Multiple Sluicing in English:

Theoretical and Experimental Approaches

Experimental and Corpus-based Approaches to Ellipsis (ECBAE3)

July 16th, 2020 · Álvaro Cortés Rodríguez

Roadmap

1. Theoretical background

2. Experimental part
2.1 Sub-experiment 1(who-what)
2.2 Sub-experiment 2(which X – which Y))

3. Discussion

Theoretical background

Multiple sluicing: A sub-type of clausal ellipsis

- Multiple sluicing (MS) is a type of clausal ellipsis with more than one *wh*-remnant being pronounced.

(1)   Everyone bought something, but I don't know who what.

Multiple sluicing: A sub-type of clausal ellipsis

- Multiple sluicing (MS) is a type of clausal ellipsis with more than one *wh*-remnant being pronounced.

(1)   Everyone bought something, but I don't know who what.

- The following terminology for the different subparts of the sentences is the most standard in the literature (Merchant 2001; Vicente 2019).

(2)   [Everyone] bought [something] , [but I don't know] [who] [what] .
        Correlate1   *Correlate2*   **Intro**   *Remnant1* *Remnant2*
              Antecedent   **Sluice**

Research Questions

Q1 Do *prepositionhood* and the *heaviness* of the non-initial *wh*-phrase improve the acceptability of multiple sluicing constructions?

Q2 Are there other factors influencing the acceptability of multiple sluicing constructions?

Q3 What does this tell us about the potential syntactic analysis for multiple sluicing?

Acceptability status

- Discrepancies about the acceptability of MS in English
  - Ungrammatical: Takahashi (1994)
  - Gapping-like structure: Nishigauchi (1998)
  - Marginal status: Merchant (2001); Lasnik (2014)
  - Inter-speaker variation: Barros & Frank (2016); Kotek & Barros (2018)

Clausemate constraint

- The clausemate constraint (CMC) refers to the requirement that *wh*-phrases that form a MS construction should originate in the same (tensed) clause.

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- The CMC has been reported for: English (Merchant 2001; Lasnik 2014; Abels & Dayal 2017), German (Abels & Dayal 2017) and Spanish (Rodrigues *et al.* 2009) among several other languages.

(3) *English*

   a.   Fred thinks || that a certain boy talked to a certain girl. I wish I could remember which boy to what girl.

   b.   * A certain boy said || that Fred talked to a certain girl. I wish I could remember which boy to what girl.   (from Lasnik 2014:12)

Antecendent and Sluice

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(4) *[Correlate-Remnant] Harmony*
     The [*wh*-remnant] and [correlate] agree on the presence/absence of a contentful head noun.   (Dayal & Schwarzschild 2010:100)

(5) a.   Joan was eating something. Fred didn't know what.
     b.   * Joan was eating something. Fred didn't know which doughnut.
                                              (Dayal & Schwarzschild 2010:100)

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- Collins *et al.* (2014) provide empirical evidence showing that in sentences where the *wh*-remnant and indefinite correlate match in terms of their *infor-mativity* the sluice is significantly more acceptable.

Prepositionhood (second remnant)

- Multiple sluicing constructions improve when the non-initial *wh*-remnant is a PP (Bolinger 1978; Lasnik 2014).

(6) a.   I know that in each instance one of the girls got something for one of the boys. But which for which?

    b.   * I know that in each instance one of the girls chose one of the boys. But which which?   (Bolinger 1978:109)

(7) a.   Someone talked about something, but I can't remember who about what.

    b.   * Someone saw something, but I can't remember who what.   (Lasnik 2014:8)

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- Bolinger (1978) explains that the ungrammaticality of (6b) is due to *homonymic* conflict (i.e. *which – which*).

- Lasnik (2014) analyzes the improvement of (7b) along the lines of rightwards focus movement.

PP or not PP, that is the question

- Richards (2010) argues that MS in English is impossible if both remnants are DPs based on his definition of Distinctness (cf. (9)-(10)).

