Multiple Sluicing in English?

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Abstract. Several cases have been discovered where syntactic violations seem to be "repaired" by sluicing. One such case is repair of island violations, first observed by Ross (1969). Another is situations in which a normally obligatory movement fails to apply and the derivation is seemingly salvaged by ellipsis. Another potential instance of repair by ellipsis involves cases where an element moves although it should not have, but the violation is seemingly ameliorated by sluicing. That type is the focus of this article. In particular, English does not generally allow multiple *wh*-movement, but under some circumstances it seems to allow multiple sluicing. I explore the properties of this apparent multiple sluicing in English and argue instead for a rightward movement account of the second *wh*-expression, especially based on "Right Roof" effects and on a constraint on P-stranding.

1. Introduction: Background

Ellipsis in general and sluicing in particular are known to be able to "repair" certain kinds of syntactic violations. For instance, Ross 1969, the classic study of sluicing, contains the very important observation that island violations are significantly improved when sluicing takes place. Ross gives the following examples, with (1) as baseline data involving no island. The "??" judgment for the sluicing examples is Ross's. Many speakers find them perfect or virtually so.

(1) I believe that he bit someone, but they don't know who (I believe that he bit).

(2) a.   *I believe the claim that he bit someone, but   Complex-NP Constraint,
           they don't know who I believe the claim   noun complement
           that he bit.
     b. (??)I believe the claim that he bit someone, but they don't know who.

(3) a.   *Irv and someone were dancing together, but   Coordinate Structure
           I don't know who Irv and were dancing together.   Constraint
     b. (??)Irv and someone were dancing together, but I don't know who.

(4) a.   *She kissed a man who bit one of my friends,   Complex-NP Constraint,
           but Tom doesn't realize which one of my   relative clause
           friends she kissed a man who bit.
     b. (??)She kissed a man who bit one of my friends, but Tom doesn't realize
           which one of my friends.

(5) a.   *That he'll hire someone is possible,   Sentential Subject Constraint
          but I won't divulge who that he'll hire is possible.
    b. (??)That he'll hire someone is possible, but I won't divulge who.

See Merchant 2001 for extensive illuminating discussion of this particular repair phenomenon. Below, I will mention an account of the facts.

   Lasnik (2001b) and Merchant (2001) discuss another sort of repair by sluicing: a case where a normally obligatory movement does not apply, and sluicing renders the result acceptable. Ross (1969) regarded sluicing as an embedded-*wh*-question phenomenon. He gave examples such as (6).

(6) Speaker A: Mary will see someone.
     Speaker B: I wonder who ~~Mary will see~~.

The construction is very plausibly analyzed as *wh*-movement followed by IP ellipsis. This was essentially Ross's account, taken up again by Saito & Murasugi (1990) and Merchant (2001). However, sluicing is not limited to embedded questions. It can also occur in matrix *wh*-questions:

(7) Speaker A: Mary will see someone.
     Speaker B: Who ~~Mary will see~~?

The interesting fact is that the normally obligatory raising of Infl to C (in matrix interrogatives) does not apply.

(8) *Who Mary will see?

(9)   Who will Mary see?

Assume, as is standard, that matrix interrogative C contains the strong feature that triggers the overt raising of T, with the matching feature of Infl (presumably a tense feature) raising overtly to check it. Now, roughly following Ochi (1999), suppose that this leaves behind a phonologically defective Infl, which will cause a PF crash unless either pied-piping or deletion of a category containing that Infl (sluicing) takes place. The phrase-structure tree in (10) illustrates the latter option.

(10)

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                    CP
              _____|_____
            NP            C'
            who      _____|_____
                   C          IP  ✄
              [strong F]   ____|____
                         NP        I'
                         Mary   ___|___
                               I      VP
                              will     |
                                      V'
                                   ___|___
                                  V      NP
                                 see      t
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2. Repair of an Excess of Movement?

I turn now to another kind of conceivable repair by ellipsis: a situation where something should not have moved at all (at least overtly) but apparently did, with the result seemingly rendered acceptable by sluicing. First some background: Not surprisingly, in languages with multiple *wh*-fronting (such as Bulgarian and Serbo-Croatian), multiple sluicing (sluicing with multiple survivors) is possible:[1]

(11) Njakoj   vidja njakogo, no ne znam   koj kogo   Bulgarian
     someone saw   someone   but not I-know who whom   (Richards 1997)
     [vidja].
     saw

(12) Neko   je vidio nekog,   ali ne znam   Serbo-Croatian
     someone is seen someone but not I-know   (Stjepanovic 2003)
     ko   koga   [je vidio].
     who   whom   is seen

Surprisingly, at least some multiple sluicing is allowed in at least some *non*-multiple-*wh*-fronting languages:[2]

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[1] See Merchant 2001:109–114 for extensive discussion of this in seven languages.

[2] As far as I know, all of the published examples involve exactly two *wh*-phrases. However, three *wh*-phrases also seem possible:

(i) ?One of the students spoke to one of the professors about something, but I don't know which to which about what.

