

SynCom Case 98
Sluicing

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August 2003

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1. Introduction

Sluicing is the ellipsis phenomenon illustrated in (1), in which the sentential portion of a constituent question is elided, leaving only a wh-phrase remnant.

- (1)
- a. Jack bought something, but I don't know what.
 - b. A: Someone called. B: Really? Who?
 - c. Beth was there, but you'll never guess who else.
 - d. Jack called, but I don't know {when/how/why/where from}.
 - e. Sally's out hunting — guess what!
 - f. A car is parked on the lawn — find out whose.

The sluices in (1) should be compared to their non-elliptical counterparts in (2), with which they are synonymous.

- (2)
- a. Jack bought something, but I don't know what he bought.
 - b. A: Someone called. B: Really? Who called?
 - c. Beth was there, but you'll never guess who else was there.
 - d. Jack called, but I don't know {when/how/why} he called.
 - e. Sally's out hunting — guess what she's out hunting!
 - f. A car is parked on the lawn — find out whose is parked on the lawn.

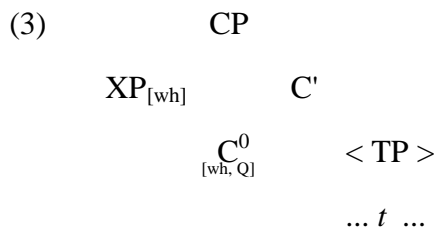
Sluicing appears to be widespread cross-linguistically (unlike VP-ellipsis), and may in fact be found in some form or another in every language (like nominal ellipses,

gapping, stripping, and fragment answers). It is found in at least English, Frisian, Icelandic, Swedish, Norwegian, Danish, Irish, Greek, German, Dutch, Russian, Polish, Bulgarian, Serbo-Croatian, Slovene, Persian, Hindi-Urdu, Catalan, Spanish, French, Italian, Romanian, Hebrew, Arabic, Basque, Japanese, Chinese, Korean, Finnish, and Hungarian.

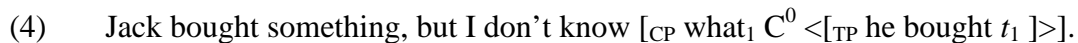
Situated as it is at the intersection of two of the best studied and most intriguing areas of generative research, namely ellipsis and *wh*-movement, it comes as no surprise that sluicing has been extensively discussed since it was first investigated (and named) in Ross 1969. Following the divisions in general for the analysis of ellipses, there are two general schools of analysis for sluicing: either the understood material is present at some level of syntactic structure or it is not. The first school, which takes sluicing to be a subspecies of ellipsis, is represented by the majority of analyses, beginning with Ross 1969, and continuing with Chao 1987, Lobeck 1991, 1995, Chung, Ladusaw, and McCloskey 1995, Lasnik 2001, and Merchant 2001, among several others. Non-structural analyses of sluicing in particular have been pursued by van Riemsdijk 1978 and Ginzburg and Sag 2000, who posit that a clausal node immediately and exhaustively dominates the *wh*-phrase.

2. Movement vs. non-movement

Among the analyses that posit structure internal to the ellipsis site, two approaches can be identified. The first, originating with Ross 1969 and pursued more recently by Lasnik 2001 and Merchant 2001 among others, analyzes sluicing as involving movement of a *wh*-phrase out of a sentential constituent (S, IP, or TP), followed by deletion of that node; this derivation is schematized in (3), where angled brackets represent deletion (or, more neutrally, enclose unpronounced material).



For an example like (1), then, the structure would be the following:



The primary support for such a derivation comes from connectivity effects. The *wh*-phrase 'remnant' in sluicing shows similar behavior across a wide range of grammatical dependencies to its *wh*-phrase counterpart in fully sentential, non-elliptical structures. These connectivity effects range from case-matching effects, preposition-stranding parallelisms, and binding phenomena.

First, as noted in Ross 1969, the sluiced *wh*-phrase must bear the case that its counterpart in a nonelided structure would bear. This is illustrated for German below.

- (5) Er will jemandem schmeicheln, aber sie wissen nicht, { *wer / *wen / wem }.
he wants someone.DAT flatter but they know not who.NOM who.ACC who.DAT
 ‘He wants to flatter someone, but they don’t know who.’
- (6) Er will jemanden loben, aber sie wissen nicht, { *wer / wen / *wem }.
he wants someone.ACC praise but they know not who.NOM who.ACC who.DAT
 ‘He wants to flatter someone, but they don’t know who.’

Compare these to their nonelided counterparts:

- (7) Sie wissen nicht, { *wer / *wen / wem } er schmeicheln will.
they know not who.NOM who.ACC who.DAT he flatter wants
 ‘They don’t know who he wants to flatter.’
- (8) Sie wissen nicht, { *wer / wen / *wem } er loben will.
they know not who.NOM who.ACC who.DAT he praise wants
 ‘They don’t know who he wants to praise.’

