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Do crosslinguistic differences in redundant adjective production depend on word order?
A crosslinguistic study

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When identifying objects with distinct colors and shapes, people often use color modifiers not necessary for object identification (Rubio-Fernandez, 2019), contrary to Gricean principles (Grice, Cole, & Morgan, 1975). Studies show that word order seems to influence redundant adjective production across languages (Jara-Ettinger & Rubio-Fernandez, 2022; Kachakeche, Futrell, & Scontras, 2021; Rubio-Fernandez, Mollica, & Jara-Ettinger, 2021; Wu & Gibson, 2021). For example, English speakers produce more redundant colour adjectives than Spanish speakers (Rubio-Fernandez et al., 2021; Wu & Gibson, 2021) but both groups of speakers produce the same amount of redundant number modifiers (Wu & Gibson, 2021). Color adjectives are prenominal in English but postnominal in Spanish while number modifiers are prenominal in both languages. We investigated whether the word order effect found before generalizes to color adjective and number adjective production in Chinese and French since color adjectives are prenominal in Chinese and postnominal in French and number adjectives are prenominal in both languages. We adapted materials from Wu and Gibson (2021)'s experiment to Chinese and French and reran parallel experiments on English and Spanish using color as well as number adjectives. The experiment involved English (N = 50), Mandarin Chinese (N = 51), Spanish (N = 49), and French speakers (N = 50) of similar age and education. 40 experimental items and 40 black and white filler items of concrete objects were distributed across two lists so that each participant had to provide descriptions of 40 items. Participants were asked to describe the surrounded object among other objects in a written task in order to help others to identify it (see figure 2). The descriptions were annotated for redundancy and analyzed with logistic regressions (glmer function of the lme4 package in R). The model shows that Chinese speakers are significantly less redundant than speakers of all other languages and French speakers are significantly more redundant than Chinese speakers and Spanish speakers (see table 1). We also found that redundant number modifiers were significantly more prevalent than color modifiers across languages (see table 1). However, word order preferences for adjectives cannot explain these effects since redundancy for postnominal French adjectives was actually more frequent than in all other languages. Considering the extensive literature on this topic, the absence of a word order effect was surprising. Additional experiments showed that the lack of a word order effect was neither due to slight variations in the instruction, nor the addition of fillers, nor on a higher number of items per participants in our experiments than in Wu and Gibson (2021).

We suggest that usage effects (following Bybee (2010)), in particular exposure to attributive adjectives may explain our results: if Chinese speakers use less adjectives as noun modifiers than English, Spanish and French speakers, they are less exposed to adjective use and therefore, they may produce less redundant adjectives in general. In order to test this adjective frequency hypothesis, we conducted a corpus study across Chinese, English, Spanish and French in written (Universal Dependencies Copora) and spoken corpora (Open Film Subtitles). The results suggest that adjectives are less frequent in Chinese compared to English, Spanish and French, and French adjectives are the most frequent within noun modification in the written modality (see figure 4). A possible reason for the low frequency of adjectives in Chinese speakers compared to other speakers may be the fact that there are no corresponding deverbal adjectives such as *masked*, *belted* in Chinese. We also found that adjective frequency in English is higher than that in Spanish (see figure 4), which might explain the previous observation that English speakers produce more redundant color adjectives than Spanish speakers. In conclusion, redundant adjective production seems to be a complex question, which seems to depend on multiple factors - among them possibly word order but also adjective frequency and language exposure in general.

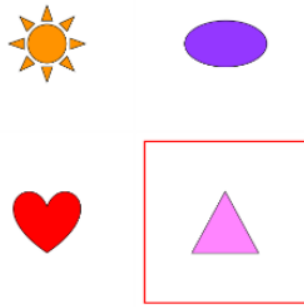


Figure 1: Color condition

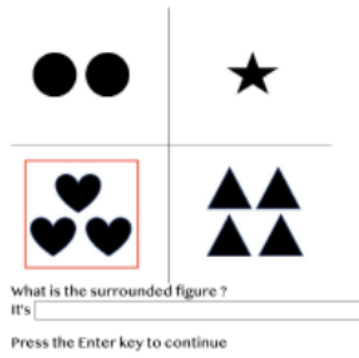


Figure 2: Completion task

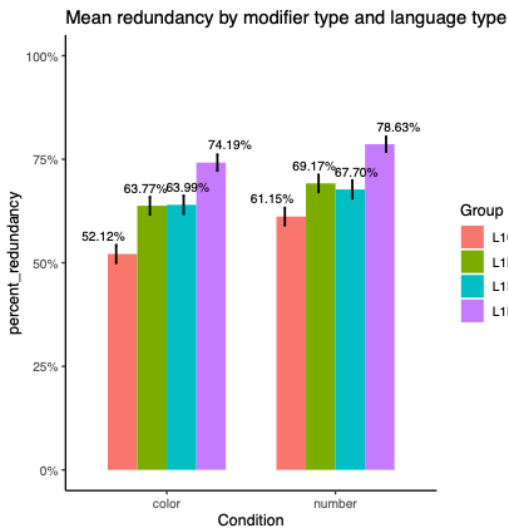


Figure 3: Redundancy rate

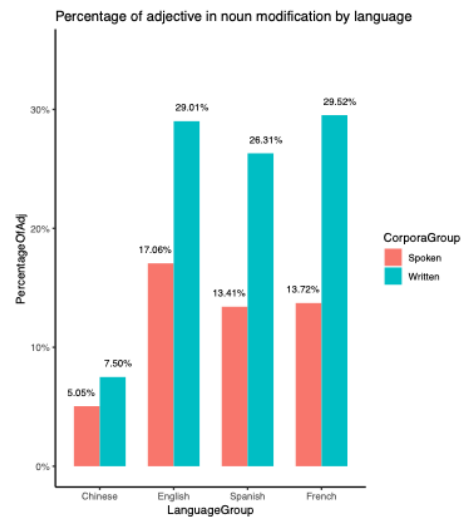


Figure 4: Adjective frequency within noun modification

Fixed effects	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	6.6497	1.1720	5.674	1.4e-08 ***
Modifier	2.0936	0.5789	3.616	0.000299 ***
LangGroupL1Chinese	-6.0152	1.5619	-3.851	0.000118 ***
LangGroupL1English	-2.5449	1.6197	-1.571	0.116129
LangGroupL1Spanish	-3.4754	1.5718	-2.211	0.027031 *
Modifier:LangGroupL1Chinese	-0.8708	0.7678	-1.134	0.256743
Modifier:LangGroupL1English	-0.1398	0.8378	-0.167	0.867519
Modifier:LangGroupL1Spanish	-1.0303	0.7376	-1.397	0.162469

Table 1: Regression model results: L1French as reference level

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