(13)   I know that in each instance one of the girls got something from one of the boys.
?But which from which?   (Bolinger 1978)

(14)   I know that in each instance one of the girls got something from one of the boys.
?But they didn't tell me which from which.   (Nishigauchi 1998)

Compare:

(15) *They didn't tell me which from which got something.

Some further examples:

(16) ?One of the students spoke to one of the professors, but I don't know which to which.

(17) *One of the students spoke to one of the professors, but I don't know which to which spoke.

Richards (1997, 2001) offers an intriguing account of this surprising possibility, involving a sort of repair by ellipsis, of these apparent multiple-sluicing constructions. Richards proposes the following theory of chains and overt movement, all assuming the copy theory of movement:

(18) PF must receive unambiguous instructions about which part of a chain to pronounce (and only a single member of the chain will be pronounced).

(19) A strong feature instructs PF to pronounce the copy in a chain in which it is in a feature-checking relation.

Suppose a weak feature overtly attracts an item. The resulting chain would then contain two members, with no instruction about which to pronounce. It is reasonable to conclude that the derivation crashes at PF. This directly contrasts with the situation where the attracting feature is strong, in which case PF is instructed to pronounce the head of the chain.

   As Richards notes, his approach does not absolutely bar overt weak-feature-driven movement. One exception involves ellipsis. Suppose a weak feature drives movement out of what will become an ellipsis site. In this case, PF only has to consider a single position for pronunciation (the head of the chain), because nothing in the ellipsis site will be pronounced. This is the basis of Richards's analysis of apparent multiple

sluicing in languages lacking overt multiple *wh*-movement. Richards gives the following example, adapted from Bolinger 1978:

(20) I know that in each instance one of the girls got something from one of the boys. But they didn't tell me which from which.[3]

Note that without sluicing, this would be impossible:

(21) I know that in each instance one of the girls got something from one of the boys. *But they didn't tell me which from which got something.

In a language like English, then, some of the features on C^0 driving *wh*-movement are weak. Example (21) is correctly ruled out, as the representation will contain two copies of the second *wh*-phrase, with no instruction as to which to pronounce. (Assuming that movement of the first *wh*-phrase is driven by a strong feature, no problem arises for it, or, for that matter, for a simple *wh*-movement example with one *wh*-phrase.) On the other hand, when the IP is elided, as in (20), the *wh*-chain will be legitimate, containing only a single candidate for pronunciation.[4]

Merchant (2001) suggests a rather similar account, also involving a kind of repair by ellipsis. Merchant suggests first that Procrastinate is a "local" requirement, encoded as a feature of a trace. Moving overtly when covert movement would have been possible leaves this feature on the trace (perhaps ultimately resulting in a PF crash). If the IP containing the trace is deleted, the defective feature is no longer present at the PF interface, so the violation is repaired. Merchant also suggests an Optimality-Theoretic account. Suppose the constraint against movement penalizes PF occurrences of traces. Then the deletion of a containing structure "would allow perfect satisfaction of the lower-ranked constraints favoring multiple movements." Under either account, "deletion converts an otherwise suboptimal candidate to an optimal one" (Merchant 2001:112–113).

3. Maybe Not Multiple Sluicing

Nishigauchi (1998) discusses examples like Bolinger's, concluding that these are not really multiple sluicing. Nishigauchi proposes that whereas the first *wh*-phrase is indeed in Spec,CP, the second occupies some other position. He suggests that (20) is actually similar (though not identical) to gapping. Richards (2001) points out several respects in which English multiple sluicing differs from gapping.[5] Most obviously, gapping obeys an extraordinarily strict locality condition such that the gapped clause must be conjoined with the corresponding nongapped clause (examples are mine):

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[3] Richards, among others, notes that in the best such examples, the second *wh*-phrase is a PP. Richards offers no account of this. I will return to this phenomenon.

[4] I slightly modify Richards's discussion to focus just on the second *wh*-phrase.

[5] Nishigauchi had already noted some of these.

(22)   Mary talked about *Syntactic structures* and John about "Conditions on transformations."

(23)   *Mary talked about *Syntactic structures* and I think John about "Conditions on transformations."

(24)   I think that Mary talked about *Syntactic structures* and John about "Conditions on transformations."

(25)   *I think that Mary talked about *Syntactic structures* and that John about "Conditions on transformations."

Multiple sluicing is subject to no such constraint:

(26)   In each instance, one of the students talked about one of Chomsky's works, but I don't know exactly which about which.

In this regard, as Richards notes, multiple sluicing is more like sluicing than like gapping. But, in fact, in this regard, multiple sluicing is more like *any* other English ellipsis process than like gapping. Gapping is the only known ellipsis process with this super-strict locality constraint.[6]

Merchant (2001), who, as mentioned before, suggests an account of English examples like (20) in terms of genuine multiple sluicing (i.e., multiple *wh*-movement followed by IP deletion), does acknowledge the likelihood that the movement of the noninitial remnant is not carried out by *wh*-movement, but by some much more local operation. In what follows, I will pursue that possibility. For now, I turn to the phenomenon that Merchant brings up in this connection: "One striking fact about multiple sluices in the languages above is that they tend not to be separated by a tensed clause boundary" (2001:113). I illustrate this phenomenon here. Example (27) displays normal long-distance *wh*-movement in English.