Similar facts are found in all case-marking languages that relevant data is available for: English, Greek, Dutch, Finnish, Hungarian, Russian, Polish, Czech, Slovene, Hindi, Basque, Turkish, and Korean.

Second, there is a correlation between the availability in a given language for preposition-stranding wh-movement and the possibility for sluicing a wh-phrase without a preposition which corresponds to a correlate marked by a preposition. In general, a language *L* will allow preposition stranding under sluicing if *L* allows preposition stranding under regular wh-movement. The relevant facts are given here for selected languages of both kinds.

Preposition-stranding languages:

(9) English

- a. Peter was talking with someone, but I don’t know (with) who.
 b. Who was he talking with?

(10) Frisian

- a. Piet hat mei ien sprutsen, mar ik wyt net (mei) wa.
Piet has with someone talked but I know not with who
 b. Wa hat Piet mei sprutsen?
who has Piet with spoken

(11) Norwegian

- a. Per har snakket med noen, men jeg vet ikke (med) hvem.
Per has talked with someone but I know not with who
 b. Hvem har Per snakket med?
who has Per with spoken with

(12) Danish

- a. Peter har snakket med en eller anden, men jeg ved ikke (med) hvem.
Peter has talked with one or another but I know not with who
 b. Hvem har Peter snakket med?
who has Peter spoken with

Non-preposition-stranding languages:

(13) Greek

- a. I Anna milise me kapjon, alla dhe ksero *(me) pjon.
the Anna spoke with someone but not I.know with who
- b. * Pjon milise me?
who she.spoke with

(14) German

- a. Anna hat mit jemandem gesprochen, aber ich weiß nicht, *(mit) wem.
Anna has with someone spoken but I know not with who
- b. * Wem hat sie mit gesprochen?
who has she with spoken

(15) Yiddish

- a. Zi hot mit emetsn geredt, ober ikh veys nit *(mit) vemen.
she has with someone spoken but I know not with who
- b. * Vemen hot zi mit geredt?
who has she with spoken

(16) Russian

- a. Anja govorila s kem-to, no ne znaju *(s) kem.
Anja spoke with someone, but not I.know with who
- b. * Kem ona govorila s?
who she spoke with

(17) Slovene

- a. Anna je govorila z nekom, ampak ne vem *(s) kom.
Anna aux spoken with someone but not I.know with who
- b. * Kom je govorila Anna s?
who aux spoken Anna with

(18) Bulgarian

- a. Anna e govorila s njakoj, no na znam *(s) koj.
Anna AUX spoken with someone but not I.know with who
- b. * Koj e govorila Anna s?
who aux spoken Anna with

(19) Serbo-Croatian

- a. Ana je govorila sa nekim, ali ne znam *(sa) kim.
Ana AUX spoken with someone but not I.know with who
- b. * Kim je govorila Ana sa?
who aux spoken Anna with

(20) Persian

- a. Ali ba kasi harf mi-zad, ?ama ne-mi-dan-am *(ba) ki.
Ali with someone talk PROG-hit.3sg but not-PROG-know-I with who
- b. * Ki Ali ba harf mi-zad?
who Ali with talk PROG-hit.3sg

(21) Hebrew

- a. Dani katav le-mishehu, aval ani lo yode'a *(le-)mi.
Dani wrote to-someone, but I not know to-who
- b. *Mi Dani katav le?
who Dani spoke with

(22) Basque

- a. Ana-k norbait-ekin hitzegin zuen, baina ez dakit nor-*(ekin).
Ana-ERG someone-with talk.to aux but not know who- with
- b. *Nor hitzegin zuen -ekin?
who talk.to aux with

Third, binding of elements in wh-phrase remnants is possible, as Lasnik 2001 shows.

- (23) Every linguist₁ criticized some of his₁ work, but I'm not sure how much of his₁ work <every linguist₁ criticized *t*>.
- (24) Each of the linguists criticized some of the other linguists, but I'm not sure how many of the other linguists <each of them criticized *t*>.

These parallels in distribution are immediately and straightforwardly accounted for by the deletion theory of sluicing, since the grammatical constraints that regulate case on wh-phrases, the possibility of extracting a wh-phrase from a PP, binding into wh-phrases, and scope will be operative uniformly in both elliptical and non-elliptical structures.

The second strand of analyses of sluicing which posit structure internal to the ellipsis site is represented by Lobeck 1995 and Chung Ladusaw and McCloskey 1995. For these authors, ellipses consist of a designated null category drawn from the lexicon which is replacing after S-structure/Spell-Out by a phrase marker copied from the antecedent by LF. For an example like (1), then, the derivation would contain the following structures, where the elliptical *e* in (25a) has been replaced by the boldface material in (25b).

- (25) a. at Spell-Out:
Jack bought something, but I don't know [_{CP} what C⁰ [_{TP} *e*]].
- b. at LF:
Jack bought something, but I don't know [_{CP} what C⁰ [_{TP} **Jack bought something**]].

