# Generalizing speaker-specific 'stylistic' preferences

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Speakers can recognize inter-speaker variability in various pragmatic phenomena (e.g., uncertainty expressions [1], or under-specification of adjectives [2]) and to adapt to the speakers' different preferences of language use. In these cases, the motivation seems clear: such distinction facilitates the derivation of meaning from the utterances of a specific speaker. In this study, we asked whether speaker-specific adaptation can occur when the language use of different individuals does not entail different meanings, but instead is based on differences in pragmatic-stylistic preferences (see [5] for an account of syntactic-stylistic adaptation). We utilized the weak adjective ordering preferences in Hebrew, where two orders for three-adjective phrases are preferred to the same extent [3]. Thus, choosing to use one over the other does not convey a meaning modification.

Methods: Native Hebrew speakers (N=60) took part in a learning paradigm consisted of an exposure phase, where one speaker used a certain order and the other a different order, and an explicit test phase that tested whether the participants learned these speaker-specific preferences. The exposure phase included 3 between-subject conditions, differing in the adjective orders which were used (the two most common and natural for this combination of adjective classes: Noun-Size-Color-Pattern and Noun-Color-Size-Pattern, and the most deviant one: Noun-Pattern-Size-Color, based on [3]). In each group, participants were visually presented with 96 images of shapes which had 3 distinctive visual features: size, color and pattern (Figure 1), and had to judge whether they matched an auditory description which used varying adjective orders (based on the condition/speaker). In half of the cases, the descriptions matched the image, and in the other half, they did not. The auditory descriptions were recorded by a male (Yoav, a common Israeli male name) and a female (Naama, a common Israeli female name) to ease their discrimination. The characters always used the same adjective order in their 48 descriptions (counter-balanced across participants and conditions). 12 pseudo-randomized lists of 4 interleaved speaker blocks were used, counterbalanced for the first speaker's identity and for the first used adjective order. In the test phase, participants had to decide which speaker could have uttered written three-adjective phrases, similar to those in the exposure phase (Figure 2). Half of the descriptions included the adjective order consistent with the male speaker and half included the order consistent with the female speaker, presented in a randomized sequence.

Results: The conditions in which one common order was presented with the most deviant order yielded substantially more successful distinction than the condition where the two common orders were used (mean accuracy: Noun-Size-Color-Pattern/Noun-Pattern-Size-Color = 74.38%; Noun-Color-Size-Pattern/Noun-Pattern-Size-Color = 68.75%; and Noun-Size-Color-Pattern/Noun-Color-Size-Pattern = 48.13%) (Figure 3). A logistic regression model revealed that both conditions in which one of the orders was the deviant one yielded more accurate identifications of the speaker than the condition in which both speakers produced a common order (ps < 0.03). Post-hoc pairwise comparisons revealed that there was no significant difference between these two conditions ($p = 0.82$).

Discussion: When both speakers produced the most common and natural adjective orders in Hebrew (when using color, size and pattern adjectives), almost all the listeners were somewhat unaware of the different speakers' preferences, and could not attribute, on the test phase, a certain order to a certain speaker. However, when one of the speakers produced the most deviant order in Hebrew, most listeners correctly assigned each speaker with their preferred order. This suggests that listeners can detect speaker-specific language use, when such use deviates from common or natural use, at least when speakers are easily distinguishable from one another in their non-linguistic characteristics (male vs. female). It remains an open question whether successful adaptation is mediated by increased attention to the deviance (e.g., through surprisal-driven learning [4]), or whether the deviant order conveys not only a stylistic preference, but also a subtle change in meaning (e.g., changing the focus).
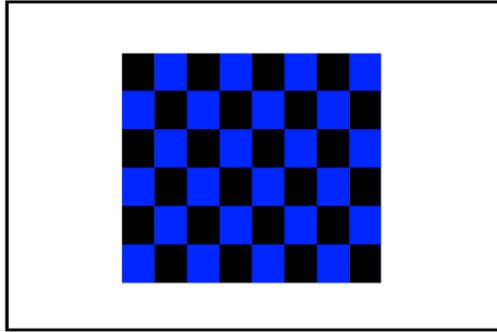
Figure 1. An example of a stimulus in the training phase. Each of the orders was produced either by Speaker A or by Speaker B. In half of the trials in the training phase the description and the image mismatched (one of the features was inappropriate for the image). Participants were required to press F if the description matched the image or K if it did not.
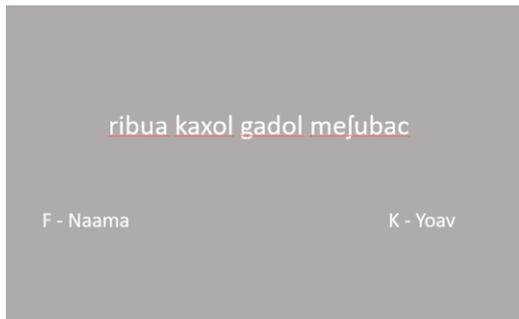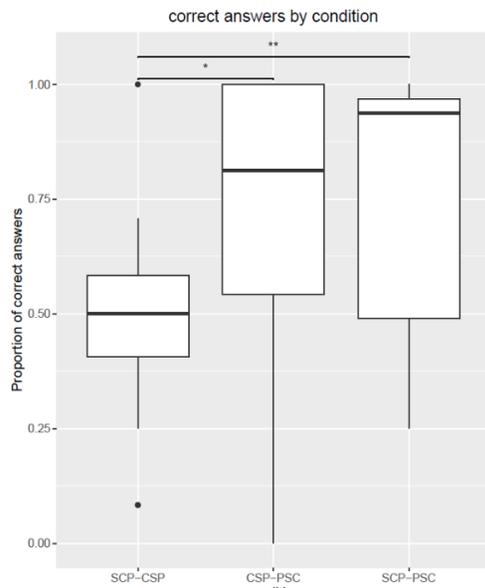

Figure 2. An example for a trial in the test phase. Participants were instructed to choose who of the speakers could have uttered the written descriptions. Originally, descriptions were presented in Hebrew with Hebrew letters.

References

[1] Schuster, S., & Degen, J. (2020). I know what you're probably going to say: Listener adaptation to variable use of uncertainty expressions. *Cognition*, *203*, 104285.

[2] Pogue, A., Kurumada, C., & Tanenhaus, M. K. (2016). Talker-specific generalization of pragmatic inferences based on under-and over-informative prenominal adjective use. *Frontiers in psychology*, *6*, 2035.

[3] Trainin, N., & Shetreet, E. (2020). It's a dotted blue big star: on adjective ordering in a post-nominal language. *Language, Cognition and Neuroscience*, 1-22.

[4] Lai, W., Rácz, P., and Roberts, G. (2020) Experience with a linguistic variant affects the acquisition of its sociolinguistic meaning: An alien-language-learning experiment. *Cognitive Science* 44(4): e12832.

[5] Ostrand, R., & Ferreira, V. S. (2019). Repeat after us: Syntactic alignment is not partner-specific. *Journal of memory and language*, *108*, 104037.

Figure 3. Correct answers in the trial phase, by condition. SCP = Noun-Size-Color-Pattern; CSP = Noun-Color-Size-Pattern; PSC = Noun-Pattern-Color-Size. SCP and CSP are the most common and natural adjective orders and PSC is the most uncommon and unnatural adjective order in Hebrew.