Sluicing and its subtypes

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Contents

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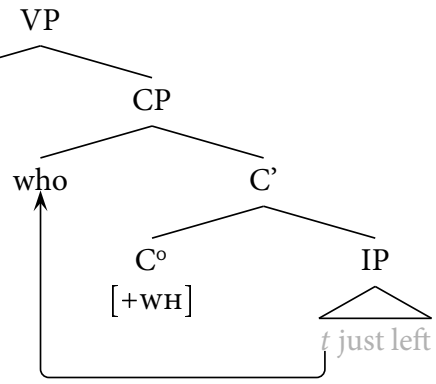
1 Introduction

1.1 Where we are coming from and where we are heading to

It is instructive to begin this chapter by going back to Ross's (1969) original treatment of sluicing, who wrote that "this rule has the effect of deleting everything but the preposed constituent of a[...] question" (p. 252).[1] By way of illustration, suppose that sluicing applies to (1a) and produces the surface string (1b), where [__] marks the position of the sluicing site. What Ross is telling us is that the best analysis for (1b) is the one in (2), where the light grey font represents lexical material that fails to be phonetically realized.[2] In other words, if we abstract away from the issue of phonetic realization, sluiced questions have the same syntax (and, by extension, compositional semantics) as their unsluiced counterparts.

(1) a. Someone just left —guess who just left!
b. Someone just left —guess who [__]!

(2) Someone just left — guess



*An abridged version of this article will appear in the *Oxford Handbook of Ellipsis* (eds. van Craenenbroeck and Temmerman), to be published by Oxford University Press in 2016. This version owes a lot to comments on a previous draft by Jason Merchant, Matt Barros, Masaya Yoshida, and Sandra Chung. Making this manuscript error-free is left as an exercise for the reader.

The abbreviations used in the glosses are: ABL: ablative; ACC: accusative; AFF: emphatic affirmation; AOR: aorist; AT: agent topic marker; AUX: auxiliary; COMP: complementizer; COP: copula; DAT: dative; EZ: *ezafe* marker; GEN: genitive; INDEF: indefinite; INST: instrumental; LOC: locative; NEG: negation; NOM: nominative; OBJ: object marker; PERF: perfective; PL: plural; POSS: possessive; PRS: present; PROG: progressive; PRT: particle; PTCP; participle; PV: preverb; Q: question particle; REL: relative pronoun; SG: singular; TOP: topic; TT: theme topic marker.

[1]The full quote characterizes sluicing as a rule that applies in *embedded* questions, which qualification Ross incorporates later on in his paper (p. 267) as condition on the actual rule formulation. As far as I know, all languages allow root as well as embedded sluicing, although only in some have these two types been claimed to behave differently (see, e.g., Hasegawa 2008 for Japanese).

[2]This tree represents Merchant's (2001) update of Ross's (1969) analysis to a contemporary P&P/Minimalism framework. Note that the exact category that the remnant moves to, as well as the category that undergoes deletion, depend to a certain extent on the granularity of the functional structure one assumes: for example, Hartman (2007), who assumes that Rizzi's (1997) decomposition of the Italian CP layer carries over to English, proposes that the remnant moves to the specifier of ForceP (with an intermediate stop in the specifier of FocusP), with deletion targeting the lower TopicP (i.e., the complement of FocusP); see also van Craenenbroeck (2004, 2010b) for a somewhat similar analysis of Dutch.

Is this a reasonably accurate analysis of sluicing? It is easier to provide a good answer to this question if we divide it into two related subquestions. The first one is whether it is empirically justifiable to assign the sluicing site a regular syntax. At its core, this chapter is an extended argument in favor of an affirmative answer. As we will see, this line of analysis can provide better insights into the properties of sluicing than alternatives (i.a., Chung et al. 1995, Ginzburg and Sag 2000, Culicover and Jackendoff 2005, Beecher 2006, Stainton 2006, Barker 2012b, Jacobson 2013) where the sluicing site contains a much less articulate, or even non-existent, syntax.

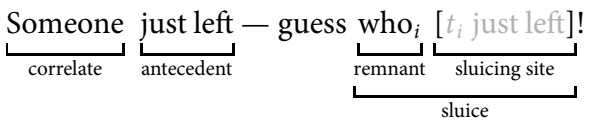
The second subquestion is whether Ross's underlying assumption that sluicing is a syntactically homogeneous construction (note the use of the phrase "this rule" in the quote above, which triggers a uniqueness presupposition) is correct. Here, the answer will be a negative one. Arguably, Ross made this assumption because the data set he explored didn't force him to consider the alternative hypothesis. However, the knowledge accumulated since 1969 suggests that (2) is only one of the several existing subtypes of sluicing (see Figure 1 below).[3] Thus, (2) can be taken as an accurate analysis of sluicing, but only for certain examples in certain languages; elsewhere, examples comparable to (1b) demonstrably have a different internal syntax for the sluicing site. The pattern that emerges, though, is a remarkable one: by and large, the internal syntax of a sluice can be identified as some strategy of wh- question formation independently available in the language in question (i.e., wh- fronting, various types of copular clauses, various types of clefts). As Gribanova (2013) eloquently puts it:

> "a key component of the argument is that certain otherwise bizarre properties of [sluicing] fall out naturally if it is taken to arise via independently motivated non-pronunciation of parts of these structures. The claim is that the properties of a particular instance of [sluicing] can be attributed to one or more of the above structures which exhibit the same properties."

This is a typology that can be covered by a straightforward extension of Ross's original analysis: if sluicing is non-pronunciation of part of a wh- question, then the observed variety of sluicing subtypes, as well as their corresponding properties, can be ascribed to the cross- and intralinguistic variation on the internal syntax and semantics of wh- questions.[4]

1.2 Remarks on terminology

Throughout this chapter, I am going to adopt the following terminology for the different subparts of the examples.



[3] I appreciate that some readers might object to the way in which I have grouped the different subtypes —for example, it could be argued that (certain) clefts are a subtype of copular clauses, (Mikkelsen 2005), or that shallow clefts are a subtype of pseudoclefts (Pinkham and Hankamer 1975, Gribanova 2013). Here I am deliberately agnostic about these issues because Figure 1 (and, by extension, this chapter) is primarily meant to be an illustration of the diversity of attested sluicing subtypes, rather than a statement about the relations among the different clause types that underlie the relevant sluices.

[4] However, there are a number of difficult cases (some of which I will mention below) where the observed properties of some sluices do not seem to correspond to any of the available wh- question formation strategies in the corresponding language. At present, it is unclear to me whether these cases constitute genuine challenges to the approach to sluicing outlined here, or are simply a consequence of poor analytical insight.

