

# Sluicing Revisited

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*Symposium on Ellipsis*

*LSA Meeting, January 5th 2006*

## 1 Goals

- review and reconsider the theoretical issues raised by sluicing, taking our 1995 paper as a starting point
- incorporate some of the insights and empirical discoveries that have emerged since (especially in Merchant (2001), Romero (1998)).
- refocus attention on the subcase of sluicing that we dubbed *sprouting* in our 1995 paper
- pursue an analysis of sluicing driven by the core intuition behind our original treatment—the intuition that (at least this species of) ellipsis amounts to the ‘re-use’ of existing linguistic material.

## 2 Preliminaries

### Typology of Sluicing

Sluicing: elision of all but the interrogative phrase of a constituent question.

Case One (*merger*): in which the remnant *Wh*-phrase has an overt correlate in the antecedent:

- (1) a. They’ve made an offer to a phonologist, but I’m not sure which one.  
b. She insulted somebody but she won’t tell me who.

Case Two (*sprouting*): in which the remnant *Wh*-phrase has no overt correlate within the antecedent:

- (2) a. They were firing, but at what was unclear.  
b. She applied for the position but nobody could figure out why.  
c. He finished on time, but with whose help?

### Starting Assumptions

- In the ellipsis site in such examples as (1) and (2) there is a fully fleshed out syntactic object (there is ‘syntax in the silence’, to use Jason Merchant’s term). See Ross (1969), Chung et al. (1995), Merchant (2001).
- The remnant *Wh*-phrase is contained within an interrogative clause—CP (see especially Merchant (2001, Chap. 2)).
- What is missing in sluicing is the TP complement of interrogative C (although there are well known drawbacks to this interpretation; see Merchant (2001), Manetta (2005)).

We are dealing, therefore, with skeletal structures like (3):

(3) They were firing, but [<sub>CP</sub> at what C [<sub>TP</sub>                    ]] was unclear

And sluicing involves either:

- the reduction to silence of the TP-complement of interrogative C, or:
- the recovery of a suitable TP from the discourse context which then supplies the needed content for the empty TP in (3).

### 3 Use and Re-Use

- (4) A lawyer who sues a lawyer is crazy.
- (5) a. A lawyer was sued yesterday.  
 b. [<sub>TP</sub> [ A lawyer ] was [<sub>VP</sub> sued [ a lawyer ] yesterday ]]

Within the terms of the minimalist framework, (5) involves two occurrences of one syntactic object (i.e. there is a single DP *a lawyer* which occupies two positions in the phrase marker—sister to *v* and daughter of TP).

It is self-evident that the two occurrences of the indefinite in (5b) should not be taken to give rise to distinct uses of the phrase (establish distinct discourse referents, for example). Rather these are distinct occurrences corresponding to a single use of the phrase.

### Sluicing in the Absence of an Overt Correlate ('Sprouting')

- (6) a. They were firing, but at what was unclear.  
 b. She applied for the position but nobody could figure out why.  
 c. He put in a bid, but on whose behalf?  
 d. **A:** I went to the movies last night. **B:** Who with?
- (7) [CP at what C [TP  ]]  
 ↓  
 [CP at what C [TP they were firing ]]

Such a structure is uninterpretable as it stands (there is no way to integrate the *Wh*-phrase into the composition of the meaning of the question), so another operation is needed—the creation of a lower occurrence of the *Wh*-phrase within VP, an operation which will permit the needed integration. That is, we add to the phrase marker a statement like (8):

- (8) *at what* is immediately dominated by VP.

- (9) [CP at what C [TP they were firing ]]  
 ↓  
 [CP *at what* C [TP they were firing *at what* ]]

This is (the inverse of) Chomsky's (2001) *Internal Merge*, and it is the natural updating of our 1995 proposal in a changed theoretical context. Within the overall framework of Phillips (2003)—left to right, top-down structure building—the necessary operation is probably indistinguishable from routine applications of *Wh*-movement.

## 4 Aside

The syntactic objects which are copied or re-used will have to be abstract enough to permit certain 'mismatches' between the antecedent and the apparent requirements of the ellipsis-site. This is to allow such cases as (10) (see Merchant 2001, 2005a):

- (10) a. Decorating for the holidays is easy if you know how.  
 b. I'll fix the car if you tell me how.  
 c. I can't play quarterback. I don't even know how.  
 d. I remember meeting him, but I don't remember when.  
 e. John seems to be happy and I can guess why.

