Multiple Sluicing in English:
Theoretical and Experimental Approaches

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In this presentation, I investigate experimentally some of the factors influencing the acceptability of Multiple Sluicing (MS) constructions in English. More precisely, I focus on two factors affecting the status of the non-initial *wh*-remnant, namely *prepositionhood* and *heaviness*, and a factor suggesting a synergy among the *wh*-remnants, which I will refer to as *congruence*.

Multiple Sluicing (MS) is a kind of clausal elliptical question with two or more *wh*-remnants (Abels & Dayal 2016) as in the example (1) from Kotek & Barros (2018: 799).

(1)   Every boy likes some girl, but I don't know which boy which girl.

On the one hand, the presence of a preposition in the non-initial *wh*-phrase has been reported to ameliorate the acceptability of MS (Bolinger 1978; Richards 2001; Lasnik 2014; Kotek & Barros 2018). On the other hand, Lasnik (2014) claims that MS structures of the type <DP,DP>, when the second nominal *wh*-expression is 'heavy' the overall acceptance of the construction improves. Most authors (Merchant 2001; Richards 2001; Abels & Dayal 2016; Kotek & Barros 2018) have analyzed MS as involving multiple *wh*-fronting. However, Lasnik (2014)) advocates for analyzing MS as involving fronting of the first *wh*-phrase plus rightwards extraposition of the second *wh*-phrase. In order to justify this analysis, he draws into the parallelism of extraposable constituents such as PP complements and heavy DP constituents, and he argues that those are precisely the factors enabling an improvement of sentences containing MS. Interestingly, all factors discussed so far in the literature only refer to the non-initial *wh*-phrase and the different combinations of *wh*-remnants in the sluice have not been taken into consideration as an improving factor. Nevertheless, it has been suggested that 'harmony' with regards to the amount of contentful head nouns between antecedent and correlate affects the acceptability in single sluicing Dayal & Schwarzschild (2010), see the difference in (2).

(2)   a.   * Joan was eating a doughnut. Fred didn't know what.   [Non-harmonious]
      b.   Joan was eating a doughnut. Fred didn't know which doughnut.   [Harmonious]

In this contribution, I will report on two acceptability judgment experiments which examine the factors of WEIGHT (bare vs. explicit vs. heavy) and PREPOSITIONHOOD ($\pm$P) of the non-initial *wh*-remnant. In addition, across Experiment 1 and 2, I modify the status of the first *wh*-remnant in order to isolate the factors affecting the non-initial *wh*-remnant. A sample item for Experiment 1 can be found in (3). Across Experiment 1 and 2 items vary in the universal quantifier in antecedent and the first *wh*-remnant in the sluice according to the following pattern: everyone $\rightarrow$ every X | who $\rightarrow$ which X. See this modification exemplified in (4).

(3)   Sample items Sub-Experiment 1

    a.   Everyone attended something, but I don't know who what.   [-P/bare]

    b.   Everyone attended a conference, but I don't know who which conference. [-P/expl]

    c.   Everyone attended a conference on linguistics, but I don't know who
which conference on linguistics.   [-P/heavy]

    d.   Everyone registered for something, but I don't know who for what.   [+P/bare]

    e.   Everyone registered for a conference, but I don't know who for which
conference.   [+P/expl]

    f.   Everyone registered for a conference on linguistics, but I don't know
who for which conference on linguistics.   [+P/heavy]

(4) Across experiment item modification
   a. Everyone attended something, but I don't know who what.   [-P/bare/Exp1]
   b. Every researcher attended something, but I don't know
      which researcher what.   [-P/bare/Exp2]

Data were analyzed by means of a linear mixed effects model with random intercepts for subjects and items. *P*-values were obtained by likelihood ratio tests. The results for Experiment 1 (see Figure 1) reveal two highly significant effects for preposition and weight ($p < .001$). Likewise, the results for Experiment 2 (see Figure 2) also reveal main effects for preposition and weight ($p < .001$).
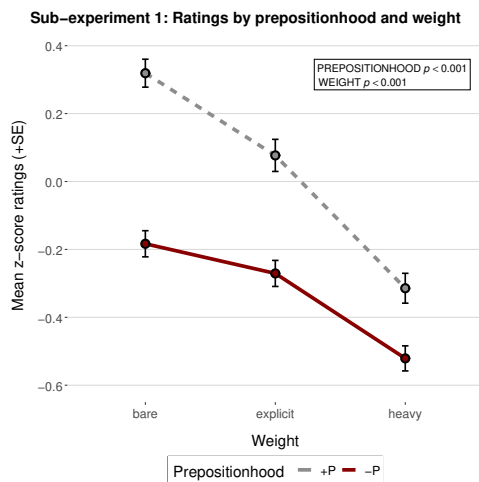