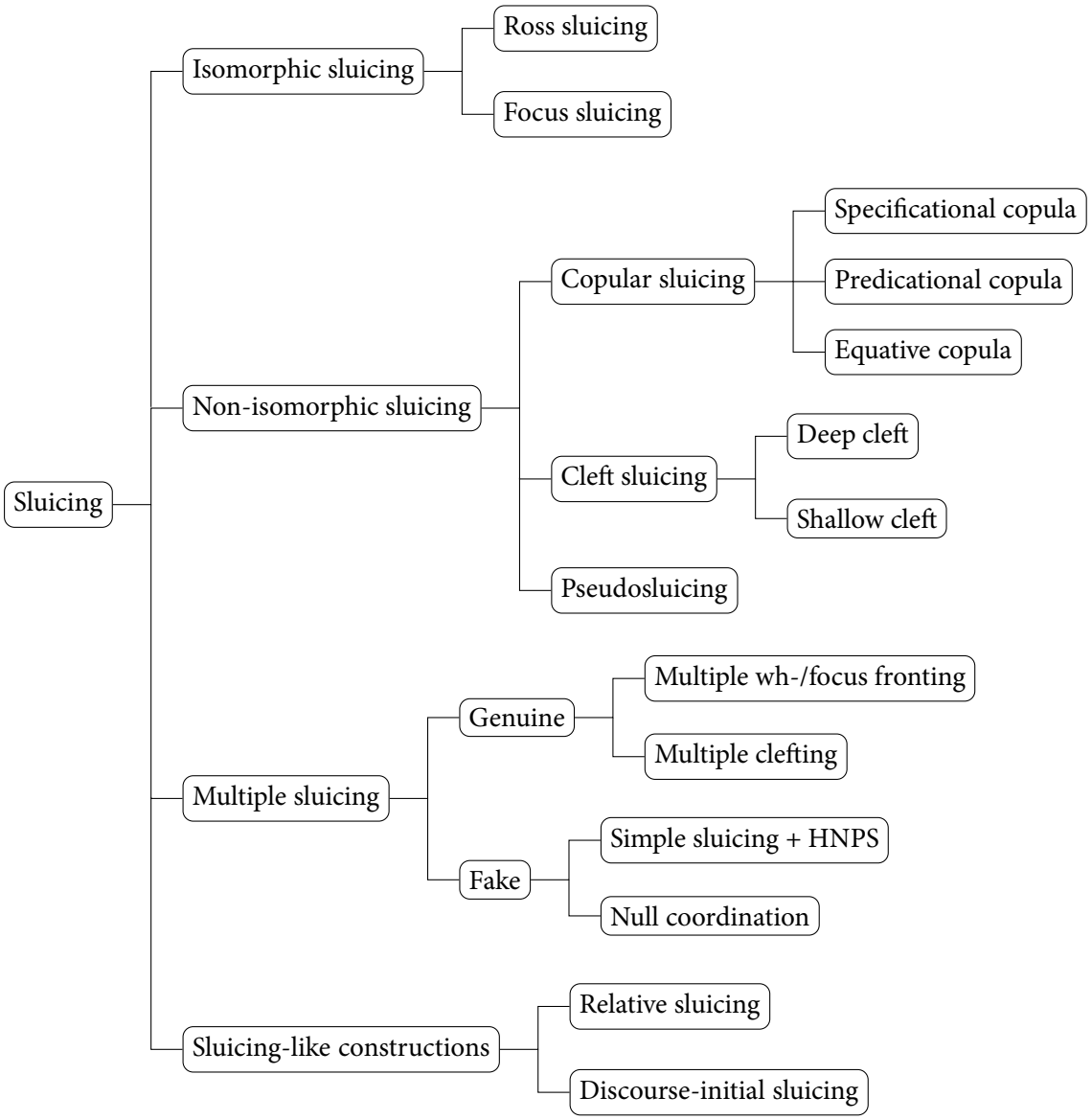


Figure 1: A taxonomy of sluicing based (mostly) on the syntax of the sluice

Attentive readers might have noticed that so far I have been using the term *sluicing* in two different ways, i.e., as a label for the surface pattern in (1b) as well as Ross's (1969) analysis of it (2). Given that this chapter revolves around the hypothesis that some cases of sluicing (in the surface-pattern sense) are not cases of sluicing (in the Ross 1969 analysis sense), this ambiguity is potentially confusing. As a solution, in the rest of this chapter I am going to use *sluicing* exclusively for the surface pattern (1b); the particular analysis of sluicing depicted in (2) will be *Ross Sluicing*.

Second, and purely for purposes of exposition, I am going to make a distinction between *isomorphic* and *non-isomorphic* sluicing. By isomorphic sluicing I simply mean that the sluice stems from the same predicate type that the antecedent clause is based on —that is, if the antecedent is a ditransitive predicate, then the sluice is a wh- question based on the same ditransitive predicate. Note that here I am deliberately ignoring the issue of whether isomorphic sluices allow

other types of form mismatches (and if so, to what extent).[5] In contrast, non-isomorphic sluices are those that stem from a cleft or a copular clause, with the antecedent crucially not being either one.

Finally, there is some confusion in the literature regarding the use of the term *pseudosluicing*. Merchant (1998) uses it to cover a certain class of Japanese sluicing-like sentences derived from an underlying cleft. Importantly, these sentences differ from genuine sluicing in that they do not involve deletion of IP or some equivalent clausal constituent, but rather simultaneous copula-drop and subject-drop (both independently possible in Japanese) —see section 4.3 for some more discussion. Later on, different authors extended the use of *pseudosluicing* in different ways. For example, Potsdam (2007) uses this term to refer to sluices derived from clefts, but not from pseudoclefts or copular clauses; Rodrigues et al. (2009) and Barros (2014) use it to refer to sluices derived from both clefts (including pseudoclefts) and copular clauses (with Barros adopting Kirchner's 2006 term *quasi-sluicing* to cover the original Japanese cases from Merchant 1998); and Paul and Potsdam (2012) and Gribanova (2013) use the alternative term *sluicing-like construction* (SLC) to refer to the same class of sluices that Rodrigues et al. and Barros use *pseudosluicing* for. In this chapter, I am going to circumvent this confusion by using *pseudosluicing* in the sense originally intended by Merchant. All the other sluicing subtypes that get occasionally called "pseudosluicing" will instead receive more accurately descriptive labels based on their hypothesized underlying structure (e.g., copular sluicing, pseudocleft sluicing…).

1.3 Shortcomings we have to live with

Due to space restrictions, I am going to concentrate almost exclusively on characterizing the internal syntax of sluicing sites. This means that I am going to deliberately ignore a number of important issues, such as the status of sluices without a linguistic antecedent (Ginzburg 1992, Ginzburg and Sag 2000, Stainton 2006, Merchant 2010, Weir 2014),[6] correlate-remnant congruence restrictions (Chung et al. 1995, 2011, Romero 1998, Dayal and Schwarzschild 2010, Winkler 2013), voice and argument structure mismatches (Chung et al. 1995, 2011, Chung 2006, Merchant 2013a), or the conditions on, and causes of, deletion (cf. Rooth 1992, Tancredi 1992, Merchant

[5] For example, as (ia) shows, finiteness mismatches are licit. Additionally, this example (from Merchant 1999) is interesting in that the interpretation of the sluicing site excludes the negation and the modal in the antecedent. Yoshida (2010) provides (ib) to illustrate the same effect. Yoshida proposes that, in these cases, the sluicing site retrieves its meaning not from the antecedent IP, but rather from the antecedent *v*P. The crucial property of this specific constituent is that, while it is large enough to satisfy parallelism requirements, it is small enough to exclude negation and modals. See also Appendix 1.1 for discussion of some impossible mismatches.

(i) a. I can't play quarterback: I don't even know how [___]!
[= I don't know how to play quarterback / ≠ I don't know how I can't play quarterback]

b. You must choose a card without knowing which one [___].
[= …without knowing which card you choose / ≠ …without knowing which card you must choose]

[6] Specifically, it is conceivable that discourse-initial sluices (ia) need to be treated separately as stand-alone wh-expressions not derived by deletion of a larger, clausal constituent. On the one hand, it is not clear that (ia) can derived from an underlying cleft (ib), given the oddity of the latter in this context; one would have to claim that sluicing repairs the deviance of (ib). On the other hand, attempting to derive (ia) by deletion of a purely isomorphic source (ib) raises non-trivial questions about recoverability of deletion, especially if one can construct examples that would require a more complex underlying clause.

(i) *Scenario: as they are getting ready for a night out, Jack turns to Sally holding a tie on each hand.*
a. Which one [___]? b. # Which one is it? c. Which one should I wear?

1999, 2001, Hartman 2007, Chung 2013, AnderBois 2011, to appear, Barros 2014, and Appendix 1 to this chapter). Readers interested in these issues are referred instead to the works just cited.

Second, I am going to assume a general P&P/Minimalism framework throughout, as do a majority of the works I cite. Although some of the issues I discuss happen to be framework-independent (and, as such, their essence can be preserved when translated into other frameworks), others are not —for example, the hypothesis embodied in (2) is effectively ineffable in frameworks that do not recognize the possibility of phonetically null constituents and/or deletion as a grammatical operation (see the remarks in Nykiel and Sag 2011:190, plus those in section 2 of Jacobson 2013 for a more nuanced view). Again, readers with an interest in such frameworks are referred to the relevant chapters in Part I of this volume and the references cited there.

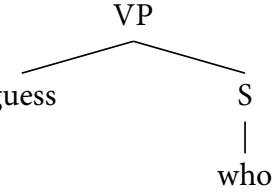
Finally, as attentive readers will notice, it is not the case that all the possible sluicing sources in some given language are actually sluiceable. For example, Potsdam (2007) and Paul and Potsdam (2012) argue that Malagasy sluices invariably stem from pseudoclefts, rather than from any of the other available cleft constructions. Similarly, Gribanova (2013) argues at length that Uzbek allows sluicing of predicational and equative copular clauses (see section 4.1.3), but it is currently unclear whether specificational copular clauses can be similarly sluiced (Vera Gribanova, p.c.). Conversely, Rodrigues et al. (2009) and Vicente (2008) have established that Spanish allows sluicing of specificational copular clauses, and the LBE data discussed in section 4.1.2 below suggest that sluicing of predicational copular clauses is also possible, but as far as I know, sluicing of equative copular clauses is not attested. Unfortunately, I have no intelligent suggestions as to why these language-specific gaps exist.

2 General considerations

2.1 Category of the sluice

As mentioned above, (2) is an acceptable analysis of sluicing only to the extent that one can justify this amount of phonetically null syntax in the sluicing site. As a first step in this direction, let's compare (2) to an alternative that posits no sluicing site at all, *qua* an independent phonetically null subconstituent. Consider, for concreteness, Culicover and Jackendoff's (2005) implementation of this idea, illustrated in (3) below (see also Ginzburg and Sag 2000, Beecher 2006, Nykiel and Sag 2011, Barker 2012b, and Jacobson 2013 for some variations on this idea). Here, the remnant is a direct complement of the embedding verb, and the correct interpretation of the sluice arises from a syntax-semantics mapping rule along the lines of (4). The superscripts IL and ORPH are "triggers for the general rule of indirect licensing, which matches the IL-marked constituent to an antecedent and the orphan to a target within the antecedent", and "the function $\mathcal{F}$ [...] is constructed by reference to the antecedent" (see Beecher 2006, 2008 for a more detailed discussion of the pragmatic inference process that underlies indirect licensing).

(3) Someone just left — guess



(4) *Indirect licensing of sluicing remnants*
Syntax: $[_S$ wh-$_i^{\text{ORPH}}]^{\text{IL}}$ Semantics: $Qx[\mathcal{F}(x_i)]$

One remarkable aspect of (3) is that the remnant wh- phrase is exceptionally assigned category S, rather than DP or NP. Culicover and Jackendoff (2005:270) introduce this stipulation specifically to account for the fact that, in environments where clausal and nominal constituents behave differently, remnants of sluicing consistently pattern together with clauses (see the arguments in the next paragraph, which are a selection from those in Ross 1969 and Merchant 1999, 2001; as far as I know, no language where any of these tests is applicable has been reported to fail it). Note that this generalization follows without further stipulation if the remnant is a proper subconstituent of a silent clause, but not if it is a direct complement of the embedding verb. This suggests that Culicover and Jackendoff's stipulation (and comparable ones in other analyses that don't postulate a sluicing site) is a theoretical artifact —i.e., a way to account for the clause-like behavior of the sluice in an analysis that, erroneously, doesn't assign it an actual clausal syntax. Ross's and Merchant's first argument revolves around verbs like *wonder*, which can take clausal complements (5a), but not nominal ones (5b). The fact that *wonder* can take a sluiced complement (5c) is consistent with an analysis where the remnant is embedded in an unpronounced clause, but not with one where it is a stand-alone nominal constituent.

