German children use prosody to identify participant roles in transitive sentences

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Abstract

In language acquisition, a construction of particular importance is the basic transitive construction, prototypically used to indicate an agent acting on a patient. In most languages a learner acquires step by step multiple, sometimes redundant cues in order to distinguish the participant roles in an utterance (e.g. word order, case marking, animacy). For German, Dittmar et al. (2008) found that two year olds only understood sentences, where several cues supported each other. At the age of five, children were able to use word order by itself but not case marking and only 7-year-olds behaved like adults by relying on case marking over word order when these two cues conflicted.

However, most studies examining children’s understanding of transitive constructions focus on the morpho-syntactic properties of sentences and ignore an additional cue: prosody. But, it has been established that listeners’ interpretation of ambiguous sentences is guided by the prosodic structure of these sentences (e.g. Grice, Weber & Crocker: 2006). In the current study we investigate whether or not German learning children at the age of 5 use prosodic marking to override word order as a cue for the assignment of participant roles in object-first (OVS) sentences with novel verbs and thus, whether they use the prosodic structure of utterances in order to distinguish semantic roles.

Method

Participants

- 16 x 4.10 year old (range 4.5 – 5.3) monolingual german children in each of the two studies

Materials

- each child was tested with four different novel verbs
- novel verbs referred to prototypical causative transitive actions, involving direct contact between a volitional agent and an affected patient
- agents and patients of a particular event were pairs of animals with the same grammatical gender

Procedure

- video pointing task
- transitive action was described by a prerecorded and manipulated auditory stimuli

Conditions Study 1

1. Der Löwe VERB den Frosch!
2. Nicht den Frosch VERB der Löwe, sondern den Hund VERB der Löwe!

Conditions Study 2

- same as study 1
- but, sentences were embedded in a natural context between 2 characters

(1) Der Löwe VERB den Frosch!
The-masc-nom lion VERB the-masc-acc frog!
(2) Nicht den Frosch VERB der Löwe, sondern den Hund VERB der Löwe!
It’s not the frog that’s VERB the lion, it’s the dog that’s VERB the lion!

Results Study 1

ANOVA: main effects Intonation: p>.042; Case Marking: p<.001; no significant interaction: p=.001

Results Study 2

ANOVA: main effects Intonation: p>.042; Case Marking: p<.001; no significant interaction: p=.001

Comparison of results

ANOVA: main effects Intonation: p=.043; Case Marking: p=.043; no significant interaction: p=.05

Conclusion

In the current study we found that five-year-old German children recognize a high pitched accent on the initial noun phrase as a cue indicating a patient-first transitive construction. Thus, the prosodic cue is strong enough to pull children away from their strong word order bias whereby they interpret the first noun as an agent. In the first study, this effect could only be seen in combination with case marking. In those conditions where case marking was ambiguous, children, as expected, still fell back on their most reliable cue – word order. In the second study, where target sentences were presented in a more natural way with a combination of context and intonation, the results were strengthened because young children were using the intonational cue, as opposed to the competing cue of word order.

These findings show that, when reliable cues contradict each other, children at the age of 5 are still able to understand the semantic roles in transitive OVS sentences when appropriate intonation is available. It is likely that intonation interacts in complex ways with a number of different morpho-syntactic cues, and indeed the current studies provide some evidence for this possibility. In some cases the prosodic pattern may be a part of the construction itself, whereas in other cases it may be being used more generally, for example as a contrast, in order to stress a particular noun phrase which then triggers a specific interpretation of a particular construction. This suggests that children use prosodic cues to understand the grammatical conventions of a particular language from early on. Thus, the current studies are just a first step which shows that prosody is an important feature for children in the language acquisition process. In order to fully understand young children’s skills at interpreting sentences online, the role of intonation must be taken into account.

References:


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