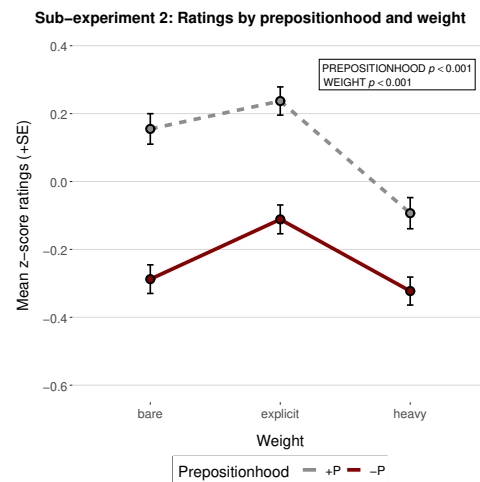**Figure 1:** Results Experiment 1 (n=52)   **Figure 2:** Results Experiment 2 (n=56)

Firstly, my results provide evidence that PREPOSITIONHOOD has a significant effect in improving the acceptability of MS constructions as predicted in the literature. Secondly, contra Lasnik (2014), WEIGHT shows a negative effect on acceptability. Thus, heavy nominal phrases per se do not improve the acceptability of multiple sluicing in English. This could be due to the fact that in the heavy conditions the modifiers from the correlate are repeated in the *wh*-remnant and such repetition of given material might cause a penalty, specially provided the tendency of English to place the nuclear stress in the last content word of the sentence (Wagner 2012). Moreover, as those results provide evidence against heavy DPs yielding a more acceptable MS, this could be interpreted as an argument against analyzing the non-initial *wh*-phrase as undergoing rightward extraposition à la Lasnik (2014). I suggest two potential explanations for the amelioration in the presence of preposition: prosody (stress patterns) and case marking. The former refers to the fact that the stress clashes in the -P condition

Figure 3: Results Experiments 1 and 2

induce higher processing costs (Kentner 2015) what correlates with lower ratings. The explanation for the latter, which to my knowledge has not been mentioned in the literature about MS,
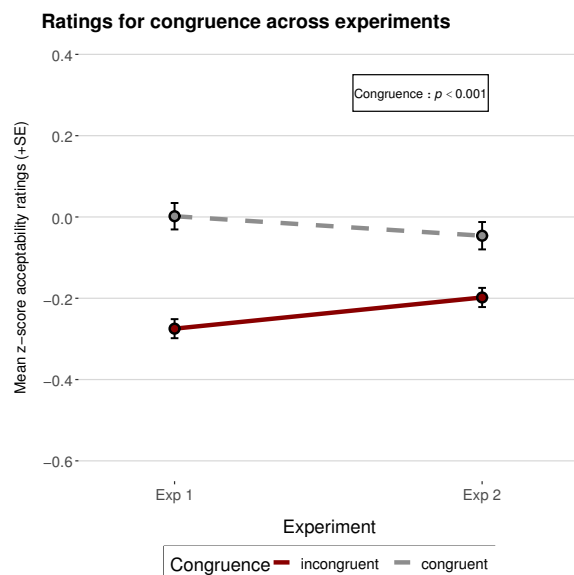
involves that two noun phrases without an overt cue for case marking could be dispreferred. Thus the non-prepositional conditions receiving lower ratings. Further analysis on both matters is in process.

Lastly, considering the interplay between Remnant 1 and Remnant 2, the high ratings attested for the *wh*-remnant combinations 'bare-bare' (Exp1) and 'explicit-explicit' (Exp2) suggest a synergy of the two *wh*-phrases. Hence, I collapse the experiments to evaluate the effect of congruence. The results show a significant effect for CONGRUENCE (see Figure 3). This effect suggests that matching of the type phrases among the correlates is preferred, and hence the *Harmony* rule of Dayal & Schwarzschild (2010) might need to be extended or adapted, so that it accounts for a domain-internal harmony as well. I am planning upcoming studies to further test whether the congruence between remnants has a systematic effect on acceptability where I will include a heavy first correlate which was neglected in the previous study.

References

Abels, Klaus & Veneeta Dayal. 2016. On the Syntax of Multiple Sluicing. In *Nels 47*, 1–20. GLSA publications.

Bolinger, Dwight. 1978. Asking more than one thing at a time. In Henry Hiz (ed.), *Questions*, 107–150. Dordrecht: Springer Netherlands.

Dayal, Veneeta & Roger Schwarzschild. 2010. Definite Inner Antecedents and Wh-Correlates in Sluices. In Peter Staverov, Daniel Altshuler, Aaron Braver, Carlos A. Fasola & Sarah Murray (eds.), *Rutgers working papers in linguistics*, vol. 3, 92–114. New Brunswick, NJ: LGSA.

Kentner, Gerrit. 2015. Stress clash hampers processing of noncanonical structures in reading. *Rhythm in Cognition and Grammar* (November 2014).

Kotek, Hadas & Matthew Barros. 2018. Multiple Sluicing, Scope, and Superiority: Consequences for Ellipsis Identity. *Linguistic Inquiry* 49(4). 781–812.

Lasnik, Howard. 2014. Multiple sluicing in English? *Syntax* 17(1). 1–20.

Merchant, Jason. 2001. *The syntax of silence: Sluicing, islands, and the theory of ellipsis*. Oxford University Press.

Richards, Norvin. 2001. *Movement in language: Interactions and Architectures*. Oxford: Oxford University Press.

Wagner, Michael. 2012. A givenness illusion. *Language and Cognitive Processes* 27(10). 1433–1458.