THE COMPREHENSION OF SPATIO-TEMPORAL TERMS BY CHILDREN OF PRIMARY SCHOOL AGE

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SUMMARY

The research conducted in this thesis examined the development of the semantic system of *spatio-temporal* terms in children of primary school age. This investigation involved a series of experiments which looked at the child's awareness of the antonym relationship in this field as well as his conceptualisation of a limited subset of *spatio-temporal* terms. Later experiments further studied the effects of a linguistic context on the child's comprehension of these terms. In addition, data were gathered from both adult and language-delayed subjects in order to determine if children in the 7:0 to 12:0 year age group were functioning at an adult level with respect to their comprehension of *spatio-temporal* terms, and furthermore, to ascertain whether linguistic performance on a task involving these terms was affected by a developmental delay in language acquisition.

This research was conducted in the light of the *Semantic Feature Theory* as expounded by E. Clark (1973c) and H. Clark (1973). As such, two of the major hypotheses tested in the experiments were,

(1) Children will make more errors on *marked* than on *unmarked* members of *spatio-temporal* antonym pairs.

(2) The spatial sense of *spatio-temporal* terms will be learnt before their temporal sense. This will result in differential error rates to terms which are seen as being spatially dominant (e.g. *in front of, ahead of, behind*) and temporally dominant (e.g. *before, after*).

The first experiment undertaken looked at the acquisition of the antonym relationship in the *spatio-temporal* semantic field by Year 3 (7:0 to 8:0 year old) children. The results of this study demonstrated that for children of this age the notion of "opposite" was a firmly established semantic relation. Therefore, it was concluded that any comprehension errors they make with such terms can be attributed to their dual meaning and how aware the children are of this dual meaning.

Consequently, the second experiment investigated both the child's and adult's conceptualisation of a limited subset of *spatio-temporal* terms (*in front, ahead, behind, before, after, first, last*) by asking them to rate such terms for similarity of meaning. This study found that both child and adult subjects perceived these terms as existing in a 2 dimensional semantic space whose dimensions could be labelled spatial and temporal. Furthermore, this semantic space was more fully differentiated in adults than children. Therefore, some development had occurred in the semantic system of these 7 *spatio-temporal* terms.

A third experiment was therefore conducted to consider this developmental change and how it was affected by linguistic, in particular sentential, context. This experimental design was employed with three subject populations, that is 7:0 to 12:0 year old children, adults, and language-delayed children (who were functioning linguistically at an 8:0 year old level according to form (a) of the *Peabody Picture Vocabulary Test*). The results of each study indicated that all subject groups were aware of how the semantic constraints operating within the structure of a sentence

affected their interpretation of the *spatio-temporal* terms *in front of, ahead of, behind, before* and *after*. Furthermore, this awareness seemed to reach an adult competence at Year 4 or around 9:0 years of age as was evidenced by the performance similarities of Year 4 and adult subjects on this task. In addition, the group of language-delayed subjects were found to be <u>different</u> and not merely <u>delayed</u> with respect to linguistic ability on this task as was indicated by a comparison of their performance with that of their linguistic age peers (Year 3 or 8:0 year olds).

The last experiment conducted, examined in more detail the effects of linguistic context on children's comprehension of the *spatio-temporal* terms *in front of, behind, before* and *after*. In addition to employing spatial and temporal contexts, as in the preceding study, this experiment utilised contexts whose meanings were ambivalent, that is, spatial/temporal contexts. (Such contexts allow either a spatial or a temporal semantic interpretation.) The findings of most interest in this study were those in spatial/temporal contexts. Subjects from Years 3 to 7 gave responses whose dominant meaning was temporal, that is, *before* and *after*, in such contexts. This was seen as indicating that children were aware of the dual sense of the temporally dominant pair *before/after* when provided with a spatial/temporal linguistic context. However, such a context failed to elicit the double meaning in children's semantic interpretations of the spatially dominant terms *in front of* and *behind*.

Overall, the results of these studies indicated few performance differences which could be attributed to variations in Verbal I.Q. or sex. This latter finding supports the research cited by Maccoby and Jacklin (1974) which indicates that few reliable sex differences exist in linguistic abilities in the middle years of childhood. Furthermore, no performance differences were found which could be attributed to the *markedness* of the *spatio-temporal* term, in line with those predicted by E. Clark (1973c). Similarly, the spatial sense of *spatio-temporal* terms was not found to be prior in acquisition as predicted by H. Clark (1973) as differential error rates to spatially and temporally dominant terms generally proved to be insignificant.

In conclusion, a theoretical model was postulated to account for the primary school age child's comprehension of *spatio-temporal* terms. This model saw a possible amalgamation of *Semantic Feature* (E. Clark, 1973c) and *Prototype Theories* (Nelson, 1974a; Rosch, 1973; Palermo, 1978) as envisaged by Bowerman (1978b). Such a model incorporates the semantic featural notion of the former and the prototype concept of the latter to explain how the word-field of *spatio-temporal* terms is conceptualised by primary school age children and how this conceptualisation is affected by sentential context.

STATEMENT

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university and, to the best of my knowledge and belief, the thesis contains no material previously published or written by another person, except when due reference is made in the text.

Signed__

Lynette Campbell

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