(8)   *Distinctness*
      If a linearization statement $<\alpha, \alpha>$ is generated, the derivation crashes.
                                                                    (Richards 2010:5)

(9)   a.   * I know everyone insulted someone, but I don't know [who] [whom].
      b.   * I know every man insulted a woman, but I don't know [which man] [which woman].   (Richards 2010:3)

(10) a.   I know everyone danced with someone, but I don't know [who] [with whom].
      b.   I know every man danced with a woman, but I don't know [which man] [with which woman].   (Richards 2010:3)

PP or not PP, that is the question

- The experimental results of Chung & Park (2017) report a significance difference ($p = 0.05$) between (11a) and (11b).

(11)   a. Oliver has complained, but obviously [to whom] [about what] was not known to Edward.   [Rating: 4.8/7]

          b. Oliver has complained, but obviously [who to] [about what] was not known to Edward.   [Rating: 3.8/7]   (Chung & Park 2017:123)

PP or not PP, that is the question

- However, there is no agreement in the literature about a requirement for the presence of the preposition in the non-initial *wh*-remnant.

- Several authors (e.g., Merchant (2001), Kotek & Barros (2018)) also identify that MS with the remnant types <DP,DP> is present in the grammar.

(12) ? Everyone brought something (different) to the potluck, but I couldn't tell you who what.   (Merchant 2001:112)

(13) Every boy likes some girl, but I don't know which boy which girl.
                                                (Kotek & Barros 2018:779)

Heaviness (second remnant)

- Lasnik (2014) says that in his opinion MS improves when the second *wh*-phrase is a heavy DP.

(14)   a.   ?* Someone bought something, but I don't know who what.

   b.   ? Some linguist criticized some paper about sluicing, but I don't know which linguist which paper about sluicing.   (Lasnik 2014: 9)

- Lasnik (2014) draws again into the parallelism between rightwards extraposition and MS with regards to heavy DPs.

Experimental part

Hypotheses

1. Main effect for PREPOSITIONHOOD, higher ratings in the presence of a preposition in the second *wh*-remnant. (**H1** based on Bolinger (1978); Richards (2010); Lasnik (2014); Kotek & Barros (2018))

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2. Main effect for WEIGHT, higher ratings for 'heavier' nominal sentences. (**H2** based on Lasnik (2014))

3. Main effect for CONGRUENCE, higher ratings are expected when there is a sluice-internal harmony on the amount of contentful heads following the *wh*-words. (**H3** inspired by Dayal & Schwarzschild (2010); Collins *et al.* (2014), and suggested by the examples observed in the literature)

General design

- 2 sub-experiments

- Participants native English speakers, recruited via Mechanical Turk

- 56_{Exp1} || 52_{Exp1}

- 90 experimental items
    - 30 critical items
    - 60 fillers
        - 30 *Standard fillers* by Gerbrich *et al.* (2019)
        - 30 random fillers

- 2x3 design (within item)
    - 2 independent variables
        - **Prepositionhood** ('+P' and '-P')
        - **Weight** ('bare','explicit' and 'heavy')

- Items distributed across 6 lists according to Latin square design

- Task: Judge the naturalness of sentences on a 1–7 Likert scale

Sub-experiment 1(who-what): Sample items

(15)   a.   Everyone attended something, but I don't know

        who what .   [-P/bare]

           Congruent

      b.   Everyone attended a conference, but I don't know

        who which conference .   [-P/expl]

           Incongruent

      c.   Everyone attended a conference on linguistics, but I don't know

        who which conference on linguistics .   [-P/heavy]

           Incongruent

      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]

Sub-experiment 1 (who–what): Results

Linear mixed-effect models in R (Bates *et al.* 2015; R Core Team 2019)
Formula: z-score $\sim$ preposition + weight + (1 | id) + (1 | item)

