Connectivity evidence for a direct generation approach to pseudogapping

Philip Miller (Université de Paris) and Till Poppels (UC, San Diego)

Pseudogapping (PG) has been traditionally analyzed (Jay90, Las99, Gen13) as remnant raising out of VP, feeding VP ellipsis (cf. (1a)). This analysis predicts that PG preserves connectivity: the remnant preposition (**bold**) must be the same as the preposition required by the antecedent verb (underlined) so that (1b) and (1c) are both claimed to be ungrammatical.

(1) a. Susan spoke about her education longer than she did [**about** her career]$_i$ [$_{VP}$ ~~spoke t_i~~].
b. Susan spoke about her education longer than she did **of** her career.
c. ??Susan spoke about her education longer than she did **for** her career.

An alternative "direct generation" analysis has been proposed (Mil90, K&L17), involving neither movement nor deletion under identity. On that analysis, the Aux (*did* in (1)) is interpreted anaphorically and subcategorizes any NP or PP complement, leading to overgeneration in that both (1b) and (1c) are claimed to be grammatical. Mil90 proposed that non-connectivity is acceptable to the extent that the antecedent verb can establish the same semantic relations with different markings as is the case in (1b): *speak of* ≈ *speak about*, but not in (1c): *speak of* ≠ *speak for*. The purpose of this paper is to test this prediction in 2 experiments: an acceptability judgment experiment (Expt 1); and a semantic similarity rating experiment (Expt 2).

Experiment 1 uses verbs (e.g., *speak, talk, link, blend, connect*…) that allow PP complements with *to*, *with*, and *for*, in order to measure the effect of connectivity violations on acceptability (see (2) on the next page; preposition order was counterbalanced). 63 AMTurk participants rated 20 such items along with 40 distractors on a 7-point Likert scale. We analyzed the acceptability data in an ordinal mixed-effects regression model with maximal random effects (Bar13), which confirmed that items in the mismatch conditions ('to-with' and 'for-with') were significantly less acceptable compared to the 'match' condition ($\beta = -1.22$; $\beta = -1.4$; $\beta = -2.54$, respectively; in all cases, $P(\beta < 0) = 1$), as shown in Figure 1. Furthermore, this mismatch penalty varied across items, and the goal of Expt 2 was to test whether this variability can be explained in terms of semantic similarity, as proposed by Mil90, and whether there is any residual mismatch penalty beyond the effect of semantic similarity.

Experiment 2. Participants were presented with sentence pairs corresponding to all items in the mismatch conditions from Expt 1, as shown in (3). They used a 7-point Likert scale to rate how similar the sentences were in meaning, and those similarity scores were then projected into the range from -6 to 0 to ensure that the 'match condition' corresponds to the highest possible similarity score at 0. These 'semantic similarity' scores were then added to the model as a by-item fixed effect to test (a) whether semantic similarity has the predicted effect on acceptability, and (b) whether there is any residual mismatch effect once semantic similarity is statistically controlled. As predicted, the results indicate that semantic similarity has a positive effect on acceptability, $\beta = 0.88$, $P(\beta > 0) = 0.99$, and that the penalties associated with each mismatch condition disappear once semantic similarity is statistically controlled for ($\beta = -0.22$, $P(\beta < 0) = 0.74$; $\beta = 0.21$, $P(\beta < 0) = 0.38$, respectively).

Discussion: As suggested by Mil90, acceptability in cases of non-connectivity is directly predicted by semantic similarity. These connectivity results are hard to understand under the remnant raising analysis, which predicts a penalty for mismatch, irrespective of semantics. One might suggest that semantic similarity facilitates syntactic repair along the lines of Arr06, but this analysis would predict a residual mismatch penalty associated with the repair processes. By contrast, our results indicate that semantically similar mismatch cases are indistinguishable from their matched counterparts, which supports a direct generation approach to fragments, as proposed for other constructions by, e.g., G&S00, Gin12, N&K19, as opposed to, e.g., Mer04.

