

The discourse status of existential implicit arguments: Investigating referent accessibility through sluicing

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Some semantically transitive verbs can have implicit, non-overt objects (ex.1, e.g. *eat*, *write*, *paint*). At first glance, these invisible *implicit arguments* (IAs, denoted with \emptyset) appear to be ‘discourse inert’ because (a) they can’t refer back to previously-mentioned overt referents (ex.2) and (b) subsequent pronouns cannot easily refer back to IAs (although definite noun phrases can; e.g., Williams’05; see ex.3).

- (1) Marge was reading \emptyset . [semantically transitive verb with implicit object]
- (2) *Marge picked up the book and read \emptyset .
- (3) Marge was reading \emptyset . When she finished, she left #it/☺**the book** on the table.

We report two experiments that examine IA’s discourse status and investigate **(i) IAs’ accessibility as antecedents** and **(ii) context effects on IA interpretation** by using sluicing (ex.4; Chung’95).

- (4) Marge was reading \emptyset , but I don’t know what [~~she was reading~~].

We set out to test **(i) IA’s accessibility as antecedents** by looking at whether the acceptability of *implicit* objects as antecedents in sluicing is modulated by the **form** of the retrieval phrase. Prior work on pronoun resolution has found that referring expressions’ form is related to accessibility/salience of the referent (e.g., Givon’83, Ariel’90, Gundel et al. ‘93): Referents that are low in salience are generally referred to with more informative expressions than high-salience referents. In our experiments, we use sluicing constructions as tools to probe the discourse status/accessibility of IAs. In sluicing, an entire clause is elided except for a wh-remnant which refers back to either an *overt* (ex.5) or an *implicit* antecedent (ex.4,6). Crucially, ‘**which**’ sluices can have different kinds of wh-remnants and thus allow us to test whether the form of the wh-phrase influences how acceptable IAs are as antecedents. We compare lexically-informative remnants (e.g., which book) to lexically-uninformative ones (e.g., which one).

- (5) Marge was reading a book, but I don’t know which one/which book. [sluicing]
- (6) ?Marge was reading \emptyset , but I don’t know which one/which book. [sluicing subtype: sprouting]

In addition, ‘which’ sluices also allow us to investigate **(ii) context effects on IA interpretation**, because they are discourse-linked (e.g., Pesetsky’97); i.e., they restrict reference to a contextually salient set. In (5), ‘*which books*’ refers to a salient set of books, and consequently so does its overt antecedent ‘*a book*’. To further understand the discourse status of IAs, **we investigated whether reference restriction to a contextually salient set via d-linking can easily occur with implicit antecedents** (ex.6), or if IAs are really discourse inert and resist being linked to prior discourse.

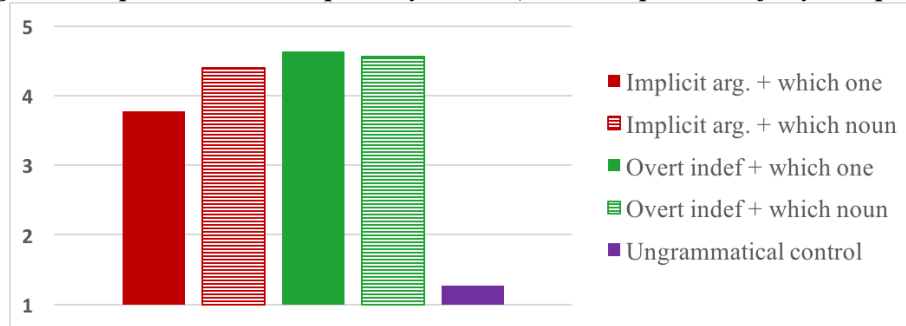
In **Experiment 1**, we manipulated (i) object type (overt/implicit) and (ii) the informativeness of the **wh-remnant** (*which {noun/one}*; Table 1). Participants’ (n=45 L1 English speakers) task was to rate the acceptability of written sentences (20 targets + 30 fillers) on a 5-point scale (1=completely unacceptable, 5=completely acceptable).

