

## **COULD THE THEORY OF PROTOTYPE AND STEREOTYPE OFFER A BETTER APPROACH TO THIS STUDY OF MEANING FOR LANGUAGE PEDAGOGY THAN COMPONENTIAL MODELS ?**

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Language teaching is concerned with providing avenues of communication. In order to communicate, learners must use words with meanings and combine these meaningful units into larger units that also convey meaning. A linguist interested in semantics tries to understand why certain words and constructions are acceptable while others are not. Why is, for example, the syntactically correct "my father's a spinster" not an acceptable English sentence? A linguist interested in pragmatics will look at the way in which people use language to convey messages that are not directly encoded in the words used. Why is it, for example, that a declarative construction such as "that door's open" will sometimes function as an order or suggestion that the addressee should close the door?

Theories of meaning should be able to specify how word meanings fit into the processes of comprehension and production. They should also relate word meanings to other things people know and should specify how word meanings are organised. A good theory of semantics fits with everyday, non-technical accounts of descriptive meanings, and must be compatible with common sense.

Formal semantics is based on studies of philosophical logic, but language is not a logical science. "I like all fruit, except bananas" is, in a sense, illogical in that something is asserted only to be denied implicitly with the introduction of the exception. If one looked merely at the words alone, one would have failed to account for a great deal of what is communicated.

Componential analysis attempts to see the total meaning of words in terms of a number of distinct elements of meaning and to use rules to combine these elements so as to give a sense of the overall meaning of sentences. The theory of Prototype and Stereotype avoids this and, in doing so, seems to offer a more useful approach to the study of meaning in that flexibility is taken as the norm rather than the exception.

Componential Analysis developed as a result of a search for a precise model for describing the structure of meaning. In this type of analysis, each concept is broken down into minimal components or features of meaning. Thus, for example, 'woman' might be [+HUMAN] [+ADULT] [-MALE] to discriminate it from the related concepts 'girl' 'man' 'child' etc. All features are of equal importance and mutually defining, the + symbols do not suggest some features are less important than others. Componential analyses strive to characterise the sense relations that hold among lexemes e.g. semantic inclusion or hyponymy (e.g. oak/tree) and semantic contrastiveness or incompatibility (e.g. tree/animal) as well as the more traditional notions of synonymy and polysemy.

English, however, is rarely truly synonymous.

He snapped the twig in half.

He broke the twig in half.

Here 'snapped' and 'broke' can be interchanged without altering the meaning of the sentence. However they are not synonymous in:

He snapped his fingers.

He broke his fingers.

Antonymy is even more complex. 'Man' and 'woman' have a great deal in common. To describe them in componential terms is to emphasise the smaller difference rather than the greater similarity.

Analysis of the sense of a lexeme into its component parts seems, at first sight, mathematically precise: the process can be likened to factoring in mathematics. The lowest common denominator is equivalent, in semantic terms, to universal components.

|       |                           |
|-------|---------------------------|
| boy   | )                         |
| girl  | ) all denote human beings |
| man   | ) – common factor: HUMAN  |
| woman | )                         |

boy, girl - sense component: non-adult

man, woman - sense component: adult

boy, man - sense component: male

woman, girl - sense component: female

man = + HUMAN + MALE + ADULT

If this approach is to work, it will be necessary to identify universal sense components in the lexical structure of different languages. How can this be done? Are CANINE, FELINE, BOVINE, EQUINE etc universal? Sometimes there is no appropriate word in a language to label a component, and if we do label using words, how are these words themselves to be analysed? Of course, the philosophical problems involved in this type of analysis have been evident for a long time. What has not been so certain is how this type of model is to be replaced.

Componential analysis tends to treat features as binary, as + or -. This is the sense of complementary i.e. not X=Y (e.g. not female=male). If something is narrow, it cannot be wide. If someone is married, s/he cannot be single. However it is not always possible to treat features in this way: componential oppositions are not always absolute, there are fuzzy areas. Is 'porridge', for example, liquid or solid? A binary interpretation of life/death (-LIFE) would not be sufficient in a sentence such as "In a technical sense he was alive, but for all practical purposes he was dead".

Languages often have words to cope with this "fuzziness" e.g. reddish-brown, brownishred, 30-ish etc. Some features have multiple values e.g. whole numbers, words or graded scale (e.g. hot, warm, cold). These last items also have a relational feature which governs the acceptability of certain combinations

of words e.g. 'mild' - applied to atmospheric temperature and 'tepid' and 'lukewarm', applied to liquids. All mean slightly warm, but each must be used in specific contexts.

As native speakers have the ability to recognise relations of entailment, tautology etc, componential analyses attempt to explain these and other logical characteristics and combinations by the use of projection rules - rules which combine features in particular ways. In order to answer the question "Is a given combination of utterances significant or meaningless?" it is necessary first to determine the grammatical status of the lexical items i.e. to analyse the sentence, syntactically. Thus, for example, 'pregnant woman' and 'pregnant mare' would be significant, whereas 'pregnant man' and 'pregnant stallion' would not. Whether or not 'pregnant mouse' or 'pregnant swan' were regarded as meaningful would depend on context. The problems, however, are greater in combinations such as 'pregnant child' and 'pregnant pause'.

The problems do not stop here. After amalgamation a directional component is needed in order to differentiate between 'the dog killed the man' and 'the man killed the dog'.

These problems lead us to the theory of prototype and stereotype. Here we are also interested in family relationships and categorization. We can understand 'house' or 'hippopotamus' or 'unicorn' without ever having seen these referents. A prototype of a predicate is an object which is held to be typical of the kind of object which can be referred to by an expression containing the predicate (Hurford and Heasley 1983). Thus, for example, my father may be, for me, a prototypical example of 'man'. It is unlikely, however, that this white caucasian man in his sixties will represent a prototypical instance of the category 'man' for everyone and it is in acknowledging this that this approach to meaning is most useful.