References

Arr06. Arregui, A. et al. 2006. Processing elided VPs with flawed antecedents, *JML* 55: 232-246. // **Bar13**. Barr, D.J. et al. 2013. Random effect structures for confirmatory hypothesis testing, *JML* 68:255-78. // **Gen13**. Gengel, K. 2013. *Pseudogapping and ellipsis*. OUP. // **G&S00** Ginzburg and Sag. 2000. *Interrogative Investigations.* Chicago. // **Gin12**. Ginzburg, J. 2012. *The Interactive Stance*. OUP // **Jay90**. Jayaseelan, K.A. 1990. Incomplete VP deletion and gapping. *LA* 30:136-155. // **K&L17**. Kubota Y. and R Levine. 2017. Pseudogapping as pseudo-VP ellipsis. *LI* 48: 212-57. **Las99**. Lasnik. H. 1999. Pseudogapping puzzles. In Lappin and Benamoun (eds.) *Fragments*: *Studies in Ellipsis and Gapping*, OUP, pp. 141-174. // **Lev86**. Levin, N. 1986. *Main verb ellipsis in spoken English*. Garland. // **Mer04**. Merchant, J. 2004. Fragments and Ellipsis, *L&P* 27: 661-738. // **Mil90**. Miller, P. 1990. Pseudogapping and *do so* substitution. *CLS* 26: 293-305. // **Mil14**. Miller, P. 2014. A corpus study of pseudogapping and its theoretical consequences. *EISS* 10: 73-90. // **N&K19**. Nykiel, J. and J-B. Kim. subm. Fragments and structural identity on a direct interpretation approach.

Sample item (Expt 1): **[Task: "On a scale from 1-7, how acceptable is this sentence?"]**

(2) a. with-with That pipe connects with this one more easily than it does with that other one.
b. with-to That pipe connects with this one more easily than it does to that other one.
c. with-for That pipe connects with this one more easily than it does for that other one.

Sample item (Expt 2): **[Task: "From 1-7, how similar are the meanings of the two sentences?"]**

(3) a. to-with That pipe connects with this one. That pipe connects to this one.
b. for-with That pipe connects with this one. That pipe connects for this one.

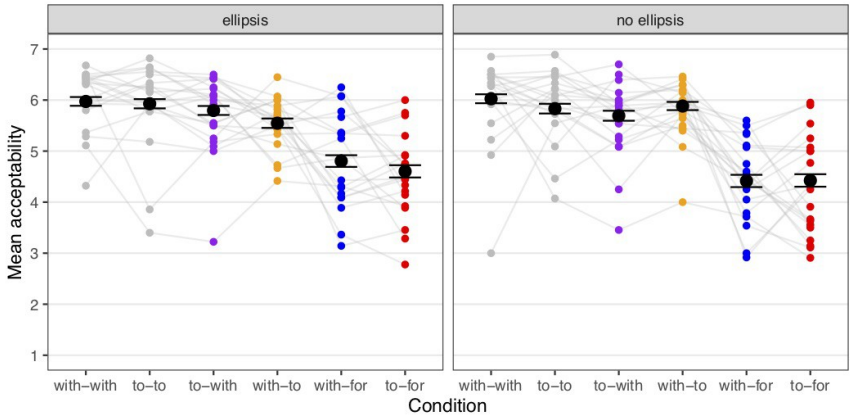

Fig 1. Results from Expt 1: variable mismatch penalties across items

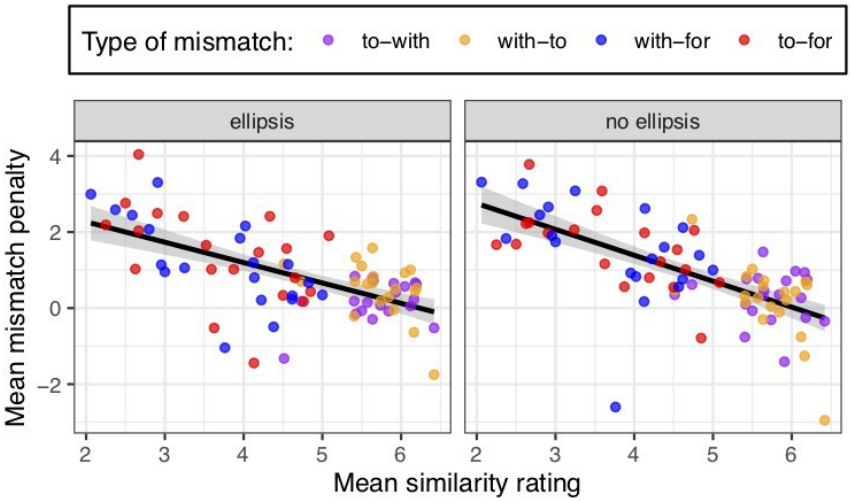

Fig 2. Mismatch penalty decreases as semantic similarity increases.