

Using acceptability judgments to study language change: Age differences reflect differences in speakers' linguistic systems

Savithry Namboodiripad
snambood@ucsd.edu

UC San Diego

VARIABILITY IN CONSTITUENT ORDER

Languages **differ** in term of:

- which order is canonical (unmarked, discourse-neutral)
 - which orders are grammatical
 - what functions are associated with non-canonical grammatical orders
- ...and languages **change** in these respects as well.

Non-canonical grammatical orders are associated with lower acceptability (Weskott & Fanselow 2011) and processing difficulty (Kwon et al. 2009)

Languages which allow and use many orders are often called **flexible**, and language contact is associated with decreased or increased flexibility (Heine 2008 and Fortescue 1993 respectively)

ACCEPTABILITY JUDGMENTS AND VARIATION

Formal acceptability judgment tasks yield **gradient results** and can measure potentially small differences between sentence types or speakers

Apparent-time studies track change in a linguistic variable by comparing speakers of different ages within a single community (Labov 1972 et seq.)

Assumption: differences between age-based cohorts reflect **diachronic change** in linguistic systems

Proposal: combine formal acceptability tasks with the apparent-time construct to look for change in constituent order systems

Problem: older people could differ from younger people due to aging as opposed to differences in linguistic systems (Waters & Caplan 2001)

EXPERIMENT: VARIABILITY AND VARIATION IN MALAYALAM CONSTITUENT ORDER

All 6 **logical constituent orders** are **grammatical** in Malayalam, with differential object marking

SOV is the canonical order. OSV is associated with topicalization, and verb-medial and verb-final orders are associated with anti-topic and anti-emphatic functions

Malayalam is **undergoing changes** in other areas of the grammar (borrowing of phonemes, violations of word-minimality, restructuring of the lexicon), so syntactic change would not be surprising

Audio stimuli, conducted in Praat. 43 participants heard 5 examples of each of 6 conditions; transitive sentences with animate subjects and inanimate objects (no overt case-marking)

30 experimental items + 40 fillers of varying acceptability, counterbalanced; 1-7 Likert scale

PREDICTIONS

Older individuals have been shown to be less tolerant of complexity, so age could correspond with higher ratings for canonical orders and lower ratings for non-canonical orders.

If Malayalam is becoming less flexible, then younger speakers should show a greater difference between canonical and non-canonical orders.

