



Exploring Adjective Ordering Preferences via Artificial Language Learning



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Background

Adjectives are subject to ordering preferences:

“the big blue plate” > “the blue big plate”

“the beautiful old house” > “the old beautiful house”

“the delicious boiling curry” > “the boiling delicious curry”

Scontras et al. (2017): The more **subjective** an adjective, the **farther** away from the noun it occurs

Question: What underlies this subjectivity effect?

Option 1: Speakers **productively** apply **semantic generalization**

Option 2: Speakers order adjectives based on the **statistics of the input**, which happens to correlate with subjectivity.

Approach

1. Participants learn **two Alien adjectives** whose meanings differ in subjectivity
2. indicate their **preference** among possible adjective orderings

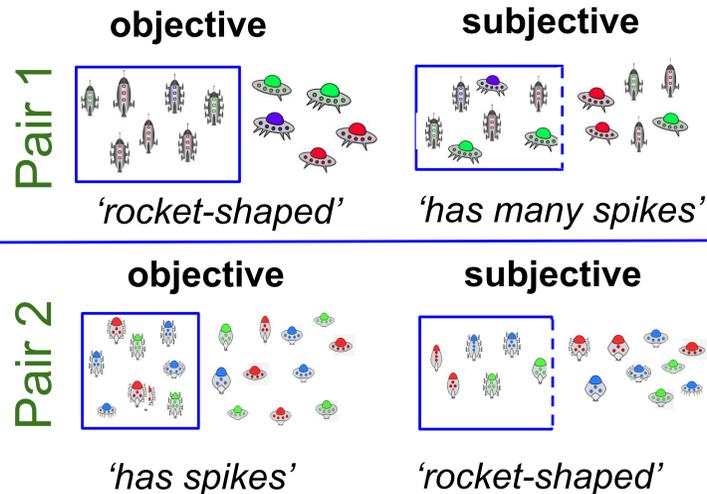
If speakers **productively** apply **generalization** based on subjectivity, they should prefer to place the **subjective** before the **objective** adjective.

If they order adjectives based on **statistics of input**, expect **no ordering preference** for novel adjectives

Experimental details

- Each participant learned **one pair** of adjectives.
- For each participant, two adjectives were sampled from pool of 60 **monosyllabic nonwords** (ARC Nonword Database)
- In ratings, adjectives were paired as **Alien+Alien**, **Alien+Color** {red, green, blue}, **Alien+Size** {big, small}
- Participants with comprehension accuracy < 85 % excluded (~ 10% across experiments and replications)
- After exclusion: comprehension & production success at ceiling
- At the end, participants rated **subjectivity of adjectives**.

Meaning Pairs



Experiment

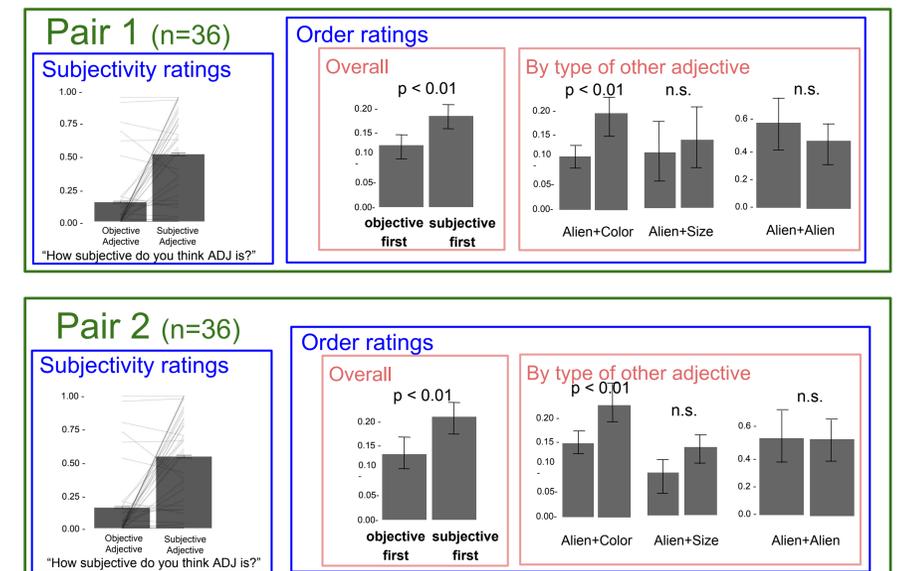
1. Exposure (16 trials)
 These spaceships are **olm**.
 These spaceships are quite **glab**.

2. Comprehension (48 trials)
 Click on the **olm** spaceship.
 Click on the **more glab** spaceship.

3. Production (55 trials)
 0 Points 100% Correct: the spaceship glab olm red green blue
 1 Points 100% Correct: olm green spaceship

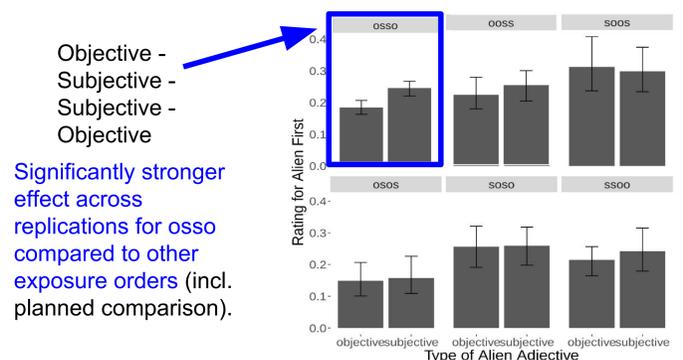
4. Order Ratings (25 trials)
 Which description of the spaceship sounds more natural?
 "the glab olm spaceship" vs "the olm glab spaceship"
 Adjust the slider to indicate your preference.

Results



Findings replicated with both pairs, varying different aspects of setup. Here we focus on **structure of exposure phase** and **choice of adjectives**.

1. **Mystery:** Effect size varies by **structure of exposure phase**:



2. Effect size varies between **pools of Alien adjectives**.

Conclusion

- Participants apply **subjectivity-based generalization** in order ratings
- Effect size varies with **choice of Alien adjectives** and with **structure of exposure phase** - why?

References: Scontras, G., Degen, J., & Goodman, N. D. (2017). Subjectivity Predicts Adjective Ordering Preferences. *Open Mind*, 1(1), 53–66. Sproat, R., & Shih, C. (1991). The cross-linguistic distribution of adjective ordering restrictions. In C. Georgopoulos & R. Ishihara (Eds.), *Interdisciplinary approaches to language*. (pp. 565–593). Dordrecht, Netherlands: Kluwer Academic.