(27)   Which one of the professors did the students say that Mary spoke to?

Of course, standard sluicing is possible here:

(28)   The students said that Mary spoke to one of the professors, but I can't remember which professor ~~the students said that Mary spoke to~~.

But multiple sluicing is not possible with one *wh*-phrase associated with the matrix clause and the second with the embedded clause:

(29)   *One of the students said that Mary spoke to one of the professors, but I don't know which student to which professor.

[6] A reviewer suggests that stripping might be another exception.

In the absence of interfering factors, this is unexpected on both Merchant's and Richards's accounts, given that on those accounts, both *wh*-phrases are undergoing standard *wh*-movement.

To further explore this issue, it will be instructive to consider a normal multiple-*wh*-movement language. As mentioned earlier, in languages with multiple *wh*-fronting (such as Bulgarian), multiple sluicing (sluicing with multiple survivors) is rather freely possible, as seen in the following two examples from Richards 1997 and Stjepanovic 2003, respectively:

(30) Njakoj vidja njakogo, no ne znam   koj kogo ~~[vidja]~~. Bulgarian
     Someone saw someone but not I-know who whom (saw)

(31) Neko   je vidio nekog,   ali ne znam   ko   Serbo-Croatian
     someone is seen someone but not I-know who
     koga   ~~[je vidio]~~.
     whom   (is seen)

The important question now is whether such multiple sluicing is possible across a clause boundary. Apparently it is. Six of my seven Serbo-Croatian informants report that the following example is quite good (though two find it a bit "hard to parse"):

(32) a. Neko   misli da je Ivan nesto   pojeo.
        someone thinks that is Ivan something ate
        'Someone thinks that Ivan ate something.'
    b. ?Pitam se   ko   sta.
        Ask   self who what
        'I wonder who what.'

A seventh informant rejects the example. Significantly, these judgments track their judgments for multiple *wh*-movement *without* sluicing. The first six speakers accept the following example while the seventh rejects it:[7]

(33) Ko   sta   misli da je Petar pojeo?
    who what thinks that is Petar eaten
    'Who thinks that Petar ate what?'

If this pattern holds more generally, in this language with genuine multiple *wh*-movement, there is no evidence for a finite clause constraint on multiple sluicing per se.[8]

The English phenomenon we have been looking at, then, has a special locality constraint. As alluded to in footnote 3, there is one additional requirement as well:

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[7] I am grateful to Chris Laterza for helping me collect the Serbo-Croatian data.
[8] I put aside consideration of the constraint at work in multiple *wh*-movement.

The second *wh* strongly prefers to be a PP. There is a notable contrast between the following two examples.[9]

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

(35) ?*Someone saw something, but I can't remember who what.

A parallel contrast seems to show up when both *wh*-phrases are complements:

(36)   ?Mary showed something to someone, but I don't know exactly what to whom.

(37) ?*Mary showed someone something, but I don't know exactly who what.

4. Focus Movement?

This combination of constraints is reminiscent of what we find in another process: rightward focus movement. The first of the constraints shows up as a constraint in Ross's 1967 thesis (Ross 1986), often called the Right Roof Constraint, which prevents rightward movement out of the minimal containing clause:[10]

(38) Any rule whose structural index is of the form…A Y, and whose structural change specifies that A be adjoined to the right of Y, is upward bounded.

I will return to extensive consideration of Right Roof effects with English (apparent) multiple sluicing. As for the superior acceptability of PP over DP as the second *wh*-remnant, this too is similar to what is found with rightward movement. First note the following contrast:

(39) a.   Some students spoke yesterday to some professors.
      b.   *Some students saw yesterday some professors.

In fact, we can construct a near perfect minimal pair:

(40) a.   Some students met yesterday with some professors.
      b.   *Some students met yesterday some professors.

As is well known, "heaviness" is a factor in extraposibility, as discussed by Ross (1986) and Fiengo (1980) among many others. However, that requirement seems limited to situations where it is a DP that tries to extrapose:

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[9] Not all speakers find this contrast. In fact, one anonymous reviewer finds both examples good, and another finds them both bad. But there are a good number of speakers who find a significant contrast. See Appendix B for more discussion of the facts.

[10] As far as I can tell, this name was first used by Grosu (1972). The constraint was then discussed in more detail in Grosu 1973.

(41) a. *Mary saw yesterday Harry.
       b.   Mary saw yesterday her old friend Harry.
       c.   Mary saw yesterday Harry Hetherington.

(42) Mary spoke yesterday to him.