SAMPLE STIMULI

SOV **oru ka:pi a: vidhava kudic:u**
a coffee that widow drank

OSV **a: vidhava oru ka:pi kudic:u**
that widow a coffee drank

SVO **a: vidhava kudic:u oru ka:pi**
that widow drank a coffee

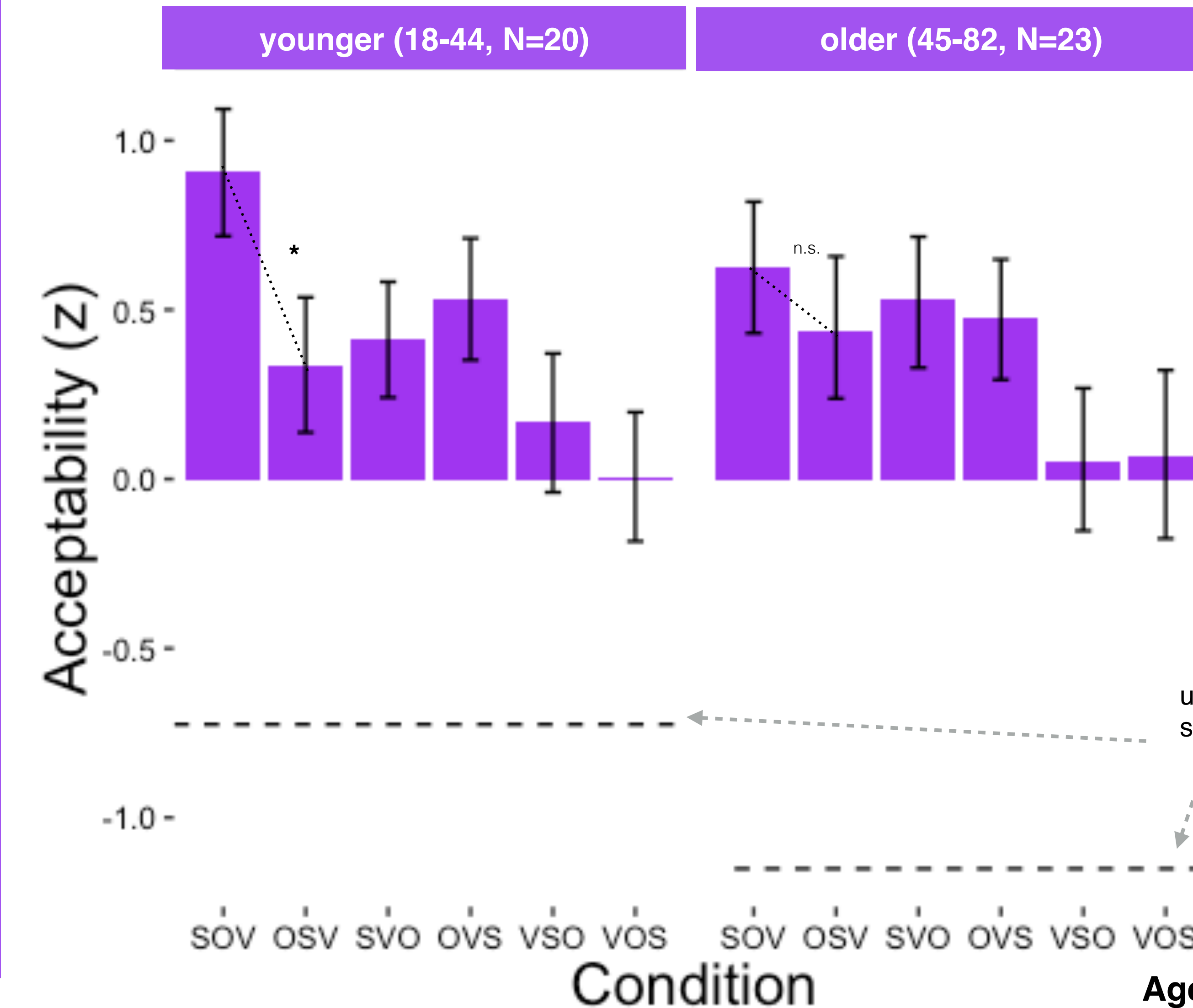
OVS **oru ka:pi kudic:u a: vidhava**
a coffee drank that widow

VSO **kudic:u a: vidhava oru ka:pi**
drank that widow a coffee

VOS **kudic:u oru ka:pi a: vidhava**
drank a coffee that widow

RESULTS

FIG. 4: MEDIAN SPLIT BASED ON AGE



To account for individual differences in how the scale was used, responses were transformed into by-subject z-scores based on filler and experimental items.

In **Figure 4**, mean acceptability is plotted for each condition (error bars=SE)

