



A cross-linguistic investigation of children's negative indefinite production

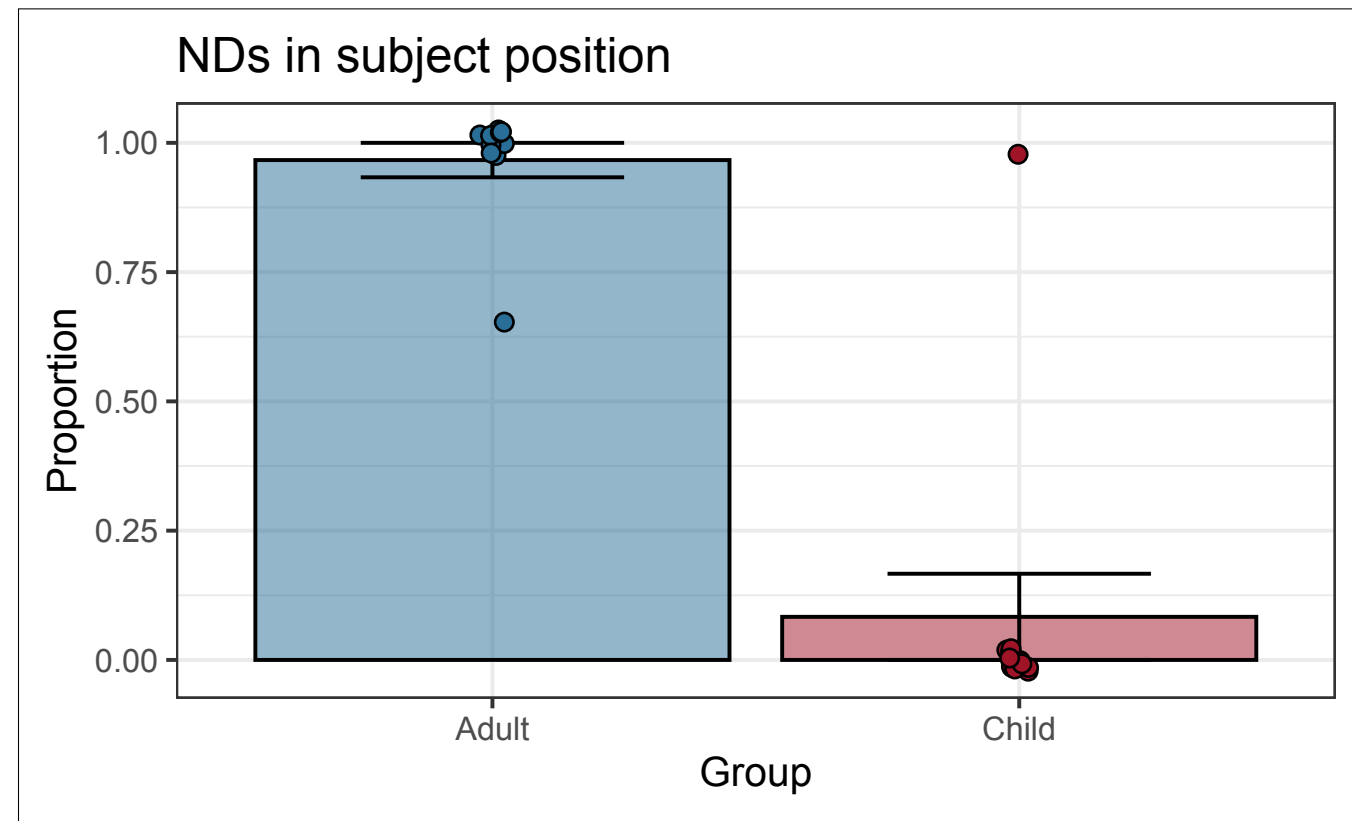
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Introduction

- Bill, Yatsushiro and Sauerland (2019) found that German-speaking children produced fewer utterances with negative indefinite subjects compared to German-speaking adults.