These analyses posit no movement of the wh-remnant: it is base-generated in specCP and comes to bind a variable (supplied by the indefinite internal to the copied TP) only at LF. The primary motivation for such a movement-less approach comes from the fact, noted by Ross 1969, that sluicing appears not to respect islands—more accurately, that the wh-phrase in sluicing can be associated with (bind) a variable which corresponds in position to a correlate internal to an island in the antecedent TP.

Examples for the major kinds of syntactic islands are given (occasionally with nonelliptical controls) in (26)-(34).

- (26) *Relative clause island:*
 - a. They want to hire someone who speaks a Balkan language, but I don't remember which.

- b. * I don't remember which (*Balkan language*) they want to hire someone [who speaks__].
- (27) *Left-branch* (attributive adjective case):
- a. She bought a big car, but I don't know how big.
- b. * I don't know how big *she bought* [a __ car].
- (28) *Derived position islands* (*subjects, topicalizations*)
- a. A biography of one of the Marx brothers is going to be published this year — guess which!
- b. * Guess which (*Marx brother*) [a biography of __] is going to be published this year.
- (29) *COMP-trace effects*: (cf. Chung et al.'s 1995 (90), (91a), Perlmutter 1971:112)
- a. It appears that someone will resign, but it's not yet clear who.
- b. Sally asked if somebody was going to fail Syntax One, but I can't remember who.
- (30) *Coordinate Structure Constraint*:
- a. They persuaded Kennedy and some other Senator to jointly sponsor the legislation, but I can't remember which one. (Chung et al.'s 1995 (88b))
- b. Bob ate dinner and saw a movie that night, but he didn't say which.
- (31) *Adjuncts*:
- a. Ben will be mad if Abby talks to one of the teachers, but she couldn't remember which.
- b. * Ben will be mad if Abby talks to one of the teachers, but she couldn't remember which (*of the teachers*) Ben will be mad [if she talks to __].
- c. Ben left the party because one of the guests insulted him, but he wouldn't tell me which.
- (32) *Complement to nouns*: (Chung et al.'s 1995 (84c))
- The administration has issued a statement that it is willing to meet with one of the student groups, but I'm not sure which one.
- (33) *Sentential subject*: (Chung et al.'s 1995 (84b))
- That certain countries would vote against the resolution has been widely reported, but I'm not sure which ones.
- (34) *Embedded question*: (Chung et al.'s 1995 (84a))
- Sandy was trying to work out which students would be able to solve a certain problem, but she wouldn't tell us which one.

In (26a), for example, the wh-phrase *which* has moved out of the relative clause, interpretationally parallel to its unelided but ungrammatical counterpart in (26b). Similar remarks apply to the remaining islands.

If island sensitivity arises only from movement structures, as is usually assumed, the non-movement approaches (employing either LF-copying as above or eschewing structure at all, as Ginzburg and Sag 2000 do) have an immediate account of the absence of islands effects in sluicing.

3. Theoretical consequences

It is fair to say that the greater part of the work on sluicing has been devoted to various attempts to make theoretical sense out of the conundrum presented above: how to account for the connectivity effects (which seem to implicate movement structures) as well as the lack of island effects (which seem to implicate the opposite). The following two subsections explicate the tacks that have been taken.

3.1. Non-movement approaches

For non-movement approaches such as Lobeck 1995, Chung et al. 1995, and Ginzburg and Sag 2000, the primary explicandum is the connectivity effects, since the absence of island effects is directly captured. Chung et al. 1995 propose that at LF, a kind of coindexing applies to the wh-phrase in specCP and the correlate inside the copied TP, yielding structures like the following:

- (35) Jack bought something, but I don't know [_{CP} what^x C⁰ [_{TP} **Jack bought something^x**]].

If this coindexing can be made to impose case uniformity, then the case connectivity effects can be accounted for. The P-standing facts are more problematic: it is unclear just how to rule out the following:

- (36) *I Anna milise me kapjon, alla dhe ksero [_{CP} pjon^x [**i Anna milise me kapjon^x**]].
the Anna spoke with someone but not I.know who

One possibility, explored in Merchant 2000, is to require movement in the antecedent clause, prior to LF-copying: scoping the correlate (here *kapjon* 'someone') would require stranding a preposition at LF, and if Bayer 1991 is correct, this is impossible in these languages, so the requisite structure for resolution of the ellipsis at LF would be unavailable. Such a solution requires positing an additional Chain Uniformity condition that imposes category uniformity on all elements in a (even derived) chain; see Merchant 2000 for the definition of such a condition.