(5) a. I wonder [$_{CP}$ { what time it is / what the answer is / what Ben asked }].
b. * I wonder [$_{DP}$ { the time / the answer / the question }].
c. Ben said something — I wonder [$_{CP}$ what [__]]!

Similarly, while bare adverbial PPs cannot be arguments of *to be clear* and similar predicates, either in the associate (6a) or the subject position (7a), clauses containing such PPs can (6b)/(7b). Significantly, remnant adverbial PPs exhibit the same distribution as clauses (6c)/(7c), suggesting that they are proper subconstituents of an unpronounced clause.

(6) a. * It isn't clear to me [$_{PP}$ with Bob].
b. It isn't clear to me [$_{CP}$ that Edna has worked with Bob].
c. Edna has worked with someone, but it isn't clear to me [$_{CP}$ with who [__]].

(7) a. * [$_{PP}$ With Bob] isn't clear to me.
b. [$_{CP}$ That Edna has worked with Bob] isn't clear to me.
c. Edna has worked with someone, but [$_{CP}$ with who [__]] isn't clear to me.

Second, if the remnant appears in the subject position of the embedding verb (or more generally, in any position that controls agreement on the embedding verb), verb agreement is invariably singular, irrespective of the actual number of the remnant (8a). As above, this in unsurprising if remnants are proper subconstituents of an elliptical clause, given that subject clauses invariably trigger singular agreement (8b). If the remnant was an immediate complement of the embedding verb, we would incorrectly predict (8a) to pattern together with (8c) in triggering plural agreement.

(8) a. He's going to give us some problems, but [$_{CP}$ which problems [__]] { ✓ isn't / * aren't } clear.
b. [$_{CP}$ Which problems he's going to give us] { ✓ isn't / * aren't } clear.
c. [$_{DP}$ Which problems] { * isn't / ✓ aren't } clear and easy to do?

Finally, Merchant points out that, once the V2 effect is controlled for, German consistently places nominal complements, including in situ wh- phrases, in the preverbal position (9), and clausal complements in the postverbal position (10). Sluiced complements pattern with clausal complements in that they are necessarily postverbal (11), just as predicted by (2). Merchant (1999, 2001) provides equivalent paradigms for Irish and Hindi, as does Toosarvandani (2008) for Farsi.

(9) a. Gestern hat Elke (✓ [$_{DP}$ das Auto]) repariert (* [$_{DP}$ das Auto]).
yesterday has Elke the car repaired the car

b. Wann hat Elke (✓ [$_{DP}$ welches Auto]) repariert (* [$_{DP}$ welches Auto])?
when has Elke which car repaired which car

(10) a. Wir haben nicht gewußt, [$_{CP}$ welches Auto Elke repariert hat].
we have not known which car Elke repaired has

b. * Wir haben, [$_{CP}$ welches Auto Elke repariert hat], nicht gewußt
we have which car Elke repaired has not known

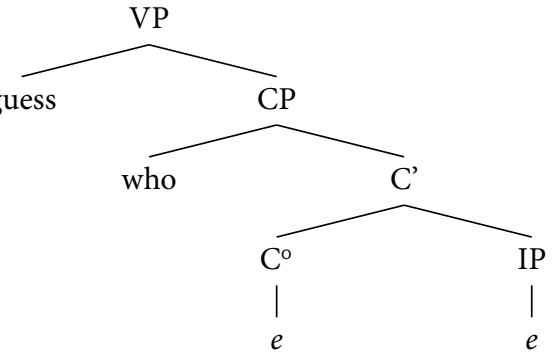
(11) a. Elke hat ein Auto repariert, aber wir haben nicht gewußt [$_{CP}$ welches [__]].
Elke has a car repaired but we have not known which

b. * Elke hat ein Auto repariert, aber wir haben [$_{CP}$ welches [__]] nicht gewußt.
Elke has a car repaired but we have which not known

2.2 Internal syntax of the sluicing site

The data above strongly suggest that it is correct to characterize the remnant wh- phrase as being embedded in a clausal constituent. However, it doesn't follow from this that the constituent in question has to have the internal syntax of a regular interrogative. Chung et al. (1995, 2011) specifically challenge this last point, arguing that "the sluice consists of an interrogative CP [...] whose C° and IP constituents are null" (12). A general operation of *IP Recycling* then copies the LF of the antecedent clause to the sluicing site, deriving the correct interpretation of the sluice.[7]

(12) Someone just left — guess



> "Without an articulate IP, the LF of the complement CP in [(12)] would be defective in two ways. First, the displaced constituent would not syntactically bind any position in the IP, and consequently would have no way to contribute to the interpretation of the sentence [...]. Second, the empty IP would provide no content for the nuclear scope of the Q-operator, thereby violating the ban on vacuous variable binding. IP recycling remedies both defects. [...] IP recycling can be thought of as copying the LF of some discourse-available IP into the empty IP position."
> [Chung et al. 1995:246]

However, as discussed in subsections 2.2.1 and 2.2.2 right below, there is suggestive evidence that the ellipsis site contains an articulate internal syntax for IP, rather than just the small collection of atomic empty categories depicted in (12).

[7] Alternatively, one could take C' to dominate just a single empty category. For our current purposes, there is no practical difference between these two options.

2.2.1 Locality effects

One of the most notable properties of sluicing, already noted by Ross, is its apparent ability to repair island violations —cf. the difference between the full wh- question (13a) and the corresponding sluice (13b).[8] This effect has been often used as a *reductio ad absurdum* argument against Ross sluicing (see, i.a., Chung et al. 1995, Ginzburg and Sag 2000, and Culicover and Jackendoff 2005). The reasoning goes as follows: if (13b) actually had the same syntax as (13a), one would expect (13b) to be as ungrammatical as (13a), given that the wh- phrase would be crossing an island boundary in both cases. But since no ungrammaticality arises in (13b), it must be the case that the sluicing site contains no island boundary —and by extension, no articulate syntax.[9]

(13) They hired someone who speaks a Balkan language, but I don't know…
  a. * …which Balkan language they hired someone who speaks.
  b. …which Balkan language [__].

Even though this asymmetry in grammaticality is real and demands and explanation (see sections 4.1.1 and 4.1.2, the Appendix 2 to this chapter, Chapter 15, and references therein), its existence does not, in and of itself, falsify the idea that sluicing sites contain a regular syntax. The reason is that the domain of application of the repair effect is notably restricted. It is relatively pervasive in sluices involving strong islands with an overt indefinite correlate, but even in this configuration, island effects do occasionally arise. For example, focusing on Japanese sluicing, Hiraiwa and Ishihara (2002, 2012) point out that the ungrammaticality of (14a) correlates with the ungrammaticality of its putative source (14b). See also Fukaya (2007, 2012), Nakamura (2012), and references.

(14) Tetsuo-wa [otooto-ni nanika-o okuttekita] hito-o syootaisita rasii …
  Tetsuo-TOP brother-DAT something-ACC sent person-ACC invited seem
  "It seems that Tetsuo invited a person who had sent something to his brother"
  a. * … ga boku-wa [nani-o [__] (da) ka] sira-nai.
    but I-TOP what-ACC COP Q know-not
    "…but I don't know what"
  b. * … ga boku-wa [[Tetsuo-ga [otooto-ni t_i okuttekita] hito-o
    but I-TOP Tetsuo-NOM brother-DAT sent person-ACC
    syootaisita]-no-wa nani-o_i (da) ka] sira-nai.
    invited-COMP-TOP what-ACC COP Q know-not
    "…but I don't know what it is that Tetsuo invited a person who had sent (it) to his brother"

Second, Nakao and Yoshida (2007) and Nakao (2009), crediting Howard Lasnik, point out that (15) and (16) below only allow the high reading of *why* and *how*. After Lasnik, they attribute the ungrammaticality of these examples to the inability of sluicing to repair ECP violations induced by adjunct movement.

[8] Ross (1969) claims that the repair effect is only partial, judging examples comparable to (13b) as mildly degraded. However, Levin (1982) and Merchant (2001:ch. 4) argue that, while the degradation observed in Ross's original examples is real, it is actually due to orthogonal factors —e.g., pragmatic clashes. Once these factors are controlled for, the examples are fully grammatical.

[9] This line of argument only holds under the assumption that the remnant of Ross sluicing necessarily moves from inside the ellipsis site. This assumption is not a necessity, though: if one allows for non-constituent sluicing, then one can argue that the repair effect is a consequence of sluicing exceptionally allowing the wh- phrase to remain in situ (see Kimura 2010 for an analysis along these lines). The remarks in the following paragraphs, however, also argue against Kimura's alternative.

(15) John wants to hire someone who fixes cars for a certain reason, but I don't know why [__].

= I don't know why John wants to hire this person.

≠ I don't know why this person fixes cars.

(16) John wants to hire someone who fixes cars in a certain way, but I don't know how [__].