Table 1. Experiment 1 Example target items

| <i>Conditions</i> | <i>Context sentence: Bob gave Sarah several books to read.</i> |
|-------------------------------------|---|
| <i>Implicit + which noun</i> | Later, he saw her <u>reading</u> , but he doesn't know <i>which book</i> . |
| <i>Implicit + which one</i> | Later, he saw her <u>reading</u> , but he doesn't know <i>which one</i> . |
| <i>Overt + which noun</i> | Later, he saw her <u>reading a book</u> , but he doesn't know <i>which book</i> . |
| <i>Overt + which one</i> | Later, he saw her <u>reading a book</u> , but he doesn't know <i>which one</i> . |
| <i>Ungrammatical control</i> | Later, he saw her <u>sneezing</u> , but he doesn't know <i>which one</i> . |

Results: We observe two main effects and an interaction (p 's < .05, lmer on z-scores): With uninformative remnants (*which one*), overt objects are more acceptable than implicit objects ($p < .001$, Fig.1). With informative remnants (*which book*), implicit vs. overt object conditions *do not differ*: implicit objects are as accessible antecedents as overt objects when the wh-remnant is informative. This supports our hypothesis that more informative *which*-expressions are better able to retrieve IAs.

Figure 1. Experiment 1: Acceptability scores (1=unacceptable, 5=fully acceptable)

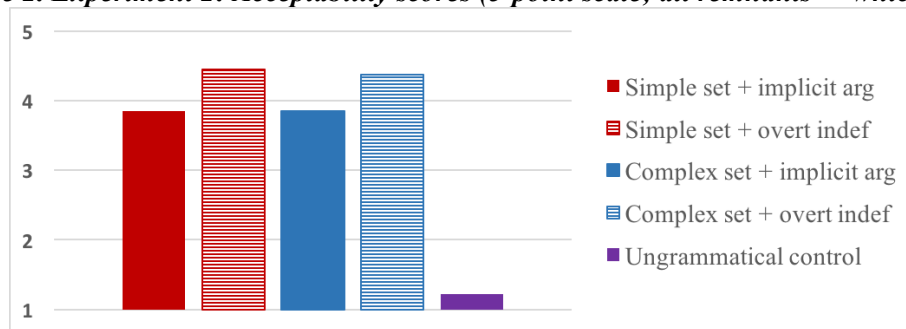


In Experiment 2 we manipulated (i) **context set complexity** (see Hofmeister'11) and (ii) **object type** (implicit/overt, Table 2) to test if representational complexity affects IAs' acceptability as antecedents, but found no effects. A secondary task assessed whether participants really *interpreted* IAs in reference to the context set (as intended), and this was confirmed for both implicit and overt antecedents.

Table 2. Experiment 2 Example target items (Exp 2 had 20 targets, 30 fillers)

| | |
|--------------------------|---|
| Simple NP + Implicit | Bob gave Sarah several books to read. Later, he saw her <u>reading</u> , but he doesn't know <i>which one</i> . |
| Complex NP + Implicit | several rare old books + <u>reading</u> |
| Simple NP + Overt indef | several books + <u>reading a book</u> |
| Complex NP + Overt indef | several rare old books + <u>reading a book</u> |
| Ungrammatical control | several rare old books + sneezing |

Figure 2. Experiment 2: Acceptability scores (5-point scale; all remnants = 'which one')



In sum, our results show that implicit objects are as acceptable antecedents as overt objects when the retrieval cue ('which' phrase remnant in a sluice) is informative. This suggests that existential implicit arguments are *not* completely discourse inert, and in some conditions (sluices with informative remnants) they *are as accessible in the discourse as overt phrases are*. Moreover, the acceptability of implicit arguments as antecedents of informative *discourse-linked* sluicing remnants reveals that implicit arguments can have their reference restricted to a salient context set just like overt indefinite phrases can, again indicating that these IAs can participate in discourse relations despite their apparent 'inertness'.