The Emergence of Indexicality in an Artificial Language

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Background

In sociolinguistics, the term "indexicality" refers to the process of linking linguistic material to social information, from macro-level social categories (age, gender, ethnicity, etc.) to micro-level social categories (stances, qualities, etc) [1-3]. For instance, -in for -ing is associated with informality as well as Southerness in the U.S. context.

How do indexical associations emerge? This study uses a series of miniature artificial-language experiments to probe this question.
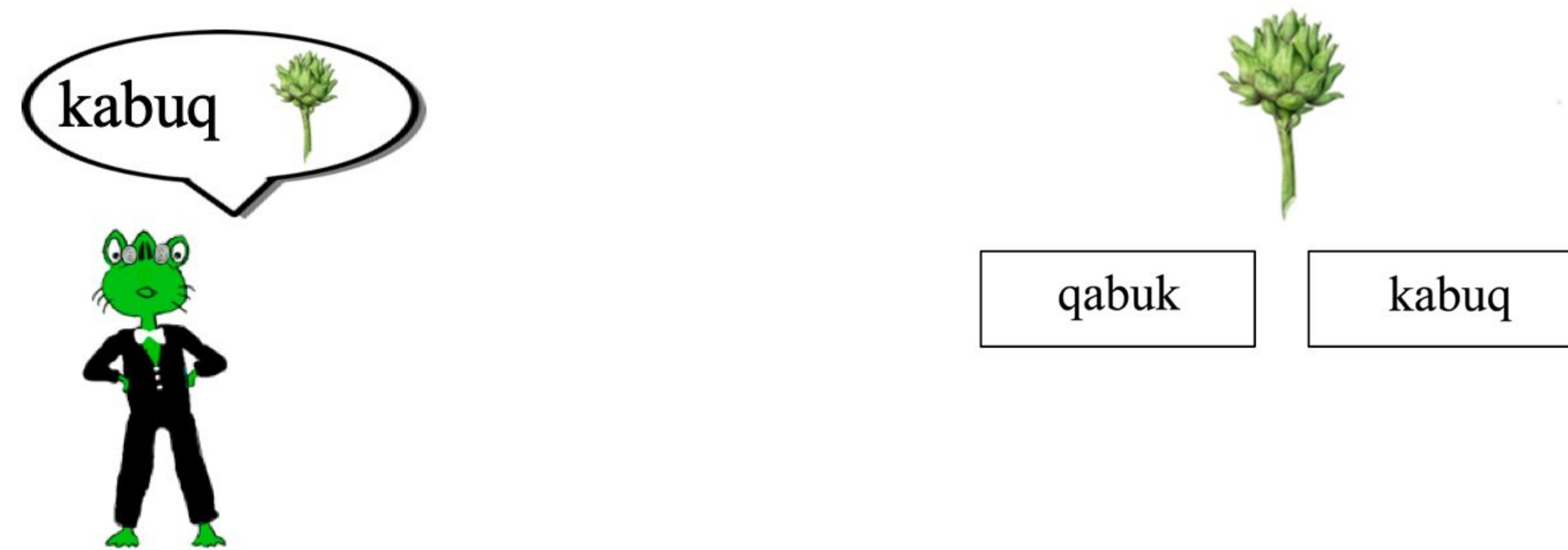
Method

- A miniature alien language with ten nouns and two plural suffixes (-gok and -dem).
- Two alien species (Nulus and Gilis) in two different ceremonial outfits (Black and Blue)

Nulus   *Gilis*

- **Procedure** (four phases):
  - *Familiarization*: to familiarize participants with the aliens and the outfits and ensure equal attendance to both
  - *Training*: to expose participants to the language
  - *Memory test*: to maintain attendance to both species and outfits
  - *Association test*: participants pair plural words with aliens and plural suffixes
- Training trials: Passive learning trials + forced-choice trials