Even though the PP in (42) is very light, it still can be extraposed, unlike the situation with DPs. In passing, I note that this suggests that there are (at least) two different extraposition processes at work: one for phrases other than DPs and one for heavy DPs (or heavy phrases; given the first process, it is hard to tell). Multiple sluicing tracks extraposition quite well:

(43) a. Who was talking yesterday to who?
       b. Someone was talking (yesterday) to someone, but I don't know who to who.

(44) a. ?*Who bought yesterday what?
       b. ?*Someone bought something, but I don't know who what.

Furthermore, it seems to me that if when the second *wh*-phrase is a DP it is made heavier, both extraposition and multiple sluicing improve:

(45) a.   Which linguist criticized yesterday which paper about sluicing?
       b. ?Some linguist criticized (yesterday) some paper about sluicing,
             but I don't know which linguist which paper about sluicing.

Finally, rightward DP movement is well known not to affect the object of a preposition, as first discussed by Ross (1986):[11]

(46) *A linguist spoke about yesterday a paper on sluicing.

Compare:

(47) A linguist criticized yesterday a paper on sluicing.

The second *wh*-phrase in multiple sluicing seems subject to the same constraint, although the effect is perhaps less pronounced:

(48) Some linguist spoke about some paper on sluicing, but I don't know which
        linguist ?*(about) which paper on sluicing.

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[11] See Drummond, Hornstein & Lasnik 2010 for recent discussion of this constraint.

Needless to say, none of these properties hold of standard *wh*-movement.[12]

   I return now to Right Roof effects. As mentioned earlier, Ross was the first to note this special strict locality constraint on rightward movement. Interestingly, the core examples Ross gives do not actually motivate the constraint:

(49) *That Sam didn't pick those packages up   Relative-clause extraposition
         is possible which are to be mailed tomorrow.

(50) a.   That a review came out yesterday of this article is   PP extraposition
            catastrophic.
       b.   *That a review came out yesterday is catastrophic of this article.

True, these both violate the Right Roof Constraint. But they also both violate Ross's Sentential Subject Constraint, which bars extraction out of a clause that is itself the subject of a clause. However, there is other evidence for the constraint. For example, a PP complement can rather freely extrapose to the end of its own clause:

(51) Some students spoke yesterday to some professors.

But it cannot extrapose out of its own clause into a higher clause:

(52) *Some students said that Mary will speak yesterday to some professors.

(Here the temporal adverb guarantees that the extraposition is into the higher clause.) There are certain exemptions. One involves control clauses:

(53) ?Mary wanted to go until yesterday to the public lecture.

Again, temporal considerations guarantee that the adverb is in the higher clause.
   Significantly, apparent multiple sluicing tracks both the constraint and the exemption quite well:

(54) *Some of the students wanted John to go to some of the lectures, but I'm
         not sure which to which.

(55) ?Some of the students wanted to go to some of the lectures, but I'm not sure
         which to which.

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[12] Larson (2011) notes another dissimilarity between *wh*-movement and multiple sluicing. For many speakers, the former rather strongly disfavors pied-piping:

   (i) ?*About what were you talking? (cf. What were you talking about?)

Yet, as seen earlier, PPs are acceptable (and far preferable to simple DPs) as second survivors.

As two reviewers reminded me, Merchant (2001:113, fn. 4) points out another exemption to the clause-boundedness constraint on multiple sluicing. An embedded bound pronoun in a finite clause allows for multiple sluicing, as in the following:

(56) ?Some of the students thought they would go to some of the lectures, but I'm not sure which to which.

Both of those reviewers correctly note that on my account this should correlate with a Right Roof exemption for extraposition. And, in fact, this is just what we find. One reviewer presents the following example as good, a judgment with which I concur:[13]

(57) Everybody$_1$ promised he$_1$'d bring to the potluck, when I asked, something delicious from an ex-French colony.

All of this is quite suggestive that the second *wh*-phrase in these multiple constructions has actually undergone extraposition, rather than *wh*-movement.[14] If that is so, there is yet no evidence that overtly moving an item not normally movable is a repairable violation.

5. Ellipsis as Linearization Repair?

Before proceeding, it will be worthwhile to consider the illuminating proposal of Fox & Pesetsky (2003) concerning linearization of syntactic structure. Their approach to islands and to repair by ellipsis is the most promising I am currently aware of. They argue that some of the properties of multiple sluicing also follow from that approach. The fundamental idea is that at each spell-out domain, linear ordering statements are added to an ever growing Ordering Table.[15] When ellipsis takes place, it can have a salvation effect by eliminating all statements involving deleted material, including the contradictory statements that can result from moving too far. Island violation repair is one such situation; possibility of multiple *wh*-fronting is another (similar to the

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[13] In fact, I noted the correlation in "A family of questions," a 2006 talk I presented at Nanzan University and the University of Southern California.

[14] Given that the examples of the construction under investigation cited in the literature typically have an argument PP as the second *wh*-phrase, a reviewer raises the question of whether the second *wh*-phrase can be an adverbial. It seems to me that it can, given that (i) is reasonably acceptable.

(i) Some students missed class on some holidays, but I'm not sure which students on which holidays.

