What German 5-year-olds know about the constraints on object order in ditransitive sentences: An elicited imitation study

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The linear order of the objects of a ditransitive verb in German is relatively free for full NPs: indirect (IO) and direct object (DO) may appear in either order, IO<DO and DO<IO, with the latter being marked compared to the former. Constraints on the ordering have been proposed to include, among others, definiteness (NP_{DEF}<NP_{INDEF}) and focus (NP_{F}<NP_{+F}). Ordering constraints can be conceived of as soft constraints in an optimality-theoretic framework. By assuming that constraints like [DEF<INDEF] and [-F<+F] are ranked higher than the constraint working against [DO<IO], these accounts predict a marked order like DO<IO to be relatively acceptable when it fulfills a higher ranked constraint like [DEF<INDEF] or [-F<+F] (Müller, 1999). This boils down to an interaction of the markedness constraints on object order, and on definiteness and focus: the relative markedness of the four resulting structures is then ordered as follows: (a)-cases/no violation > (b)-cases/one violation of [DO<IO] > (c)-cases, one violation of [DEF<INDEF] > (d)-cases/two violations.

In order to test whether 5-year-old speakers of German have acquired the constraints and their ordering, we conducted two experiments employing an elicited imitation paradigm — Exp1 testing the effect of focus, Exp2 testing the effect of definiteness on children’s serialization of the objects in sentences as exemplified in (1) and (2). In each experiment, 16 monolingual participants were auditorily presented with five sentences for each of the four conditions (aided by pictures depicting the expressed event), and were asked to repeat the sentences to a deaf and almost blind mole puppet. Exp 1 operationalized focus by a wh-question for the DO or the IO preceding the stimulus sentences together with a nuclear pitch accent on the element asked for. In Exp 2 definiteness was marked by using either the definite or indefinite determiner, with all prosodic information removed from the acoustic stimulus. Children’s imitations were coded for faithfulness to the stimulus sentence. Our first hypothesis was that faithfulness decreases as markedness increases. This was tested by comparing the faithfulness of children’s imitations of sentences from neighbored conditions by repeated contrasts. Our second hypothesis stated that, in unfaithful stimulus-imitation pairs, the imitations should be less marked than the stimulus. Stimulus pairs complying with this hypothesis were compared to those contradicting it in one-sample t-tests.

The data confirmed our hypotheses: markedness had an effect on the faithfulness of children’s reproductions, as it had on the direction of changes in unfaithful stimulus-imitation pairs. In agreement with the optimality theoretic proposal for the adult grammar, children were more tolerant against inputs marked for word order than for focus; in disagreement with the proposal, children were less tolerant against inputs marked for word order than for definiteness. Overall, these are the first results showing that German children’s linearization of objects in ditransitive structures is affected by at least some of the constraints proposed for adult grammar, even though the constraint ranking may still not be adult-like.

References:
(1)  
a.  \( M^- \): unmarked input (small caps indicate nuclear stress)

\[
\text{Der Mann hat } [\text{dem} \text{DAT} \text{Jungen}]_{\text{IO}} [\text{den} \text{ACC} \text{Ball}]_{\text{DO}} \text{ gegeben.}
\]
'The man has [the \text{DAT} boy]_{\text{IO}} [the \text{ACC} ball]_{\text{DO}} given.'

b.  \( M^{+\text{FOC}} \): input marked with respect to focus

\[
\text{Der Mann hat } [\text{dem} \text{DAT} \text{Jungen}]_{\text{focIO}} [\text{den} \text{ACC} \text{Ball}]_{\text{DO}} \text{ gegeben.}
\]
'The man has [the \text{DAT} boy]_{\text{focIO}} [the \text{ACC} ball]_{\text{DO}} given.'

c.  \( M^{+\text{WO}} \): input marked with respect to word order

\[
\text{Der Mann hat } [\text{den} \text{ACC} \text{Ball}]_{\text{DO}} [\text{dem} \text{DAT} \text{Jungen}]_{\text{focIO}} \text{ gegeben.}
\]
'The man has [the \text{ACC} ball]_{\text{DO}} [the \text{DAT} boy]_{\text{focIO}} given.'

d.  \( M^{++} \): doubly marked input

\[
\text{Der Mann hat } [\text{den} \text{ACC} \text{Ball}]_{\text{focDO}} [\text{dem} \text{DAT} \text{Jungen}]_{\text{IO}} \text{ gegeben.}
\]
'The man has [the \text{ACC} ball]_{\text{focDO}} [the \text{DAT} boy]_{\text{IO}} given.'

(2)  
a.  \( M^- \): unmarked input

\[
\text{Der Mann hat } [\text{dem} \text{DAT} \text{Jungen}]_{\text{defIO}} [\text{einen} \text{ACC} \text{Ball}]_{\text{indefDO}} \text{ gegeben.}
\]
'The man has [a \text{DAT} boy]_{\text{defIO}} [a \text{ACC} ball]_{\text{indefDO}} given.'

b.  \( M^{+\text{DEF}} \): input marked with respect to definiteness

\[
\text{Der Mann hat } [\text{einem} \text{DAT} \text{Jungen}]_{\text{indefIO}} [\text{den} \text{ACC} \text{Ball}]_{\text{defDO}} \text{ gegeben.}
\]
'The man has [a \text{DAT} boy]_{\text{indefIO}} [the \text{ACC} ball]_{\text{defDO}} given.'

c.  \( M^{+\text{WO}} \): input marked with respect to word order

\[
\text{Der Mann hat } [\text{den} \text{ACC} \text{Ball}]_{\text{defDO}} [\text{einem} \text{DAT} \text{Jungen}]_{\text{indefIO}} \text{ gegeben.}
\]
'The man has [the \text{ACC} ball]_{\text{defDO}} [a \text{DAT} boy]_{\text{indefIO}} given.'

d.  \( M^{++} \): doubly marked input

\[
\text{Der Mann hat } [\text{einen} \text{ACC} \text{Ball}]_{\text{indefDO}} [\text{dem} \text{DAT} \text{Jungen}]_{\text{defIO}} \text{ gegeben.}
\]
'The man has [a \text{ACC} ball]_{\text{indefDO}} [the \text{DAT} boy]_{\text{defIO}} given.'