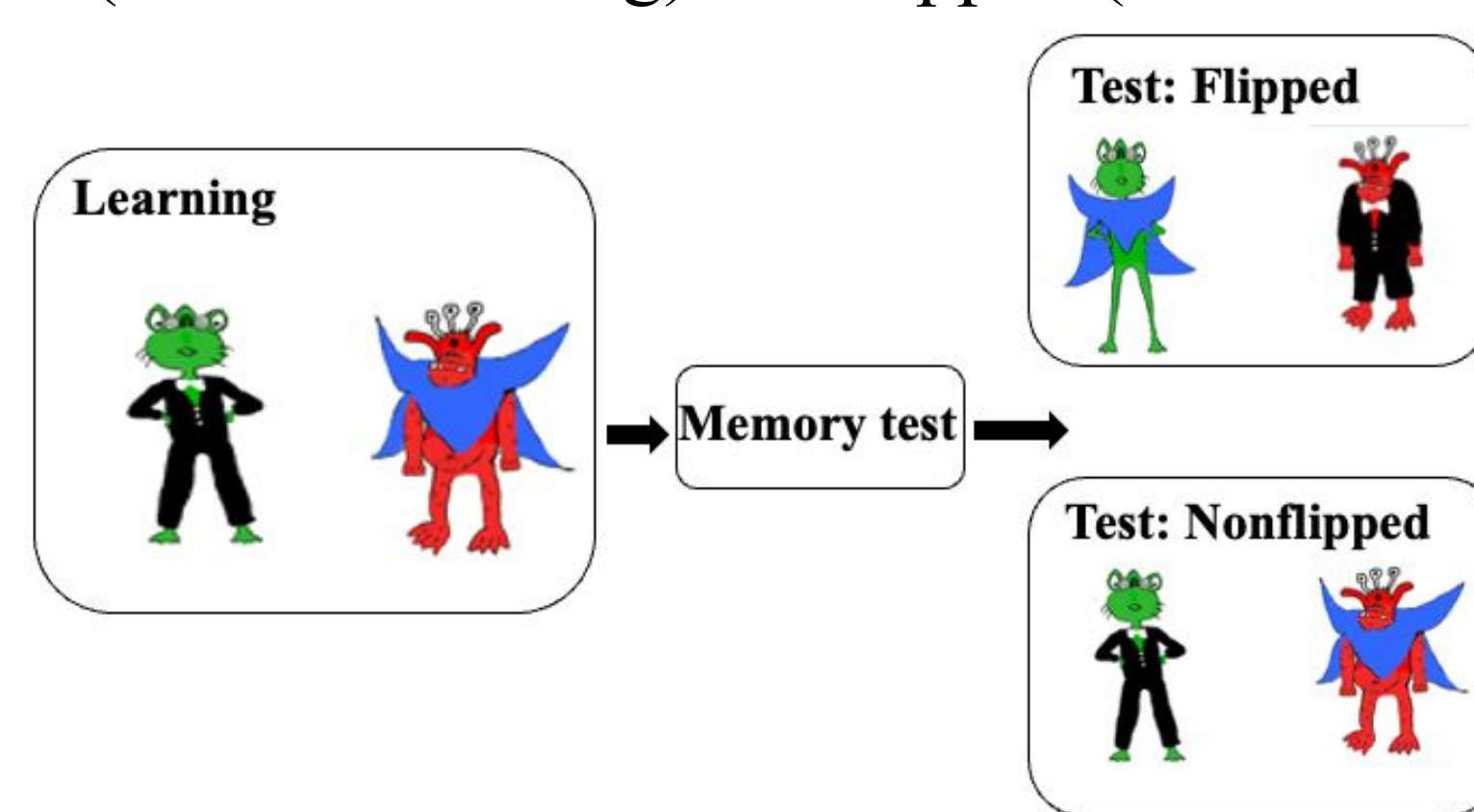- Association test trials: alien selection (left) + suffix selection (right)