= I don't know how John wants to hire this person.

≠ I don't how this person fixes cars.

Finally, Cantor (2013) points out that some English sluices where the correlate is embedded inside two different strong islands are deviant (17b). Importantly, this deviance cannot be ascribed to the cumulative effect of multiple island violations, given that other examples with multiple islands are acceptable (17b). Cantor's generalization is that the island effect persists in those sluices where all islands appear in left branches.

(17) a. ?? [A biography [of a big man]] sold the most books last year, but the report didn't say how big [__].
[Left Branch island inside Subject island]

b. I rented [a car that had hit [a big dog]], but the dealer didn't want to tell me how big [__].
[Left Branch island inside Relative Clause island]

When we move beyond strong islands with indefinite correlates, locality effects remain similarly ubiquitous, in a way consistent with the presence of an articulate syntax in the sluicing site.[10,11] To begin with, sluicing fails to repair weak island violations: (18) illustrates this with a negative island, but see Sauerland (1996) and Merchant (2001) for examples with other types of weak islands.

(18) Amy didn't behave well, but I don't know…

a. * …how well she didn't behave.

b. * …how well [__].

Agüero-Bautista (2007) demonstrates the sensitivity of sluicing to weak islands in a somewhat more intricate way. He notes that the sluice in (19) can be interpreted as either *which senator did each candidate bribe* or *which senator does John regret that each candidate bribed*. Notably, only the former interpretation, which lacks a weak (factive) island boundary licenses a pair-list answer (19b). Given that (i) pair-list readings in questions require the wh- phrase (properly, its NP restrictor) to reconstruct into the scope of the quantifier (Agüero-Bautista 2001), and (ii)

[10] Somewhat to my surprise, even some recent analyses of sluicing seem to be unaware of these facts. For example Nykiel and Sag (2011:185) write that "the natural prediction [of a Ross-style analysis] would of course be that sluicing obeys island constraints, but it is well-known that this is not the case", and follow up this comment by calling the putative absence of island effects "a wild misprediction". Similarly, Barker (2012b:28) calls the insensitivity of sluicing to syntactic islands "a fact". A bit further back in time, Culicover and Jackendoff (2005:244ff) acknowledge Merchant's (2001) observation that certain examples exhibit island effects, but dismiss it on the grounds that their own judgments are different. To this, they add the counterfactual comment "if [these examples] were ungrammatical, that would be far better evidence for the reality of the invisible structure", which suggests that they accept it as factually correct that sluicing exhibits no locality effects at all.

[11] Jacobson (2013:sec. 6) accepts Merchant's (2004)'s claim that similar restrictions can be observed in fragment answers, but denies that they constitute evidence for any structure underlying the ellipsis site. In principle, her arguments (and whatever counterarguments one can construct) are also extensible to sluicing.

the relation between the quantifier and the reconstructed wh- phrase that licenses pair-list readings is independently demonstrably blocked by weak island boundaries, it follows that sluicing doesn't alleviate this particular effect of weak islands.[12]

(19) John regrets that each candidate bribed a senator, and Sue wants to know exactly which senator [__].
   a. [__] = Sue wants to know exactly which senator each candidate bribed.
   [no weak island in the sluicing site → pair-list answer possible: "Andrews bribed Senator Adams, Benford bribed Senator Burns,…"]
   b. [__] = Sue wants to know exactly which senator John regrets that each candidate bribed.
   [weak island in the sluicing site → pair-list answer impossible: "John regrets that Andrews bribed Senator Adams, John regrets that Benford bribed Senator Burns,…"]

Second, the repair effect is also suspended in contrast sluices, i.e., cases where the correlate is a focused definite expression, rather than an indefinite (Merchant 2001, 2008, Griffiths and Lipták to appear, Barros to appear). Example (21) is a control to demonstrate that, in the absence of an island boundary, contrastive remnants can undergo long distance extraction.

(20) They hired someone who speeks GREEK, but I don't know…
   a. * …which OTHER language they hired someone who speaks.
   b. * …which OTHER language [__].

(21) They said that the best candidate speaks GREEK, but I don't know…
   a. …which OTHER language they said that the best candidate speaks.
   b. …which OTHER language [__].

Similarly, sprouting (i.e., sluices whose remnant doesn't have an overt correlate) are also island-sensitive (Chung et al. 1995, attributing the original observation to unpublished work by Chris Albert). As above, (23) is a control to show that sprouted remnants can, in principle, undergo long distance extraction. I'll discuss sprouting in somewhat more detail in section 3.3.

(22) Agnes arrived after Ben ate, but I can't recall…
   a. * …what she arrived after Ben ate.
   b. * …what [__].

(23) Agnes said that Ben ate, but I can't recall…
   a. …what she said that Ben ate.
   b. …what [__].

Third, Merchant (1999, 2001) points out that, crosslinguistically, sluicing also fails to repair P-stranding violations —cf. German (24). P-stranding under sluicing is possible only in languages, like English, that independently allow P-stranding in non-elliptical environments.[13]

[12] Additionally, Agüero-Bautista also uses the distribution of pair-list readings under sluicing to suggest (*contra* Fox and Lasnik 2003) that sluicing remnants undergo successive cyclic movement through intermediate landing sites, just as wh- phrases in non-elliptical questions do. As should be obvious, this conclusion also favors an analysis that assigns the sluicing site a regular syntax.

[13] The factual correctness of this generalization has been called into question. Some counterexamples turn out not to be so under closer inspection (see Rodrigues et al. 2009 on Spanish and Brazilian Portuguese), but it is unclear whether all alleged counterexamples can be brought into the fold (see Stjepanović 2008, 2012, Sato 2011, Nykiel 2013, and Leung 2014). See also sections 4.1.1 and A1.3 below additional discussion.

(24) a. Mit wem hat Oskar gesprochen?
with who.DAT has Oskar spoken

b. * Wem$_i$ hat Oskar [$_{PP}$ mit t_i] gesprochen?
who.DAT has Oskar with spoken

c. Oskar hat mit jemandem gesprochen, aber ich weiß nicht ∗(mit) wem [__].
Oskar has with someone spoken but I know not with who

(25) a. Who has Ben talked to?

b. Ben has talked with someone, but I don't know (with) who [__].

Furthermore, the possibility of preposition inversion under sluicing (*swiping* in Merchant's terminology) is contingent on the possibility of P-stranding; thus, while English allows swiping (26a), German does not (26b). See section 3.4 for additional discussion of this pattern.

(26) a. Ben has talked with someone, but I don't know { ✓ with who / ✓ who with } [__].

b. * Oskar hat mit jemandem gesprochen, aber ich weiß nicht, { ✓ mit wem / ∗ wem mit } [__].
Oskar has with someone spoken but I know not with who who with

Finally, Lasnik (2014) points out that a number of restrictions on multiple sluicing also support the existence of a regular syntax in the sluicing site (for continuity of ideas, I present Lasnik's argument as part of the discussion in section 5). Thus, (13b) notwithstanding, locality effects are robust enough to support the idea that the site of Ross sluicing contains a regular syntactic structure.

2.2.2 Connectivity effects

In addition to locality effects, a regular syntax for the sluicing site can be justified on the basis of connectivity effects —i.e., the sluice exhibits certain properties that suggest a relation between the remnant and some element contained in the sluicing site. that suggest a regular internal syntax. However, some of the arguments that one finds in the literature are weaker than claimed. For example, Lasnik (2001) points out that the remnant may contain a bound pronoun (27a), suggesting that the sluicing site must be articulate enough to contain an unpronounced quantifier that acts as the binder. Without this kind of syntax, Lasnik's argument goes, one would have to allow sluicing to circumvent standard restrictions on quantifier binding. The same argument holds for the *each…the other(s)* construction (27b).

(27) a. Every$_i$ linguist criticized some of his$_i$ work, but I'm not sure [$_{CP}$ how much of his$_i$ work [every$_i$ linguist criticized t]].

b. Each$_i$ of the linguists criticized some of the others$_i$, but I can't recall [$_{CP}$ [how many of the others$_i$]$_k$ [each$_i$ of the linguists criticized t_k].

However, Ince (2009) and Barros et al. (2014) call this argument into question on the grounds that pronouns can exhibit bound readings even in the absence of a c-commanding quantifier (see Barker 2012a). The judgments for (28a) and (28b) are the ones provided by Lasnik (2001), but

Barros et al. report that, out of 17 speakers they consulted, 11 found no difference in acceptability. The same counterargument holds for (27b).[14]

(28) a. Every$_i$ linguist met a philosopher who criticized some of his$_i$ work, but I don't know how much of his$_i$ work [__].

b. ?? Every$_i$ linguist met a philosopher who criticized some of his$_i$ work, but I don't know how much of his$_i$ work the philosopher criticized.

Still, Lasnik's argument can be successfully made with anaphoric binding, which (unlike quantificational binding) is dependent on c-command (see Barker 2012a again). In (29) below, the grammaticality of a reciprocal pronoun in the remnant entails that the sluicing site must contain a suitable binder.

(29) [Edna and Harvey]$_i$ disapprove of some of [each other]$_i$'s past actions, but I can't recall [which of [each other]$_i$'s past actions]$_k$ [[Edna and Harvey]$_i$ disapprove of t_k].

Agüero-Bautista (2007) provides a variation of this argument, based on the observation that sluices whose antecedent contains a universal or distributive quantifier allow a pair-list reading (30). Given that this reading requires reconstruction of the wh- restrictor into the nuclear scope of the quantifier, it must be the case that the sluicing site is complex enough to contain both an unpronounced quantifier and a suitable reconstruction site for the remnant.

