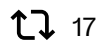**Ted Gibson, Language Lab MIT**
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Paper just accepted in Cognitive Science:

Word Order Predicts Cross-linguistic Differences in the Production of Redundant Color and Number Modifiers

by Sarah Wu & Edward Gibson

tedlab.mit.edu/tedlab_website...

10:25 AM · Dec 13, 2020

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When asked to identify objects having unique shapes and colors among other objects, English speakers often produce redundant color modifiers ("the red circle") while Spanish speakers produce them less often ("el circulo (rojo)").

(b) *Color condition: all different shapes and colors.*

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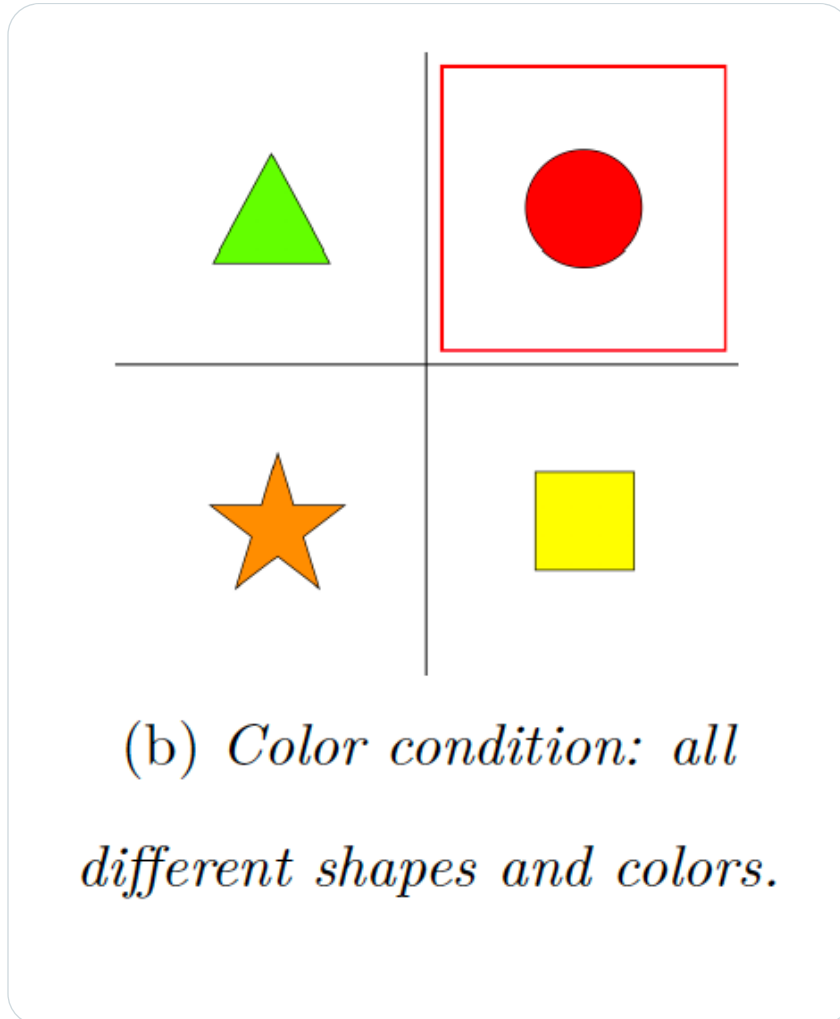
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Rubio-Fernández, Mollica, & Jara-Ettinger (2020, JEP General) propose a listener-centered "incremental efficiency hypothesis", such that speakers produce descriptions so that listeners can find them easily.

