Deconstructing Condition C Reconstruction
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1. Introduction: Condition C reconstruction (CCR) has played an important role in recent years, both as a diagnostic for underlying structure and as a motivation for counter-cyclic Merge operations (Lebeaux 1990; Chomsky 1993; Takahashi and Hulsey 2009). However, both its empirical status and its theoretical account remain controversial (Lasnik 1998; Safir 1999; Sportiche 2016). In this paper we present new experimental data confirming the existence of CCR effects for predicate extraction, but suggesting they do not exist for argument extraction; reported cases of argument CCR are an effect of discourse strategies applying to well-formed structures. We show that Late Merger and Vehicle Change accounts of CCR effects predict patterns of data that are not found, and propose instead a simple account where copies of elements in a movement chain are deleted distributively at the interface with semantics (Chomsky 1993; Adger 1994; Sportiche 2016). CCR effects, under this proposal, only emerge when deletion of the relevant material is otherwise blocked, as in A-bar predicate extraction. Deletion occurs in simplex A-bar argument extraction and in A-movement, capturing the experimentally confirmed absence of CCR effects.

2. The classical paradigm: Freidin (1986) and Lebeaux (1998) introduced a paradigm of data that purported to show that adjuncts and arguments of extracted nominals behave differently with respect to reconstruction for Condition C. The classical cases can be seen in complement vs relative clauses (Lebeaux's judgments):

(1) a. *Whose claim that John$_i$ was nice did he$_i$ believe *gap*?
     b. Which story that John$_i$ wrote did he$_i$ like *gap*?

Chomsky 1993 adapts Lebeaux's approach to these, allowing Merge of adjuncts to be exempt from the Extension Condition, so that there is no R-expression present in the position of the trace of the extracted element in (1b). For the argument case (1a), Chomsky assumes a 'preference principle' that minimizes material in the restrictor of the operator position. It follows that the complement clause is not deleted in the lower position, and a Condition C effect ensues. Chomsky's account forms the basis of much later work on this paradigm, which takes the data to show that there is countercyclic Merge of adjuncts and a preference principle for reconstruction. Takahashi & Hulsey (2009) extend the idea of countercyclic (Late) Merge, allowing it to take place whenever the outcome is interpretable via a set of rules for interpreting copies, and they use this to account for the lack of CCR effects in A-movement.

3. A revised paradigm: Leddon & Lidz (2006) find that 4-year old children show a strong Condition C effect in an experimental task when the extracted element is a predicate but not an argument (cf. Huang 1993; Heycock 1995). Their adult controls also showed a stronger effect with predicate extraction than argument extraction, though adults disallowed coreference more than the children.

(2) a. *How proud of Andy$_i$ was he$_i$ *gap*?
     b. Which painting of Sue$_i$ did she$_i$ put *gap* up?

We replicated this adult result through a different experimental design, extending it to embedded clauses and to possessives. We ran a judgment task, using a Latin Square design, with distractors, on 24 non-linguist native English speakers using the Ibex software. Each sentence was initially presented for the participant to read with no time limit. Following a key press, the relevant r-expression and pronoun were highlighted and participants were asked whether they could use these coreferentially (yes/no). We tested the eight conditions schematized in (3), varying the argument vs. predicate status of the extractee, the locality of the antecedent DP and the pronoun, and whether the antecedent DP is embedded in a possessor or not. We will refer to conditions as e.g. 'argument (a)' (sentences with structure (a) and an argument *wh*-phrase) or 'predicate (c)' (structure (c) with a predicate *wh*-phrase).

(3) a. [$_{whpred/arg}$ ... DP$_i$] aux pronoun$_i$ ... *gap*
     b. [$_{whpred/arg}$ ... [DP$_i$'s N]] aux pronoun$_i$ ... *gap*
     c. [$_{whpred/arg}$ ... DP$_i$] aux pronoun$_i$ ...[$_{CP}$ DP ... *gap*]
     d. [$_{whpred/arg}$ ... DP$_i$] aux DP ... [$_{CP}$ pronoun$_i$ ... *gap*]