Similar remarks hold for Ginzburg and Sag's 2000 account of the connectivity effects. For them, sluices like the ones discussed thus far are introduced by the phrasal type *sluiced-interrogative-clause* which is a subtype of *headed-fragment-phrase* (among others). Such phrases are subject to a constraint (call it the 'uniformity' constraint; Ginzburg and Sag 2000:304 (17)) that they dominate a phrase (the wh-phrase) whose CATEGORY and CONTENT values are the same as (are coindexed with) the CATEGORY and CONTENT values of a phrase (the correlate) provided by the context. (The grammatical information of the correlate is introduced into the sign of the fragment phrase by a feature designed for this purpose called SAL-UTT.) Since case and phi-features are subsorts of CATEGORY and CONTENT respectively, this constraint will ensure that the case and phi-features of the remnant and the correlate match. Ginzburg and Sag's uniformity constraint and Merchant's Chain Uniformity condition are quite comparable in formulation and functioning. Neither condition, however, straightforwardly rules out

(36), however. For Merchant's condition, this is because nothing rules out coindexing *pjon* with *kapjon*, the latter embedded unmoved in a PP (it is for this reason that the correlate must be assumed to move as well). Similarly, nothing in Ginzburg and Sag's formulation rules out *pjon* being the head of a *hd-frag-ph* whose SAL-UTT value is the *local* value of *kapjon*. There is no obvious way to state the requirement that in some languages (e.g. Greek) but not others (e.g. English), correlates cannot be DPs selected by Ps.

3.2. Movement approaches

Movement approaches deal easily with the connectivity facts, since nothing novel need be said. For them, however, the lack of island sensitivity is the primary explicandum. We can identify two main approaches to dealing with this fact. The first approach is to reanalyze the movement involved in sluicing as one that does not in fact cross an island boundary. This strategy is pursued for those islands which include a propositional proper subdomain, such as relative clauses, clausal adjuncts, and sentential subjects, by Merchant 2001 (see also Baker and Brame 1972 for a related suggestion and Fukaya 2003). On this view, the apparent extraction out of an island such as the relative clause in (37a), with the putative (ill-formed) source in (37b), does not in fact occur.

- (37) a. They want to hire someone who speaks a Balkan language, but I don't remember which.
 b. * I don't remember which (*Balkan language*) they want to hire someone [*who speaks*__].

Instead, the extraction is local, and the desired reading is generated by interpreting the elided pronoun (whose correlate is the trace of the relative operator) as an E-type pronoun:

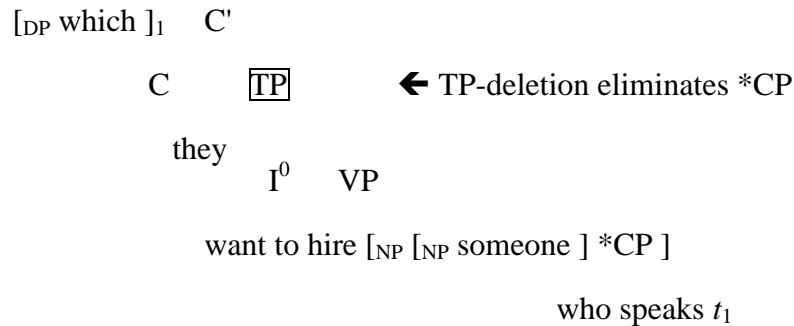
- (38) They want to hire someone who speaks a Balkan language, but I don't remember which₁ <he^{E-type} should speak *t*₁ >.

Even if such an approach works for propositional islands (though Lasnik 2001 presents evidence that raises certain difficulties), there remain a subset of islands that are unaccounted for: left branch extractions, derived position islands, COMP-trace effects, and coordinate structures. For these, movement approaches from Ross 1969 and Chomsky 1972 to Lasnik 2001 and Merchant 2001 have posited that the source of the island violation is the pronunciation of the island. For Ross, this meant that island violations were calculated across the derivation, with island violations that remained at surface structure relatively worse than those that were targeted by deletion. Chomsky 1972 proposed that crossing an island left a feature (a '*') which could be eliminated by a later deletion operation. Lasnik and Merchant pursue this idea in various forms, essentially reviving the idea and coding it as a feature of crossed island nodes or of traces (non-head copies in a wh-chain): deletion, however construed (either as an operation, as in older accounts, or as a mere reflex of the PF-interpretation of the featural content of the ellipsis-licensing head), will have the effect that at PF, the offending feature will not

be present in the representation. These two latter possibilities are illustrated in the two trees in (39) and (40), respectively.

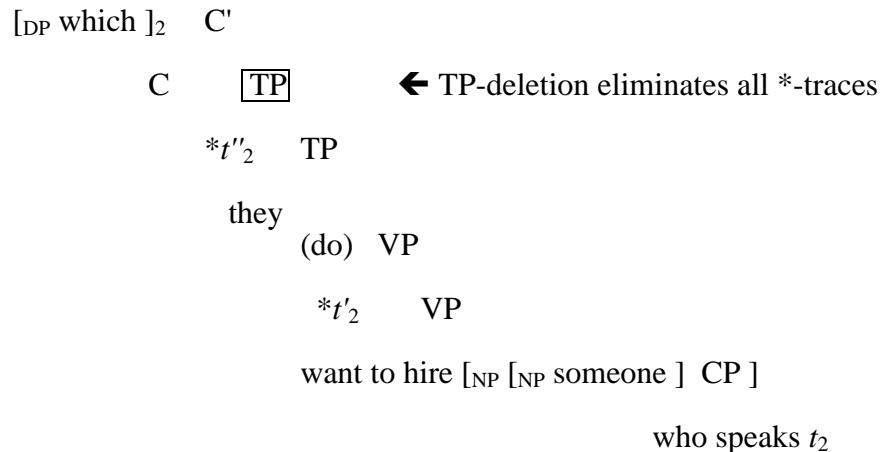
(39) a. They want to hire someone who speaks a Balkan language, but I don't remember which.

b. ... CP



(40) a. They want to hire someone who speaks a Balkan language, but I don't remember which.

b. ... CP



The central idea in both these implementations is that islands are essentially a PF phenomenon, and that ellipsis can repair an otherwise grammatically deviant structure. This notion has proven fruitful in a number of other domains in ellipsis, and in sluicing in particular.

