

## Cross-linguistic evidence for subjectivity-based adjective ordering preferences

Gregory Scontras, Zeinab Kachakeche, Austin Nguyen, Cesar Rosales, Suttera Samonte,  
Einat Shetreet, Yuxin Shi, Elli Tourtouri, Nitzan Trainin

Scontras et al. (2017) showed adjective subjectivity to be a robust predictor of ordering preferences in English: less subjective adjectives occur closer to the modified noun. In a phrase like *big blue box*, *blue* is perceived as less subjective than *big*, and so *blue* appears closer to the noun. In an attempt to explain this robust empirical generalization, several authors have proposed that ordering adjectives with respect to decreasing subjectivity maximizes communicative success (Hahn et al., 2018; Simonič, 2018; Franke et al., 2019; Scontras et al., to appear). These communicative-efficiency accounts predict that pressures delivering subjectivity-based preferences in English should apply broadly across languages. We present the largest-to-date experimental investigation of this prediction, exploring adjective ordering in a typologically-diverse set of eight languages. In each case, we find ordering preferences predicted by adjective subjectivity. Moreover, our results provide support for communicate-efficiency accounts based on the hierarchical structure of modification: In cases of restrictive modification, adjectives that compose with the nominal later will classify a smaller set of potential referents (e.g., the set of boxes vs. the set of blue boxes). To avoid alignment errors where a listener might mis-characterize the intended referent, speakers introduce the more error-prone (i.e., more subjective) adjectives later in the hierarchical construction of nominal structure; the structure linearizes such that subjectivity decreases the closer you get to the modified noun.

We tested ordering preferences in Arabic, Greek, Hebrew, Mandarin, Spanish, Tagalog, and Vietnamese. These languages differ on whether adjectives appear pre- vs. post-nominally, whether adjective modification surfaces with a linking particle (Scontras and Nicolae, 2014), and whether speakers prefer conjunction in the formation of multi-adjective strings. We also investigated preferences with conjunction in English, as well as the status of Arabic preferences in English-dominant heritage speakers. To measure ordering preferences, we replicated Expt. 1: *Ordering preferences* from Scontras et al. (2017) using translations of the original English materials. Participants indicated their preferences for pairs of multi-adjective strings formed from (up to) 26 unique adjectives from seven semantic classes; the pairs differed on the relative order of the adjectives. We then measured adjective subjectivity using a faultless disagreement task (cf. Expt. 1: *Faultless disagreement validation* from Scontras et al., 2017): to the extent that two speakers can be right while disagreeing about a property ascription, the property admits that degree of faultless disagreement, which indexes adjective subjectivity.

Comparing ordering preferences with subjectivity scores (Figure 1), we find subjectivity to be a robust predictor of ordering preferences in all but one case: Spanish multi-adjective strings formed via conjunction. The failure of subjectivity to predict ordering preferences for Spanish conjoined phrases arises because there are no preferences to predict: conjunction neutralizes ordering preferences in Spanish. In contrast to reports in the literature (Ford and Olson, 1975; Byrne, 1979), in English preferences weaken but persist in the presence of conjunction. One way to understand the conjunction result is that in languages where multi-adjective strings optionally feature conjunction (as in English), the regularity introduced in conjunction-less strings can bleed over to strings with conjunction. English speakers thus internalize the statistical ordering regularity from non-conjoined adjective strings and use that knowledge to inform preferences for conjoined strings. In Spanish, where multi-adjective strings often call for conjunction, there is less of a source for an ordering regularity that could be extended by analogy to the conjoined strings. In our talk, we will explore this notion, together with factors

explaining the observed cross-linguistic variability in the predictive power of subjectivity.