The lexical item 'man' will have different significances for different people depending on their experience, both personally and culturally. Two human beings, especially if they are from different cultures, will not share the same prototype. Even in a common culture, individual circumstances matter.

The procedure for determining the stereotypical properties of a concept such as 'bird' involves a collection of tests (Smith, Rips and Shoben, 1974). The stereotypical properties are those which are so common they are often thought to be general. If a particular example of bird exhibited all of these features, it would be a typical example. If another example of a bird did not exhibit these features, it would not be typical. A member of the category is viewed as more or less typical according to the number of defining features it possesses. Thus, to a New Zealander, a sparrow would be a typical bird, a kiwi or moa would be less typical.

Eleanor Rosch (1975) noted that defining features are not possessed by all examples of a category. In place of the 'defining feature' model, she proposes that members of a category share a 'family resemblance with centrality conditions. A lexical item, e.g. 'furniture', may cover a whole range of things that share characteristics with one another as do members of a family. Yet it may be impossible to think up a set of characteristics which describes them all. The most typical item of one category will bear the least resemblance to the most typical item of another category. Rosch and Mervis (1975) found that, for example, in the case of fruit, there were no defining features common to and

characteristic of 20 kinds of fruit tested. Nonetheless, each member shared a 'family resemblance'. The greater the resemblance, the more central it is to the category. It is easier to identify an apple as fruit than it is to identify a coconut as one.

As well as fruit, Rosch tested (with native speakers of English) categories of furniture, clothing, vehicle, bird, weapon, sport, vegetable, toy, carpenter's level, geometric form and colour. Colour proved to be rich in information. The physical aspects of colour are universal. Colour categorization is, however, culturally determined. Although some colours such as 'red' (blood), 'green' (living plants) and 'blue' (sky) are common universally, there are variational aspects. The Japanese and the Maori, for example, both used vegetable and plant dyes and therefore their 'red' colour term differed according to their traditions. Colour names are not necessary for measuring colour discrimination, memory, or classification. Colour can be used to discriminate between items and to communicate about differences between objects irrespective of the existence of appropriate colour terms.

Our visual system uses hue (dominant wavelength of light), brightness (intensity dimension) and saturation (apparent degree of dominance of the dominant wavelength, the 'purity' of the light) to judge the physical aspects of colour. Any cultural differences are in the boundaries of the categories rather than in the perception of colour. Speakers of the same language who share a common culture can disagree about whether, for example, a particular item is 'blue' or 'green': they will not disagree, however, unless they are colourblind, when the item is situated in the central colour zone: when its saturation, hue and luminosity are such as to place it centrally within one of the two categories.

A 'natural prototype' is the "most typical" example of the category and this will tend to be learned first and remembered more easily than less typical examples. This idea supports the argument by Wittgenstein that meaning is use (1953).

For obvious reasons, children have more difficulty than adults in judging the peripheral members of a category - members that fall into the "fuzzy" or less central zone. Indeed, for some young children, certain types of dog are likely to be identified as 'cat': they may not have had sufficient experience to identify less typical exemplars of the category 'dog'. Thus, the fuzzy edges of their concepts may not match those of most adults.

Fuzziness is an inescapable characteristic of the many concepts expressed by language. We must work from the typical examples towards members of the category that are not so typical. It is this that accounts for our ability to classify feet without toes as 'feet' and dogs without legs 'dogs'.

The extension of a category is indicated by all members of that category - present, past, future and possible members. We acquire use of a lexical item, e.g. 'mouse', by learning to attach it to a certain kind of animal. To be in command of the word 'mouse' implies an ability to apply the word to atypical exemplars as well as typical ones.

Stereotypical properties are lists of typical characteristics of an exemplar of a category. The number of words in a language is not indicative of the degree of classificational competence of that culture. Each culture has its own areas of importance and languages have words for objects, ideas and concepts of relevance to that culture. Every language divides up the world in its own way to suit its own needs.

What an English person would call a bowl would be considered a cup by an Italian.

With all this in mind, it is interesting to consider the possible relevance of prototype theory to the pedagogy of second and foreign language learning. Human beings seem to understand one another not by learning fixed definitions but by working from a prototype or best example. We start with the prototype and move to objects and ideas that are less typical. Every person has a different prototypical example - and each culture has different prototypes and stereotypes. It is important, in teaching, to remember that each student is approaching a new idea or word from a different direction.

Teaching meaning by way of family resemblances gives some sense and cohesion to new information. Grouping exercises, matching exercises and finding the odd one out are all useful ways of helping the learner become aware of family resemblances - of looking for relationships between words and/or ideas. Sometimes conceptual differences are extremely subtle, even for a native speaker. Exercises which are typically given to language learners could profitably be re-examined in the context of prototype theory. The following two, typical examples of classroom exercises are of a type that is consistent with prototype-based approaches to lexical extension:

1. Spot the odd words out:  
example: radio computer video television
2. Discuss the following words. Put a circle around the odd word out and say why it is the odd word out.  

|             |             |           |           |
|-------------|-------------|-----------|-----------|
| tourist     | visitor     | traveller | student   |
| investigate | determine   | explore   | enquire   |
| elderly     | intelligent | stupidly  | talkative |
| utilize     | uncover     | reveal    | disclose  |

Exercises of this type will help learners to formulate generalisations that can easily be expressed. A learner will more easily remember a typical example and an exercise involving the search for similarity/difference relationships and is likely to be more meaningful than one involving a dictionary search. In addition, the teacher, in selecting and testing lexical extension and consolidation exercises will inevitably increase his or her sensitivity to the culture-related problems learners have with category membership.

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