The predictive power of lexical semantics on the passive behavior in young children

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Introduction

- This study examines Nguyen & Pearl's (2017) predictions of children's passive behavior based on (five) lexical semantic "profiles".
- Are English-speaking 4-year-old children better at long passives when the verb belongs to a particular lexical verb class?

Findings

- Children's success was predicted by lexical profiles: 4-year-old children were successful on the passive when the verb belonged to specific verb classes.
- Contrary to Maratsos et al. (1985), 4-year-old children do not have difficulty with some non-actional verbs, notably object-experiencers (e.g. FRIGHTEN).

1. Previous Literature

Several studies have noted that children's delayed accuracy on passives varies by verb depending on the particular lexical semantic class.

Classic "Maratsos Effect" (1985):

Early - Matthew is carried by Diana.

Late - Matthew is loved by Diana.

2. Nguyen & Pearl (2017) (Henceforth N&P)

Method:

- ➢ Corpus-analysis of child-directed speech.
- ➢ Meta-analysis of 12 investigations of English-speaking children's passive performance
  - ➢ Determined the passive age of acquisition (AoA) of 30 verbs

Results:

- No correlation between a verb's passive input and its AoA.
- Five verb classes based on their lexical semantic profiles, composed of seven lexical semantic features did seem to correlate with the passive AoA.

Interim Conclusion:

- These profiles could suggest a **natural developmental trajectory** for the lexical semantic cues that influence children's ability to interpret long passives.

N&P Prediction: Children's developing success with passives is dependent on the lexical semantic profile of individual verbs.

But...

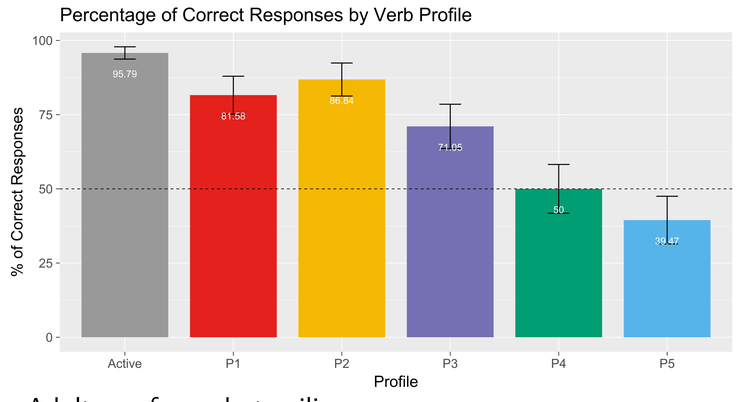
- It's unclear whether N&P's trajectory is present within the same group of children.
- Despite studies in N&P's meta-analysis testing 3- and 5-year-old children, 4-year-old's were often grouped in with other ages.
- Accidental eventive experimental portrayals of Object-Experiencer verbs (Profile 2) may have led to early success in children's performance.

3. The Experiment: Truth Value Judgment Task

- **Aims:** (1) Test N&P's predictions of the dependency between age of passive success and lexical semantic profile; (2) Identify the lexical verb asymmetry, if any, in 4-year-old children.
- **Participants:** 19 preschool-aged children (3;11-5;01, M=4;07), 10 adults
- **Verbs:** 10 verbs, two from each of the five profiles.
  Choice of verb types were because:
  - They were frequently attested for in the literature – WASH, LOVE
  - They are predicted to be acquired earlier than N&P's meta-analysis – FIX
  - They were never tested before but match one of the 5 profiles – DISCOVER, BELIEVE
  - They have only been tested once – SURPRISE, FRIGHTEN, FIND,
- **Design:** (15) stories, 5 verbs (one from each profile)
  – For each verb, 2 passives and 1 active

Profile	Verb	Act	Stative	Volitional	Affected	Obj-Exp	Subj-Exp	Agt-Pat	N&P AoA
1	WASH, FIX	1	0	1	1	0	0	1	3yrs
2	SURPRISE, FRIGHTEN	0	1	1	1	1	0	0	**3-4yrs**
3	DISCOVER, FIND	1	0	0	0	0	0	1	**4-5yrs**
4	SPOT, FORGET	0	0	0	0	0	1	0	**4-5yrs**
5	LOVE, BELIEVE	0	1	0	0	0	1	0	5yrs

