

Acquisition of English Adjectival Resultatives: Support for the Compounding Parameter

Goals

This study investigates:

1. When English-speaking children acquire adjectival resultatives;
2. How they acquire resultatives: wait for direct evidence, or exploit a parameter-based strategy?

Findings

1. An experimental study shows that English-speaking children comprehend adjectival resultatives by age 3;07 (as early as we can test with TVJ task).
2. A corpus study shows that resultatives are very low-frequency in maternal speech, which supports a parameter-based approach, in that children acquire resultatives with little direct evidence.

1. Background

- English allows a variety of complex-predicate structures, as in (1).
 - 1) a. John painted the house red. (Resultative)
 - b. Mary picked the book up. (Verb-Particle)
 - c. Fred made Jeff leave. (Make-causative)
 - d. Fred saw Jeff leave. (Perceptual Report)
 - e. Bob put the book on the table. (Put-locative)
 - f. Alice sent the letter to Sue. (To-dative) (Snyder 2001)

- Stromswold and Snyder (1995) investigated children's spontaneous production and found that children typically acquire (1b-f) as a group, sometime before age 3.
- Moreover, Snyder (1995) found that ages of acquisition for (1b-f) are tightly correlated with the age of novel N-N compounding.
- Snyder (1995) proposed that (1a-f) all require the marked setting of the Compounding Parameter, as in (2).
 - 2) **The compounding parameter:** The grammar {disallows*, allows} formation of endocentric compounds during the syntactic derivation. [*unmarked value] (Snyder 1995)
- Son (2007) found a strong link between novel compounding and adjectival resultatives through cross-linguistic fieldwork.

2. Unanswered Question

- Acquisitional evidence is incomplete:
 - Stromswold and Snyder (1995) relied on longitudinal corpora of spontaneous speech.
 - They did not check resultatives like (1a).
 - Resultatives are very low-frequency, making corpus-data less reliable.
- Research questions:**
 - When do English-speaking children acquire adjectival resultatives?
 - How do they acquire resultatives? Do they wait for direct evidence? Or might they be exploiting a parameter-based strategy?

3. Comprehension Study

- This study aims to investigate whether English-speaking children can comprehend English adjectival resultatives.
 - Since (1b-f) are all acquired before the age of 3, children should likewise comprehend (1a) as early as we can test (i.e., by about 3.5 years, using a Truth Value Judgment task).
- Truth Value Judgment (TVJ) task:**
 - PowerPoint animation presented on a laptop.
 - The experimenter narrates a story illustrated on screen; asks an animated parrot "What's happening here?"
 - The child judges whether the parrot "got it right or said something silly".

Materials

- 4 practice items: 2 'Yes' and 2 'No'
 - to train children how to do the task
- 8 test items: 4 'Yes' and 4 'No'
 - Test sentences: *Jim is painting the chair blue.*
 - Two verbs: *paint* & *color* (four items for each verb)
- 4 fillers: 2 'Yes' and 2 'No'
- They are presented in pseudo-random order.
- Four lists were created to control order effects.
- Inclusion Criterion:** A child had to either answer **all 8** of the practice/filler items correctly, or **make at most 1 error**:
 - $p(\text{at least 7 out of 8 correct} | H_0) = .035$
 - Significantly better than chance on the easier, non-resultative items, implies...
 - Capable of performing the TVJ task.

Participants

- 24 English-speaking children were tested; 20 of them (age 3;05-5;07; mean 4;03) met the inclusion criterion.

Sample Story

Experimenter: This is a story about a little girl named *Mary*, and a little boy named *Jim*. Mary has a yellow chair, and Jim has a blue chair. Jim and Mary want their chairs to be the same color. Jim says he can put *blue* paint on Mary's *yellow* chair, but Mary doesn't like it. Then he gets a great idea: he'll put *yellow* paint on his *blue* chair! See he's painting! ... Parrot, what's going on here?



Parrot: Jim is painting the chair blue!

Results

- Children answered correctly most of the time (146/158; 92.4% correct).
- Viewed as a group, children's sensitivity to the truth/falsity of the resultatives was robustly significant (Wilcoxon Signed-Ranks $W=210$, $n_{s/r}=20$, two-tailed $p=.0001$).
- The contrast was also significant for 18 of 20 children individually (i.e., at most one error; directional $p<.05$).
- The other two children each had 4/4 'Yes' on True items, and 2/4 'Yes' on False items.
- Finally, when the child indicated the parrot was wrong, we asked, "What's happening?" Every child answered appropriately, and as illustrated in (3), almost all used resultatives in their answers.
 3. Examples of resultatives produced by children during the experiment:
 - a. She's painting her box **YELLOW!**
 - b. No he's coloring it. Richard is coloring his bottle ... **PINK!**

4. Corpus Study

- All the children who could perform the TVJ task (based on answers to practice/filler items) also performed well on adjectival resultatives (both as a group and individually).
- Hence, the results strongly supported the prediction that children would succeed at TVJ for adjectival resultatives as soon as they could perform the TVJ task.
- The findings led us to another question: How do children determine that resultatives are available in English? Do they wait for direct evidence? Or might they be exploiting a parameter-based strategy?
 - If a child knows that English has the marked setting of TCP, and knows the relevant lexical items (Adjectives, Verbs), perhaps little or no direct input is necessary.

Maternal Speech

- To gain some insight, we conducted a corpus study to assess the frequency of true adjectival resultatives (with an open-class verb, not causative *make/get*) in child-directed speech.
- We used longitudinal corpora of child-parent interactions for four children in CHILDES (MacWhinney 2001).

Corpora:	Adam (Brown)	Eve (Brown)	Lily (Providence)	Peter (Bloom)	TOTAL
Maternal utterances:	20,152	10,247	63,423	3,248	97,070
# Resultatives:	0	0	4	0	4
Frequency:	<1/20,000	<1/10,000	.0000631 (6.31/100,000)	<1/3,000	.0000412 (4.12/100,000)

- For the mothers of Adam, Eve, and Peter, there were zero uses of adjectival resultatives. For Lily's mother, there were 4 uses in 63,423 maternal utterances. As a group, there is an estimated frequency of around 4 uses per 100,000 maternal utterances.

5. Final Remarks

- The results of our TVJ study suggest that the children have succeeded at acquiring resultatives, despite receiving *exceedingly few* examples in their input.
- While we cannot be certain that the children exploited a "parametric" strategy, the evidence points in that direction.

Acknowledgement: We'd like to thank our audience at UConn Acqui-Lab for support and helpful comments. We also thank the children at Mansfield Discovery Depot, and Educational Playcare of Storrs, for participating in the study.