4. Puzzles and prospects

The domain of sluicing, more so perhaps than any other ellipsis construction, seems to have more open questions than widely accepted conclusions. Far more so than with nominal ellipses or VP-ellipsis in particular, the data that fall under sluicing give rise to a host of puzzling phenomena, the majority of which have never received systematic attention in the literature, let alone theoretically satisfying explanations. This last section is devoted to enumerating these puzzles, along with various approaches to them, and in showing where fruitful areas for further research may be found.

Broadly speaking, the puzzles divide into two kinds: movements or elements which exceptionally *cannot* occur in the presence of sluicing (the sluicing-COMP puzzles), and movements which exceptionally *can* occur with sluicing (sluicing in wh-in-situ languages, multiple sluicing, and swiping).

4.1. Sluicing-COMP generalization puzzles

Given the most generally accepted picture of sluicing, namely that it consists of a wh-phrase remnant in specCP with the sentential constituent (TP) unpronounced, several puzzles emerge immediately, which can be grouped under the following generalization:

- (41) The sluicing-COMP generalization
 In sluicing, no non-operator material may appear in COMP

The term ‘operator’ here refers to the phonological exponents of the wh-phrase itself, and ‘COMP’ means, as usual, all material dominated by CP but not dominated by TP. The generalization in (41) rules out any elements in sluicing that are not part of the wh-phrase itself: moved elements like clitics, auxiliaries, etc (whether they attach to C or to the wh-phrase) as well as base-generated elements like complementizers themselves.

The first set is illustrated by the lack of subject-auxiliary inversion in matrix sluicing in the Germanic languages, as in (42), which gives the data from English, Frisian, German, Dutch, Danish, Norwegian, Swedish, Yiddish, and Icelandic, in that order.

- | | | | | |
|------|----|--------------------------------------|-----------------|-------------------|
| (42) | a. | A: Max has invited someone. | B: Really? | Who (*has)? |
| | b. | A: Jelle hat ien útnoege. | B: Soa? | Wa (*hat)? |
| | c. | A: Max hat jemand eingeladen. | B: Echt? | Wen (*hat)? |
| | d. | A: Max heeft iemand uitgenodigd. | B: Ja? | Wie (*heeft)? |
| | e. | A: Max har inviteret en eller anden. | B: Ja? | Hvem (*har)? |
| | f. | A: Anna har invitert noen. | B: Ja? | Hvem (*har)? |
| | g. | A: Anna har bjudit någon. | B: Ja? | Vem (*har)? |
| | h. | A: Moyshe hot emetsn ayngelodn. | B: Nu? | Vemen (*hot)? |
| | i. | A: Anna hefur boðið vini sínum. | B: Er að? | Hverjum (*hefur)? |
| | | <i>Anna has invited friend her</i> | <i>is that?</i> | <i>who has</i> |

A simple solution to this fact would be to order T-to-C movement after sluicing: the deletion of the TP node would bleed the raising of the auxiliary into C. Approaches that eschew additional structure under the CP node also fare well with these facts. For other approaches, these facts are taken as a window on the mechanisms of satisfaction of feature strength: Lasnik 2001 and Merchant 2001 suggest that these facts indicate either that feature-movement alone is possible (just in case the host is deleted, avoiding a PF crash) or that the strong feature that drives T-to-C movement is located on T: a strong feature internal to an ellipsis site need not move, since, by economy, it will not trigger a PF crash due to the deletion of a constituent containing it.

A similar puzzle comes from the Wackernagel clitics in South Slavic languages such as Slovene; these clitics are usually argued to cliticize onto the (first) wh-phrase in

specCP as in (43a). Under sluicing, however, such clitics are obligatorily absent, as seen in (43b).

- (43) a. Peter se je sprasheval, [_{CP} kako₁ je₂ [_{TP} Shpela t₂ popravila t₁]].
Peter REFLAUX asked what AUX Spela fixed
 ‘Peter wondered what Spela fixed.’
- b. Shpela je popravila nekako, a nisem vprashal, [_{CP} kako (*je) <>].
Shpela AUX fixed something but NEG.I.AUX asked what AUX
 ‘Shpela fixed something, but I didn’t ask what.’

