Children's Processing of Conjoined and Embedded Recursive Possessives

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This research explores children's acquisition and processing of embedded and conjoined recursive possessives. In particular, it seeks to provide more insight into the acquisition path of these two phrase constructions: "the cat's dog's bear," which is embedded, and "the cat's and dog's bear," which is conjoined. Developmentally, children acquire conjunction earlier than embedded recursion, preferring to interpret embedded adjectives like "the second green ball" as a conjoined reading: "the second and green ball." (Roeper 2010) This asymmetry is reflected in their production of embedded of-possessives and embedded locatives as well (Pérouz-Leroux et al. 2012).

Children's production of these structures are tested over Zoom using a novel contrastive stimuli recall paradigm. The process goes as follows: children undergo familiarization to the ideas of recursion and possession, they are presented with pictures of animals which leash each other in different ways to represent the two conditions. Then, their comprehension is tested across various conditions in a binary forced choice discrimination task. Then, The children are primed to the embedded and conjoined possessive structures, with successive building up of the phrases: 'The dog; the cat's dog; the owl's cat's dog". After priming, they are then tasked to produce control ("the dog's bear"), embedded, or conjoined phrases. This is elicited from contrastive stimuli. Specifically, a trial with three stimuli on the screen split into boxes: two small, and one large. The large box is always either an embedded or conjoined possessive, while the smaller stimuli are always controls. The final possessee in the target condition has an apple above its head, and Children are then asked which animal has the apple, and the phrase is elicited. Each stimuli group consists of three animals with an apple over the possessee of the focused form: a recursive form, a conjoined form, and control form which appears in either the left hand or right hand tertiary box (alternating by condition)

Here are preliminary results (n = 26, mean age = 7;6). The reaction time data shown in Figure 1 indicate with mild confidence (p < 2) an increased planning time for embedded conditions at the age of 5. This asymmetry levels off after the age of 5, with reaction times becoming stable after the age of 6. The accuracy rate data in Figure 2 shows that the control condition is more accurate across the board at each age, and that the conjoined structure is more accurate than the embedded across all ages. These results show, tentatively, that the asymmetry which exists in acquisition between these two conditions manifests in children's planning of them as well. There are only two 5 year olds included in this data set, so we can't be so sure about these preliminary results, but what is clear is that this paradigm has the potential for broad production applications, with a rate of 71% accuracy across all ages, which is higher than many other elicitation paradigms.

References

Ana Teresa Pérez-Leroux, Anny P. Castilla-Earls, Susana Bejar & Diane Massam (2012) Elmo's Sister's Ball: The Problem of Acquiring Nominal Recursion, Language Acquisition, 19:4, 301-311, DOI: 10.1080/10489223.2012.685019