## 5 Consequences—Old and New

### Albert's Generalization

In the cases for which this mechanism must be appealed to, there can be no amnesty-ing of island and ECP effects (as there famously is with the merger cases; see Ross (1969), Chung et al. (1995)).

- (11) a. \*Sandy was trying to work out which students would speak, but she refused to say who to.  
 b. \*Agnes wondered how John could eat, but it's not clear what.  
 c. \*That Tom will win is likely, but it's not clear which race.
- (12) a. \*Sandy is very curious to see which students will be able to solve the homework problem, but she won't say how.  
 b. \*Clinton is anxious to find out which budget dilemmas Panetta would be willing to tackle, but he won't say how.

If *Internal Merge* is governed by the standard array of island and ECP effects, then we expect those effects to appear in structures for which Internal Merge is crucial (i.e. *sprouting* cases).

### Fixed Diathesis Effects

Lexical choices made in the antecedent TP limit possibilities in the elided TP. There can be no return to the lexicon if one is re-using material already constructed from a given set of lexical choices (compare Levin (1982)).

- (13) a. He sent a package, but I can't find out who to.  
 b. \*He sent a package, but I can't find out who.  
 c. He sent a package, but I can't find out who he sent it to.  
 d. ?He sent a package, but I can't find out who he sent it.

Similarly, the impossibility of voice mismatches under Sluicing (Merchant (2001), Chung (2005)):<sup>1</sup>

- (14) a. The candidate was abducted but we don't know who by/by who.  
 b. \*Somebody abducted the candidate, but we don't know by who.  
 c. Somebody abducted the candidate, but we don't know by who he was abducted.

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<sup>1</sup>Potsdam's 2003 claim that voice mismatches are possible under sluicing in Malagasy we take instead to be evidence in favor of Pearson's reanalysis of 'voice' in Malagasy in terms of something like *Wh-Agreement*—Pearson (2005), Chung (2005).

### Chung's Generalization

A more recent discovery: Chung (2005) observes that prepositions cannot 'be stranded' under sprouting, even in those languages that otherwise permit preposition stranding. Compare the sprouting cases in (15):

- (15)
- a. They're jealous but it's unclear of who/who of.
  - b. Last night he was very afraid, but he couldn't tell us of what/what of.
  - c. Mary was flirting, but they couldn't say with who/who with.
  - d. We're donating our car, but it's unclear to which organization.
  - e. The UN is transforming itself, but into what is unclear.

with those in (16), which show that preposition stranding in the ellipsis site for such cases is absolutely impossible:

- (16)
- a. \*They're jealous but it's unclear who.
  - b. \*Last night he was very afraid, but he couldn't tell us what.
  - c. \*Mary was flirting, but they couldn't say who.
  - d. \*We're donating our car, but it's unclear which organization.
  - e. \*The UN is transforming itself, but what is unclear.

Even though preposition stranding in the absence of ellipsis is unproblematic:

- (17)
- a. They're jealous but it's unclear who they're jealous of.
  - b. Last night he was very afraid, but he couldn't tell us what he was very afraid of.
  - c. Mary was flirting, but they couldn't say who she was flirting with.
  - d. We're donating our car, but it's unclear which organization we're donating it to.
  - e. The UN is transforming itself, but what it is transforming itself into is unclear.

The puzzle is why (16a–e) cannot be derived from (17a–e).

These observations are deeply puzzling for a widely held view—that ellipsis is the reduction to silence of a syntactic object whose content is 'given' (among many others, see Romero (1998), Merchant (2001)). On that view, it is hard to see how we might distinguish the derivation in (18) from that in (19):<sup>2</sup>

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<sup>2</sup>Note the even more severe difficulty posed by these observations for theories of sluicing involving only mechanisms of pragmatic inference—finding suitably salient content with which to fill out the interpretation of the *Wh*-phrase. There is no challenge whatever in computing in context what the interpretations of (16) ought to be.

- (18) a. She is jealous, but we don't know [ of who [ she is jealous of who ]].  
 b. She is jealous, but we don't know [ of who [ ]].
- (19) a. She is jealous, but we don't know [ who [she is jealous of who ]]  
 b. \*She is jealous, but we don't know [ who [ ]].