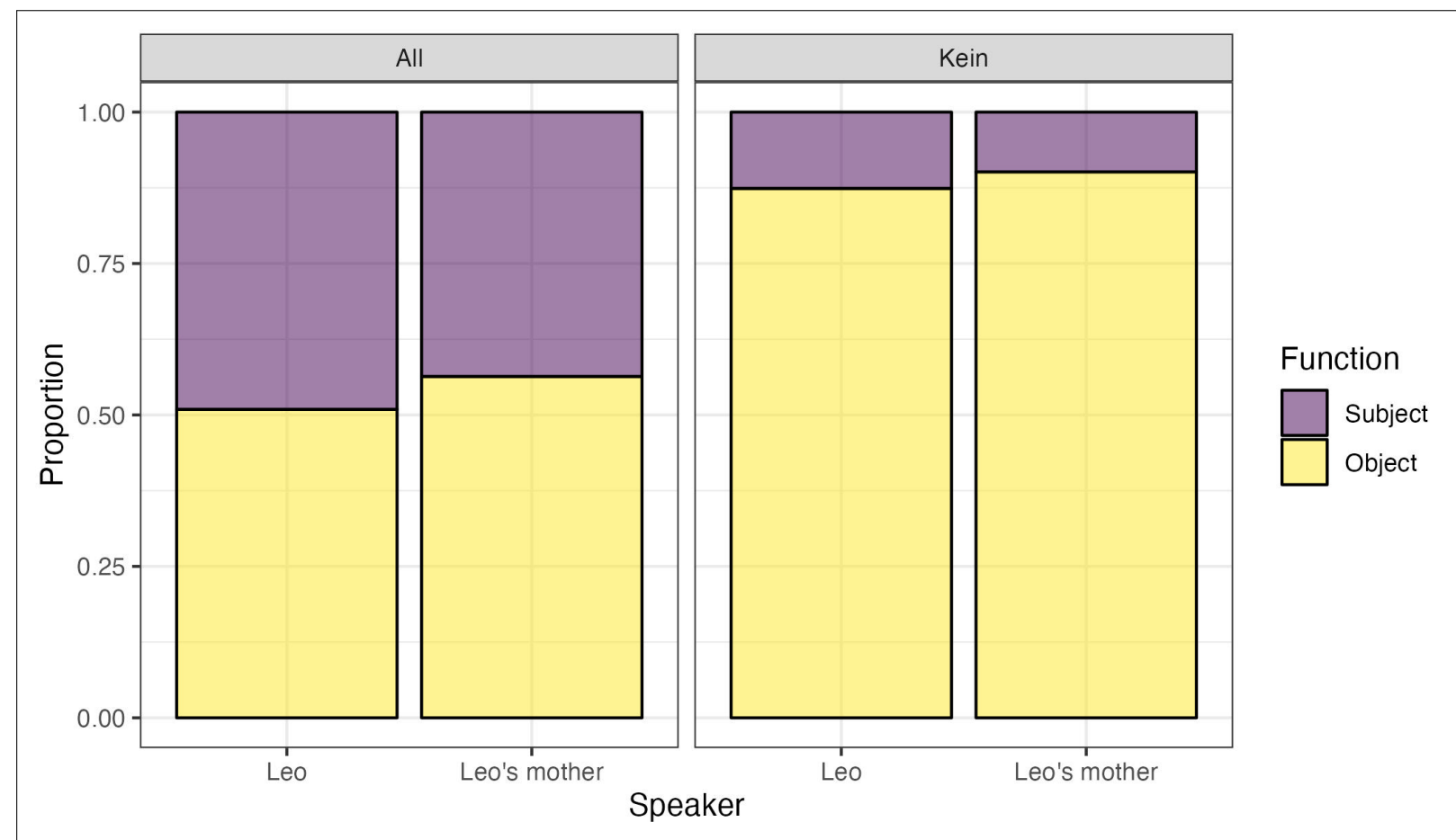
(1) German adults

Keine Katze hat einen Hut.
No cat has a hat.
'No cat has a hat.'

(2) German children

Alle Katzen haben keine Hüte.
All cats have no hats.
'All cats have no hats.'

- A CHILDES corpus search in Bill et al. (2024) found a similar asymmetry in the speech of Leo and his mother (Behrens, 2006).



- These results suggest that there is something difficult about utterances with negative indefinite subjects.
- Bill et al. (2019, 2024) explain this behavior by adopting the following assumptions:

1. **Assumption I:** Negative indefinites are indefinites in the scope of a covert negation (à la Penka, 2011).

(3) $[TP \ T_{u\phi} \ [\text{NEG} \ [_{VP} \ K-\exists \text{ Katze hat einen Hut}]]]$

2. **Assumption II:** German-speaking children license subjects by moving them above negation to Spec,TP.