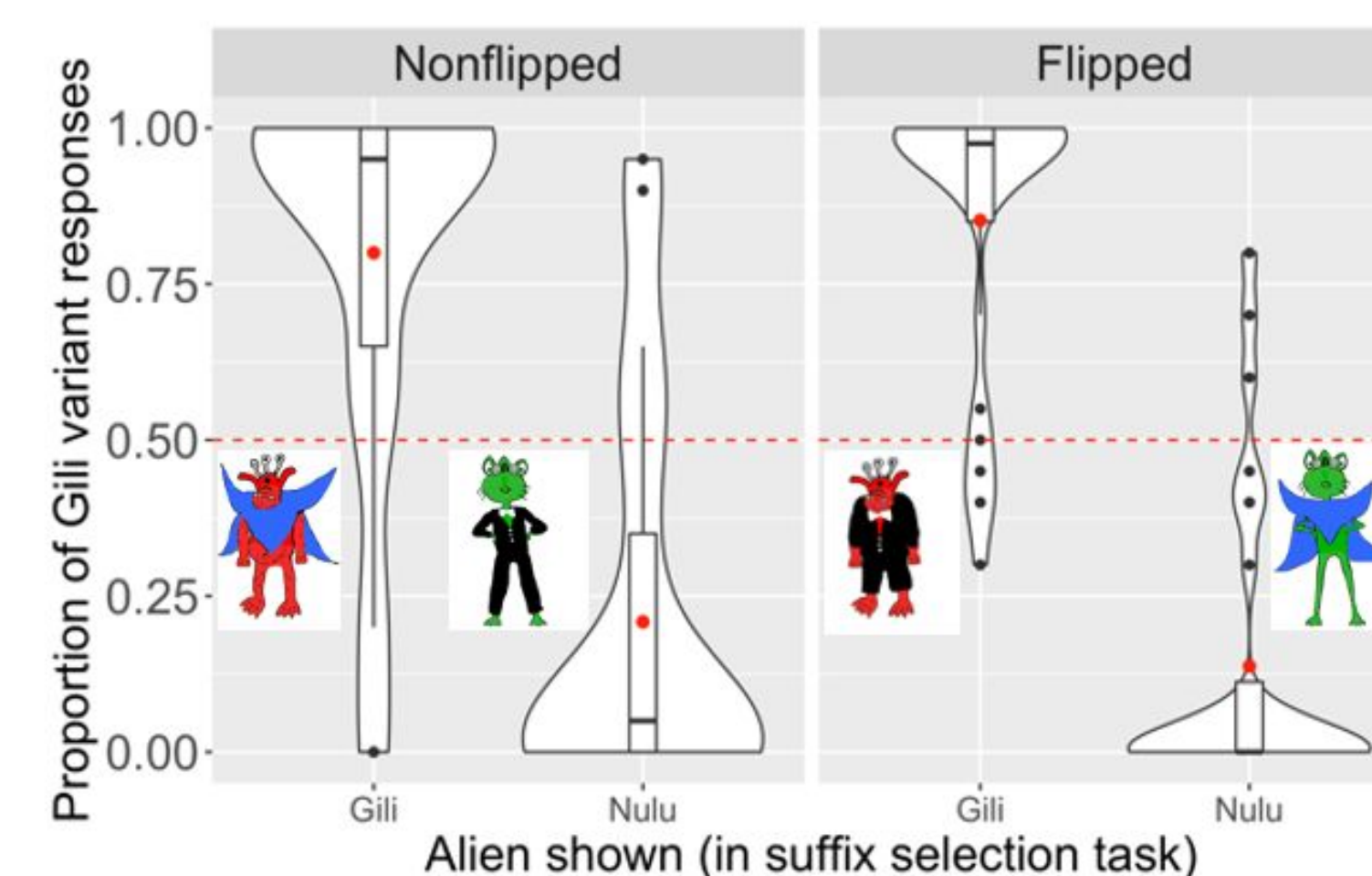Click on the alien that might have said the word   Click on