Ignorance and Exclusivity in Semi-Cooperative Contexts

Background In ordinary conversations, disjunctive sentences like (1) give rise to EXCLUSIVITY and IGNORANCE inferences. Disjunctive sentences embedded under a negative factive, like (2), have been argued to give rise to parallel inferences at the presupposition level (Marty & Romoli 2021, Spector & Sudo 2017, a.o.). In semi-cooperative contexts, however, IGNORANCE inferences normally drawn from such sentences are cancelled. Thus, in the context of a game show, (1) can be felicitously uttered by a host who is known to know in which boxes there is money. These contexts have recently been discussed as a challenge for the pragmatic view (Fox 2014, Agyemang 2020). On this view, the cancellation of IGNORANCE is explained if the Maxim of QUANTITY is deactivated. This predicts in turn that EXCLUSIVITY, which also depends on QUANTITY, should be also cancelled. Fox (2014), however, argues that EXCLUSIVITY is still derived: intuitively, (1) would be a misleading hint if it turns out there is money in both boxes, unlike a variant of (1), where EXCLUSIVITY is blocked by the addition of 'or both'. Agyemang (2020) offers experimental data in support of this intuition. Testing Fox's game scenarios in a forced-choice task, Agyemang found that, compared to the 'or both'-variant, people were significantly less likely to pick one of the two boxes after hearing (1) when the contestant before them picked one of them and won money (78% vs. 61%). This suggests that (1) can still give rise to EXCLUSIVITY in contexts where QUANTITY is deactivated. We argue, however, that these findings can receive another explanation: EXCLUSIVITY may follow from general assumptions as to how games work. Specifically, hearers may assume that, in order to increase the interest of the game, the game actions most favored by a hint (e.g., choosing box 20/box 25) must not all lead to a winning outcome. This explanation would account for the contrast between (1), where this assumption leads to EXCLUSIVITY, and its variant where this assumption is blocked by 'or both'. Next, we note that the questions of the existence and source of EXCLUSIVITY in semi-cooperative contexts carry over to presuppositional cases, where pragmatic approaches predicts PRESUPPOSED IGNORANCE and PRESUPPOSED EXCLUSIVITY to go together. Thus, in contexts where PRESUPPOSED IGNORANCE is cancelled, do sentences like (2) still give rise to PRESUPPOSED EXCLUSIVITY? And if so, does this inference arise through scalar reasoning or follow from game-related assumptions?

Experiments. We report on two experiments, building on Agyemang's study, inquiring into the source of EXCLUSIVITY in game scenarios and extending this research to presuppositional cases. Exp.1 adds to Agyemang's MONEY conditions (Table 1, A) novel control conditions testing whether the contrasts between OR and OR-BOTH reproduce in set-ups where choosing the alternative-box (e.g., box 25) is *strongly discouraged* by the game rules. In these conditions (Table 1, B), contestants received hints about which boxes are associated with slime: if they picked a wrong box, they were slimed and left the game. If EXCLUSIVITY remains available in these cases, participants should nonetheless prefer the 'alternative-box' option (e.g., box 25) after getting OR than OR-BOTH hints when the contestant before them picked one of the two boxes and got slimed. Exp.2 tested the presuppositional variants of the OR and OR-BOTH hints from Exp.1 in both the MONEY (Table 1, C) and the SLIME conditions (Table 1, D). Hint and Game type were manipulated between subjects, and Previous outcome (whether the previous contestant WON vs. LOST) was manipulated within subjects.

Main results. Results from Exp.1 ($n = 200$) replicate Agyemang's results (MONEY conditions) and show that the target contrasts reproduce in SLIME conditions: people were far more likely to choose the alternative-box after hearing OR than OR-BOTH when the previous contestant picked the other box and lost (74% vs. 27%), despite the strong incentive to choose any other box in these cases. Results from Exp.2 ($n = 200$) are entirely parallel to those from Exp.1: in the MONEY conditions, people strongly preferred to choose any other box upon hearing OR when the previous contestant picked one of the two boxes and found money (27% vs. 70%) whereas, in the SLIME conditions, they strongly preferred to choose the alternative-box in the same critical conditions (60% vs. 20%).

Discussion Our studies make two contributions. First, our results replicate Agyemang's (2020) findings and, consequently, confirm Fox's original judgments while ruling out an independent account explaining EXCLUSIVITY in terms of game-related assumptions. Second, our results extend these findings to presuppositional cases like (2) where similar inference types have been identified, raising a challenge similar to Fox's (2014) original challenge for recent proposals extending the pragmatic approach from the assertion to the presupposition level. We will discuss potential responses from the perspective of the pragmatic approach for both the assertive and presuppositional cases.