Lobeck 1995:59 shows that parallel facts hold for complementizer agreement in Germanic varieties such as Bavarian, where subject features can be found as a clitic on material in COMP, unless sluicing applies:

- (44) Du woidd-st doch kumma, owa mia wissn ned wann-st (du) kumma woidd-st.
you wanted-2sg PRT come but we know not when-2sg you come wanted-2sg
 ‘You wanted to come, but we don’t know when you wanted to come.’
- (45) Du woidd-st doch kumma, owa mia wissn ned wann (*-st).
you wanted-2sg PRT come but we know not when -2sg
 ‘You wanted to come, but we don’t know when.’

The range of solutions possible for accounting for such facts seems to be similar to those proposed for the lack of subject-auxiliary inversion in Germanic.

The second set of facts that fall under the sluicing-COMP generalization concern base-generated elements, in particular complementizers. These are found in many languages, including Danish, Norwegian, Frisian, Dutch varieties, Slovene, and Irish. I give the data here from Irish only:

- (46) Cheannaigh sé leabhar inteacht ach níl fhios agam céacu ceann (*a / *ar).
bought he book some but not.is knowledge at.me which one C_{trace} / C_{pro}
 ‘He bought a book, but I don’t know which.’

Although a complementizer (either *aL* or *aN*) is obligatorily present in non-elliptical contexts in Irish, complementizers are obligatorily absent in sluicing. Two possibilities arise: first, there may be no structure other than the *wh*-phrase present, or second, the complementizer may have been incorporated into the sentential domain prior to deletion. The second possibility can be fleshed out in a variety of ways: several authors have proposed that complementizers (at least in Irish and Hebrew) cliticize onto a host internal to TP—such cliticization, clearly, would feed deletion.

Finally, I note that there are apparent exceptions to the sluicing-COMP generalization as stated, in particular from Hungarian and Japanese. It is surely no accident that these languages are commonly analyzed as not having movement into specCP overtly in questions, an issue we turn to now.

4.2. Sluicing in non-*wh*-in-specCP languages

If sluicing is contingent upon wh-movement into specCP, then it comes as some surprise that what appears to be sluicing is found in languages in which wh-phrases do not front to specCP, including both wh-in-situ languages like Japanese, Chinese, and Korean, as well as languages in which wh-phrases surface in a designated clause-internal position (often a focus position preceding the verb) such as Hungarian, Turkish, and Hindi. I give here data from Japanese and Hungarian:

- (47) Abby-ga dareka-o mi-ta ga, watashi-wa dare ka wakaranai.
Abby-NOM someone-ACC see-PAST but I-TOP who Q know.not
 ‘Abby saw someone, but I don’t know who.’
- (48) A gyerekek találkoztak valakivel de nem emlékszem, hogy kivel.
the children met someone.with but not I.remember that who.with
 ‘The kids met with someone, but I don’t remember who.’

The Japanese data in particular have been the subject of a number of studies. Two approaches can be identified. The first, proposed by Takahashi 1994, is to claim that Japanese sluicing involves a kind of movement to a clause-peripheral position (perhaps wh-movement to specCP, perhaps merely a kind of A’-scrambling), followed by deletion of the sentential node, as in English. The second assimilates the Japanese facts to a kind of reduced cleft structure, a structure I have called ‘pseudosluicing’; under these approaches (found in Shimoyama 1995, Kuwabara 1996, Nishiyama et al. 1996, Kizu 1997, Merchant 1998, Hiraiwa and Ishihara 2002, Fukaya 2003, and for another sort of sluicing, Fukaya and Hoji 1999), the unpronounced material in (47) is not due to ellipsis of a TP, but rather simply to the fact that Japanese allows a null copula and a null ‘expletive’ subject:

- (49) watashi-wa [_{CP} [_{TP} *pro* dare *copula*] ka] wakaranai
I-TOP it who Q know.not
 ‘I don’t know who <it was>.’

Such a pseudosluicing analysis has many merits for the Japanese facts, but it has never been pursued for the Hungarian-type languages. For these languages, one suggestion that has been made is that a scrambling-type movement may create the input structures for deletion or that whatever constraint prevents overt movement into SpecCP is ameliorated by the deletion itself, however such an idea is implemented (one possibility, following the reasoning concerning T-to-C movement above, would be to claim that the traces of wh-movement in these languages would trigger some kind of PF crash that deletion repairs, for example). Another possibility, following recent work by Simpson and Bhattacharya 2003 on Bangla, is that these languages in fact do have wh-movement to specCP, but that other factors in their grammars mask this movement; if such an analysis is correct, the fact that sluicing is possible would indicate that deletion can bleed the other movements involved in non-elliptical clauses.

4.3. Multiple sluicing

Multiple sluicing refers to structures in which more than one wh-phrase form remnants of sluicing, as in (50).

(50) ?Everyone brought something, but I couldn't tell you who what.

While such examples have a marginal status in English for some speakers (and even for those who accept them, such as myself and Bolinger 1978, they require a generator in the antecedent, giving rise to an obligatory pair-list reading: *Someone hit someone first, but we couldn't determine {who hit who first / *who who}*.), they appear to be fully acceptable in a number of other languages, including German, Dutch, and Greek.

