Do semantic dependencies constrain preposition omission under ellipsis?

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Background Since Merchant (2001, 2004), it has been assumed that P-omission under sluicing (1a) and fragments (1b) is acceptable in languages allowing for P(reposition)stranding (2) like English, but not in non-P-stranding languages like German. However, intra-linguistic variation (e.g. Lemke, 2021; Nykiel & Hawkins, 2020) calls for a more fine-grained account and systematically collected data. I present four rating studies investigating the acceptability off P-omission across two languages (English, German) and constructions (fragments, sluicing) with a focus on the processing account by Nykiel and Hawkins (2020).

Accounts of P-omission Merchant (2001, 2004) derives fragments and sluicing from left dislocation (2), which predicts P-omission to be acceptable only P-stranding languages like English, and to a similar extent in fragments. Nykiel and Hawkins (2020) take a processing approach and argue that P-omission is more strongly preferred if the preposition semantically depends on the verb (3) than when it does not (1), because processing (3) requires accessing the verb in the antecedent question. This is expected to hold crosslinguistically, even though further properties of languages might result in an overall stronger/weaker preference for P-omission. However, it is unclear whether the effect is really due to processing load caused by a dependency, instead of e.g. reanalysis (van Riemsdijk, 1978). My experiments modulate dependency length to test the dependency hypothesis (See (4a),(4b)): Longer dependencies are more difficult Gibson (1998) and should therefore increase the preference for P-omission.

Method I conducted four acceptability rating studies, each addressing one type of ellipsis in one language and crossed the binary variables OMISSION, DEPENDENCY (present/absent) and DISTANCE (short/long) between antecedent and target in a $2\times2\times2$ design (4). The dependency account predicts three-way interactions: Long distances should favor P-omission in particular if there is a dependency. The items (n = 24, semantically parallel across both languages) and 64 fillers were rated by 72 subjects per study on a 7-point Likert scale (7=fully natural).

Results The data (See Fig. 1) were analyzed for each experiment separately with CLMMs (5) for ordinal data (Christensen, 2022). For English sluicing, OMISSION interacts (marginally) with DEPENDENCY ($z = 1.76, p = 0.08$) and with DISTANCE ($z = 2.21, p < 0.05$), indicating a weakened preference for P-omission in the presence of a dependency and with a longer distance. However, there is no three-way interaction, which would show that lengthening a semantic dependency is particularly degraded ($z = 0.14, p > 0.8$). For fragments, there is a marginal three-way interaction ($z = -1.9, p = 0.058$), which however suggests that P-omission is more strongly preferred in the short distance condition, unlike the dependency account would predict. In the case of German sluicing, there are no relevant interactions. For fragments, there might be a trend favoring P-omission in the presence of dependencies (OMISSION:DEPENDENCY, $z = 1.4, p > 0.1$), which is not affected by DISTANCE ($z = 0.26, p > 0.7$).

Discussion The data confirm that P-omission is less acceptable in German than in English, but within German, it is more acceptable in fragments than under sluicing. Since Merchant (2004) predicts P-omission to be ungrammatical across the board in German, this supports his account of deriving sluicing from regular *wh*-questions (Merchant, 2001), but for fragments, a non-movement account seems more appropriate (Ginzburg & Sag, 2000; Reich, 2007). As for the dependency account, there is a tendency for P-omission to be crosslinguistically more acceptable when the preposition depends on the verb, in particular in English, where this pattern is frequent (Nykiel & Hawkins, 2020). However, this effect is not modulated by the length of the potential dependency in the direction predicted by Nykiel and Hawkins (2020). This indicates that the relationship between preposition and verb might play a role crosslinguistically, but there is no evidence that this results in a dependency causing additional processing effort. Prepositions depending on the verb might be more salient and easier to retrieve during ellipsis processing. This could also explain the OMISSION:DISTANCE interactions in the English data in terms of a greater difficulty to retrieve prepositions due to memory decay.