(1) There is money in box 20 or 25.
  a. EXCLUSIVITY: *There isn't money in both box 20 and 25*
  b. IGNORANCE: *The speaker doesn't know whether there is money in box 20 and doesn't know whether there is money in box 25*

(2) Previous contestants were unaware that <u>there is money in box 20 or 25</u>.
  a. PRESUPPOSED EXCLUSIVITY: *There isn't money in both box 20 and 25*
  b. PRESUPPOSED IGNORANCE: *The speaker doesn't know whether there is money in box 20 and doesn't know whether there is money in box 25*

A. Example ASSERTIVE items in MONEY conditions (Exp.1, replication of Agyemang's)
There are 100 numbered boxes in total, and 5 of them contain a million dollar prize. The host tells the first contestant that there is money in {box 20 or 25 (OR) / box 20 or 25, or both (OR-BOTH)}. The contestant picks box 20 and {finds a million dollars (WON) / does not win any money (LOST)}.

B. Example ASSERTIVE items in SLIME conditions (Exp.1, novel)
There are 100 numbered boxes in total, and 5 of them are associated with slime. The host warns the first celebrity that slime is associated with {box 20 or 25 (OR) / box 20 or 25, or both (OR-BOTH)}. The celebrity picks box 20 and {nothing happens (WON) / is slimed (LOST)}.

C. Example PRESUPPOSITIONAL items in MONEY conditions (Exp.2, novel)
There are 100 numbered boxes in total, and 5 of them contain a million dollar prize. The host tells the remaining players that previous contestants were unaware that there is money in {box 20 or 25 (OR) / box 20 or 25, or both (OR-BOTH)}. The contestant picks box 20 and {finds a million dollars (WON) / does not win any money (LOST)}.

D. Example PRESUPPOSITIONAL items in SLIME conditions (Exp.2, novel)
There are 100 numbered boxes in total, and 5 of them are associated with slime. The host warns the remaining celebrities that previous contestants were unaware that slime is associated with {box 20 or 25 (OR) / box 20 or 25, or both (OR-BOTH)}. The celebrity picks box 20 and {nothing happens (WON) / is slimed (LOST)}.

Imagine you are the next player in this game. The host does not give you any more information.
Which action are you most likely to take? | Choose box 25 | | Choose any other box |

Table 1: Example items illustrating the experimental conditions in Exp.1 (A,B) and Exp.2 (C,D). Participants chose one of two options: the alternative-box (e.g., box 25) or any other box.
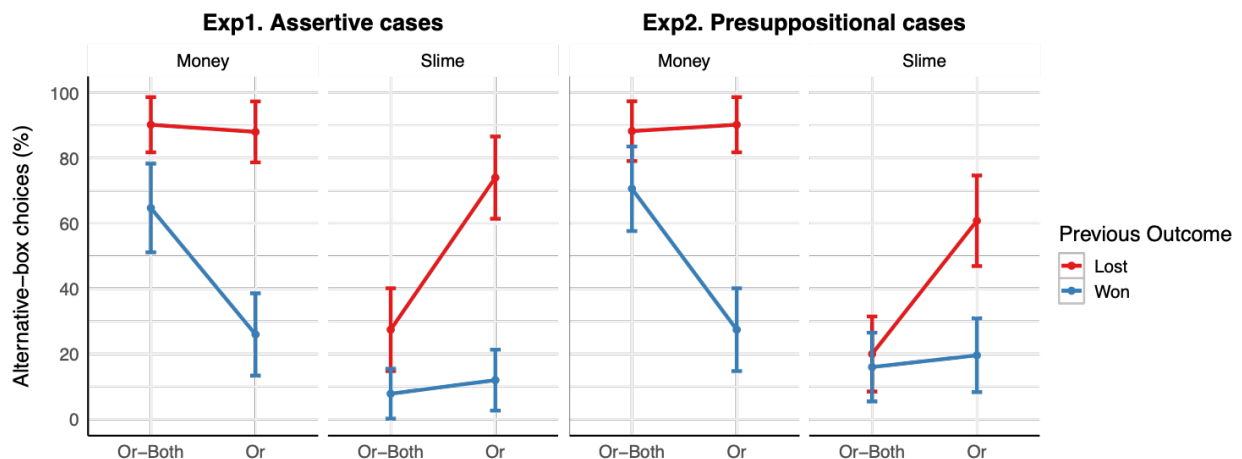

Figure 1: Proportion of 'alternative-box' choices (e.g., 'choose box 25') by Hint type, Game type and Previous outcome in Exp.1 and Exp.2. Error bars denote 95% confidence intervals.

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