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Incr. efficiency: The diff betw Eng/Span comes from word order: Eng speakers tend to produce redundant color adjectives because color cues may help listeners' visual search; less useful in Span because producing noun ('circulo') should allow the listener to identify the object
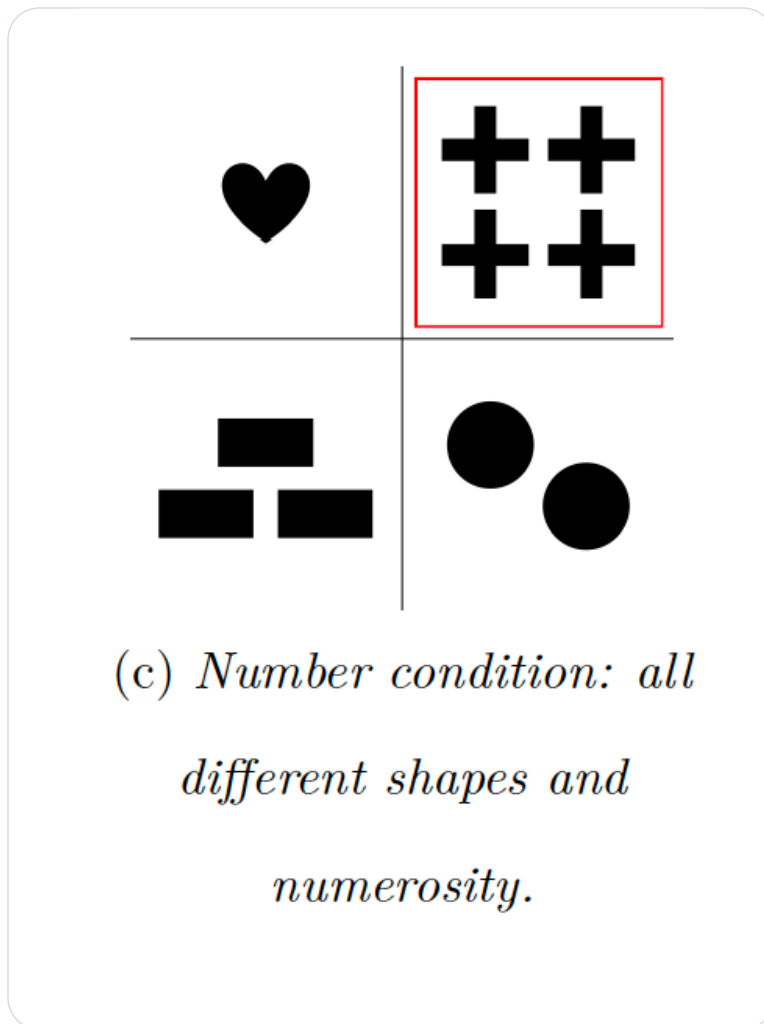
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Here we test the incremental efficiency hypothesis by having producers label descriptions for groups of different numbers of shapes, as in:

(c) *Number condition: all different shapes and numerosity.*

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Unlike color words, number words occur on the same side of the noun in Span / Eng ("four crosses"/"cuatro cruces"), so incr efficiency predicts producers are similarly likely to produce redundant number words across languages, and at a similar rate for Eng color words

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Note that without this experiment, it could just be that English speakers tend to be more redundant than Spanish speakers in all environments. So it's a useful control to demonstrate the specificity of redundancy in production.

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This is what we found: in a pre-registered MTurk experiment, we replicated the diff betw Eng / Span redundant color word production n=194 (Eng)/171(Span), and we saw no diff betw Eng/Span redundant number word production n=190(Eng)/164(Span), resulting in interaction
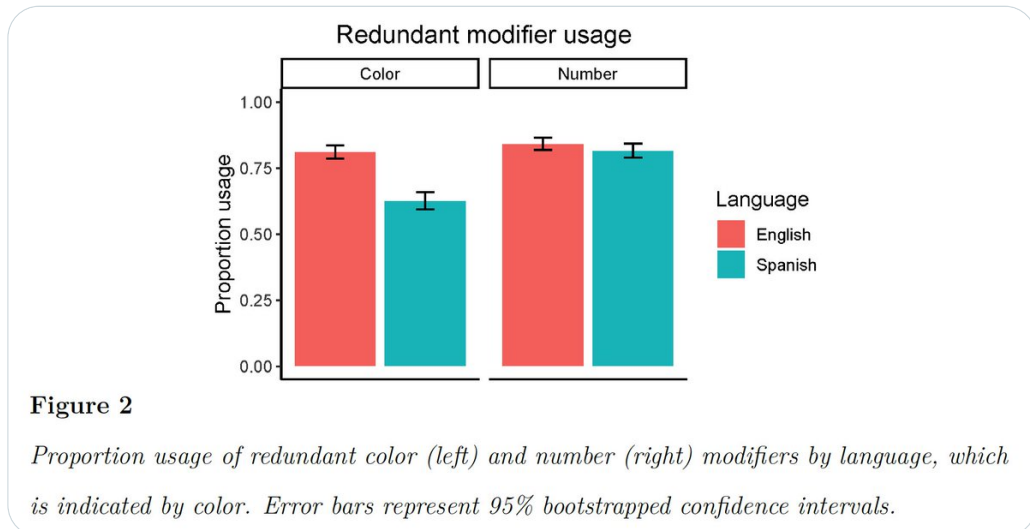

Figure 2

Proportion usage of redundant color (left) and number (right) modifiers by language, which is indicated by color. Error bars represent 95% bootstrapped confidence intervals.

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Rubio-Fernández et al's proposal is a listener-centric hypothesis. Zhan & Levy (2018) provide evidence from Mandarin classifier production that speakers produce referential descriptions based on the availability of particular words (Ferreira & Dell, 2000), not to help listeners

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We therefore propose a speaker-centered planning hypothesis: speakers produce descriptions incrementally by producing words for features that both distinguish the target from competitors and are visually salient, until they are satisfied that the object can be uniquely identified

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This project started from a class project at MIT in spring 2019. Rubio-Fernandez et al's expt was provided as an expt that students might replicate. Sarah planned and executed the test of the incremental efficiency hypothesis on her own. Sarah is now a grad student at Stanford.

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