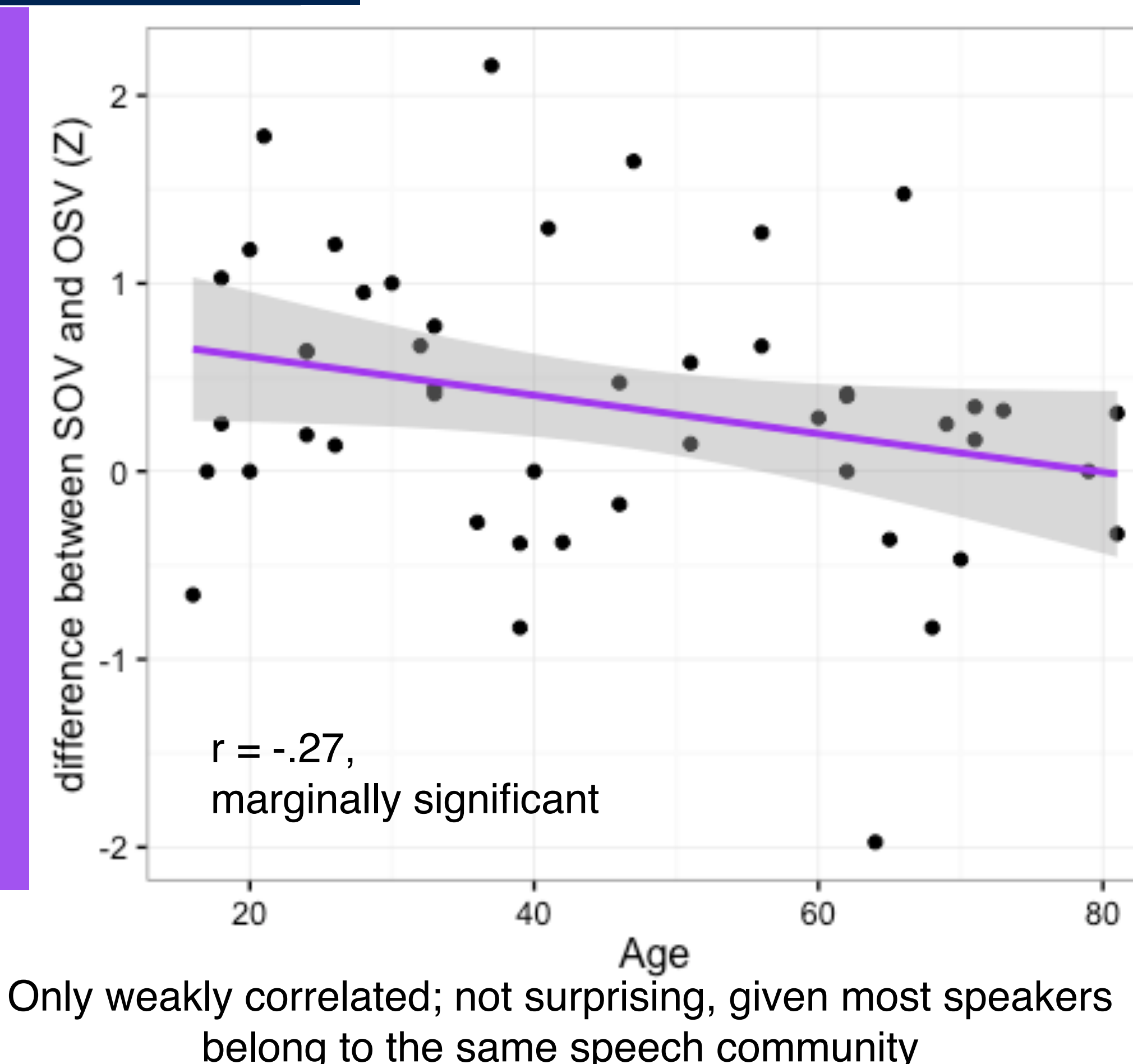
The younger group has a higher relative acceptability for the canonical SOV order: decreased flexibility.

Verb-medial orders are rated higher than expected based on previous work; likely due to heavy-NP shift

The difficulty associated with topicalization can be operationalized as the **size of the difference** between SOV and OSV; this **decreases** with age.

In **Figure 6**, each dot represents the mean difference between SOV and OSV for a given individual; a linear model was fit and the shaded areas represent 95% confidence intervals.

