

# Inverse Scope in Scrambling Languages: the case of Bangla

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## Background

Doubly-quantified sentences in English:

- Surface Scope (SS) ✓
- Inverse Scope (IS) ✓

SOV sentences in scrambling languages:

- Surface Scope (SS) ✓
- Inverse Scope (IS) ✗

## Scope Transparency (SCOT, [1])

Languages prefer to maintain a **one-to-one correspondence** between the **word order** of a sentence and its **LF**.

## Previous findings

### Mandarin [2]

- SS ✓
- IS ✗

### German [3]

- SS ✓
- IS ✓

## Present study

Are doubly-quantified SOV and OSV sentences in Bangla ambiguous between SS and IS readings?

## Selected References

- [1] Bobaljik & Wurmbrand (2012)
- [2] Scontras, Polinsky, Tsai & Mai (2017)
- [3] Zimmermann & Philipp (2019)
- [4] Musolino (2009)

## Sentence-picture verification task

2 WORD ORDERS: SOV and OSV

4 PICTURE TYPES: SS-ONLY, IS-ONLY, CTRL-TRUE, and CTRL-FALSE

Example sentences:

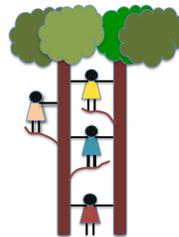
1. **THIK TIN-TE-MEE PROTI-TA-GACH-KE** CHUE ACHE **SOV**  
exactly 3-CLF-girl each-CLF-tree-ACC touch be.PRS.3  
'Exactly three girls are touching each tree.'

SS: Exactly 3 girls are such that they are touching every tree.  
IS: For each tree, there are exactly 3 girls who are touching it.

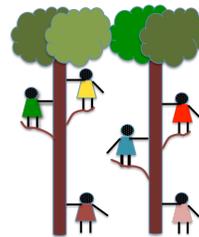
2. **PROTI-TA-GACH-KE THIK TIN-TE-MEE** CHUE ACHE **OSV**  
each-CLF-tree-ACC exactly 3-CLF-girl touch be.PRS.3  
'Exactly three girls are touching each tree.'

SS: For each tree, there are exactly 3 girls who are touching it.  
IS: Exactly 3 girls are such that they are touching every tree.

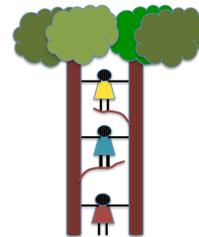
Example pictures:



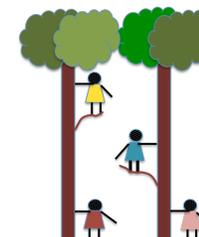
SS-only for SOV  
& IS-only for OSV



IS-only for SOV  
& SS-only for OSV



CTRL-TRUE  
for SOV & OSV



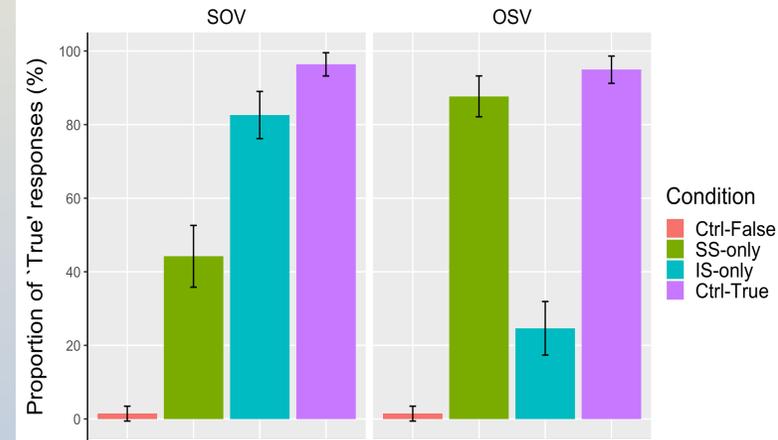
CTRL-FALSE  
for SOV & OSV

Stimuli: 16 Target Conditions (Latin Square) + 35 Controls & Fillers

Participants: 72 adult native speakers of Bangla from India (18-57 years)

## Results

Responses to canonical SOV and scrambled OSV sentences



- **CONTROLS:** Ctrl-True >95% and Ctrl-False <3%
- **SOV ORDER:** IS is preferred (M=82%), SS is moderately available (M=43%).
- **OSV ORDER:** SS is preferred (M=90%), IS is marginally available (M=23%).

## Discussion

- Preference for IS with SOV driven by the Lexical Information (LEX) carried by *proti* 'each' (cf. [4]).
- When LEX is satisfied, SCOT can be disregarded, hence no difference between SOV-IS & OSV-SS.
- Identifiable effect of SCOT when LEX is violated, as shown by the contrast between SOV-SS & OSV-IS.
- Our results suggest LEX and SCOT are evaluated sequentially: LEX is evaluated prior to SCOT.

Follow ups: (i) with *job* 'all' in place of *proti*, (ii) English