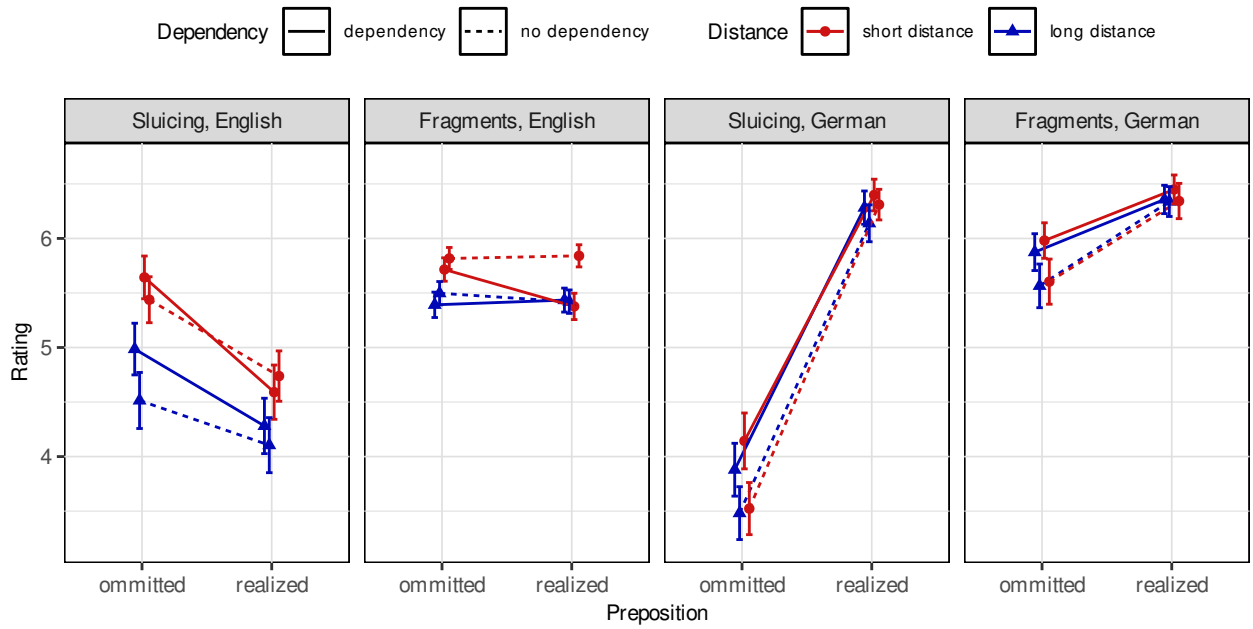

Figure 1: Mean ratings and standard errors for each of the experiments and conditions

(1) a. Nicole is playing board games with somebody today, but I don't know (with) who(m). (Sluicing)
b. With whom is Nicole playing board games today? – (With) a friend. (Fragment)

(2) a. Who$_i$ is Nicole playing board games with t_i?
b. *Wem$_i$ spielt Nicole Brettspiele mit t_i
who plays Nicole board.games with

(3) Who does the decision depend on? – (On) the director. (Fragment, P depends on V)

(4) **Sample item, only English shown, dependency was varied between items**
a. Nicole is playing board games with a friend today. Since we havent talked about it at all, I don't know (with) who(m). (Sluicing, long distance, no dependency)
b. With whom is Nicole playing board games today? We haven't talked about it at all. – (With) A friend. (Fragment, long distance, no dependency)
c. Sarah fell in love with a colleague, but I don't know (with) who(m). (Sluicing, short distance, dependency)
d. With whom did Sarah fall in love? – (With) A colleague. (Fragment, short distance, dependency)

(5) Rating ∼ Omission*Dependency*Distance + (Preposition + Dependency + Distance) * PositionOfTrial + (1 + (Omission + Dependency + Distance)^2|Subject) + (1 + Omission * Dependency|Item)

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