Social factors contextualizes the initial learning of a new word order

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Abstract
The Weird Word Order task (Akhtar, 1999) allows one to study how children might acquire a new word order. Previous work suggested that children do not easily generalize a new word order in this task. A new version of the task was created that seemed to make it easier to elicit a new word order, but the developmental pattern in the new task did not match earlier results. A second study compared the new task with the earlier studies, and found that the social features of the new task (the interlocutor’s native language and the child’s motivation for communication) played a role in their generalization abilities.

Generalization of a new word order
• The Weird Word Order task (WWO) teaches a child to use a novel word order like “Tamming Big Bird the truck” to describe a novel action.
• Testing involves showing the novel action with different participants. A child can use the novel word order as in “Tamming Elmo the car” or they can change it to the canonical English order as in “Elmo tamming the car”
• Children are reluctant to use novel order in this task (See Figure 1)
• Akhtar (1999) found that after 80 models of a new order and 20 elicitation questions, novel orders never exceeded 4 matches per child.
• Reason 1: Child does not want to use a non-English word order with an English-speaking experimenter.
• Reason 2: Child has no motivation to describe a scene that the experimenter has already seen.
• We can make a task where it is easier for children to use the novel word order
• Use a robot interlocutor that only understands WWO structure.
• Use sticker search task, where communication with robot is the only way to achieve the desirable goal of finding stickers.

Japanese and Weird Word Order Language

Japanese language (verb-final, particles are optional)
apple point (“ringo yubisashite”, point at the apple)
apple lock (“ringo mite”, look at the apple)
Novel WWO language
point apple “yubisashite ringo”
look apple “mite ringo”

Experiment 1: Developmental Patterns in Robot WWO Task
Previous WWO studies found that children were more likely to revert to the word order of their native language more when they were older and with familiar verbs (Abbott-Smith, et al. 2001; Akhtar,1999; Matthews, et al., 2006b). These results suggest that the child’s syntactic representations are strengthened by their experience with their native language.
• To replicate these findings in this new task, we varied verb-type and age of the child.
• Verb-type: novel (pate, dote) and familiar verbs (proportion OBJECT-VERB, verbtype * age, all p’s > 0.3)
• Children produced marginally fewer novel orders when talking to a robot that they believed also understood Japanese (WWO-Command vs. Same-Description, t(27) = 3.65, p < 0.02)
• Task and interlocutor influenced the ability of children to generate utterances with novel objects in a novel word order. Same-Description condition yielded fewer novel word orders, as in previous studies which used a same language interlocutor.
• Children were sensitive to the language abilities of their interlocutor, but this effect was weaker.

Experiment 2: Social Factors in WWO Task
• Compared new task (WWO-Command) with version that is similar to previous WWO studies. Still uses robot search task, but the child must describe the robot’s actions to the experimenter who speaks same language (Same-Description).
• To identify if children model the language abilities of the robot, tested condition where robot is shown to understand both WWO and Japanese orders (Both-command).

Results Experiment 2
• Children produced a greater proportion of utterances with the novel order when commanding the robot to find stickers, then when describing the robot’s action to a Japanese experimenter (WWO-Command vs. Japanese-Command, t(27) = 1.73, p = 0.09).
• Task and interlocutor influenced the ability of children to generate utterances with novel objects in a novel word order. Same-Description condition yielded fewer novel word orders, as in previous studies which used a same language interlocutor.
• Children were sensitive to the language abilities of their interlocutor, but this effect was weaker.

References

Conclusion
Children can quickly learn a new word order from relatively few models and generalize it to novel arguments.
Changes over development are not simply due to input-based changes in the strength of representations, but rather could reflect changes in factors related to social understanding.

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