Sub–experiment 1: Ratings by prepositionhood and weight

PREPOSITIONHOOD $p < 0.001$
WEIGHT $p < 0.001$

Mean z–score ratings (+SE)

Weight

Prepositionhood — +P — –P

(16) a. Every researcher attended something, but I don't know
      which researcher what .   [-P/bare]
                Incongruent

   b. Every researcher attended a conference, but I don't know
      which researcher which conference .   [-P/expl]
                Congruent

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

   d. Every researcher registered for something, but I don't know which
      researcher for what.   [+P/bare]

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

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

Sub-experiment 2 (which X–whichY): Results

Linear mixed-effect models in R (Bates *et al.* 2015; R Core Team 2019)
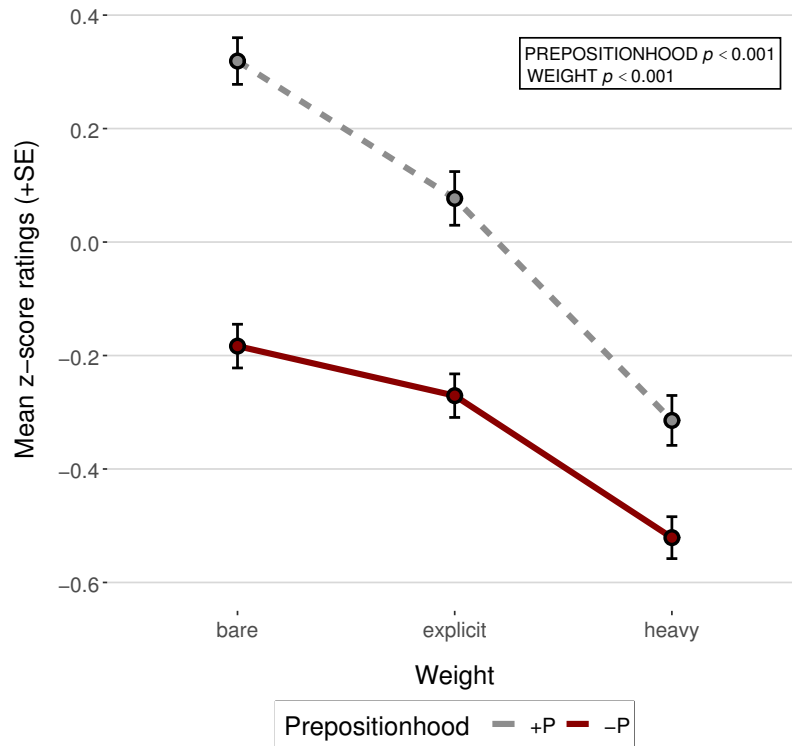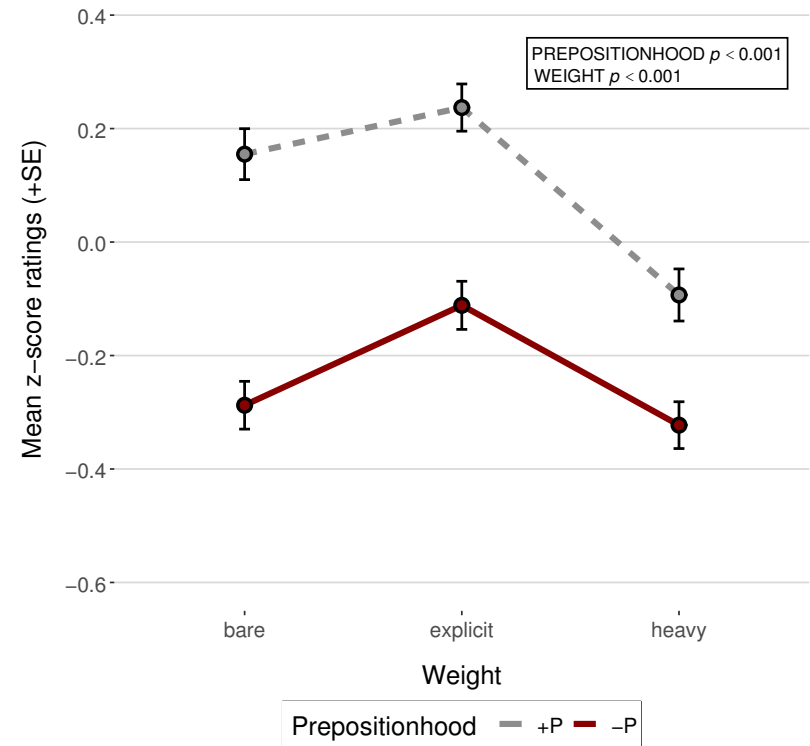Formula: z-score $\sim$ preposition + weight + (1 | id) + (1 | item)