the word that you think this alien might say.
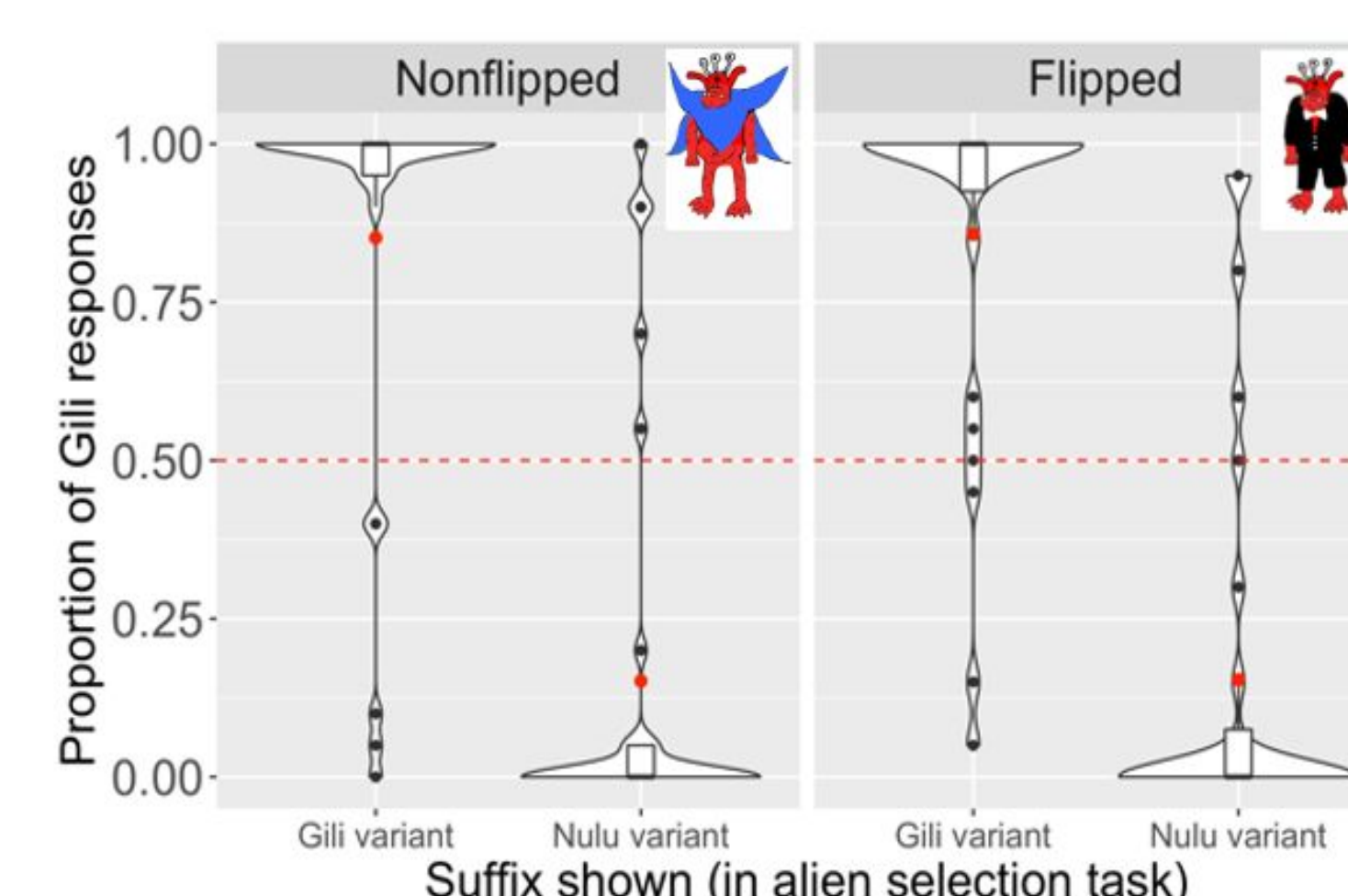
Experiment 1