(4) $[TP \ [K-\exists \text{ Katze}]_i \ T_{u\phi} \ [\text{NEG} \ [_{VP} \ \langle K-\exists \text{ Katze} \rangle_i \text{ hat einen Hut}]]]$

3. **Assumption III:** Negative indefinite subjects need to reconstruct under negation in order to be licensed.

4. **Assumption IV:** Reconstruction has a processing cost (Anderson, 2004).

- On the basis of these assumptions, Bill et al. (2024) propose that German-speaking children (and adults) are not producing utterances with negative indefinite subjects due to their higher processing cost.

Hypothesis

Bill et al. (2019, 2024)'s explanation predicts that, for any language in which the subject is pronounced in a higher position than the object:

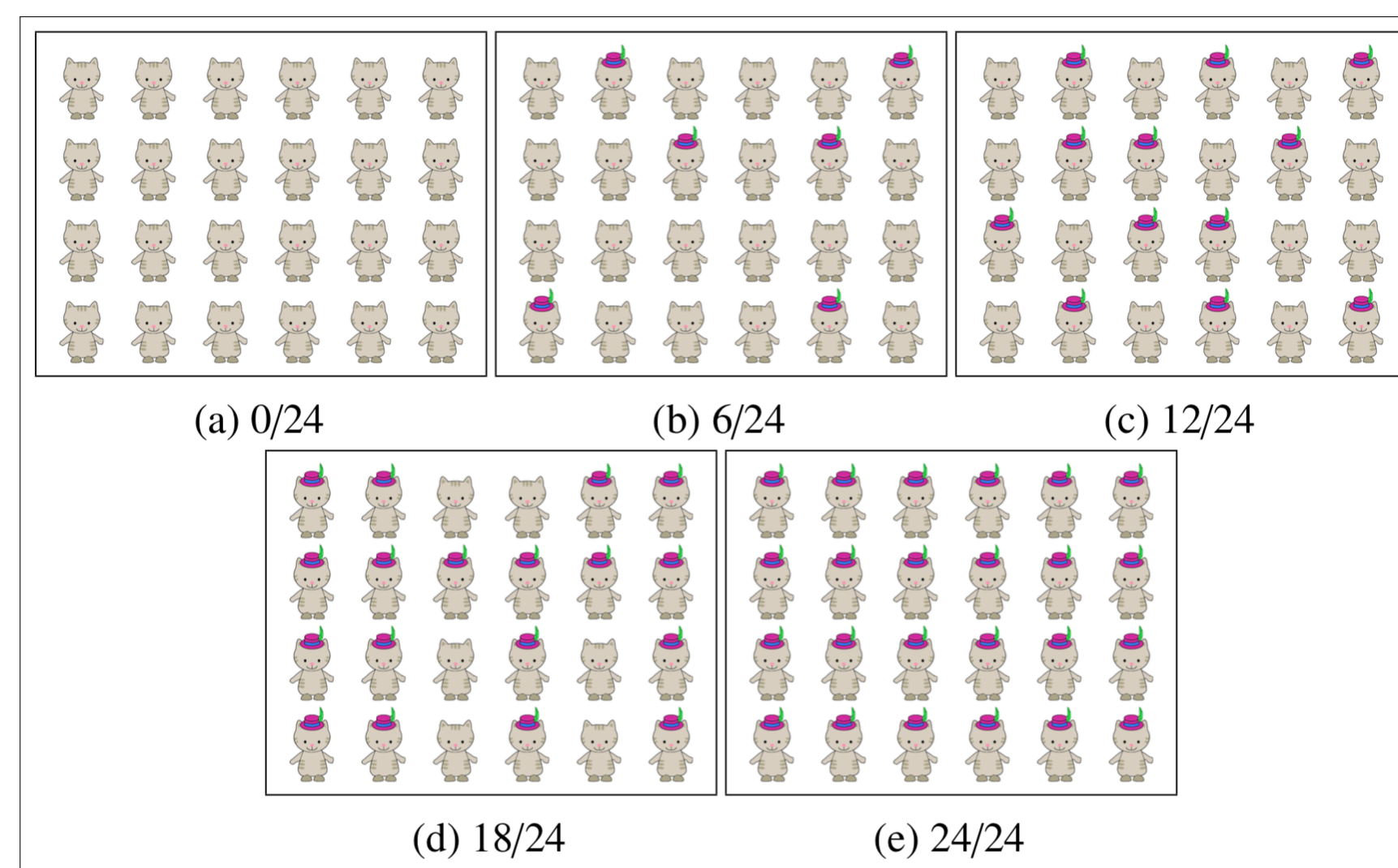
Children produce fewer utterances with negative indefinite subjects than adults.

