Vagueness, presupposition and truth-value gaps: An empirical investigation

Jérémie Zehr, University of Pennsylvania, Florian Schwarz Lab

Summary. The present study felicitously adapts [3]’s design eliciting truth-value gaps in situations of non-homogeneity to the investigation of vagueness and presupposition. We observed truth-value gaps related to both phenomena, but we also obtained patterns of answers specific to each phenomenon. Our results call for further comparative studies.

Background. Even though experimental methods have recently gained much interest for the investigation of presupposition (e.g. [4]), only [1]’s study seems to have investigated the non-bivalent aspect of speakers’ truth-value judgments in situations of presupposition failure, despite several accounts positing a truth-value gap for sentences with unfulfilled presupposition. In the same time, experimental studies on vagueness show that speakers accept constructions like “neither tall nor not tall” to describe men of an average height (e.g. [2]), but only [5]’s study seems to have investigated the non-bivalent aspect of speakers’ truth-value judgments in situation of vagueness, despite several accounts positing a truth-value gap for descriptions of borderline cases. [3] have felicitously used a new experimental design to elicit truth-value gaps in cases of non-homogeneity. We adapted their design for a comparative investigation of vagueness and presupposition.

Experimental Design. We designed an experiment to examine speakers’ judgments about vague and presuppositional sentences as well as their negative counterparts in specific critical situations.

Figure 1: Two stimuli and the results of the experiment. For each participant, we calculated the proportion of choices of each button over the five repetitions in each condition. The graphs report the mean proportions over participants in the critical conditions (determined by the boxed frame).

Participants were presented with pictures of three objects, side by side, along with a sentence (Fig. 1). Participants were asked to judge, by clicking on one of three buttons – Completely false, Completely true and Neither – whether the sentence was an appropriate description of the object in the box. 50 participants were recruited via Amazon Mechanical Turk; each saw 5 trials of each type of sentence (vague vs. presuppositional) in both polarities (affirmative vs. negative).

Predictions. The experimental literature on vagueness and [5] in particular suggests that we should observe a strong tendency towards Neither for the vague descriptions in either polarity. Regarding presupposition, [1] observed a majority of False judgments and few True and Can’t say judgments for the affirmative sentences in their baseline conditions, but the proportions of the latter increased for the negative counterparts. On the basis of these results, we expected to observe a majority of Neithers for both the affirmative and the negative vague descriptions, and a global tendency towards
Completely false for the presuppositional descriptions, with a greater proportion of Neither and Completely true for the negative than for the affirmative descriptions.

Results. The predictions for vagueness were borne out (Fig. 1(a)). We did not replicate the results of [1]: participants mostly answered Neither and Completely false for both the affirmative and the negative presuppositional descriptions (Fig. 1(b)). A posteriori analyses show that two stimuli grouped apart and were mostly responsible for the observation of Completely true for the affirmative presuppositional descriptions (Fig. 2). We claim that their specificities favored a process of global accommodation. Once we exclude these stimuli, we note a decrease of Completely false and a slight increase of Completely true and Neither for the negative descriptions (see Fig 3).

![The water has (not) stopped flowing](image1)

![It has (not) stopped snowing](image2)

Figure 2: Two presuppositional stimuli that yielded deviant answers. Some participants may have viewed these sequences as describing cycles, resulting in the accommodation of the presupposition.

Figure 3: Comparison between homogeneity (data from [3]), vagueness and presupposition.

Discussion. These results show that [3]’s design can be felicitously extended to the investigation of vagueness and presupposition, as we observed Neither for both types of descriptions, and that it distinguishes vagueness from presupposition, as the patterns of answers were different across the description types. In the affirmative conditions, [3]’s results seem to pattern with our results for the vague descriptions. Interestingly, negation interacts with each phenomenon in a specific way: it seems to have no impact with vagueness, to lower the rate of Completely false with presupposition and to increase the rate of Completely false with homogeneity. A study directly comparing the three phenomena remains to be conducted to draw conclusions on how they might be connected. This design and our results in particular also call for an investigation of the interactions between vagueness, presupposition and homogeneity. One could examine sentences like (1) in contexts where no amplifier was soft before but where some were just borderline loud. A pattern of answers matching one of those from Fig. 3 would inform us on the relative processing of these phenomena.

(1) a. The amplifiers are still loud. b. The amplifiers are not loud anymore.
References