But *Chung's Generalization* already follows from our proposals. (16a), for example, would begin with the fragment in (20):

- (20) [ unclear [<sub>CP</sub> who C [<sub>TP</sub> ]]]

Re-using the antecedent TP will produce (21):

- (21) [ unclear [<sub>CP</sub> who C [<sub>TP</sub> they're jealous ]]]

But from (21), the only structure that can be created by way of *Internal Merge* is that in (22):

- (22) [ unclear [<sub>CP</sub> who C [<sub>TP</sub> they're jealous who ]]]

which subsumes a violation of the lexical requirements of the adjective *jealous*. So as long as those requirements must be respected—either at the point at which the DP *who* is (re)merged, or else at LF (if there is such a level), then the impossibility of (16a) is expected rather than puzzling.

## 6 A Complementary Difficulty

The problem posed by the observations of (16a) is that the requirement of givenness appears to be met but sluicing fails. But there is also a broad range of cases in which the requirement clearly is not met, but in which sluicing nevertheless succeeds (Chung, 2005).

- (23) a. He put in a bid but I couldn't tell on whose behalf.  
 b. She went to the movies but we don't know who with.  
 c. She finished the project but we don't know with whose help.  
 d. He's on the no-fly list but it's totally unclear for how long.  
 e. She was babbling away, but about what, I have no idea. (RTE Radio, December 31st 2005)

Cases such as (23) are handled without elaboration by the proposal sketched earlier. It is at best unclear how they can be understood in a world in which sluicing is deletion under semantic 'identity' or 'givenness'. Such a view would require that the

pairs of propositions in (24)–(28a) be in the required relation (equivalence, mutual entailment, or whatever):

- (24) a. [ he put in a bid ]  
b. [ he put in a bid on someone's behalf ]
- (25) a. [ she went to the movies ]  
b. [ she went to the movies with someone ]
- (26) a. [ she finished the project ]  
b. [ she finished the project with someone's help ]
- (27) a. [ he's on the no-fly list ]  
b. [ he's on the no-fly list for some length of time ]
- (28) a. [ she's babbling away ]  
b. [ she's babbling away about something ]

Nominal-internal cases (Chung 2005) make the same point:

- (29) a. She's reading something, but I don't know from which textbook.  
b. She's eating a pizza, but I don't know from which restaurant.

## 7 Semantic Consequences of Re-Use

As a result of the novelty condition, each use of an indefinite introduces a new discourse referent:

- (30) a. Someone committed a crime on Monday and someone committed a crime on Tuesday.  
b. Someone committed a crime on Monday and he committed a crime on Tuesday.
- (31) Jill knows that someone committed a crime, and Jack knows that someone committed a crime.

The question in (32) behaves similarly:

- (32) Jill asked where someone had committed a crime, and Jack asked when someone had committed a crime.

The association of an indefinite with a discourse referent can be used as a probe for the act of using (in the strong pragmatic sense) the indefinite.

**Crucially:** Sluicing involves re-occurrences that are not interpreted pragmatically as new uses—material in the elided TP seems to be unable, at least in the general case, to introduce new discourse referents. Compare (32) with (33):

(33) Jill asked where someone had committed a crime, and Jack asked when.

The effect is replicated in the example pairs in (34)–(38). In each pair, the indefinite that putatively occurs in the sluice in the b example cannot be understood as introducing a new discourse referent:

- (34) a. We know what someone was reading, but we don't know to who someone was reading.  
 b. We know what someone was reading, but we don't know to who.
- (35) a. Although we know who someone spoke to, we don't know what someone spoke (to someone) about.  
 b. Although we know who someone spoke to, we don't know what about.
- (36) a. Jill wondered why Tracy dated a student, and Fred wondered for how long Tracy dated a student.  
 b. Jill wondered why Tracy dated a student, and Fred wondered for how long.
- (37) a. A high government official was critical of the *New York Times*, but it's not clear what other newspapers a high government official was critical of.  
 b. A high government official was critical of the *New York Times*, but it's not clear what other newspapers.
- (38) a. Someone from Santa Cruz talked to SAM, but we're not sure who else someone from Santa Cruz talked to.  
 b. Someone from Santa Cruz talked to SAM, but we're not sure who else.

#### **A Contrast: VP Ellipsis and Missing Antecedents**

- (39) a. Kate is reading a book, and I am too.  
 b. Kate is reading a book, and I am reading a book too.
- (40) a. \*I've never ridden a camel, and it was of the two-humped variety.  
 b. I've never ridden a camel, but Ivan has, and it was of the two-humped variety.

