The rise and particularly fall of presuppositions: Evidence from duality in universals

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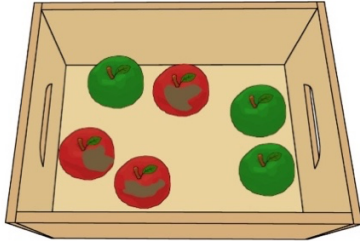* Saarland University, ° University of Graz

SYNOPSIS: Our paper contributes to the larger endeavor to use experimental linguistics to elucidate diachronic issues (cf. Zhang, Piñango & Deo 2018, Fedzechkina & Roberts 2020). We provide first experimental evidence regarding the direction in which language change proceeds regarding the historical loss or acquisition of presuppositions (PSP) in lexical material, a topic debated in the theoretical literature (e.g. Eckardt 2006, 2009 vs. Gergel 2020).

BACKGROUND: It has long been noticed diachronically that implicatures tend to conventionalize (and thereby disappear as implicatures), but tendencies of PSPs remain under-investigated. Eckardt (2006, 2009), treating implicatures and PSPs together, claims them (non-experimentally) to be subject to *Avoid Pragmatic Overload.* Simplifying: when there are too many side messages, dispense with them/some. One possible diachronic consequence that we *could* derive: (some) PSPs are prone to be <u>lost</u> over time. *Prima facie* contrarily, Gergel (2020) argues for a diachronic version of *Maximize Presuppositions*. A possible consequence we *could* derive: the marking of PSP triggers may be <u>increasing</u> over time. Since both approaches are theoretically well motivated in the diachronic context, novel experimental evidence would be welcome to help elucidate the debate.

GOAL: In this paper, we approach the issue precisely from such an experimental perspective, by focusing on reinterpretive learning of actual and potential PSP triggers in change following the assumption of Eckardt (2006) that semantic change is typically caused by adults and thus diachronic processes resemble of second, rather than first, language acquisition. Since this topic has never been experimentally discussed before, we start with an exploratory experiment on one single lexical item that shifts between the meanings of BOTH / ALL. Thereby we assume (Heim & Kratzer 1998) that words like *both* are universal quantifiers but additionally presuppose their restrictor cardinality to be two. Thus the theoretical issue is operationalized at the level of our study as follows: Will participants find it easier to re-acquire an item they learned as meaning BOTH used as ALL (both→all) or vice versa?

METHOD: We conducted an exploratory study with 25 native speakers of German (11m/14f) with mean age 23.1 (SD 3.2) from a South-Eastern-Region (in a German speaking country), split into two groups, which determined whether they would learn a nonce word *gure* in the meaning BOTH or ALL during training. Subsequently they were exposed to contexts leading to a reinterpretation towards the respective other meaning. Whence the denomination of the groups: *both→all* vs. *all→both*. Participants were asked to imagine visiting a fictitious community of German speakers in the US guided by a native speaker who studies with them in Vienna. To make this as plausible as possible, we used spoken stimuli produced in a remote and little prominent variant of a Mosel-Franconian (West-German) dialect. <u>Training</u>: Participants were first taught a non-word (*gure),* which would represent either BOTH or ALL, spoken by an older member of the community. This was done via example: they were presented images on a computer screen and then heard sentences containing the target non-word describing the situation. The old person would then tell the participants whether the sentence was true in the situation presented or not. If the sentence was not true, he in addition provided a reason why it was false. After three training items each, participants were asked to rate the truth of five sentences themselves (on a binary scale). After each judgement, they received written feedback from the older speaker whether their choice was correct. During training, all items were shown in fixed order. We also included six filler items containing two different non-words with no presuppositional meaning intended. Training was successful in all cases, we do not report results on the training phase here for lack of space. <u>Main experiment</u>: Participants were asked to imagine visiting a reunion of younger members of the community. There, two characters are of importance: their friend F, who having been abroad for some time is not up to date with current language developments (within the younger members of the community), and a high prestige competent local speaker S. In this context participants are faced with examples showing that *gure* is used by S precisely in the respective opposite meaning of what they learned from the old person (i.e. both→ all or vice versa). F, by contrast represents an older low-prestige stage of the language. Participants were again shown
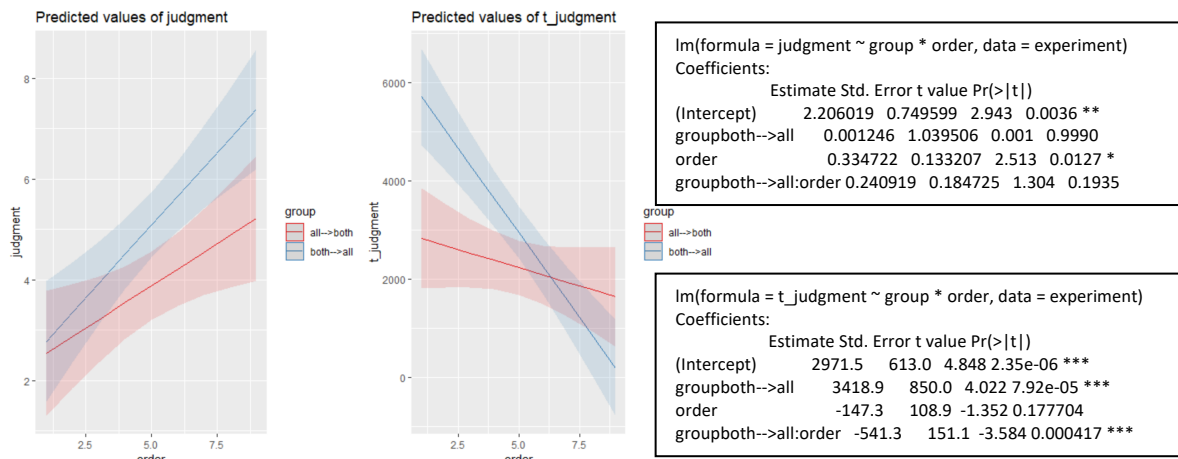
pictures and heard sentences containing the target word. The "BOTH and ALL conditions were met in half of the items each. Participants were then asked to rate their agreement for the sentence in the presented situation on a scale from 1 to 10. After rating, they read text from both younger speakers commenting on the situation (but not explicitly the truth of the sentence), with either both agreeing or one of them remarking they found something odd. The translation of an example item is shown below.

