**Adjective ordering in Arabic: Post-nominal structure and subjectivity-based preferences**

Adults have a collective tendency to choose certain adjective orderings in sentences with multiple adjectives. For example, English-speaking adults prefer phrases like *fresh red apple* to phrases like *red fresh apple*, although they are unable to articulate why. Recent research demonstrates that subjectivity is a strong predictor of these preferences in English (Scontras et al., 2017; Hahn et al., 2018). In support of the cross-linguistic nature of subjectivity-based ordering preferences, Samonte & Scontras (2019) found such preferences in Tagalog, a language that uses a linking particle to form its multi-adjective strings. However, Rosales & Scontras (2019) failed to find any ordering preferences in Spanish, subjectivity-based or otherwise. Spanish stands apart from English and Tagalog in that its multi-adjective strings occur post-nominally and speakers prefer conjunction (e.g., *la manzana roja* ***y*** *fresca* 'the fresh and red apple'). We investigate the status of ordering preferences in Arabic, a language with post-nominal adjectives that does not require conjunction in the formation of its multi-adjective strings (e.g., *al-toffaha al-tazaja al-hamraa* 'the fresh red apple'). To our knowledge, Arabic adjective ordering has yet to be investigated.

**Experiment 1: Ordering preferences.** We replicated the methodology of Scontras et al. (2017) (also Samonte & Scontras, 2019; Rosales & Scontras, 2019), using Arabic translations of the materials. 24 native Arabic speakers indicated their preferred order for multi-adjective strings (e.g., 'fresh red apple' vs. 'red fresh apple'). The strings were random combinations of 25 adjectives from seven semantic classes. For each adjective, we computed a single preferred-distance measure, which indicates how far participants preferred the adjective from the modified noun. Figure 1 plots these preferred-distance measures grouped by semantic class; there, we see that Arabic does have stable ordering preferences, as evidenced in the significant deviation from chance for each of the seven semantic classes.

**Experiment 2: Subjectivity.** To examine whether Arabic ordering preferences are subjectivity-based, we then measured adjective subjectivity by replicating the faultless-disagreement methodology of Scontras et al. (2017) (also Samonte & Scontras, 2019; Rosales & Scontras, 2019) with Arabic translations. A faultless disagreement task asks participants to evaluate whether two speakers can be right while they disagree about a property description, or whether one of them must be wrong. 16 participants encountered scenarios in which two speakers see the same object but disagree on its description (e.g., whether or not some apple is 'fresh'). Participants were asked whether the speakers could both be right while disagreeing, or whether one must be wrong. The more the two speakers faultlessly disagree, the more subjective the adjective is. Figure 2 plots ordering preferences from Experiment 1 against these subjectivity scores; there, we see that subjectivity is a reliable predictor of adjective ordering in Arabic.

We have found that Arabic does have stable adjective ordering preferences, despite featuring post-nominal adjectives. Moreover, like English and Tagalog, these preferences are predicted by adjective subjectivity: less subjective adjectives are preferred closer to the modified noun. Returning to Spanish, our results suggest that conjunction, rather than post-nominal adjectives, is to blame for the absence of preferences.

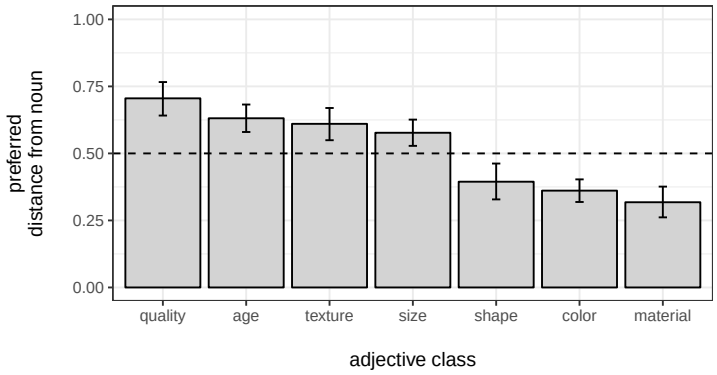


Figure 1. Naturalness ratings from Experiment 1 grouped by adjective semantic class. Higher values indicate that a class's adjectives are preferred farther from the modified noun; lower values indicate that a class's adjectives are preferred closer. The dashed line indicates chance level, or the absence of stable preferences. Error bars represent bootstrapped 95% confidence intervals drawn from 10,000 samples of the data.

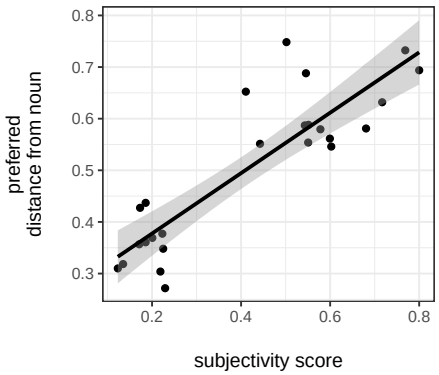


Figure 2. Ordering preferences obtained in the first experiment plotted against subjectivity scores for each of the 25 adjectives tested. Subjectivity accounts for 76% of the variance in the ordering preferences ($r^2 = 0.76$, 95% CI $[0.57, 0.88]$).

**References**


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