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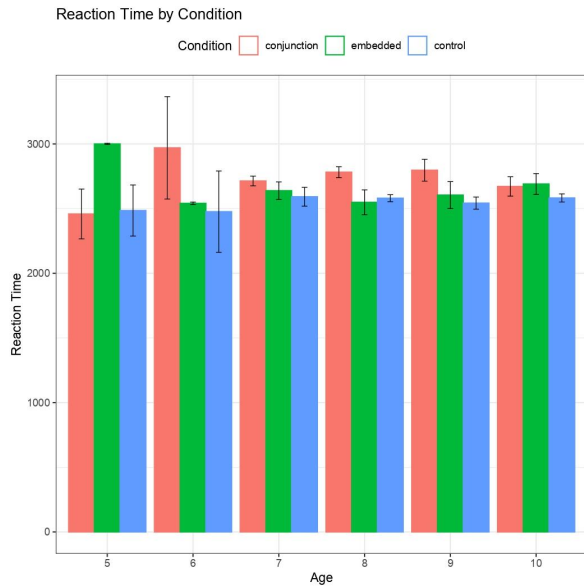
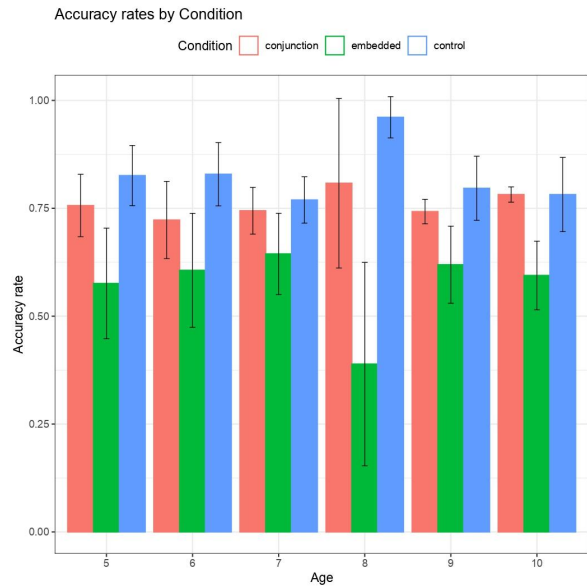Figure 1. Reaction time in ms by age and condition
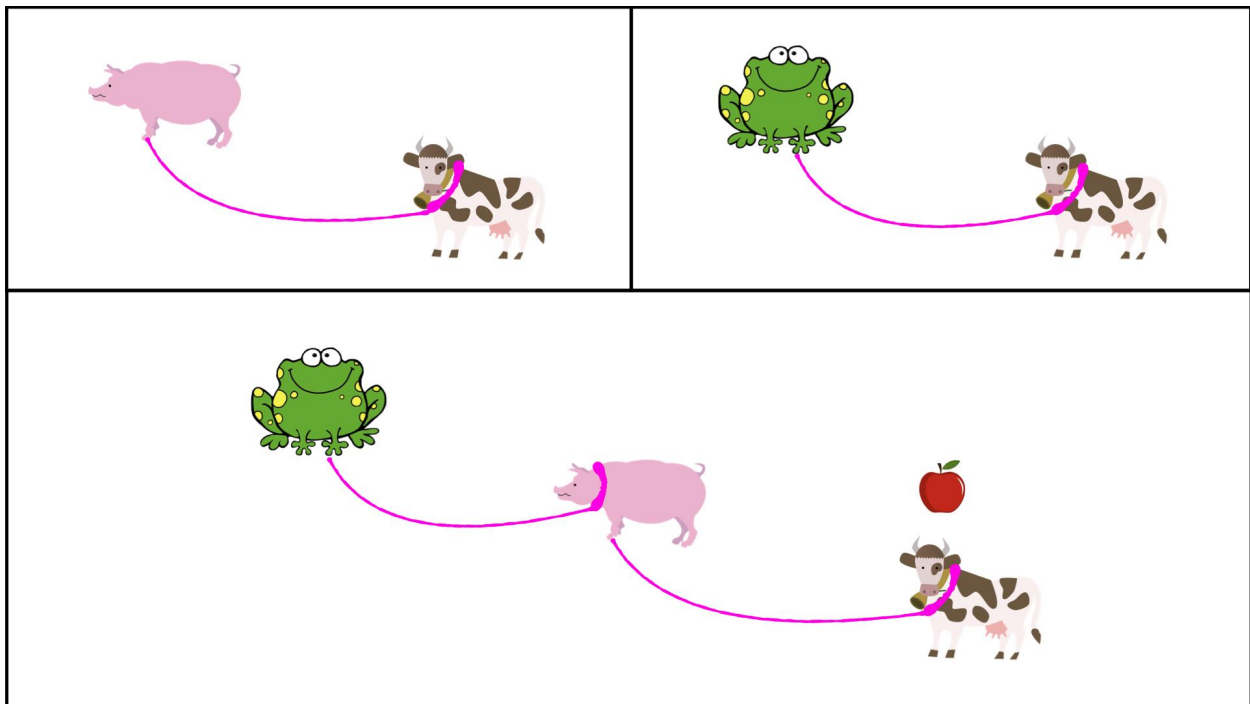

Figure 2. Accuracy rate as %correct by age and condition

Figure 3. The contrastive stimuli. The bottom box is always either embedded or conjoined. Children are asked "which animal has the apple?" The contrastive forces a full phrase target response, since the response can't be "the pigs' cow" or "the frog's cow" then it has to be "the frog's pig's cow" forcing the right elicitation.