FIG. 6: TOPICALIZATION



Age does not affect each condition in the same way

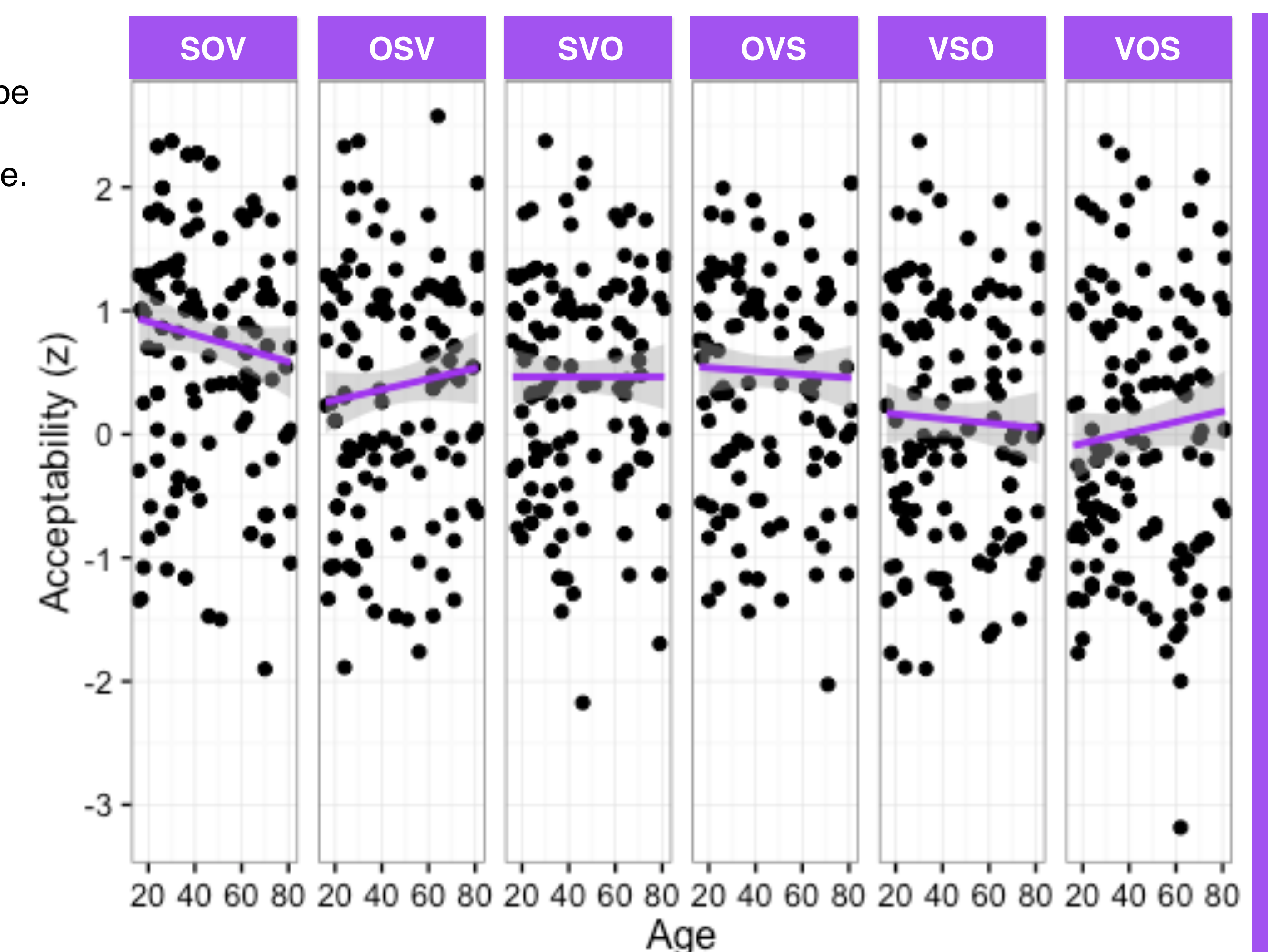
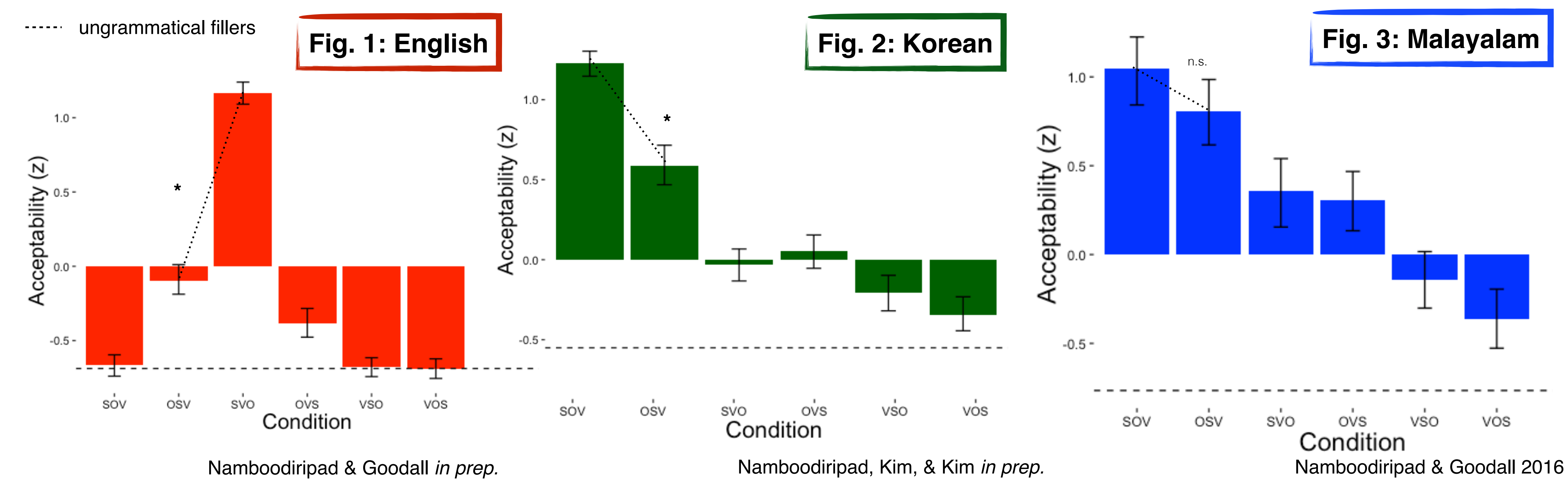


