

## Testing taxonomic relations. A review of some test methods and a new proposal

### Overview

The aim of this talk is mainly methodological in nature. It will be discussed how to access people's understanding of taxonomic relations. The taxonomic relations to be considered are not classical examples such as: *A dog is a kind of animal*, but those who hold – apart from other semantic relations such as contiguity oder metaphorical similarity - on the semantic side of motivational relations, like e.g. *man* 'human being' is a kind of *man* 'male human being' or *booklet* 'little major bound publication' is a kind of *book* 'major bound publication' (Koch 2001).

Different test methods within and beyond motivational research are discussed and a new method is proposed.

### Taxonomic relations

Taxonomic relations are relations of sub- or superordination between concepts. The sentence: *A X is a kind/type of Y* is diagnostic for this relation (Croft/Cruise 2004, 147). Taxonomic relations are in principle combinable with almost all formal relations: polysemy, prefixation, etc. But one has to keep in mind that they require a constant word class. Therefore all kinds of formal relations which involve word class alternation, like conversion by definition, are excluded *a priori* (Koch 2001, 1167).

### Open vs. closed question method

Two methods were tested to elicit speaker judgments regarding the semantic side of motivational relations (Marzo/Rube/Umbreit 2006) which comprises taxonomic but also other semantic relations. In the first, the open question task, subjects were asked to describe, in their own words, the relation between the meanings of given lexical units. Interpreting these "free answers" always presupposes a lot of interpretation on the side of the linguist and often it is just impossible to decide whether a subject describes, e.g., a cotaxonomic relation or a relation of metaphoric similarity.

In the closed question task preformulated answers were given, one answer per semantic relation, and the meanings of the lexical units to be tested were inserted. To illustrate this, we take the above cited lexical unit pair *book* 'major bound publication' – *booklet* 'little major bound publication':

- (1) A 'little major bound publication' is a kind of a 'major bound publication'.
- (2) A 'major bound publication' is a kind of a 'little major bound publication'.
- (3) A 'little major bound publication' and a 'major bound publication' are both kinds of \_\_\_\_\_.
- (4) A 'little major bound publication' is a part of a 'major bound publication', because \_\_\_\_\_ (and other relations)

For some of the relations people had to give further open explanations like in (4). At times it proved difficult to match these explanations to the preformulated semantic relations which the subject themselves had selected – evidence for the fact that the preformulated explanations did not serve for these subjects. For the taxonomic relation no additional explanation was required but sometimes people chose the subordination relation (1) or superordination relation (2) to relate lexical units which simply can not be related in that way due to the "same word class" constraint: e.g. *wieder* 'again' is a kind of *wiedererlangen* 'regain'. To sum up: this task, with its mix of relations types given to the subjects in combination seems to be too complex and distracting for speakers trying to make clear judgements.

## Word forms or definitions?

A general problem of giving definitions of the meanings of the lexical units to subjects is that by giving the definition a certain semantic relation will be somehow preselected. That is especially so for taxonomic cases like the example *book-booklet*: the definition of book is included in the definition of booklet. One could avoid this by trying to formulate the definitions differently, but in many cases the result will be artificial and inappropriate to the task.

But even if the method to give subjects definitions of meanings can be criticized, it seems to be absolutely necessary to specify the meaning of the lexical units.

A prima facie possible alternative would be to ask subjects if sentences like *planning is a kind of thinking* (or *planning is a part of thinking*) are true or not. In this case subjects would be presented only with wordforms. This method was employed by Rips/Conrad (1989) to test people's beliefs about mental activities. Rips and Conrad presumed that these beliefs would be structured in taxonomies and partonomies. The test led to a surprising result: almost every taxonomic relation, approved by one test group, e.g. *planning is a kind of thinking*, corresponds to a reverse partonomic relation, approved by another test group, i.e. *thinking is a part of planning*. Rips and Conrad did not spend much attention to the factor which – in my opinion – is crucial for the result, i.e. polysemy. It is obvious that subjects with *kind-of* sentences had a simple meaning of *planning* in mind which did not involve different subtasks, like e.g. 'to intend to do something'. The group with the *part-of* sentences instead did certainly interpret the sentence differently: *planning* was seen as a complex activity involving different subtasks, of whom one or even more was identified by kinds of thinking.

## New method proposal

With the new questionnaire advantages of the discussed methods are combined and disadvantages avoided. The new method will be an elaboration of the method of Rips and Conrad. Subjects will be presented with single sentences like *un casolare è una specie di casa* (*a cottage is a kind of house*) and asked whether these sentences are true or not. They will be also presented with the reverse sentences (e.g. *a house is a kind of cottage*) and some other sentences where the stimuli meanings were presumably connected by other than taxonomic relations. The meanings of the wordforms will be illustrated by accompanying sentences.

The test sentence form will be adjusted to the word class of the stimulus, following a recommendation by Fellbaum (1990) who finds faults with sentences demonstrating verb hyponymy like *To amble is a kind of to walk* and tries to capture the verbal character with sentences of the form *To amble is to walk in a certain manner*. The test stimuli will correspond to those lexical unit pairs already tested on motivation.

In another run the same kind of test will be made for partonomic relations to check whether there are any systematic links to the results of the first questionnaire in spite of the fact that the meaning is specified.

With that kind of simplified test method subjects would not be overstrained – they just have to judge one sentence in one turn - and there would be a better control of whether they really understand the same by the preformulated semantic relation sentences.

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