

Can 18-month-olds understand negative sentences?

Negation is a universal linguistic concept presenting an interesting question in language acquisition research. Researchers have long noted that children start producing the word ‘no’ in their own speech at about one year of age (e.g., Bloom, 1970; Pea, 1980). Surprisingly, many studies investigating the online processing of negative sentences suggest that children younger than 2 years are not able to understand them (Nordmeyer & Frank, 2014; Feiman, 2015; Feiman, Mody, Carey, Snedeker, 2014; Reuter, Feiman, Snedeker, 2014). This surprising failure might be due to a bona fide lack of understanding of negation in children younger than two, or to the fact that the experimental paradigms used were too demanding (requiring pragmatic inferences, for instance).

Our goal is to investigate French-learning infants’ understanding of negation at 18 months, with a simple habituation paradigm, in which toddlers are exposed to simple negative sentences such as “It’s not an X” where X is a noun or “It’s not Y-ing”, where Y is a verb, in a context that pragmatically supports the use of these negative sentences.

The experimental design is based on very recent studies conducted in English and French, showing that 18-month-olds are able to use function words to constrain the possible meaning of novel nouns and verbs (using the Habituation-Switch paradigm; He & Lidz, 2014; de Carvalho, He, Lidz & Christophe, 2015).

In the present study, all infants were habituated with two video stimuli showing a penguin doing two different intransitive actions (e.g., spinning, cartwheeling), one in each video. When hearing sentences such as “Oh Look! It’s a bamoule! Do you see the bamoule?” and watching the video of the penguin spinning, infants infer that the novel word “bamoule” refers to the object in the video (the penguin), but when listening to sentences such as “Oh Look! It’s pirdaling!” and watching the penguin cartwheeling, they infer that “pirdaling” refers to the action that the penguin is doing (here, cartwheeling).

Then, when infants reach a habituation criterion, they are exposed to a test phase in which the audio tracks of the videos are exchanged, and the original sentences are negated. Thus, they look at the penguin cartwheeling and hear ‘It’s not a bamoule’, and they look at the penguin spinning and hear ‘it’s not pirdaling’. Given that during the habituation phase the noun ‘bamoule’ referred to a penguin, if children correctly understand negative sentences, they should be more surprised and look longer toward the videos when they hear the negative noun sentence, ‘it’s not a bamoule’, since the video is still showing a penguin. In contrast, since the verb ‘pirdale’ refers to cartwheeling, they should not be surprised when hearing the negative verb sentence, ‘it’s not pirdaling’, since indeed the penguin is now spinning, and not cartwheeling. (The syntactic category of the novel words “bamoule” and “pirdale” and their associations with the videos (“spinning” or “cartwheeling”) were counterbalanced across participants).

If infants dishabituate more for the negative noun sentences than for the negative verb sentences, this study will show that 18-month-olds are already able to correctly process negative sentences, in a context that supports the use of these negative sentences. If not, this experiment will confirm previous work that negative sentences are hard to process for infants.

We are currently testing infants and I hope to be able to present the results in Trieste.

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