(30) A: Each of these people has been married many times, but I can't recall [how many times]$_i$ [each of these people has been married t_i].

B: Alan has been married 7 times; Harvey, 8 times; Edna, 11 times;…
[*answer congruent with a pair-list reading of the question*]

Morphological case marking is another, oft-cited, connectivity effect (cf. Ross 1969 and Merchant 2001): in a nutshell, languages with case morphology require the remnant to bear the same case as its correlate, as illustrated in (31) for German (note that this requirement is sensitive to lexical/inherent case marking idiosyncracies, such as the inherent dative assigned by *helfen* 'to help'). As Ross and Merchant point out, this effect follows trivially if the sluicing site contains an unpronounced version of the case-assigning element.

(31) a. Jemand hat Elke gesehen, aber ich weiß nicht { ✓ wer / * wen }
someone.NOM has Elke seen but I know not who.NOM who.ACC
[Elke gesehen hat].
Elke seen has

b. Elke hat jemanden gesehen, aber ich weiß nicht { * wer / ✓ wen }
Elke has someone.ACC seen but I know not who.NOM who.ACC
[Elke gesehen hat].
Elke seen has

[14] Ince (2009:43–45) claims that Lasnik's argument can be successfully implemented with *almost*-modified universal quantifiers. The Turkish example he provides is reproduced below, but the extent to which this paradigm holds in other languages is currently unclear to me.

(i) A: [Hemen hemen her öğretmen]$_i$ öğrenci-len-in-den bir-in-i daha çok sever.
right.away right.away every teacher student-PL-POSS-ABL-ACC one-POSS-ACC more very love-AOR
"Almost every teacher loves one of his students more"

B: Hangi öğrenci-sin-i [__]?
which student-3.POSS-ACC
"Which student of his?"

c. Elke hat { ✓ jemandem / ∗ jemanden } geholfen, aber ich weiß nicht
Elke has someone.DAT someone.ACC helped but I know not
{ ✓ wem / ∗ wen } [Elke geholfen hat].
who.DAT who.ACC Elke helped has

However, this particular argument is somewhat weakened by the fact that case connectivity is required even in environments where one wouldn't expect it to be (Nykiel and Sag 2011).[15] For illustration, Hungarian possessors can bear either nominative or dative, without any noticeable semantic difference; however, under sluicing, the case of the possessor remnant must match the case of its correlate.[16]

(32) *Hungarian (Anikó Lipták and Julia Bacskái-Atkári, p.c.)*

a. Egy { resztevevő-∅ / resztevevő-nek } telefon-ja meg-sörrent.
a participant-NOM participant-DAT phone-POSS.3SG PV-rang-3SG

b. Egy resztevevő-∅ telefon-ja meg-sörrent, de nem láttam,
a participant-NOM telephone-POSS.3SG PV-rang-3SG but not know
{ ✓ ki-∅ / ∗ ki-nek } [__].
who-NOM who-DAT

c. Egy resztevevő-nek telefon-ja meg-sörrent, de nem láttam,
a participant-DAT telephone-POSS.3SG PV-rang-3SG but not know
{ ∗ ki-∅ / ✓ ki-nek } [__].
who-NOM who-DAT

Barros (2014) points out a similar effect with German ECM predicates, which require accusative marking on the embedded subject. In (33a), the remnant cannot bear accusative for obvious reasons, i.e., this would require the putative source structure to feature a finite clause with an accusative subject (33a). Notably, a nominative remnant is also excluded, despite the fact that the corresponding non-elliptical version (33a) is grammatical.

[15] Nykiel and Sag's (2011) actual argument is based on the fact that the nominal complements of certain Hungarian verbs can be either accusative or dative. However, this is a defective argument in that it doesn't take into account the fact that each case induces a different aspectual reading (specifically, accusative induces a habitual reading, while dative induces an episodic one). Therefore, it could be argued that the ungrammaticality of (ib) and (ic) is not due to case non-parallelism, but rather to the ensuing aspectual asymmetry (cf. the fact that English *Mary just ate something, but I don't know what* can't be interpreted as *. . . but I don't know what she usually eats*).

(i) a. Mari segített egy { fiu-t / fiu-nak }.
Mari helped a boy-ACC boy-DAT

b. Mari segített egy fiu-nak, de nem tudom hogy { ✓ ki-nek / ∗ ki-t }.
Mari helped a boy-DAT but not know-1SG COMP who-DAT who-ACC

c. Mari segített egy fiu-t, de nem tudom hogy { ∗ ki-nek / ✓ ki-t }.
Mari helped a boy-ACC but not know-1SG COMP who-DAT who-ACC

[16] Jason Merchant (p.c.) observes that this paradigm can be accounted for if one assumes (i) that the nominative-dative alternation reflects the ability of the POSS head to assign different cases to its specifier (there are a variety of ways in which this idea can be implemented); and (ii) that this head is contained in the ellipsis site. If so, one can resort to the same logic that Merchant (2013b) uses to rule out voice mismatches under sluicing and pseudogapping: certain functional heads (Voice, POSS, and potentially others) contained in the ellipsis site must have the same feature specifications as the corresponding heads in the antecedent (see Appendix 1.1 for discussion). At present, I do not know to what extent it is plausible to assume either (i) or (ii), so it is equally unclear to me whether Merchant's analysis can be applied here.

(33) a. * Klaus hat jemanden weglaufen sehen, aber er weiß nicht,
Klaus has someone.ACC go.away seen but he knows not
{ wer / wen } [__].
who.NOM who.ACC

b. Klaus hat jemanden weglaufen sehen, aber er weiß nicht,
Klaus has someone.ACC go.away seen but he knows not
{ ✓ wer / ∗ wen } weggelaufen ist.
who.NOM who.ACC gone.away is

Both Nykiel and Sag (2011) and Barros (2014) take this kind of data as evidence for generalization (34) below. We will see in section 4.2 below that this morphological case identity requirement also blocks a cleft source for certain sluices. As a consequence, while this requirement is compatible with the presence of a regular syntax in the sluicing site, it doesn't provide direct evidence in its favor (contrary to Ross's and Merchant's claims).[17]

(34) *Case matching under sluicing*
In sluicing, given a correlate C and a remnant R, if C is a case-bearing category, R and C must have the same case morphology.

[17] Barros treats (34) as a descriptive generalization in need of a more principled explanation. Nykiel and Sag make the stronger claim that (34) constitutes an argument against the presence of an articulate syntax in the sluicing site. Specifically, they claim that, if (34) is viewed as an overarching form requirement on sluicing remnants, it becomes superfluous (and therefore unnecessary) to postulate a silent syntax to derive the observed case of the remnant. This line of attack is arguably too strong, in that it fails to cover a number of environments where case identity doesn't hold. Section 4.1.2 below illustrates this effect in the context of LBE sluices in languages with adjectival inflection. Similarly, Ince (2012) points out that, while the subjects of Turkish embedded clauses are invariably genitive, remnants of sluicing in the same position are assigned nominative.

(i) Ahmet [{ ∗ biri-∅ / ✓ biri-nin } Ankara-ya git-tiğ-i]-ni söyle-di, ama
Ahmet one-NOM one-GEN Ankara-DAT go-COMP-POSS.3SG-ACC tell-PST.3SG but
[{ ✓ kim-∅ / ∗ kim-nin } [__]] bil-mi-yor-um.
who-NOM who-GEN know-NEG-PRES-1SG
"Ahmet said that someone went to Ankara, but I don't know who"

Japanese is sometimes reported to exhibit case mismatches too. For example, Kizu (1997) and Merchant (1998) claim that remnants cannot be case marked (ii), although other authors (e.g., Fukaya 2012, Nakamura 2012) provide comparable examples where the presence of the case marker is not claimed to induce ungrammaticality (this seems to be a point of idiolectal variation; see Inoue 1976 and Iseda 2007). Similarly, Gribanova (2013) provides Uzbek examples where a case-marked correlate licenses a bare remnant (iii), and Sandra Chung (p.c.) comments that similar examples can be constructed in Chamorro.

(ii) Dareka-ga sono hon-o yon-da ga, watashi-wa [dare(∗-ga) [__] ka] wakaranai.
someone-NOM this book-ACC read-PST but I-TOP who-NOM Q know.not
"Someone read this book, but I don't know who"

(iii) Siz kim-ga-dir pul ber-di-ngiz, lekin [kim(-ga) [__] lig-i-ni] bil-ma-y-man.
you some-DAT-one money give-PST-2SG but who-DAT COMP-3SG.POSS-ACC know-NEG-PRS-1SG
"You gave money to someone, but I don't know who"

Note that, in all of these classes of examples, the remnant is not overtly case marked (depending on one's base assumptions, one could say either that it bears a phonetically null case marker or that it is not case marked at all). As far as I know, there are no exceptions to (34) where the remnant bears a different overt case marker from the one the correlate does, or where the remnant is overtly case-marked and the correlate is bare. At present, I do not know if this is a relevant fact or an artifact of the sample I am working with.

More recently, Yoshida et al. (to appear) have argued that the remnant internal gap in (35), notated [$_{PG_2}$__] is a parasitic gap licensed by a real gap [$_{RG_2}$__] contained inside the ellipsis site, paralleling the licensing of the parasitic gap in the first conjunct [$_{PG_1}$__] by its corresponding real gap [$_{RG_1}$__]. Note that standard licensing conditions on parasitic gaps prevent [$_{PG_1}$__] to be licensed by [$_{RG_1}$__].