- (51) a. Jemand hat was gesehen, aber ich weiß nicht, wer was.
someone has something seen but I know not who what
(lit.) 'Someone saw something, but I don't know who what.'
- b. Iemand heeft iets gezien, maar ik weet niet wie wat.
someone has something seen but I know not who what
(lit.) 'Someone saw something, but I don't know who what.'
- c. Kapjos idhe kapjon, alla dhe ksero pjos pjon.
someone.NOM saw someone.ACC but not I.know who.NOM who.ACC
(lit.) 'Someone saw someone, but I don't know who whom.'

The immediate question that such structures gives rise to concerns the nature of the movement involved in fronting the wh-phrases out of the clause, given that these languages allow only a single wh-phrase to front in non-elliptical contexts. It seems most plausible that the application of deletion to the clausal host of multiple wh-movement in these cases repairs whatever goes wrong in the non-elliptical cases; essentially, one would like to give an analysis to multiple sluicing that is parallel to the analysis of multiple wh-fronting in languages like Bulgarian which permit it in non-elliptical contexts. Expectedly, then, the analytical options that have been pursued run the gamut of those that have been proposed for multiple wh-fronting. These are the following: (1) either all wh-phrases front by wh-movement into specCP (adjoining to each other there or tucking-in; Rudin 1985, Richards 2001), or (2) the initial wh-phrase moves by wh-movement into specCP with the non-initial wh-phrases moving to distinct clause-peripheral positions (Rudin 1985, Grohmann 2003, Boskovic 2002), or (3) the wh-phrases form a wh-cluster and front together (Grewendorf 2001).

Multiple sluicing gives rise to superiority effects, which is expected under all three of the options above (illustrated here for English and Greek); these facts are more puzzling for base-generation accounts of sluicing.

- (52) a. *Everyone brought something (different) to the potluck, but I couldn't tell you what who.
- b. *Kapjos idhe kapjon, alla dhe ksero pjon pjos.
someone-NOM saw someone.ACC but not I.know who.ACC who.NOM
(lit.) 'Someone saw someone, but I don't know whom who.'

There are restrictions on the wh-phrases that can be found in multiple sluicing that do not follow merely from positing movement, and which support options (2) and (3) above over (1). In particular, multiple sluicing is more sensitive to locality than simple wh-movement is: the initial and non-initial wh-phrases must be local to one another, where ‘local’ here is roughly equivalent with clausemate, as pointed out in Takahashi 1994, Nishgauchi 1998, Heck and Müller 2000, and Merchant 2001:113:

- (53) *Everybody said Lucy’d bring something different to the potluck, but I can’t remember who₁ what₂ <t₁ said Lucy’d bring t₂ to the potluck>.

‘Clausemate’, however, is not exactly the right notion; cross-clausal multiple sluicing in German is much better across restructuring verbs like *versuchen* ‘try’ than across non-restructuring verbs like *verzögern* ‘hesitate’ (Sauerland 1999):

- (54) Irgendjemand hat {versucht / ?*verzögert } irgendetwas zu klauen,
someone has tried hesitated something to steal
 aber ich weiss nicht, wer was.
but I know not who what
 (lit.) ‘Someone {tried/hesitated} to steal something, but I don’t know who what.’

In fact, even finite, tensed, non-restructuring CP boundaries can sometimes be crossed in multiple sluicing, as long as the embedded subject is bound by the matrix subject:

- (55) Everybody_i said he_i’d bring something different to the potluck, but I can’t remember who₁ what₂ <t₁ said he₁’d bring t₂ to the potluck>.

This set of restrictions is highly reminiscent of the set of restrictions found in gapping, as discussed in detail by Johnson 1996 and to the availability of multiple-pair answers to multiple questions in English, as Dayal 2002 discusses. All of this evidence seems to point to locality restrictions on the movement found in multiple sluicing, a movement which is possible only if the host of movement is subject to ellipsis (parallel, in other words, to the repair effects found for the scrambling-like movements posited by Johnson 1996, 2001 and Richards 2001 for gapping and pseudogapping). This is not to say that multiple sluicing is a subspecies of gapping, of course, since gapping is restricted to local conjunctions and disallows backwards application right-branching languages, while multiple sluicing is not limited to conjunctions (Romero 1997) and does occur preceding its ‘antecedent’ clause (as Hoyt and Teodorescu 2003 show: *I don’t know who with who, but I am sure everyone will get hooked up with someone*).