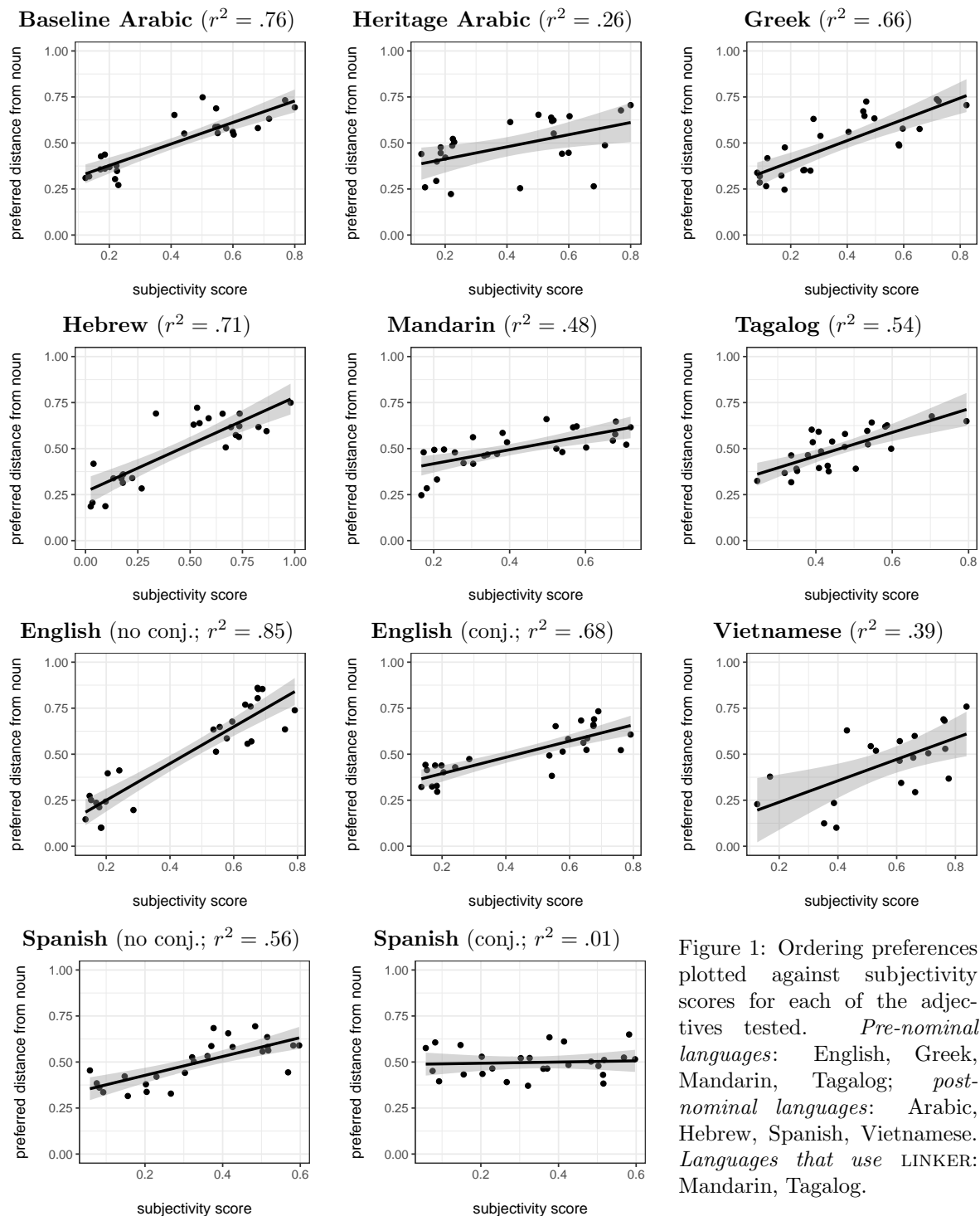


Figure 1: Ordering preferences plotted against subjectivity scores for each of the adjectives tested. *Pre-nominal languages*: English, Greek, Mandarin, Tagalog; *post-nominal languages*: Arabic, Hebrew, Spanish, Vietnamese. *Languages that use LINKER*: Mandarin, Tagalog.

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