(5) $[TP \ [\text{no}-\exists \text{ cat}]_i \ T_{u\phi} \ [\text{NEG} \ [_{VP} \ \langle \text{no}-\exists \text{ cat} \rangle_i \text{ has a hat}]]]$

Method

We tested this prediction by replicating the experiment conducted by Bill et al. (2019).

- Paradigm:** Participants played a game in which they had to describe a series of pictures that varied with regard to how many of the cats were wearing hats. The '0/24' condition was designed to elicit negative indefinites.



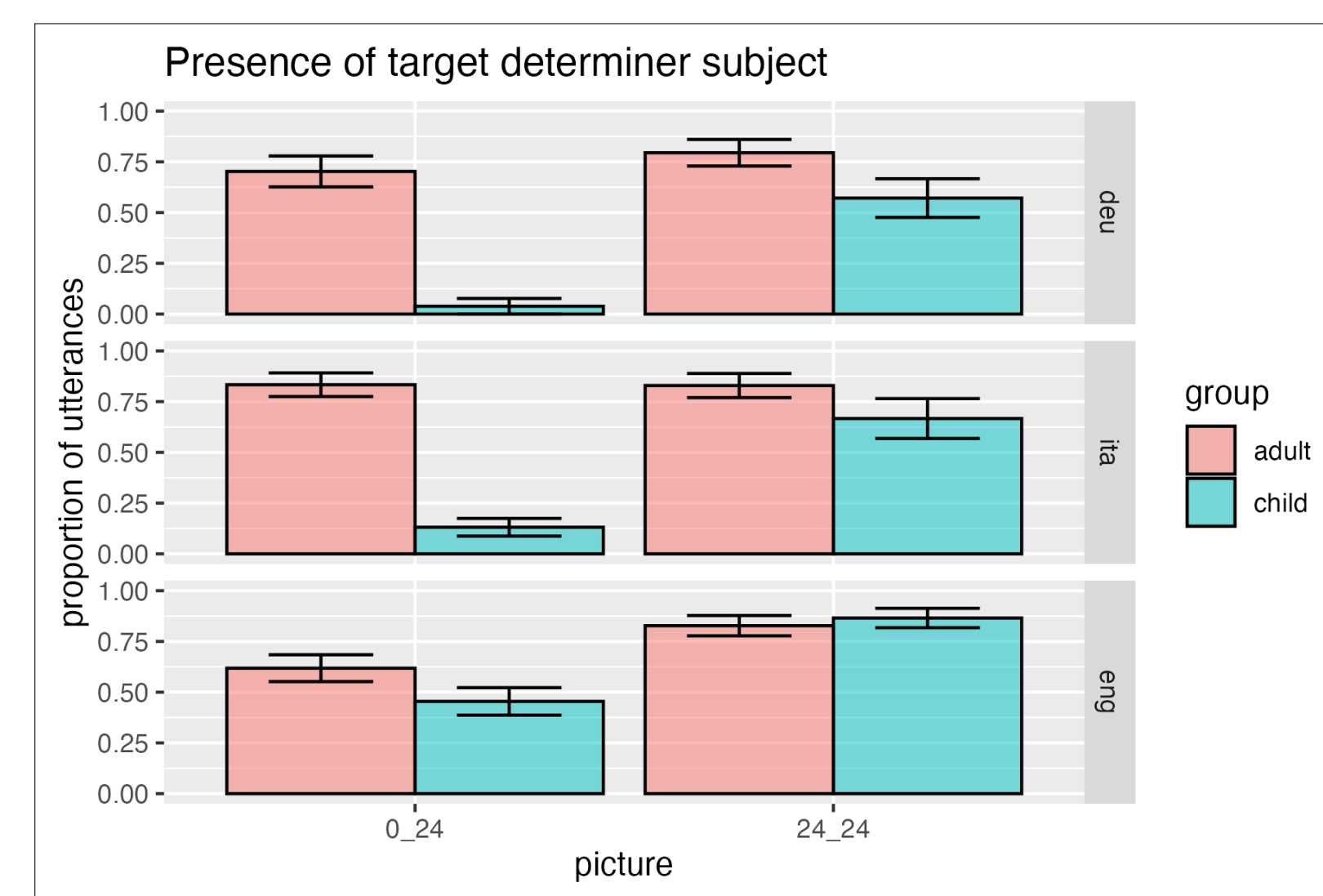
• Languages:

German (existing data), Italian and English.