This fact seems neutral between a multiple *wh*-movement account and an extraposition one, since there is no reason to think that adverbials cannot extrapose. Presumably at least one of (ii) and (iii) involves adverb extraposition, and both are acceptable.

(ii) I had a good time in 1977 in London.
(iii) I had a good time in London in 1977.

[15] This is fascinatingly reminiscent of the Table of Coreference of Jackendoff 1972, right down to the cyclic construction of the Table.

account of Richards mentioned earlier). But not everything is possible. As Fox & Pesetsky note, when two *wh*-phrases are not phasemates, they are not ordered directly. Rather, their relative order is determined by transitivity via elements at the edge of the intervening phases. According to Fox & Pesetsky, "If these connecting links are deleted, phonology doesn't know what to do with the remaining elements" (2003:27). Thus, we get a phasemate condition on multiple sluicing, accounting for the clausemate effects seen earlier. There is an important potential difference between this kind of account and the one based on the Right Roof Constraint. The former would allow multiple sluicing even out of an embedded clause, as long as the two *wh*-phrases both originate in the same embedded clause (at which point their linear ordering would be directly established). The latter would allow no such exemption. Fox & Pesetsky present a pair of examples indicating that the former is correct:

(58) Fred thinks a certain boy talked to a certain girl.
　　 I wish I could remember which boy to what girl.

(59) 　A certain boy said that Fred talked to a certain girl.
　　 *I wish I could remember which boy to what girl.

On the face of it, this pair constitutes strong evidence for the clausemate constraint on multiple sluicing, and against the Right Roof Constraint. In both (58) and (59), the second *wh*-phrase starts off in an embedded clause, so both would violate the Right Roof Constraint. On the other hand, only the latter violates the clausemate constraint, and only the latter is bad. However, I would like to speculate about an alternative account of this data. In particular, suppose that the source of the sluice in (58) is actually (60a) rather than (60b).[16]

(60) a. I wish I could remember which boy talked to what girl.
　　 b. I wish I could remember which boy Fred thinks talked to what girl.

This reading (or, as I like to call it, pseudoreading) would require a sort of accommodation, given that it was never actually asserted that a boy talked to a girl, merely that Fred thinks that it happened. Suppose we make accommodation more difficult. That is, it is not much of a discourse leap from Fred thinking X to assuming X. But if the main verb were, say, *deny*, accommodation would be essentially impossible. And, correspondingly, multiple sluicing seems considerably less available:

(61) a. 　Fred denied that a certain boy talked to a certain girl.
　　 b. ???I wish I could remember which boy to what girl.

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[16] My suggestion is strikingly reminiscent of that of Merchant (2001) for (apparent) repair by sluicing of relative clause island violations. Ironically, I rejected that possibility (for reason that I still think are valid) in Lasnik 2001b.

Notice that standard simple sluicing is not adversely affected:

(62) Fred denied that a certain boy talked to a certain girl.
      a. I wish I could remember which boy.
      b. I wish I could remember what girl.

The same pattern emerges with the verb *doubt*:

(63) a.   Fred doubts that a certain boy talked to a certain girl.
      b. ?*I wish I could remember which boy to what girl.

(64) Fred doubts that a certain boy talked to a certain girl.
      a. I wish I could remember which boy.
      b. I wish I could remember what girl.

Another potential test involves anaphor binding. The examples are, of necessity, complicated, and the judgments subtle, but I believe they lead in the same general direction. Example (65) indicates that the remnant remaining after sluicing can contain an anaphor, bound via reconstruction, whose antecedent was in the deleted context.

(65) ?John said that some pictures of himself hung on certain walls, but I'm not
        sure how many pictures of himself.

With multiple sluicing, however, acceptability degrades considerably:

(66) ?*John said that some pictures of himself hung on certain walls, but I'm not
        sure how many pictures of himself on which walls.

Example (66) contrasts with a monoclausal example:

(67) John has hung some pictures of himself on certain walls, but I'm not sure
        how many pictures of himself on which walls.

Once again, this is suggestive of a "short" source for the apparent instances of sluicing with multiple movement out of an embedded finite clause. To the extent that this is correct, we do seem to be dealing with Right Roof effects.

6. A Final Problem

The rightward-movement account I have advocated of the "extra" *wh*-phrase survivor in the English construction under consideration raises one further final question that I will outline but only cursorily discuss. The question involves sluicing situations where there is rightward movement of a non-*wh*-expression. Consider a case where there is both *wh*-movement of one item and rightward focus movement of another:

(68) Who$_i$ did Mary talk to t_i t_j yesterday [about phonology]$_j$?

Now imagine a situation supporting sluicing and focus:

(69) I know who Mary talked to yesterday about phonology, but I don't know
      who about semantics.

To my ear, this rings false; yet from what I have said so far, it should be as good as
core multiple examples like (20), repeated here as (70).

(70) I know that in each instance one of the girls got something from one of the
      boys. But they didn't tell me which from which.