- **Question**: Would participants acquire an equal association of the plural variants with both species and outfits?
- **61 participants** (24 female; 33 male; aged 18-54, median = 22)
- **Experimental conditions** (differed only in the association test phase):
  - Nonflipped (Same as training) vs. Flipped (Different from training)

- **Analysis**: Mixed-effects logistic regression models were fit separately for the two tasks:
  - Response ~ Condition (Nonflipped as the intercept) * Stimulus (Gili and the Gili Outfit as the intercept in suffix selection, and the Gili suffix as the intercept in alien selection) + (1| Participant) + (1| Word)
- **Results**: participants across conditions strongly associated plural endings with aliens, regardless of outfits. An interaction effect suggested a slight tendency to make a secondary association with outfits.
  - For SUFFIX SELECTION
  Significant Stimulus effect for alien and outfit stimulus (β=-2.71, p < .001).
  Significant Condition effect (β=0.36, p = .02 for alien stimulus and β= -3.22, p < .001 for outfit stimulus)
  The interaction between Stimulus and Condition was significant (β=-0.86, p < .01, for alien stimulus and β=0.63, p < .001 for outfit stimulus)

- For ALIEN SELECTION
Significant effect of Stimulus (β=-3.47, p < .001)
Significant effect of Condition only for outfit responses (β=-3.53, p < .001), not for alien responses (β=0.04, n.s.)
Significant interaction only for outfit responses (β=6.97, p < .001) but not for alien responses (β=-0.03, n.s.)
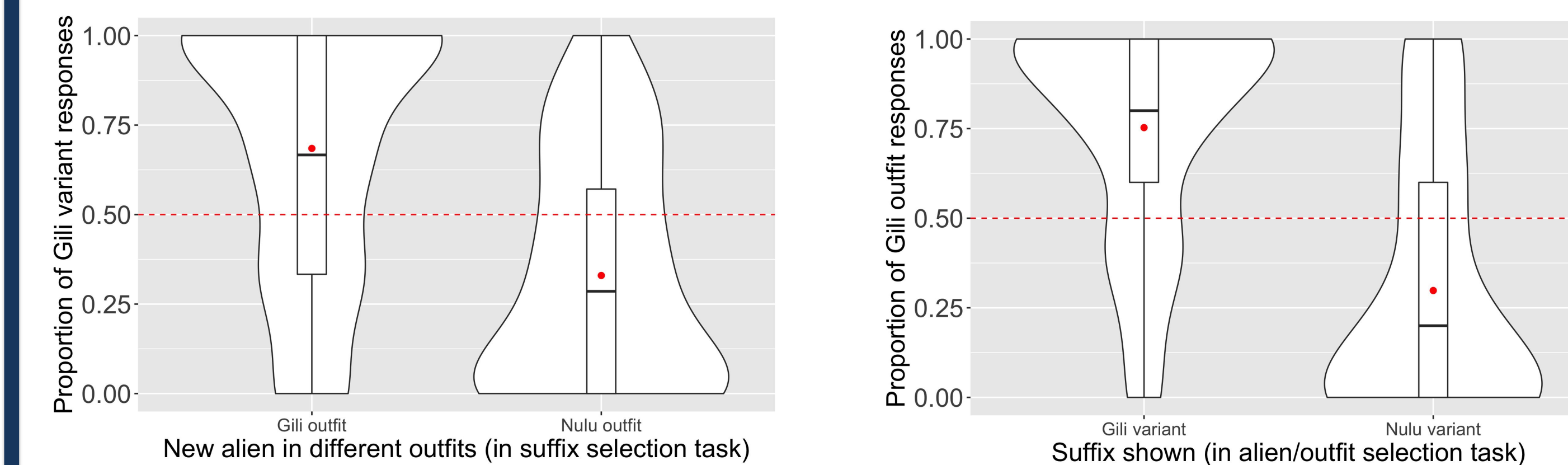

Experiment 2

- **Question**: Would participants generalize this secondary association with outfits to a new alien species introduced in the test phase?
- **59 participants** (26 female; 28 male; aged 18-54, median = 23)
- A new species in both outfits were introduced during the Association test:

- **Analysis**: mixed-effects logistic regression models were conducted for suffix and outfit selection for new alien species.
- **Results**: Participants extended associations between suffixes and alien species via clothing to previously unencountered aliens.

Discussion and Conclusion

- Experiment 1 suggested that participants tended to overwhelmingly associate the variable linguistic material with speaker groups rather than their qualities.
- Experiment 2 further suggested that participants would extend established associations to the new speaker group via shared qualities.
- Taken together, results suggest that indexicality may arise partly through (a) exposure to reliably co-occurring variables and (b) extension to new contexts in which the indexed trait is dissociated from the originally observed bearers.

References

[1] Silverstein, M. (2003). Indexical order and the dialectics of sociolinguistic life. Language & communication, 23 (3-4), 193–229.
[2] Eckert, P. (2008). Variation and the indexical field. Journal of Sociolinguistics, 12 (4), 453–476.
[3] Sneller, B., & Roberts, G. (2018). Why some behaviors spread while others don't: A laboratory simulation of dialect contact. Cognition, 170, 298–311.