Grinder and Postal (1971), Hankamer and Sag (1976)



**A Conjecture:** this contrast between sluicing and VP ellipsis is correlated with the size of the ellipsis site.

Sluicing and VP ellipsis differ in whether the content that must be supplied by copying of an antecedent XP is larger or smaller than the domain of existential closure, which we take to be the smallest constituent in which all the predicate's arguments have had a chance to be introduced (see Chung and Ladusaw (2004)). In sluicing, the missing content is larger than the domain of existential closure, so that the re-used expression has a complete interpretation in terms of a discourse model. The re-occurrence of the expression in the sluice provides that model to the interpretation.

In VP ellipsis, on the other hand, the missing content is smaller than the domain of existential closure, so any indefinites that are copied over from the antecedent VP can become existentially closed 'again' in the new domain, with the result that new discourse markers will be introduced. From this follow examples like (40b), and the missing antecedent phenomenon.

### Sluicing, E-type Anaphora, and Vehicle Change

Theories of sluicing that impose a syntactic identity condition on the elided TP and the antecedent TP encounter an apparent difficulty in cases like (41) (Romero (1998, 67–69); Merchant (2001, 201–204); Kyle Rawlins (p.c.)).

- (41)
- a. The Deans know who resigned, but they're not sure for what reasons.
  - b. He told us which kids were eating, but he couldn't tell us how much.
  - c. That's a gazebo. But I don't know who built it or why. (Merchant 2001: 201)
  - d. What interveners are able to 'get out of the way', and how? (Merchant 2001: 202)
  - e. Always, when a female physicist has been nominated, she wants to know for which award.
  - f. Every female physicist who has been nominated wants to know for which award.

Apparent interpretation:

- (42)
- a. The Deans know who resigned, but they're not sure for what reasons he resigned.
  - b. He told us which kids were eating, but he couldn't tell us how much they were eating.
  - c. That's a gazebo. But I don't know who built it or why s/he built it.

- d. What interveners are able to ‘get out of the way’, and how are they able to get out of the way?
- e. Always, when a female physicist has been nominated, she wants to know for which award she has been nominated.
- f. Every female physicist who has been nominated wants to know for which award she has been nominated.

If sluicing involves re-use of a TP from previous discourse without the introduction of new discourse markers, then a way of understanding (41) becomes available.

The elided TP’s in these examples do not, as a matter of morphosyntactic substance, contain pronouns at all. The E-type pronoun effect in interpretation is the natural result of copying the antecedent TP with its closed interpretation. (41a) again:

- (43) The Deans know [<sub>CP</sub> *who*<sub>1</sub> [<sub>TP</sub> *who*<sub>2</sub> resigned]], but they’re not sure [<sub>CP</sub> for what reasons [<sub>TP</sub> *who*<sub>3</sub> resigned]].

In (43), *who*<sub>1</sub> and *who*<sub>2</sub> are different occurrences of a single use of *who*, related by Internal Merge. In the ellipsis, *who*<sub>3</sub> is a further occurrence of this use of *who*, related to the other two by the larger re-use of TP that sluicing involves. The E-type pronoun interpretation of *who*<sub>3</sub> is, on this view, a natural consequence.

## 8 The Broader Picture and Some Open Issues

- A. How secure is the generalization that new discourse referents are not introduced by material inside the ellipsis in sluicing?
  - (44) MARY was swindled by a lawyer, and it’s not clear who else.
  - (45) A lawyer swindled MARY, and it’s not clear who else.
- B. Our claim that sluicing involves the re-use of linguistic material leans heavily on the connection between re-use in ellipsis and the creation of multiple occurrences of a syntactic object in Internal Merge. While the connection is rhetorically useful, what exactly does it consist of, formally and theoretically?
- C. Romero’s and Merchant’s theories offer admirably successful accounts of merger, but deal less well with sprouting. Our approach does a good job of handling sprouting; but can it be successfully generalized to merger?
- D. Our discussion adds to the list of known contrasts between sluicing and VP ellipsis (tolerance of voice mismatches, the ability to introduce new discourse referents, island repair, cross-linguistic generality). It may be more challenging to achieve a unified theory of ellipsis than is sometimes supposed.

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