Possibly the "normal" rightward focus site is not high enough to escape deletion
under sluicing and only a *wh*-element can move high enough (i.e., into essentially
the same kind of geometric relation with a *wh*-Comp that the specifier of such a
Comp has).[17] As Milan Rezac (personal communication) notes, this would reduce
the impossibility of successive cyclic movement to the impossibility of *wh*-
movement from a *wh*-position.

   Finally, there is still the pesky fact to consider that multiple sluicing in English is
marginal, not perfect.[18] On this point, I tend to agree with a conjecture of one of the
reviewers. This reviewer suggests that the extraposition operation raising the survivor
high enough to escape the ellipsis site is a marked process, because the target position
must be much higher than would normally be expected. Furthermore, it is not
unreasonable to imagine that different speakers have varying tolerance for this
markedness. I hope to undertake additional study of this.

References

Baker, C. L. 1970. Notes on the description of English questions: The role of an abstract
   question morpheme. *Foundations of Language* 6:197–219.
Bolinger, D. 1978. Asking more than one thing at a time. In *Questions*, ed. H. Hiz, 107–150.
   Dordrecht: Reidel.
Bresnan, J. W. 1970. On complementizers: Towards a syntactic theory of complement types.
   Foundations of Language 6:297–321.
Chomsky, N. 1973. Conditions on transformations. In *A festschrift for Morris Halle*, ed.
   S. Anderson & P. Kiparsky, 232–286. New York: Holt, Rinehart and Winston.
Chomsky, N. 1986. *Knowledge of language*. New York: Praeger.

[17] Perhaps this high extraposition site is one adjoined to IP. I hope to investigate this question in future
research. I should also note that, although I take extraposition to be actual rightward movement, as in
traditional generative grammatical work, a reviewer raises the intriguing possibility of restating this into a
leftward-movement-plus-remnant-VP-movement account (in which case the remnant-VP-movement step
might be bled by ellipsis). I should also note that one reviewer does not find (69) worse than (70). And, in
fact, Larson (2011) presents such examples as acceptable. To the extent that such judgments are general, the
additional mechanism suggested in the text would not be needed. Further investigation is called for here.
   [18] See Appendix B for data and discussion of the judgments.

Chomsky, N. 1995. Categories and transformations. In *The Minimalist Program*, 219–394. Cambridge, MA: MIT Press.

Drummond, A., N. Hornstein & H. Lasnik. 2010. A puzzle about P-stranding and a possible solution. *Linguistic Inquiry* 41:689–692.

Epstein, S. D. 1992. Derivational constraints on A′-chain formation. *Linguistic Inquiry* 23:235–259.

Fiengo, R. 1980. *Surface structure*. Cambridge, MA: Harvard University Press.

Fox, D. & D. Pesetsky. 2003. Cyclic linearization and the typology of movement. Ms., MIT, Cambridge, MA.

Grosu, A. 1972. The strategic content of island constraints. Ph.D. dissertation, Ohio State University, Columbus. (Published in slightly modified form as Ohio State University Working Papers in Linguistics 13. Columbus: Department of Linguistics, Ohio State University, 1972.)

Grosu, A. 1973. On the status of the so-called right roof constraint. *Language* 49:294–311.

Jackendoff, R. 1972. *Semantic interpretation in generative grammar*. Cambridge, MA: MIT Press.

Larson, B. 2011. Swiping subdued: A PP in-situ approach. Ms., University of Maryland, College Park.

Lasnik, H. 2001a. Subjects, objects, and the EPP. In *Objects and other subjects: Grammatical functions, functional categories, and configurationality*, ed. W. D. Davies & S. Dubinsky, 103–121. Dordrecht: Kluwer.

Lasnik, H. 2001b. When can you save a structure by destroying it? In *Proceedings of the North Eastern Linguistic Society 31*, ed. M. Kim & U. Strauss, 301–320. Amherst, MA: GLSA Publications.

Lasnik, H. 2002. On repair by ellipsis. In *Proceedings of the 2002 LSK International Summer Conference*, vol. 1, *Forum lectures and paper presentations*, 23–36. Seoul: I. Thaaehaksa Publishers, Kyung Hee University.

Lasnik, H. & M. Saito. 1984. On the nature of proper government. *Linguistic Inquiry* 15:235–289. (Reprinted in *Essays on restrictiveness and learnability*, H. Lasnik, 198–255. Dordrecht: Kluwer, 1990.)

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

Nishigauchi, T. 1998. "Multiple sluicing" in Japanese and the functional nature of *wh*-phrases. *Journal of East Asian Linguistics* 7:121–152.

Ochi, M. 1999. Some consequences of Attract F. *Lingua* 109:81–107.

Richards, N. 1997. What moves where when in which language? Ph.D. dissertation, MIT, Cambridge, MA.

Richards, N. 2001. *Movement in language*. Oxford: Oxford University Press.

Rizzi, L. 2010. On some properties of criterial freezing. In *The complementizer phase: Subjects and operators*, ed. E. P. Panagiotidis, 17–32. Oxford: Oxford University Press.