FIG. 5: AGE AS A CONTINUOUS VARIABLE

FIGS 1-3: OPERATIONAL DEFINITION OF FLEXIBILITY: RELATIVE ACCEPTABILITY OF CANONICAL ORDER



INCREASED FLEXIBILITY IN OLDER SPEAKERS IS LIKELY TO BE DUE TO DIFFERENCES IN LINGUISTIC SYSTEMS, AS OPPOSED TO COGNITIVE DECLINE

REFERENCES AND ACKNOWLEDGEMENTS

Fortescue, M. (1993). Eskimo word order variation and its contact-induced perturbation. *Journal of Linguistics*, 29:1–24; Heine, B. (2008). Contact-induced word order change without word order change. In Siemund, P. and Kintana, N., editors, *Language Contact and Contact Languages*, pages 33–60. John Benjamins; Kwon, N., Kluender, R., Kutas, M., & Polinsky, M. (2013). Subject/object processing asymmetries in Korean relative clauses: Evidence from ERP data. *Language*, 89(3), 537–585; Labov, W. (1972). *Sociolinguistic Patterns*. Philadelphia: University of Pennsylvania Press; Namboodiripad & Goodall (2016). Verb position predicts acceptability in a flexible SOV language. Poster at the 29th Annual CUNY Conference on Human Sentence Processing, Gainesville, Florida; Waters, S., Caplan, D. (2001). Age, working memory, and on-line syntactic processing in sentence comprehension. *Psychology and Aging*, Vol 16(1), 128–144; Weskott, T. and Fanselow, G. (2011). On the Informativity of Different Measures of Linguistic Acceptability. *Language*, 87:1–61

Thanks to the participants, to K. Leela, Sivaraman, K.P. Vishnu, K.P. Kunhunny, and to the members of the UCSD Experimental Syntax Lab for their valuable comments.