Sub–experiment 2: Ratings by prepositionhood and weight
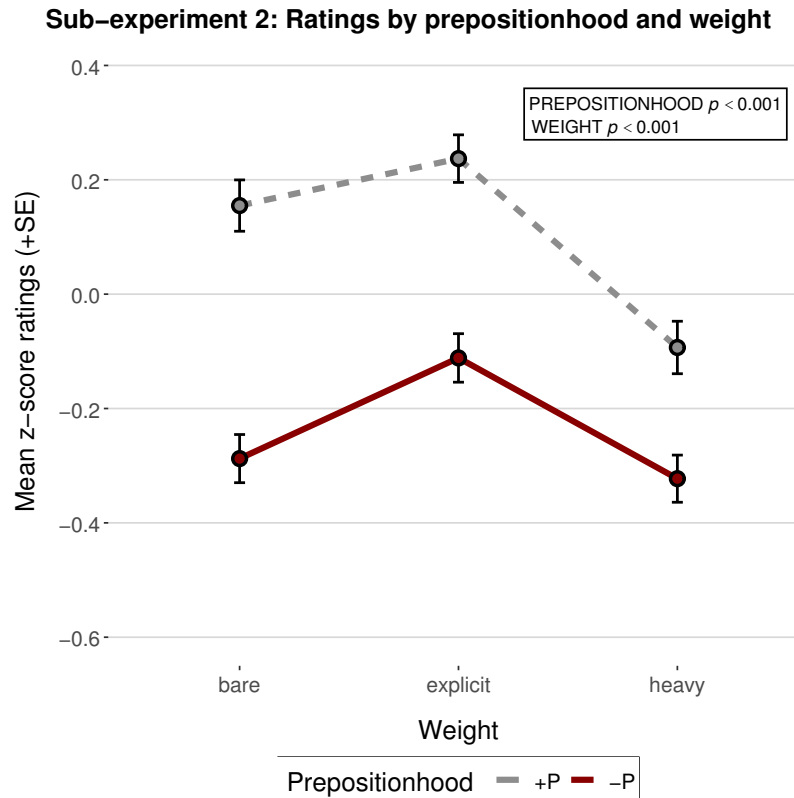
Experimental results: Overview
PREPOSITIONHOOD **and** WEIGHT

Experimental items: grouped by CONGRUENCE (only showing -P conditions)

(17) a. Everyone attended something, but I don't know who what .
Congruent

b. Everyone attended a conference, but I don't know
who which conference .
Incongruent

c. Everyone attended a conference on linguistics, but I don't know
who which conference on linguistics .
Incongruent