Rochemont, M. 1980. A theory of stylistic rules in English. Ph.D. dissertation, University of Massachusetts, Amherst.

Ross, J. R. 1969. Guess who? In *Papers from the fifth regional meeting of the Chicago Linguistic Society*, ed. R. I. Binnick, A. Davison, G. M. Green & J. L. Morgan, 252–286. Chicago: Chicago Linguistic Society, University of Chicago.

Ross, J. R. 1986. *Infinite syntax!* Norwood, NJ: Ablex. (Published version of 1967 Ph.D. dissertation, MIT, Cambridge, MA.)

Saito, M. & K. Murasugi. 1990. N′-deletion in Japanese. In *University of Connecticut working papers in linguistics 3*, ed. J. Ormazabal & C. Tenny, 87–107. Storrs: Department of Linguistics, University of Connecticut.

Stjepanovic, S. 2003. Multiple *wh*-fronting in Serbo-Croatian matrix questions and the matrix sluicing construction. In *Multiple wh-fronting*, ed. C. Boeckx & K. K. Grohmann, 255–284. Amsterdam: John Benjamins.

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Appendix A. On the Right Roof Constraint

As mentioned in the text, Ross in his 1967 thesis first noted an asymmetry in movement operations: Rightward movement is bounded, in the sense that it cannot escape the first containing clause. At the end of the thesis, Ross acknowledges, "This work has raised far more questions than it has attempted to answer. Among them are: Why should rules which adjoin terms to the right side of a variable be upward bounded, and not those which adjoin terms to the left of a variable?" (1986:291). Chomsky (1973) offers an account for the asymmetry, in terms of his theory in which all movement is bounded but can (sometimes) proceed successive cyclically, resulting in the appearance of unbounded movement. Chomsky argues that the "asymmetry of boundedness follows from the asymmetry of the Complementizer Substitution Universal" (1973:272):

(1) Only languages with clause-initial COMP permit a COMP-substitution transformation [i.e., *wh*-movement].

This is the Bresnan (1970) reformulation of the Q-Universal of Baker 1970. For Chomsky, all movement rules are bounded by Subjacency. Chomsky's formulation of Subjacency is such that items that move to Comp escape this boundedness. Furthermore, given other of the Chomsky (1973) conditions, an item in Comp can move upward only to another Comp position. Thus, "it follows that there can be, in effect, unbounded movement [only] to the left by iteration of Complementizer Substitution" (1973:272). To see this in detail, consider that there are three salient derivations potentially available. One is one-fell-swoop rightward movement, which will (generally) be straightforwardly excluded by Subjacency. Another involves successive adjunction. This will generally be ruled out by the formulation of Subjacency, which permits escape only via Comp. Finally, successive movement via Comp until a final step of rightward movement will also be excluded by the requirement that movement from Comp can only be to another Comp.

   Needless to say, this account relies on key stipulations. It will therefore be of interest to consider alternatives. Preventing the one fell swoop derivation is the least problematic aspect. Some version of Subjacency (or the Phase Impenetrability Condition) is still relevant. Another possibility is the Fox–Pesetsky approach, although only for situations where the item to be moved is not rightmost in the entire structure to begin with, as far as I can tell. The second sort of derivation mentioned

before, successive cyclic leftward movement followed by a final step of rightward movement, can be very nicely handled by the Fox–Pesetsky approach. All of the leftward movements will be fine, but the final rightward step will yield linear ordering statements that conflict with those already created. Perhaps most problematic is successive rightward movement, which might be expected to be just like its mirror-image successive leftward movement. Note that the precedence statements successively created will never be contradicted by later ones.

Here I offer a speculation about that problematic derivation, relating it to abstractly similar illicit derivations in the realms of *wh*-movement and A-movement. One long-standing problem with *wh*-movement is that once a *wh*-phrase has moved to the specifier of an interrogative C, it can move no further, as illustrated in (2), where *what* has moved through the Spec,CP just under *wonder*.[19]

(2) *What did you wonder [*t* [John bought *t*]]?

Intuitively, the moving *wh*-phrase is trying to reach an appropriate position; once it does, it is stuck there.

A-movement is known to behave is similar fashion. Overwhelmingly, A-movement from a characteristic Case-checking position is barred:

(3) *Mary is believed [*t* is a genius].

(4) *John seems to *t* [that Bill is the best candidate].

Chomsky's early description of this sounds like what I just said about (2):

> Movement is a kind of "last resort." An NP is moved only when this is required … in order to escape a violation of some principle [such as] the Case filter. (Chomsky 1986:143)

A later formulation is even more similar:

> [We must] prevent a nominal phrase that has already satisfied the Case Filter from raising further to do so again in a higher position. (Chomsky 1995:280)

Here again, once movement has reached a designated type of position, no further movement (at least of the same type) is possible.