This research was funded in part by the UC San Diego Dean of Social Sciences Research Travel Grant.

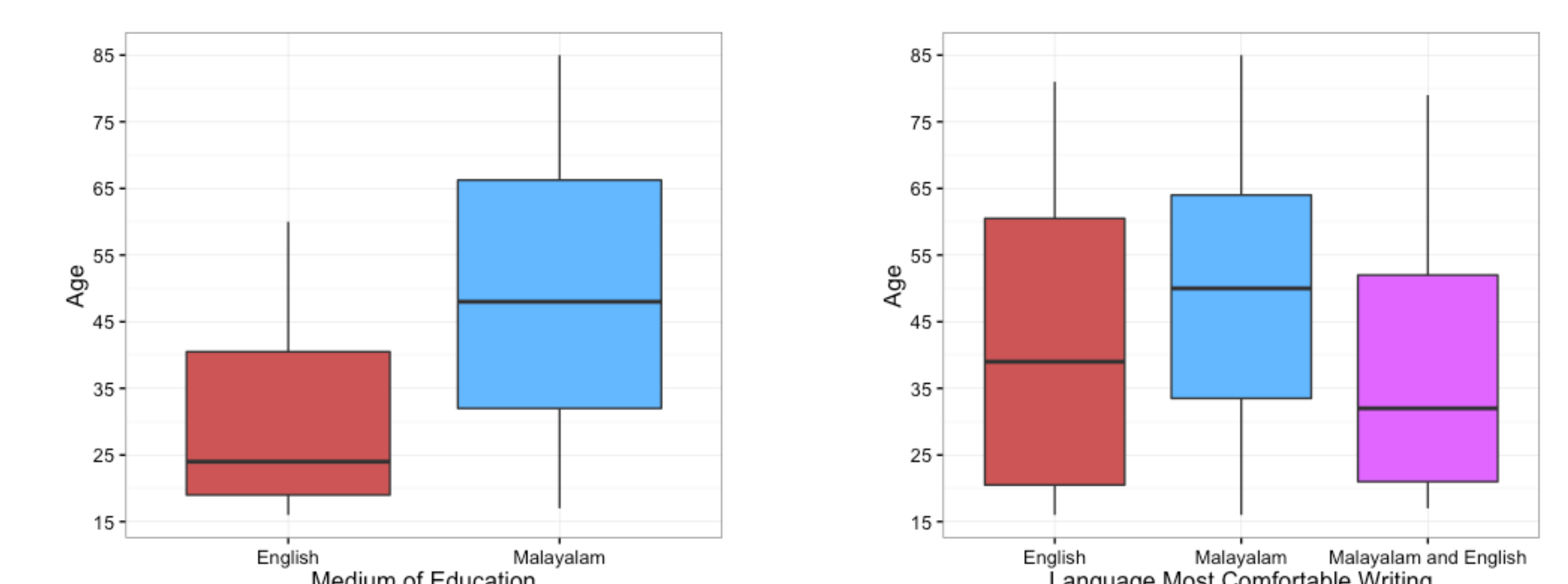
WHAT EXPLAINS THIS DIFFERENCE?

Aging? unlikely as age is associated with reduced acceptability and increased processing difficulty for complex constructions

Experience? If increased experience with non-canonical orders is leading to increased acceptability, all non-canonical orders should be affected.

Contact? Language contact is associated with reduced flexibility; younger speakers have increased and earlier experience with English

FIGS 7 & 8: AGE IS ASSOCIATED WITH CONTACT WITH ENGLISH



Language background interviews were conducted with 70 additional participants as part of a broader study of the speech community: confirmed that younger speakers have earlier and more sustained contact with English than do older speakers. Age is a proxy for a variety of other factors which contribute to variance.