4. Results

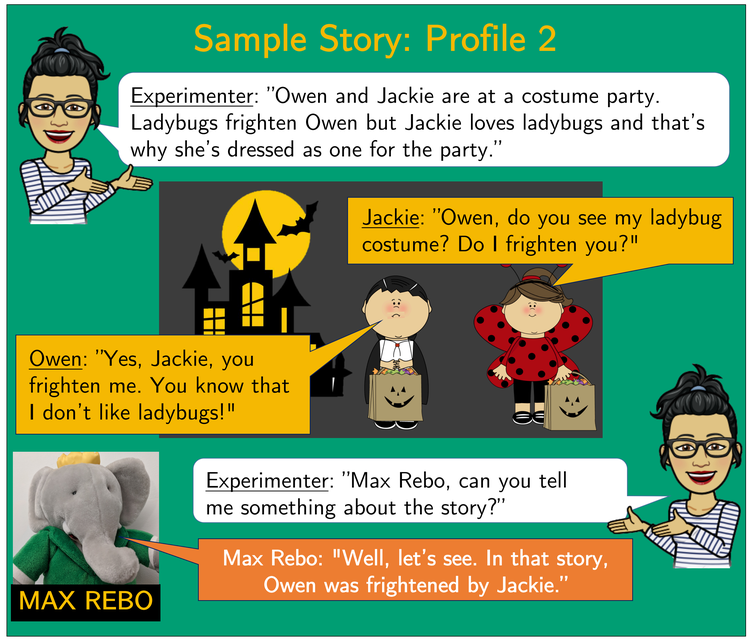


Accuracy rates by verb profile, compared to chance (50%)

Prof.	% correct	t	df	p
1	81.58%	4.609	17	<.001
2	86.84%	7.099	17	<.001
3	71.05%	3.024	17	0.007
4	50%	0	17	1.00
5	39.47%	-1.287	17	0.214

- Adults performed at ceiling.
- Children performed significantly above chance for Profiles 1, 2, and 3 but were no different from chance for Profiles 4 and 5.
- Children's performance was asymmetric: they were reliably better on verbs from Profiles 1-3 than on verbs from Profiles 4-5 (W= 161, P= 0.0005, Wilcoxon Signed-Rank Test).

Sample Story: Profile 2



5. Discussion

- 4-year-old children were successful on the passive when the verb belonged to lexical profiles 1-3.
- Children's success was predicted by lexical profiles: no child exhibited better competence on lexical profiles 4-5 than on profiles 1-3.
- These results align with Messenger et al. (2012) who found comparable performance between Agent-Patient verbs (Profiles 1 & 3) and Object-Experiencer verbs (Profile 2) in young children.
- Contrary to Maratsos et al. (1985), 4-year-olds have difficulty with only some non-actional verbs, notably subject-experiencers.
- Lastly, 5-year-olds may have driven children's success in Profile 4 verbs in N&P's meta-analysis.

6. Final Remarks

- Converging evidence that knowing semantics of the verb is crucial to the comprehension of the passive.
  - Delayed passive performance may be attributable to accurate identification of passivizable verb classes rather than difficulty with the passive structure itself.
- Peak into the Future: these results extend to passivization of novel verbs!

Acknowledgements: I'd like to thank **William Snyder**, **Diane Lillo-Martin**, **Lisa Pearl**, and **Letty Naigles** for extensive comments and discussion on the project, **Nic Schrum** for lending his voice as Max Rebo, and the audience at AcquiLab @ UConn. I want to further extend appreciation towards UConn K.I.D.S., the Connecticut Science Center, and all of the daycares, parents, and children for participating in this project. And lastly, This project was supported in part by NSF IGERT grant DGE-1144399 and approved by the UConn Institutional Review Board, protocol #H15-276.

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