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

<table>
<thead>
<tr>
<th>Pair 1</th>
<th></th>
<th>Pair 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective</strong></td>
<td></td>
<td><strong>Objective</strong></td>
</tr>
<tr>
<td>‘rocket-shaped’</td>
<td></td>
<td>‘has spikes’</td>
</tr>
<tr>
<td><strong>Subjective</strong></td>
<td></td>
<td><strong>Subjective</strong></td>
</tr>
<tr>
<td>‘has many spikes’</td>
<td></td>
<td>‘rocket-shaped’</td>
</tr>
</tbody>
</table>

Experiment

1. **Exposure** (16 trials)
2. **Comprehension** (48 trials)
3. **Production** (55 trials)
4. **Order Ratings** (25 trials)

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:
   - Objective - Subjective - Subjective - Objective
   - Significantly stronger effect across replications for osso compared to other exposure orders (incl. planned comparison).

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?