• Participants:

Language	Group	Number	Age
German	Adults	15	NA
	Children	18	M = 4;08, 3;01-5;11
Italian	Adults	15	NA
	Children	28	M = 4;11, 3;11-5;11
English	Adults	20	NA
	Children	23	M = 5;02, 4;03-5;10

Results



We conducted an analysis based on mixed-effects logistic regression models and found:

Language	Effect	df	χ^2	p.value
German	Group	1	10.29	< .01**
	Picture	1	29.35	< .001***
	Group:Picture	1	16.71	< .001***
Italian	Group	1	18.05	< .001***
	Picture	1	11.12	< .001***
	Group:Picture	1	14.18	< .001***
English	Group	1	0.71	.399
	Picture	1	53.89	< .001***
	Group:Picture	1	3.24	.07

(6) Italian adults

Nessun gatto ha il capello.
no cat has the hat
'No cat has a hat.'

(7) Italian children

Tutti senza capello.
all without hat
'All without hats.'

(8) English adults and children

None of the cats have hats.

Discussion

- The results from Italian are in-line with the expectations of Bill et al. (2024), however, the English results are a challenge for their analysis.

- We propose to capture these new results by:

- Retaining assumptions I., III., and IV.
- Attributing the difference between the German and English results to distributional restrictions of NEG.

- New analysis for German: German is a V2 language (Thiersch 1978). We assume that the silent NEG operator is visible to the V2-constraint. Thus, we assume (??) which requires reconstruction, and not (??).

(9) $[_{CP} \ [K-\exists \text{ Katze}]_i \ [_{C} \text{ hat}]_j \ [_{TP} \ \text{NEG} \ [_{VP} \ \langle K-\exists \text{ Katze} \rangle_i \ \langle \text{hat} \rangle_j \text{ einen Hut}]]]]$

(10) $*[_{CP} \ \text{NEG} \ [K-\exists \text{ Katze}]_i \ [_{C} \text{ hat}]_j \ [_{TP} \ [_{VP} \ \langle K-\exists \text{ Katze} \rangle_i \ \langle \text{hat} \rangle_j \text{ einen Hut}]]]]$

- Analysis for Italian:

– Italian is not a V2 language, but shows evidence for split-CP; contrastively focused subjects move to the left periphery (Rizzi 1995, Cardinaletti 2018).

– Our experimental design created contexts for contrastively focused subjects: *All/No/some cats have a hat.*

– However, there is no independent evidence to assume that a high NEG operator is available and responsible for the licensing, e.g., via $\text{Foc}_{[+neg]}$ as in (??).

Thus, we assume (??) which requires reconstruction.

(11) $[_{\text{ForceP}} \ [_{\text{FocP}} \ [\text{ness}-\exists \text{ gatto}]_i \ \text{Foc} \ [_{\text{FinP}} \ [_{TP} \ [\text{NEG} \ [_{VP} \ \text{ha} \ \langle \text{ness}-\exists \text{ gatto} \rangle_i \text{ il capello}]]]]]]]]$

(12) $*[_{\text{ForceP}} \ [_{\text{FocP}} \ [\text{ness}-\exists \text{ gatto}]_i \ \text{Foc}_{[+neg]} \ [_{\text{FinP}} \ [_{TP} \ [_{VP} \ \text{ha} \ \langle \text{ness}-\exists \text{ gatto} \rangle_i \text{ il capello}]]]]]]]]$

- Analysis for English: There is independent evidence for high negation via negative inversion: *Not a single paper did he finish on time.* Haegeman (1995, 2000) takes the availability of negative inversion to indicate a high scope position for the NEG operator in English. (??) does not require reconstruction.

(13) $[_{\text{ForceP}} \ [_{\text{FocP}} \ [\text{no cat}]_i \ \text{Foc}_{[+neg]} \ [_{\text{FinP}} \ [_{TP} \ \langle \text{no cat} \rangle_i \text{ has a hat}]]]]]]$

- More broadly, our results imply:

- A syntactic status for the covert NEG operator, whose distribution is not fixed across languages.
- A shared underlying structure for negative indefinites and negative concord items.

References: Anderson, C. 2004. *The structure and real-time comprehension of quantifier scope ambiguity*. PhD thesis, Northwestern University.
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