Speakers showed strong Condition C effects in non-extracted cases used as distractors. Speakers also showed a strong effect in the predicate conditions: in all of (a)-(d) the DP in the extractee was unable to corefer with the pronoun, suggesting a straightforward Condition C effect under reconstruction of the extractee to the gap position. In contrast, there is hardly any evidence at all for a Condition C

effect in the argument conditions. Taking the argument (a)-(d) conditions in aggregate, a majority of responses indicated that coreference was permitted, contrasting sharply with predicate extraction (Fig 1—significance results reported below). Only for argument (a) sentences did a majority of responses indicate that coreference was not permitted, and there were still a substantial number of responses indicating the opposite (Fig 2). This argues against an analysis of the argument extraction cases either as CCR effects, which should not be affected by distance, or as a Condition B reconstruction effect (under Vehicle Change), since coreferentiality was actually accepted the most in the argument (d) condition, where the pronoun c-commands a clausemate gap (Fig 4). We also examined whether relational nouns (*side*, *friend*, etc.) behaved differently from nouns whose complement can be predicational (*picture*, *statue*, cf. Grimshaw (1990)), and found that they do not for any condition (Fig 3 shows a comparison across all conditions). In this respect, then, we found no evidence for an adjunct/argument asymmetry in reconstruction.

 (Fig 1) (Fig 2) (Fig 3) (Fig 4)
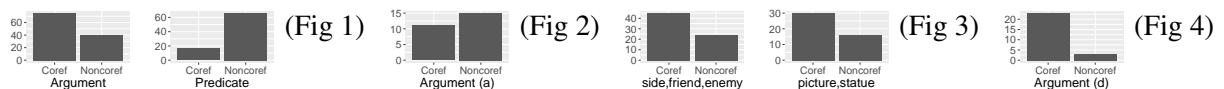
3. A revised account: The pattern of data we found, aside from one subpattern, is predicted by the simplest account: copies are always present, and subparts of the copies are freely deleted up to recoverability, but interpreted wherever they can be. No preference principle for reconstruction applies, derivations are strictly cyclic, and no vehicle change is required.

Following Heycock (1995), we assume that verbs and adjectives selecting predicational arguments (which Heycock calls 'non-referential') require low presence of those arguments to receive a coherent interpretation, hence CCR effects ensue.

(4)   a. How fond of John did Mary say he felt?
      b. [what degree d ~~of fondness for John~~] did Mary say he felt [d of fondness for John]

In argument extraction, however, deletion up to recoverability allows the relevant R-expression to appear either in the higher or lower copy. Higher deletion leads to a CCR effect (for example in cases where scope reconstruction forces presence of a lower copy, Fox 1999). Lower deletion, as in the cases we tested, obviates CCR effects, with the remnant of the lower copy after deletion interpreted through Takahashi and Hulsey (2009)'s extension of Fox's Trace Conversion mechanism.

(5)   a. [which picture of John] did Mary say he liked [which ~~picture of John~~]
      b. [which picture of John] λx. did Mary say he liked [**the** $\lambda y.y = x$]

4. The final subpattern: In only two configurations, argument (a) and argument (c), where the pronoun is the matrix subject, were speakers more-or-less evenly split on whether they allow coreference (Fig 5). In addition to varying predicate/argument status of the extractee, structural manipulations that should not affect CCR were tested for via a binomial GLMER with fixed effects for (i) argument/predicate (ii) embedding/non-embedding of the R-expression within a possessor; (iii) presence/absence of a clause boundary between the pronoun and the gap; (iv) presence/absence of a clause boundary between the pronoun and its antecedent. Random intercepts were added for subject and item. These effects were significant with z values of 6.4 for (i), 3.8 for (ii), 4.8 for (iii) and 2.1 for (iv—marginal). Further, no interaction effect was found between (i) embedding of the pronoun or offending R-expression (as in conditions (b) and (d)) and (ii) the choice of an argument/predicate *wh*-phrase. Manipulations (ii-iv) each boosted responses indicating coreference to about the same extent, regardless of whether the *wh*-phrase was a predicate or an argument. Together with lack of interaction effects, this strongly suggests that variation across conditions reflects non-syntactic discourse conditions on coreference, impacting equally on argument or predicate extraction cases (in particular, (a) and (c) suggest a "proximity" effect, similar to what has often observed with ATB, Williams 1990, Bruening & Al Khalaf 2016).

 (Fig 5)
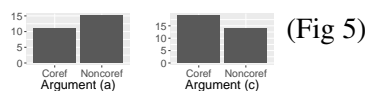
5. Conclusion: Our experimental data confirm CCR effects, but only for predicates. We interpret the pattern as involving full copies in all positions in a movement chain, with distributed deletion at the CI-Interface leading to an expected lack of CCR, except when deletion is unavailable. Residual effects are due to an independently required discourse principle applying to binding-theoretically well formed structures. Thus, the simplest syntactic story is the one most consistent with the new data.