Someone utters: *Gure red apples are rotten.*
Task: Rate acceptability on a scale from 1 to 10.

all→both:

S: That's not right. "Gure" is something my grandma would say in this case!

both → all:

F: Didn't she see the third apple?

S: Why? She said *gure*. She was right

RESULTS: We analyzed the data with a linear model with group and order of test items as predictors and judgment values and times as dependent variables in R (plotting with Lüdecke 2021). These jointly provide a good overall insight into the speed of learning the new usage of *gure* in the younger community.


```
lm(formula = judgment ~ group * order, data = experiment)
Coefficients:
                    Estimate Std. Error t value Pr(>|t|)
(Intercept)         2.206019 0.749599 2.943  0.0036 **
groupboth-->all     0.001246 1.039506 0.001  0.9990
order               0.334722 0.133207 2.513  0.0127 *
groupboth-->all:order 0.240919 0.184725 1.304  0.1935
```

```
lm(formula = t_judgment ~ group * order, data = experiment)
Coefficients:
                    Estimate Std. Error t value Pr(>|t|)
(Intercept)         2971.5   613.0 4.848 2.35e-06 ***
groupboth-->all     3418.9   850.0 4.022 7.92e-05 ***
order               -147.3   108.9 -1.352 0.177704
groupboth-->all:order -541.3  151.1 -3.584 0.000417 ***
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The graphs show model predictions of judgment and judgment time respectively depending on the order in which target items were presented in the main experiment. Left-hand graph: Low values of judgment represent accepting the nonce word as learned during training, while higher values mean participants accepted the new meaning introduced by the competent young speaker. There is a tendency of learning the *both→all* direction of reinterpretation more quickly and reliably, however this interaction did not come out significant in the model. Right-hand: Higher judgment times in the early phase suggest that progress through repetitions facilitates a speeding-up in the experiment which amounts to learning effects. The linear model shows the group:order interaction is highly significant. The two findings converge, in that the direction of reinterpretation PSP→non-PSP usage takes place at a higher speed than the opposite one.

DISCUSSION: This is a novel finding given the theoretical literature discussed above. It suggests this direction of language change (PSP→no-PSP) is the more likely one. Of course, given a number of limitations of our experiment, this suggestion is very preliminary: we only studied one item, our results are only significant for the judgment times and for the particular item used, etc. However, our experiment paves the way towards a novel paradigm of language change - semantic language processing interface much in line with studies of change (from different perspectives) such as Zhang, Piñango & Deo 2018, Fedzechkina & Roberts 2020, and others.

SELECTED REFERENCES: Eckardt, R. 2006. *Meaning Change in Grammaticalization*. OUP. || Fedzechkina, M., & Roberts, G. 2020. Learners sacrifice robust communication as a result of a social bias. https://doi.org/10.31219/osf.io/usfhz. || Gergel, R. 2020. Sich ausgehen: Actuality entailments and further notes from the perspective of an Austrian German motion verb construction. *Linguistic Society of America*, 5(2), 5-15. || Lüdecke, D. 2021. sjPlot: Data Visualization for Statistics in Social Science. https://CRAN.R-project.org/package=sjPlot ||

Zhang, M., M. Piñango & A. Deo. 2018. Real-time roots of meaning change: Electrophysiology reveals the contextual-modulation processing basis of synchronic variation in the location possession domain. *40th Annual Conference of the Cognitive Science Society*, 2783–2788.