(35) The editor told me which book I must review [$_{RG_1}$__] soon after receiving [$_{PG_1}$__], but I don't remember exactly how soon after receiving [$_{PG_2}$__] [__].

Note, however, that the unsluiced counterpart of (35) is ungrammatical, a fact that Yoshida et al. are well aware of. Specifically, given that the source of ungrammaticality of () can be traced to the illicit movement of the wh- phrase containing the parasitic gap, the acceptability of (35) and similar examples suggests that the theory of sluicing must be supplemented with some island repair capabilities (*pace* Ross 1969 and Merchant 1999, 2001, but contrary to Barros et al. 2014; see the Appendix 2 for additional discussion of repair effects).

(36) * The editor told me which book I must review [$_{RG_1}$__] soon after receiving [$_{PG_1}$__], but I don't remember exactly how soon after receiving [$_{PG_2}$__] did the editor told me which book I must review [$_{RG_2}$__].

3 Isomorphic sluicing

3.1 Ross sluicing: generality of the analysis

Following Merchant (1999, 2001) and subsequent works, I conclude that the data discussed in the previous section support the correctness of Ross's (1969) analysis of sluicing, as sketched in (2) above: the sluice consists of a regular wh- question, with a regular syntax and semantics, whose only exceptional property is that the lexical material contained in the IP node remains unpronounced. As discussed briefly on page 2, I refer to this particular subtype of sluicing as Ross sluicing.

A relevant question at this juncture is whether sluices in English (and other typologically close languages) are uniformly cases of Ross sluicing, i.e., they stem from a regular wh- question. Merchant (1999, 2001) provides ten arguments against a general reduction of sluicing to cleft sluicing, all of which have the same logical structure: given some environment where clefts and regular wh- questions behave differently, the corresponding sluice patterns with regular wh- questions. For example, he observes that adverbial wh- phrases (e.g., *how*, *why*, *when*…) are allowed in wh- questions (37a), but not in clefts (37b). The fact that sluices with adverbial wh- remnants are grammatical (37c) suggests that they do not stem from an underlying cleft.

(37) He fixed the car,…
  a. …but I don't know { how / why / when / where } he fixed the car.
  b. * …but I don't know { how / why / when / where } it was.
  c. …but I don't know { how / why / when / where } [__].

Similarly, regular wh- questions allow *else*-modification (38a), but clefts do not (38b). As above, sluicing remnants pattern with regular wh- questions in allowing *else*-modification (38c).

(38) Harry was there,...

a. ...but I don't know who else was there.

b. * ...but I don't know who else it was.

c. ...but I don't know who else [__].

Importantly, Merchant notes that these arguments only contraindicate a general reduction of sluicing to cleft sluicing, but leave open the possibility that some sluices stem, in fact, from a cleft (or a copular clause); van Craenenbroeck (2010a) and Barros (2014) make the same point.[18] This much suggests, as already mentioned above, that sluicing is a syntactically heterogeneous construction both cross- and intra-linguistically.

For continuity of ideas, the rest of this section will consider only examples that are compatible with an isomorphic sluicing treatment.

3.2 Focus sluicing

3.2.1 Wh- fronting languages

In Ross's analysis, the remnant escapes deletion because regular wh- movement takes it to a position outside the sluicing site. This movement is typically thought of as mediated by a [WH] feature, but is not a necessity. Specifically, van Craenenbroeck and Lipták (2006, 2013) argue that there are a number of languages where obligatory wh- fronting is not triggered by a [FOCUS] feature; therefore, in a strict sense, these languages do not exhibit proper Ross sluicing, but rather what we might refer to as *focus sluicing*. van Craenenbroeck and Lipták cite Romanian, Czech, and Hungarian, among others, as examples of this class of languages.

(39) *Romanian*

Cineva mi-a mâncat prăjiturile, dar nu știu cine [__].
someone CL.1SG-PST.3SG eaten cookies but not know.1SG who

(40) *Hungarian*

János meghívott egy lány-t, de nem tudom kit [__].
János PV.invited.3SG a girl-ACC but not know.1SG who-ACC

Importantly, because the distribution of [FOCUS] features is somewhat wider than that of [WH] features, focus sluicing languages are expected to exhibit sluicing-like constructions in environments where interrogative wh- movement does not apply —e.g., yes/no embedded questions (41), declarative embedded clauses (42), or relative clauses (43). The following examples confirm that this is indeed the case.

(41) *Romanian (Hoyt and Teodorescu 2012)*

Am flat că cineva a plecat, dar nu știu dacă Ion [__].
PAST.1SG learn that someone PAST.3SG left but not know.1SG if Ion
"I found out that someone left, but I don't know if it was Ion"

[18] Although van Craenenbroeck and Barros make slightly different proposals about the availability of cleft sources: van Craenenbroeck defines an analysis where cleft sources are available only if using the corresponding non-cleft source would have produced an ungrammatical result; on the other hand, Barros proposes that both cleft and non-cleft sources are equally available (although in specific cases that one might take precedence over the other).

(42) *Czech (van Craenenbroeck and Lipták 2013, citing R. Šimík, p.c.)*

Věděl jsem, že Honza někoho pozval, ale nevěděl jsem, že
knew AUX.1SG that Honza someone.ACC invited but not.knew AUX.1SG that
Martina [__].
Martin.ACC
"I know that Honza invited someone, but I don't know that it was Martin"

(43) *Hungarian (van Craenenbroeck and Lipták 2006, 2013)*

Kornél az-t a láy-t hívta meg, aki-t Zoltán [__].
Kornél that-ACC the girl-ACC invited PV REL-ACC Zoltán
"The girl that Kornél invited was the one that Zoltán invited"

As the examples in (41) through (43) straddle the line between sluicing and other kinds of clausal ellipsis (especially stripping/fragments), I refer the reader to the relevant literature for a more thorough discussion —see especially the van Craenenbroeck and Lipták papers, Szczegielniak (2004), chapters 23, 24, and 29 of this volume, and references therein. In the rest of this section, I will concentrate exclusively of the class of focus sluices whose remnant is a wh- phrase.

3.2.2 Wh- in situ languages

Certain wh- in situ languages provide a more interesting illustration of focus sluicing. Here I concentrate on Farsi (Toosarvandani 2008 and chapter 31 of this volume) and Turkish (Ince 2009, 2012). The challenge posed by this class of languages lies in reconciling their wh- in situ nature with the hypothesis that sluicing requires extraction of the remnant out of IP.

(44) *Turkish (Ince 2009, 2012)*

a. Hasan evden birşeyi almiş, ama [neyi [__]] bilmiyorum.
Hasan house.ABL one.thing.ACC buy-evid-3SG but what.ACC not.knowing
"Hasan bought something, but I don't know what"

b. Biri birşey gördü, ama [kim ne [__]] bilmiyorum.
one one.thing saw but who what not.knowing
"Someone saw something, but I don't know who what"

(45) *Farsi (Toosarvandani 2008)*

a. rāmin ye chiz-i xarid. hads bezan [chi [__]].
Ramin one thing-IND bought.3SG guess hit.2SG what
"Ramin bought something. Guess what."

b. giti dāre otu mizane vali ne-midunam [chi [__]].
Giti have.3SG iron hit.3SG but NEG-know.1SG what
"Giti is ironing, but I don't know what."

One possible line of attack is to assume that these sluices stem from an underlying cleft or copular clause. While this is arguably the case from some other languages (see sections 4.2 and 4.1), both Ince and Toosarvandani show that there exist a number of asymmetries between sluices and clefts/copulas that contraindicate this assimilation.[19] To give a simple example (see both

[19] Although the same reasoning that applies to Merchant's 1999, 2001 arguments for English applies here too: these arguments show that Turkish and Farsi sluicing cannot be generally reduced to stem from a cleft or a copular clause, but they don't preclude the possibility that a cleft/copular source appropriate for a well-defined subset of cases.

Toosarvandani 2008 and Ince 2009, 2012 for additional evidence), in both languages adverbial wh- phrases are licit sluicing remnants, but illicit cleft pivots (cf. the remarks for English in §3.1 above).

(46) *Turkish (Ince 2009)*

a. Ali Ankara-ya git-ti, ama [ne zaman [__]] bil-m-iyor-um.
Ali.NOM Ankara-DAT go-PST.3SG but what time know-NEG-PRES-1SG
"Ali went to Ankara, but I don't know when"

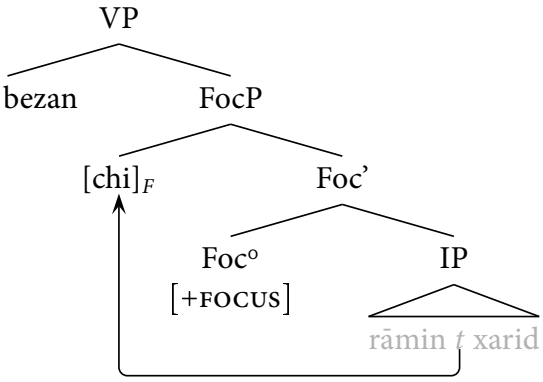
b. * Ali-nin Ankara-ya git-tiğ-i ne zaman?
Ali-GEN Ankara-DAT go-COMP-POSS.3SG what time?
"When is it that Ali went to Ankara?"