Multiple sluicing is also found in Japanese, Bulgarian, Turkish, and Romanian, among other languages:

- (56) a. Sono toki, dareka-ga nanika-o mise-ta.
that time someone-NOM something-ACC showed

- Sikasi, dare-ga nani-o ka omoidase-nai (Nishigauchi 1998:146 (70))
but who-NOM what-ACC Q remember-not
 ‘At that moment, someone showed something (to me). (lit.) But I can’t remember who what.’
- b. Njakoj e vidjal njakogo, no ne znam koj kogo.
someone AUX seen someone but not I.know who whom
 ‘Someone saw someone, but I don’t know who saw who.’
- c. Biri bir şey gördü ama, kim ne bil-mi-yor-um.
someone something saw but who.NOM what.ACC know-NEG-PROG-1sg
 (lit.) ‘Someone saw something, but I don’t know who what.’
- d. Ion a dat cuiva ceva s,i vreau sa
Ion has given someone something and I.want SUBJ
 s,tiu cui ce. (Hoyt and Teodorescu 2003:2 (7a))
I.know whom what
 (lit.) ‘Ion gave something to someone and I want to know what to whom.’

The analytical questions raised by these languages are somewhat different than those above. For multiple wh-fronting languages like Bulgarian, Russian, Serbo-Croatian, and Romanian, the existence of multiple sluicing is expected. In Japanese, the same questions arise as did in the previous section; because Japanese allows multiple focus structures with the copula however, a solution similar to that proposed for single sluicing seems possible. There is reason to believe that these apparently similar facts across these languages do not submit to a uniform analysis, however: see Hoyt and Teodorescu 2003 for a careful examination of the differences between multiple sluicing in Romanian and that in Japanese.

4.4. *Swiping*

Monomorphemic wh-words selected by certain (generally ‘simplex’) prepositions can undergo a surprising inversion in sluicing, as illustrated by the following data:

- (57) a. Abby was talking, but I don’t know who to.
 b. They were arguing; God only knows what about.
 c. A: She got a package in the mail. B: Really? Who from?
 d. He’ll be at the Red Room, but I don’t know when till.
 e. Bees are getting into the house, but we can’t figure out where from.

This phenomenon, known as *swiping* (for sluiced wh-word inversion with prepositions (in Northern Germanic)), has been discussed by Ross 1969, Rosen 1976, van Riemsdijk 1978, Chung et al. 1995, Culicover 1999, Richards 2001, and Merchant 2002. It is also found in Danish, and, for about fifty percent of speakers consulted, in Norwegian; it is not found to my knowledge in any other language.

- (58) a. Per er gået i biografen, men jeg ved ikke hvem med. [Dan]
 b. % Per gikk på kino, men jeg veit ikke hvem med. [Nor]
Per is gone/went to cinema but I know not who with
 ‘Per went to the movies but I don’t know who with.’

Swiping exhibits a number of puzzling properties. It is limited to a small set of wh-words (*who, what, where, when*, and variably across speakers, *how long, how much, and how many*), excluding all phrasal wh-XPs as well as *which* and *whose*. It is found only in sluicing (not gapping or pseudogapping, for example). And though aggressively non-D-linking modifiers such as *the hell* or *on earth* are generally excluded from sluicing (**Somebody broke it and I want to know who the hell!*), these modifiers become possible just in case swiping applies: *They were arguing, but God only knows what the hell about.*

Ross 1969 (and Rosen 1976 following him) analyzed swiping as a result of a non-constituent deletion rule, formulated in (59).

- (59) ... [CP XP_[+wh] [IP - (P) -] ...
 1 2 3 4 OPT
 1 Ø 3 Ø

Van Riemsdijk 1978 proposed to assimilate swiping to R-pronoun inversion found in Dutch and other continental West Germanic varieties (an idea endorsed in Lobeck 1995 and Chung et al. 1995 as well):

- (60) Waarmee wou je het doen?
Wherewith wanted you it do
 ‘What did you want to do it with?’

Richards 2001:139-140 suggests that swiping is a case of stranding in an intermediate specFP:

- (61) CP
 DP₁ C C' FP
 PP₂ F F' <TP>
 t₁ ... t₂ ...

Merchant 2002 analyzes swiping as head-to-head movement of the wh-word into P⁰, a kind of incorporation during the derivation from Spell-Out to PF:

- (62) a. PP → b. PP
 t_{OP} wh_{OD} wh_{OD}+t_{OP} t_{who}

Finally, Culicover 1999 claims that swiping is ‘*sui generis*’, and that the PP is exhaustively dominated by a CP node (‘radically violating standard X'-theory’, p. 138).

All of these proposed analyses succeed in capturing some but not all of the relevant facts, and several require fairly substantial departures from widely accepted tenets of grammatical analysis as well. As such, swiping remains one of the more recalcitrant puzzles in the sluicing arena.

5. Conclusion

Sluicing remains an area of active research, primarily for two reasons: first, it sits at the intersection of ellipsis and wh-movement, two areas which continue to generate enormous research activity, and second, because it raises so many fascinating puzzles. Some of these puzzles were illustrated in the last section, which was concerned primarily with the *curiosa* from sluicing’s cabinet, phenomena which occur in conjunction with sluicing and which are anomalous from a variety of perspectives. As such, they form part of the outstanding issues for future work to address, and it can be hoped that they might shed light on other areas of the grammar, in particular on the nature of repair and the PF interface.

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Glossary

wh-movement

ellipsis

islands

preposition stranding