The Structured Acquisition of Dimensional Adjective Antonyms

Sara Kessler
Department of Linguistics, Stanford University
skessler@stanford.edu

Question

What is the path to acquisition of dimensional adjectives? Does it reflect the structure of the lexical field?

Dimensional Adjectives

Properties:
- Dimension – refers to a dimension
- Polarity – positive (unmarked) or negative
- Antonymy – what is the opposite

Adjective Acquisition

- Children build up lexical entries gradually, demonstrating some knowledge of word meaning before achieving complete, adult-like representations (e.g. Clark, 1972).
- Corpora show that use of dimensional adjectives begins around 1;8 (Tribushinina et al., 2013) and of antonymy around 2;0 (e.g. Jones and Murphy, 2005).
- Previous production studies have had difficulty eliciting antonyms before age 4;0, well after beginning of use.

Predictions

- Gradual build-up of lexical entry
- Identification as dimensional adjectives precedes identification of specific dimension.
- Antonymy relations, relating words to other words in the lexicon will be acquired later than dimensionality and polarity which require only the association of the word with properties in the world.

Method

Participants: 27 native Hebrew speaking children, ages 3;2 to 8;10

Procedure:
Participants saw a series of pictures, each containing Cookie Monster and Elmo with two objects differing in one dimension (Figure 1). Each picture was accompanied by a prompt, as in (1). Each child saw each adjective twice, with two different objects. Each child saw only one member of each antonym pair, an equal number of negative and positive adjectives.

Stimuli

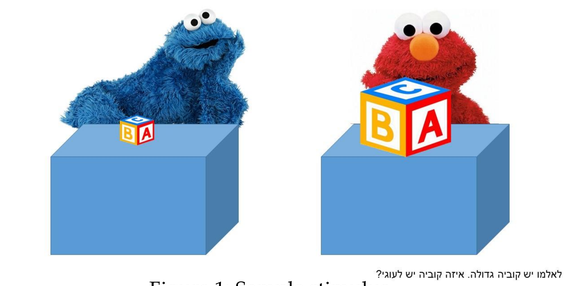


Figure 1: Sample stimulus

Stimulus prompt:
(1) le-elmo yeš kubiya gdola.
dat-Elmo exists block big.
Eyze kubiya yeš le-ugiflecet?
which block exists dat-Cookie-Monster?
`Elmo has a big block. Which block does Cookie Monster have?'

Adj Pair	Translation	Objects
gadol/katan	Big/small	block, elephant
gavoa/namux	tall/short (high/low)	building, orange
arox/kacar	long/short	pencil, belt
raxav/car	wide/narrow	door, window
aveh/dak	thick/thin	marker, notebook
amok/radud	deep/shallow	pool, sandbox
zaken/cair	old/young	man, woman

Table 1: Stimuli set – Hebrew adjectives used, their English translation and the objects modified

Response Coding

Children provide four types of semantically appropriate (SA) responses:
- **Adult Correct (AC) –** the antonym adults would provide to the adjective, as found in Table 1 (e.g. *wide*)
- **Negation –** negated adjective mentioned (e.g. *not narrow*)
- **Unmarked form –** use of the more general dimensional adjectives *big/small* (with correct polarity) instead of AC antonym (e.g. *big*)
- **Near synonyms –** adjectives close in meaning to the AC response (e.g. *fat*).

Results

- By age 3 children already respond in an SA manner 80% of the time, so age is not a good predictor of SA responses (Pearson's $r = .19$, $t = .96$, df = 25, $p = .347$).
- AC responses increase over time, with Children providing more AC responses as they grew older, thus age is a good predictor of AC responses (Pearson's $r = .79$, $t = 6.47$, df = 25, $p < .05$).

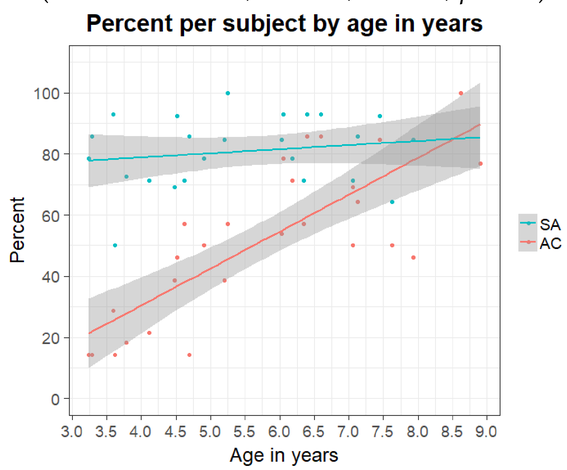


Figure 2: Percentage of SA and AC responses for each participant by their age in years

Discussion

- From a very early age, children provide SA responses even when they do not yet know the AC antonym.
- This result contrasts with the results in Clark (1972), where among 4- and 5-year-olds, playing an abstract fill-in-the-blank word game, age was a good predictor of both SA and AC responses.
- This difference in results indicates that when pictures provide contextual support, children can better leverage their partial knowledge to provide an appropriate response.
- They know that the adjective heard is a dimensional adjective, know its polarity and appropriately substitute simpler dimensional adjectives when they do not know the AC antonym.
- This demonstrates a gradual buildup of the structured lexical field of dimensional adjectives.

References

- Clark, Eve V. 1972. On the child's acquisition of antonyms in two semantic fields. *Journal of Verbal Learning and Verbal Behavior* 11:750-758.
- Murphy, M. Lynne, and Steven Jones. 2008. Antonyms in children's and child-directed speech. *First Language* 28:403-430.
- Tribushinina, Elena, Huub van den Bergh, Dorit Ravid, Ayhan Aksu-Koç, Marianne Kilani-Schoch, Katharina Korecky-Kröll, Iris Leibovitch-Cohen, Sabine Laaha, Bracha Nir, Wolfgang Dressler, and Steven Gillis. 2014. Development of adjective frequencies across semantic classes: A growth curve analysis of child speech and child-directed speech. *Language, Interaction and Acquisition/Langage, Interaction et Acquisition* 5:185-226.

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