(47) *Farsi (Toosarvandani 2008)*

navid ye jur-i javāher-o dozdide. ne-midunam chetor (* bud).
Navid one way-IND jewels-OBJ stole.3SG NEG.know.1SG how was
"Navid somehow stole the jewels. I don't know how (* it was)"

In fact, Ince and Toosarvandani show that Turkish and Farsi sluices pattern in many aspects with the Ross sluices discussed in the previous section (see also chapter 31 of this volume for additional data and discussion). As such, both authors propose a structure isomorphic to the one in (2) above, with the remnant undergoing A-bar movement to a specifier position above IP. The difference with the languages discussed in the previous section lies on the fact that this movement is not regular wh- movement (given that, as mentioned above, both Turkish and Farsi are wh- in situ languages), but rather focus movement. The tree below sketches the derivation for example (45a): as customary in the literature, I use a subscripted *F* to mark the focused constituent.[20]

(48) rāmin ye chizi xarid. — hads bezan



3.3 Sprouting

Sprouting (49), already mentioned in section 2.2.1 above, is a subvariety of isomorphic sluicing in which the correlate is an implicit argument/modifier (Chung et al. 1995, Chung 2006). Obviously, a sprouted remnant has to be such that it can be successfully interpreted as an argument or a modifier of the antecedent, which rules out the examples in (50), from Chung et al. (1995:249).

[20] For explicitness, I am assuming here that focus movement targets the specifier of FocP, whereas regular wh-movement targets a different projection in the extended CP area (cf. van Craenenbroeck 2004, 2010b, Hartman 2007, and references). The correctness of this particular assumption, however, is not crucial for the correctness of the overall analysis.

(49) a. Ben is reading, but I don't know what [__].
b. Ben is jealous, but I don't know of who [__].
c. Ben wants to change the flat tire, he doesn't know how [__].
d. Ben wants to go on vacation, but he hasn't yet decided when [__].

(50) a. * She knew French, but I don't know for whom [__].
[cf. *she knew French for Tom*]
b. * They noticed the painting, but I don't know for how long [__].
[cf. *they noticed the painting for an hour*]

Less obvious is the restriction occasionally referred to as *No New Words* (51), and which bans sluicing sites associated to an sprouted remnant from containing lexical items not present in the antecedent (Chung 2006, 2013).[21] For illustration, Ross Sluicing in English generally allows for prepositions to be stranded inside the sluicing site, given that P-stranding is allowed in non-elliptical wh- questions (see the discussion of (25) in section 2.2.1 above). However, if the remnant is sprouted, then P-stranding becomes impossible, as that would leave an orphan lexical item within the sluicing site (52)/(53).[22]

(51) *No New Words (Chung 2006)*
Every lexical item in the numeration of the sluice that ends up (only) in the elided IP must be identical to an item in the numeration of the antecedent.

(52) a. Ben is jealous of someone, but I don't know (of) who [__].
b. Ben is jealous, but I don't know *(of) who [__].

(53) a. Ben is fixing the flat tire with something, but I don't know (with) what [__].
b. Ben is fixing the flat tire, but I don't know *(with) what [__].

Unsurprisingly, focus sluicing languages allow sprouting in the same way as Ross sluicing languages. The following are some representative examples from the wh- in situ languages discussed in section 3.2.2 above, but interested readers are referred to the relevant publications, as well as chapters 29 and 31 of this volume.

(54) *Turkish (Ince 2009, 2012)*
Ali aradı, ama [kim-i [__]] bilmiyorum.
Ali called but who-ACC not.knowing
"Ali called, but I don't know who"

(55) *Farsi (Toosarvandani 2008)*
git dāre out mizane vale ne-midunam chi [__].
Giti have.3SG iron hit.3SG but NEG-know.1SG what
"Giti is ironing, but I don't know what"

[21] Although Merchant (2002) already notes in passing the ungrammaticality of **She fixed it, but God only knows what [__]*, on which he comments that "the preposition in the sluicing [site] will not have an antecedent for deletion, and hence must be retained; otherwise the result will violate the conditions on deletion".

[22] Although Nykiel (2012) claims that counterexamples exist, offering the naturally attested (ia) and (ib) as illustration. Notably, she points out that all such examples involve a complex wh- phrase rather than a bare wh- word.

(i) a. Our grandson just had open heart surgery, but I don't know which hospital [__].
b. I've heard of people being able to check a bag full of scuba gear which was more than the weight limit and not being charged extra, but I don't remember which airline [__].

3.4 Swiping

Swiping is the somewhat whimsical acronym of Sluiced Wh- word Inversion with Prepositions In Northern Germanic (coined by Merchant 2002; Culicover and Jackendoff 2005 and Culicover 2012, among others, use the alternative, but less memorable, label *sluicing-stranding*); as its full name indicates, swiping is the subcase of sluicing where the wh- phrase precedes its selecting preposition (56a). In English, swiped remnants appear to be somewhat more acceptable than their unswiped counterparts (56b).[23]

(56) a. Ed gave a talk yesterday, but I don't know what about [__].
b. ? Ed gave a talk yesterday, but I don't know about what [__].

Swiping has a number of noteworthy properties. To begin with, swiping only occurs under sluicing (57). More specifically, Rosen (1976) claims that swiped wh- expressions are necessarily sprouted (58), although the reverse doesn't hold, i.e., sprouting doesn't require swiping.

(57) a. He's going to give a talk, but I don't know what about [__].
b. * I don't know what about he's going to give a talk.

(58) a. Harvey was talking, but I don't know who to [__].
b. * Harvey was talking to someone, but I don't know who to [__].

The correctness of this last generalization is not clear, however. It is arguably more accurate to treat unsprouted swipes as less acceptable than their sprouted counterparts, but not ungrammatical in an absolute sense (Matt Barros, p.c.).[24] This might explain the existence of examples like

[23] Culicover and Jackendoff (2005) claim that swiping is subject to a number of idiosyncratic restrictions (i.e., only a small number of prepositions can be swiped, and the associated wh- word is nearly always *what*). These claims are factually incorrect, though, as Beecher (2006) shows using both naturally attested examples and a controlled acceptability study. In contrast to Culicover and Jackendoff, Larson (to appear) argues that swiping is a more general operation than commonly thought, affecting not only prepositions, but also infinitival (ia) and gerundive (ib) complements (note, however, that not all speakers find such examples acceptable). In fact, Larson argues that swiping ought to be possible with any constituent that can appear as an implicit argument/modifier and be stranded by movement of a subconstituent wh- phrase:

(i) a. Dana was caught, but I don't know what doing [__].
b. Dana was eager, but I don't know what to do [__].

It is, however, questionable whether these examples instantiate the same construction as (56a). As Larson aptly documents, gerundive and infinitival swipes behave differently from prepositional swipes in at least two ways, i.e., they disallow both the unswiped variant (iia) and pied-piping of the entire gerundive/infinitival phrase in non-elliptical wh- questions (iib). At present, it is not clear that these asymmetries can be subsumed under a unified analysis.

(ii) a. * Dana was eager, but I don't know to do what [__].
b. * {What to do / to do what} was Dana eager? [cf. *What was Dana eager to do?*]

[24] Although Rosen already points out that unsprouted swipes are irredeemably ungrammatical under two circumstances: first, if the PP acts as a predicate (ia), and second, if the verb-preposition combination has an idiosyncratic meaning (ib). As Jason Merchant (p.c.) points out, the common feature of these examples is that the PPs cannot be omitted in the antecedent (i.e., they can't act as implicit arguments).

(i) a. We were with someone. I forgot who (∗with) [__].
b. Smersh intends to do away with someone. Find out who (∗with) [__].

(59a) and (59b), which both Merchant (2002) and van Craenenbroeck (2004, 2010b) judge as acceptable. Barros (2014:200) also provides the grammatical unsprouted swipe (59c) as part of his discussion of an unrelated topic. Finally, Nakao et al. (2006) provide the minimal pair in (60), where extraposition of the correlate across an adverb rescues an otherwise degraded unsprouted swipe.[25]

(59) a. She fixed it with something, but God only knows what with [__].
b. Howard shares the apartment with someone, but I don't know who with [__].
c. She went somewhere, but I can't remember where to [__].

(60) a. * Jack talked [$_{PP}$ to someone] yesterday, but I don't know who to [__].
b. ? Jack talked yesterday [$_{PP}$ to someone], but I don't know who to [__].

Second, swiping is subject to Merchant's (2001) P-Stranding Generalization discussed above — i.e., swiping is only possible in languages that independently allow P-stranding in non-elliptical environments.[26] Here I use German as an example of a language with neither non-elliptical P-stranding nor swiping.

(61) a. * Was hat Oskar einen Vortrag über gehalten?
what has Oskar a talk about given
b. * Oskar hat einen Vortrag gehalten, aber ich weiß nicht was über [__].
Oskar has a talk given but I know not what about

Finally, Merchant (2002) claims only morphosyntactically simple wh- words can be swiped (62), which he refers to as the Minimality Condition.[27] However, as is the case with the putative sprouting requirement mentioned above, it is questionable that this generalization is accurate: Merchant already notes that some speakers allow swiping with morphosyntactically complex degree wh- phrases (63); Hartman and Ai (2009) also provide a number of attested examples of swiping involving other kinds of complex wh- phrases (64). To this, we can add examples where swiping targets a disjunction of wh- words embedded under a single preposition (65).

[25] Note that, taken together, the acceptability of (60b) and the unacceptability (58b) imply that string-vacuous extraposition is not allowed in English. Nakao et al. acknowledge it, but they don't discuss it any further.