(18) a. Every researcher attended something, but I don't know
which researcher what .
Incongruent

b. Every researcher attended a conference, but I don't know
which researcher which conference .
Congruent

c. Every researcher attended a conference on linguistics, but I don't
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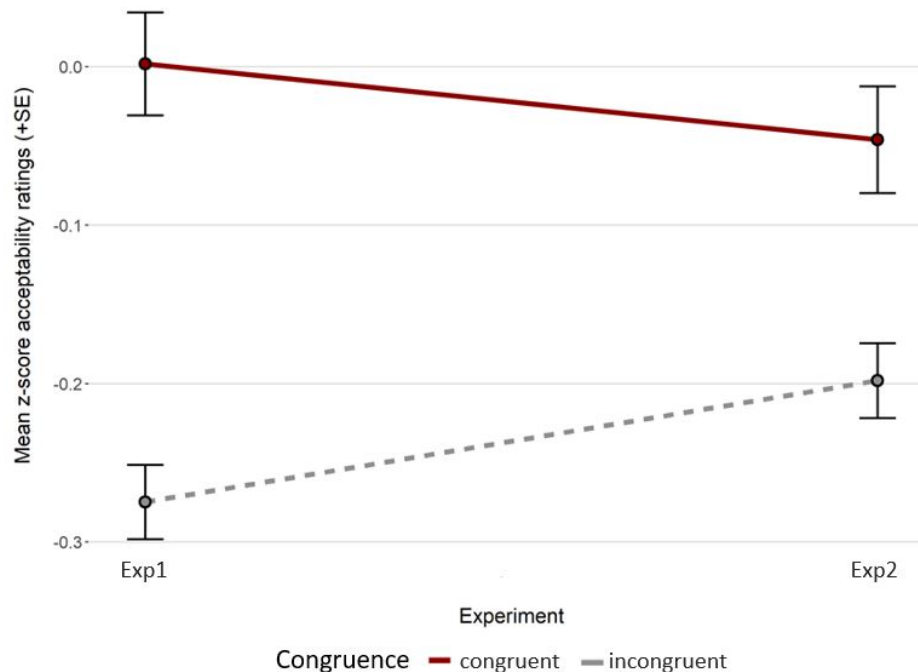**Incongruent**

Experimental results: Overview, across experiments
EXPERIMENT and CONGRUENCE

Linear mixed-effect models in R (Bates *et al.* 2015; R Core Team 2019)
Formula: z-score $\sim$ experiment + congruence + (1 | id) + (1 | item)

Conclusions

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- There is a highly significant main effect for WEIGHT. However, this factor yields lower ratings contra prediction. → **H2** not borne out

- Concentrating on the weight factor where both *wh*-remnants are congruent (Exp. 1: Conditions [-P/bare] and [+P/bare] | Exp. 2: Conditions [-P/expl] and [+P/expl] CONGRUENCE EFFECT can be observed. → **H3** is borne out

Research Questions

Q1 Do *prepositionhood* and the *heaviness* of the non-initial *wh*-phrase improve the acceptability of multiple sluicing constructions?

- Yes, prepositionhood improves the acceptability of MS significantly.
- No, heaviness degrades the acceptability.

Q2 Are there other factors influencing the acceptability of multiple sluicing constructions?

- Yes, congruence seems to play a role in improving the acceptability. However, if it has a significant effect overall, single comparison show only marginal significance.

Research Questions

Q3 What does this tell us about the potential syntactic analysis for multiple sluicing?

- Disregarding heaviness as an improving factor in MS, the rightwards focus extraposition à la Lasnik (2014) is weakened.
- Richards' (2010) *Distinctness* condition of linearization seems to be in the right track, but it would not make any prediction for the potential congruence effect.

Discussion

Discussion and open questions

- The lower acceptability ratings due to an increase of WEIGHT could be due to the fact that in the 'heavy' conditions the modifiers from Correlate 2 are repeated in the *wh*-remnant. Repeating *given* material might cause a penalty.

- Nuclear accent falls in the last content word in spoken English Wagner (2012), thus in the 'heavy' conditions this accent will fall given material that prefers prosodic reduction.

- The improvement in acceptability cause by the presence of a preposition can partly be explained by Richards' (2010) *Distinctness* condition, however, there are some caveats as Chung & Park's (2017) studies shows high rating for <PP,PP> combination in MS.

- Further investigations in Distinctness include contrasting MS with argument-adjunct combinations.

Thank you!

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Questions