic features/structural semantics

- ...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. (Rosch and Mervis 1975: 573–574)
- [...] there can be no semantic description without some sort of decompositional analysis.
- [...] featural definitions are classically thought of as criterial, i.e. as listing attributes that are each indispensable for the definition of the concept in question, and that taken together suffice to delimit that concept from all others. In contrast, prototype theory claims that there need not be a single set of defining attributes that conform to the necessity-cum-sufficiency requirement. [...] meaning phenomena in natural languages cannot be studied in isolation from the encyclopedic knowledge individuals possess.

The cognitive approach: Prototypical and peripheral features

- The fuzzy boundaries of lexical categories, the existence of typicality scales for the members of a category, the flexible and dynamic nature of word meanings, the importance of metaphor and metonymy as the basis of that flexibility – these are all intuitively obvious elements of the subject matter of semantics that were largely neglected by structural semantics.
- [...] it is only with the advent of prototype theory that contemporary linguistics developed a valid model for the polysemy of lexical items.
- [...] the explanatory depth of prototype theory resides partly in its generalizable character, but also in its interdisciplinary nature. [It gives] up the methodological autonomy of linguistics in favor of an interdisciplinary dialogue with the other cognitive sciences.

‘Prototype’ as a prototypical notion

Prototypical categories

not a set of criterial attributes

- We have argued that many words ... have as their meanings not a list of necessary and sufficient conditions that a thing or event must satisfy to count as a member of the category denoted by the word, but rather a psychological object or process which we have called a prototype (Coleman and Kay 1981: 43).

family resemblances

- Prototypical categories exhibit a family resemblance structure [...] their semantic structure takes the form of a radial set of clustered and overlapping meanings.
- A family resemblance relationship takes the form AB, BC, CD, DE. That is, each item has at least one, and probably several, elements in common with one or more items, but no, or few, elements are common to all items (Rosch and Mervis 1975: 574–575).
- [...] the clustering of meanings that is typical of family resemblances implies that not every meaning is structurally equally important

not all members are equally representative for the category

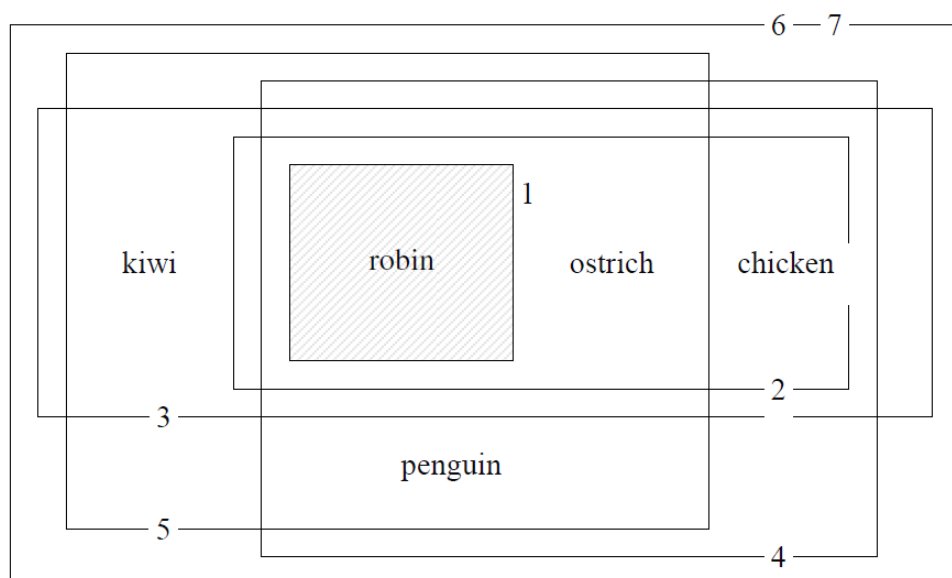
- By prototypes of categories we have generally meant the clearest cases of category membership defined operationally by people's judgments of goodness of membership in the category (Rosch 1978: 36).

categories are blurred at the edges

- [...] category boundaries are not necessarily definite (Mervis and Rosch 1981: 109).

Further observations

- Prototypical categories are not 'objectivist' but 'experiential' in nature.
- [...] a strict distinction has to be made between degree of membership and degree of representativity. Membership in the category *bird* is discrete; something is or is not a bird. But some birds may be birdier than others: the swallow does remain a more typical bird than the ostrich.



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|-------------------------|--------------------|------------------------|
| 1 being able to fly | 2 having feathers | 3 being S-shaped |
| 4 having wings | 5 not domesticated | 6 being born from eggs |
| 7 having a beak or bill | | |

- There is no single set of attributes that is common to all of the examples discussed here. Rather, they exhibit a family resemblance structure based on partial similarities. [...]the category *fruit* makes a good candidate for prototypical prototypicality, in the sense that it [...] shares the prototypical characteristics of *bird*, but in addition, things such as

coconuts and, perhaps, tomatoes, seem to point out that the denotational boundary of *fruit* is less clear-cut than that of *bird*.

- [...] most concepts in early language development are acquired via their exemplars.

Centre vs Periphery revisited

- Cognitive Linguistics is not only interested in what constitutes the centre of a category, but also in how this centre can be extended towards peripheral cases, and how far this extension can go. [...] it is only by studying peripheral cases, for instance, that an answer may be found with regard to the question how dissimilar things can be before they are no longer recognized as basically the same.
- A stereotype is, thus, a socially determined minimum set of data with regard to the extension of a category.

Some further issues

The concept of the “division of linguistic labour”

- [According to Putnam], ordinary language users possess no more than ‘stereotypical’ knowledge about natural kinds, that is to say, they are aware of a number of salient characteristics, such as that water is a transparent, thirst-quenching, tasteless liquid. The technical definition of *water* as H₂O, on the other hand, is to be located primarily with scientific experts.
- In actual fact, however, natural language categorization is not only determined by the state of affairs in the sciences, but also by the communicative and cognitive requirements of the linguistic community in its own right.
- [for example] If the classificatory exigencies of everyday communicative interaction do not call for a distinction between the two kinds of jade, the scientific splitting of the category is largely ignored.