My speculation is that successive cyclic rightward movement, at least in English, falls under the same generalization. Rightward movement in English is focus movement, as discussed by Rochemont (1980), among many others. Thus, the very first movement will be to the designated position type—focus, so no further (focus) movement will be allowed,[20] just as no further *wh*-movement was allowed in (2) and no further A-movement was allowed in (3) and (4).

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[19] See Lasnik & Saito 1984 and Epstein 1992 for some early discussion.
[20] A reviewer notes that this is similar in spirit to the "criterial freezing" of Rizzi (2010).

One significant question still remains. I have argued for a rightward movement account (i.e., of the second *wh*-phrase) of apparent multiple sluicing in English based on Right Roof effects. However, because sluicing repairs a variety of violations, as discussed earlier, the mystery now is why the Right Roof violation of one-fell-swoop movement (when the second *wh*-phrase is originally rightmost in its own clause) cannot be repaired. Possibly all that can be said at this point is that different operations have different repair potential. I will try to do slightly better than that, relating this problem to one that arose in my treatment of overt object shift in Lasnik 2002. There the question was why pseudogapping (which I analyzed as VP ellipsis following A-movement of the survivor) cannot repair overly long A-movement, thereby falsely allowing examples like (5):

(5) *Susan thought Mary studied Bulgarian and John did ~~think Mary studied~~ Macedonian.

I proposed that this falls under the prohibition of A-movement from a Case position. This was based on the arguments of Lasnik (2001a) that the base direct-object position is a Case position; raising to Spec,Agr_O is not crucial for accusative Case licensing. Now notice that extraposition is not the only focus strategy in English; focus in situ is also available. But then for a focused element, even if it does not undergo a short initial step of extraposition, movement to a distant focus position will still be disallowed. The final question is parallel to the final question that arose for my A-movement analysis of pseudogapping: Given that the direct object begins in a Case position, how is it ever permitted to undergo A-movement to Spec,Agr_O? The parallel question here is: Given that a focused element in situ is already in a focus position, how is extraposition *ever* possible? In both instances, long movement is blocked, but short movement is allowed. My speculation about A-movement can, I believe, carry over to extraposition. The permitted short cases of movement are all internal to a phase; the banned long cases are all across the boundary of a phase. If all checking within a phase is simultaneous, then just this result obtains.

Appendix B. On the Judgments

Although most of the major judgments reported in this article have appeared in the literature going back to the 1970s and, as far as I know, have not been challenged, I admit that they are somewhat delicate. In fact, one skeptical reviewer claims that they are spurious, with multiple sluicing examples in English, such as (1) (presented by Bolinger and then by Richards), being almost completely unacceptable.

(1) One of the students spoke to one of the professors, but I don't know which to which.

This reviewer reports that, for him/her, the example is not obviously different in status from (2), an unacceptable instance of the Comp-trace effect.

(2) She's the kind of girl that you never know if is telling you the truth.

The reviewer also ran a small acceptability judgment experiment that apparently confirms his/her judgments. In particular, 31 subjects were asked to rate on a scale of 1 (completely well formed) to 5 (completely ill formed) various examples, including (1) and (2) above, and also an example (not quoted in the review) of what the reviewer calls "routine sluicing." The mean acceptability ratings of these examples were as follows:

(3) Example (1) rating: 3.2
    Example (2) rating: 3.8
    "Routine sluicing" rating: 1.4

Prompted by the editor to address this reviewer's concerns about the data, I ran a small experiment with 29 subjects.[21] I sent a list of 12 sentences to my department's listserv (which mainly includes faculty, staff, graduate students, and undergraduate research assistants). Like the reviewer, I asked for the examples to be rated on a scale of 1 (completely well formed) to 5 (completely ill formed). My results were rather different, confirming the usual claims in the literature, at least to the extent that the multiple-sluicing example is significantly better ($t(52) = 3.97$, $p < 0.0002$) than the Comp-trace example (although still significantly worse than my routine-sluicing example (5), shown below, as briefly discussed in the main text):

(4) Example (1) rating: 2.3
    Example (2) rating: 3.7
    "Routine sluicing" rating: 1.3

(5) Mary spoke to one of the professors, but I don't know which.

I also collected data on multiple *wh*-movement in English, as in (6) and its minimal pair sluicing variant (7).

(6) One of the students spoke to one of the professors, but I don't know which to which spoke.

(7) One of the students spoke to one of the professors, but I don't know which to which.

Here too, there is confirmation that we are dealing with a real phenomenon:

(8) Example (6) rating: 4.4
    Example (7) rating: 2.3

[21] I am grateful to Jeff Lidz and, especially, Shayne Sloggett for assistance with the statistical analysis.

It seems that (apparent) multiple sluicing is far more acceptable than multiple *wh*-movement with no ellipsis ($t(52) = 7.3$, $p < 0.0001$).

Finally, part of my argument relied on my claim that multiple sluicing in English is much better when the second survivor is a PP than when it is a (simple) DP, so I tested this as well using the following minimal pair:

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

(10) Someone saw something, but I can't remember who what.

Once again, the difference was highly significant ($t(52) = 4.65$, $p < 0.0001$).