Fast mapping between grammatical constructions and meaning: An experiment in French children aged 3 to 4

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Construction grammar (Goldberg)

Goldberg (1995) views construction as a construction F orc - a construction F orc (FSC or FSC) is a form-meaning pair (FSC) such that some aspect of F or some aspect of S is not embeddable from F or component parts or from other constructions. The meaning of the form Forc is a language form that has an interpretation (any linguistic behavior) in a construction (more precisely as an occurrence of a construction). Constructions cover a wide range of time and complexity. In the most simple (lexical module), there are the syntactic constructions. In the middle, there are the semantic constructions. In the most complex (discourse organization), the elements (other constructions) it links together (the meaning at the top layer).

Examples of constructions

If learning of associations between form and meaning is widely studied and described for lexical items (the most simple constructions), few work has been done on the learning of association between novel word stem and novel meaning, although this is something that children have to when naturally learning language. A demonstration of real time learning of form-meaning pairing involving abstract grammatical forms (word order) was proposed by Casenhiser and Goldberg (2005). They proposed an experiment where children had to learn how to read new words (i.e. pronounce a word, recognize that word, and write a word) and a meaning which was that of APPEARANCE (a meaning novel for English speakers) and the story being described by the first main phrase comes to exist in the place named by the second main phrase (from Goldberg, 2006, p. 78-80). The form-meaning pairing of Casenhiser and Goldberg (2005) contained 10 trials that prohibited the children from realizing that the pairs were always bilateral (e.g. ‘il lit’ and ‘il joue’). The children aged 0,7 to 4,3 years old (3-5-7 year-olds) for 20 minutes and obtained significant results that showed that children were able to grasp the novel abstract meaning that was associated with a novel phrasal abstract meaning (Pi or Sj is not present). Children are still acquiring new words and extend what they have learned to new abstracts that used new novel words (from Goldberg, 2006, p.81).

Goal of the experiment

The goal of the current experiment was to try to reproduce three studies with French-learning children: Casenhiser and Goldberg series of experiments (Goldberg & Casenhiser, 2004; Casenhiser & Goldberg, 2005) contain more than a single experiment. Especially, they tested different types of input frequency (balanced input vs. skewed input) and compared the results with children who had no phonological neighborhood. All nonce verbs used are considered as belonging to the first grammatical group of French verbs (ending in –er), which contains only regular verbs and which is the only productive group of French verbs.

Experiment

Subjects

All children were recruited in kindergartens. They come from the two first years of kindergarten. Their age ranged from 36 months to 42 months. Thirty-six children participated in each of the two groups. For each group, the participants were 19. The language of all children was evaluated using a standardized test battery (Evaluation du language oral – ELO). All children had normal language development.

Material

The material presented to the children tended to reproduce as close as possible the material from Casenhiser and Goldberg (2003). E + HE SLIDES (Sliding) + MARIE + A PIECE OF PIE

Results

No significant differences were found on training orders and on testing orders. Also, no familiarity was found with right or left designation (left vs. right). An analysis was conducted on the global children’s scores: how many did they perform correct responses. This results is significantly different from chance, t(23)=-2.22, p=.03. The children are below chance. Separation analysis for the apparition film clips produced a non-significant result, t(23)=1.46, p=.16. A non-significant results was also found for non-transitive film clips, t(23)=0.94, p=.35. Results were at chance levels. More detailed analysis by children’s age revealed only one significant result: children aged 3 performed worse than chance on the transitive condition (t(23)=-2.60, p=.02). This was the only significant result. Further analysis of results involving independent variables (age, language, sex) and their interaction were not significant (p>.10). No significant preference was found for side designation (left vs. right). No significant differences were found between non-transitive film clips and non-apparition film clips.

Discussion

The results did not confirm the prediction that children are able to learn to association a new abstract form with a new semantic function with only a few learning examples, contrary to what was demonstrated in Casenhiser and Goldberg (2005).

References


No non-transitive verb was used. Each set consists 12 film clips and each clip was seen two times by the subjects.

Learning sets

Two sets were used for the learning phase. Each set consisted of two items, using two different film clips, one for the condition (transitive or intransitive) and the other one for the condition (apparition or non-apparition). Each film represented a distinct film clip, but with the same verbal sound described since of the film clip, either apparition or transitive. All items were balanced with respect to side (left vs. right) or scope (number of items where the apparition was described or the transitive was described) and also, no preference was found for side designation (left vs. right).

Example of Test film

Setting for transitive verbs

Non-transitive Verb

Non-transitive verbs are extracted from visual databases (Meeuwis, Lélis et al., 2004) and selected (Lambert & Chesnet, 2001); and checked for frequency. All verbs were frequent and had a simple syllabic structure. Non-transitive verbs were created by changing two phonemes of each verb, one consonant and one vowel, with changes ranging from a single phonological feature. The non-transitive verbs were controlled using a questionnaire to ensure that they had no phonological overlap between the original verb and the nonce verb. This was done for each verb to ensure that children were only learning new structures, and not new verbs.

Table 1: Results obtained by age.

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