[26] Note that this is only a one-way correlation, as there are P-stranding languages that don't allow swiping. Example (i) illustrates this for Swedish, but see Merchant (2002) for a similar paradigm in Icelandic.

(i) a. Vem har Peter talat med?
who has Peter talked with
b. Peter gick på bio, men jag vet inte { ✓ med vem / * vem med } [__].
Peter went to.the cinema but I know not with who who with

Merchant (2002) claims that Frisian patterns with Swedish and Icelandic in being a P-stranding language that doesn't allow swiping. van Craenenbroeck (2004, 2010b:ch. 5) partly corrects this observation by noting that Frisian allows swiping with R-pronouns (iiB): note that this example also combines swiping with *spading*, which I discuss in section 4.2.2 below.

(ii) A: Jan hat juster in praatsje holden. B: Wêr da oer?
Jan has yesterday a talk held what that about

[27] Merchant's (2002) analysis is ostensibly meant to account for the Minimality Condition. He proposes that swiping involves incorporation of the wh- word into its selecting preposition, and the Minimality Condition follows from the fact that incorporation targets exclusively heads. As should be obvious, this analysis fails to cover the examples in (63) through (65). It also fails to cover the Frisian examples discussed in van Craenenbroeck (2004, 2010b), where the swiped wh- word and its preposition are separated by a syntactically independent demonstrative pronoun.

(62) Louis was talking, but I don't know { ✓ who to / * which student to } [__].

(63) a. % Harvey has been living in Arizona, but I don't know how long for [__].
b. % She bought it all right, but don't even ask how much for [__].

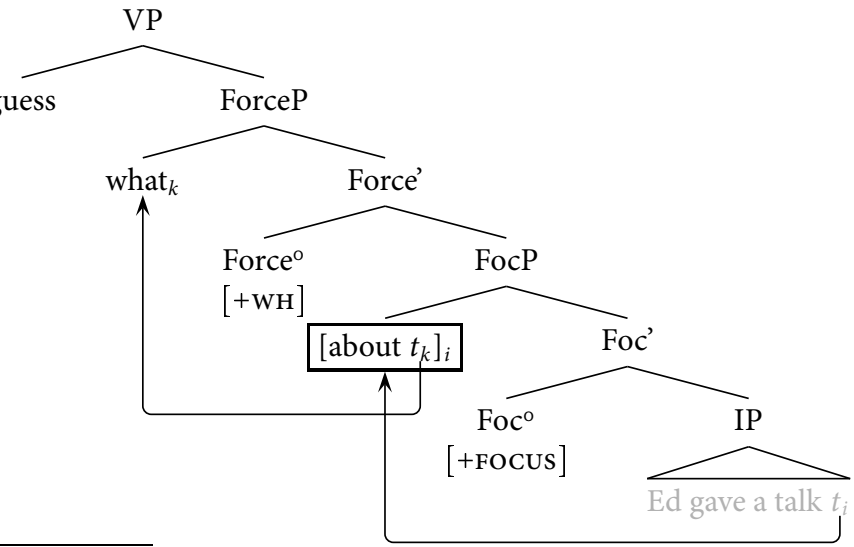
(64) a. It doesn't matter where you work or what company for [__], bosses are all the same.
b. A complete breakdown of how Brown has scored his points and which teams against [__] is as follows.
c. Chrissy, nice to meet you. I recognize your name, not sure what site from [__], but that doesn't matter, nice to meet you regardless.

(65) I have to write a short essay for the Modern U.S. History class, but I still haven't decided who or what about [__].

Based on data like this, Hartman and Ai argue that the the simple/complex morphosyntactic status of swiped wh- expressions is irrelevant: what is actually relevant is their D-linked/non-D-linked status, only the latter being swipable. Given that *which*-phrases are D-linked by default (Pesetsky 1987), it follows that they can only be swiped if the context favors a non-D-linked reading.[28]

In the remainder of this subsection, I present a sketch of the class of analyses developed in van Craenenbroeck (2004, 2010b), Hartman (2007), and Hartman and Ai (2009). Although specific details vary across analyses, all of them treat swiping as a subcase of P-stranding, thus directly deriving Merchant's (2002) correlation (see the discussion around (61) above). Specifically, these authors assume that wh- phrases contain two independent formal features, each of which triggers movement to a different projection in an expanded CP layer. In Hartman and Ai (2009), the features in question are [+FOCUS], which triggers movement to the specifier of Foc(us)P, and [+WH], which triggers movement to the specifier of ForceP. On the assumption that ForceP is structurally higher than FocP (see Rizzi 1997), swiping involves movement of the entire PP to FocP followed by subextraction of the wh- phrase to ForceP (66). The unswiped cases (56b) arise when movement of the wh- phrase to ForceP pied-pipes the preposition.

(66) Ed gave a talk — guess



[28] Merchant (2002) cites an additional property, *viz.*, that stress necessarily falls on the swiped preposition, rather than its associated wh- word (i). It is not clear, however, that this asymmetry needs to be stated as an independent restriction. Specifically, he argues (see also Sprouse 2005), that this restriction follows as a corollary from more general constraints on the prosody of English.

(i) Jack is going to the prom, but I don't know { ✓ who WITH / * WHO with } [__].

Both van Craenenbroeck (2004, 2010b) and Hartman and Ai (2009) attempt to derive the extant putative properties of swiping (i.e., the necessity of sprouting and the restriction to simple wh-words) from the interaction of general Information Structure restrictions and the mechanics of focus and wh- movement. I will not attempt a summary of these aspects of their proposals here here, given that, as we have just seen, the empirical status of these generalizations is at least questionable. Readers interested in the details of van Craenenbroeck's and Hartman and Ai's analyses are instead referred to their original writings.

So far, I have sidestepped the question of whether focus sluicing languages also allow swiping. Part of the problem is that this is an empirically difficult issue: as discussed above, the availability of swiping is contingent on the availability of preposition stranding in non-elliptical clauses, which is itself a crosslinguistically rare property. Neither of the focus sluicing languages discussed here are P-stranding languages, and consequently neither allows swiping. The revelant question, then, is whether a focus sluicing language that independently allows P-stranding would also allow swiping.[29] van Craenenbroeck's and Hartman and Ai's analyses are interesting in this regard, in that they entail that the general availability of P-stranding is a necessary, but not sufficient, condition for swiping. Specifically, their contention is that swiping should only be possible in languages that allow wh- fronting to target two separate positions in the CP layer, so that the preposition can be stranded in the lower one. To the extent that the last movement in the sequence (i.e., the one that actually strands the preposition) is necessarily driven by a [WH] feature, focus sluicing languages are predicted to categorically lack swiping. Or, to put it in a different way, van Craenenbroeck's and Hartman and Ai's analyses predict that, if some focus sluicing language is found to exhibit swiping, the P-stranding step of movement will be demonstrably driven by a feature other than [WH].

3.5 Interim summary and prospects

The preceding discussion resolves the first of the two issues raised at the end of section 1: just as Ross proposes, the sluicing site of isomorphic sluices has the same internal syntax as a regular wh-question, with only some exceptional properties (e.g., a limited apparent island repair ability, for which see the Appendix 2 to this chapter). The second issue raised there (i.e., the crosslinguistic generalizability of this analysis) is something that I will explore in the remainder of this chapter. The logic of the argumentation is going to be the same throughout. We will see that a certain class of examples exhibits a cluster of properties that are difficult to explain under the assumption that sluicing is invariably isomorphic. However,if we give up this assumption (i.e., if we allow sluicing to stem from clefts and copular clauses), the relevant properties of the sluices in question follow as general properties of the underlying clefts and copulas.

[29] Bošković (2014), citing unpublished work by Serkan Şener, points out that Turkish allows stranding of morphologically complex postpositions (i). Unfortunately, though, one cannot use this pattern to illustrate swiping in a focus sluicing language: given that Turkish has postpositions rather than prepositions, swiping (*qua* stranding of the postposition in an intermediate landing site) would not change the relative word order of the postposition and its wh- phrase, and as such it would be indistinguishable from non-swiping.

(i) Ben araba-nın$_i$ dün [$_{PP}$ t_i önün-de] dur-du-m.
I car-gen yesterday in.front.of-3SG.POSS.LOC stand-PAST-1SG
"Yesterday, I stood in front of the car"

4 Non-isomorphic sluicing

4.1 Copular sluicing

For the purposes of this subsection, I am going to assume the tripartite (predicational, specificational, and equative) taxonomy of copular clauses defined in Mikkelsen (2005) and references. Note that Mikkelsen makes some very specific proposals about the internal syntax and semantics of each of these subtypes, as do many other authors (e.g., she proposes that the specificational type is derived from the predicational type via predicate raising); However, for the purposes of these section, this level of analytical detail is not necessary, and so the arguments in favor of copular sluicing that I provide below are in principle compatible with any analysis of copular clauses, so long as it recognizes the three subtypes mentioned above.

4.1.1 Specificational copular clauses

Merchant (1999, 2001) argues that the generalization in (67) is universally true. As an illustration, consider first a P-stranding language like English, where the grammaticality of the P-less version of (68b) follows from the possibility of P-stranding in non-elliptical wh- questions (68a). In contrast, a non-P-stranding language like German doesn't allow P-stranding under sluicing (69).

(67) *Preposition Stranding Generalization (PSG)*
A language *L* will allow P-stranding under sluicing only if it also allows P-stranding in non-elliptical wh- questions.

(68) a. Who has Abby talked to?
b. Abby has talked to someone, but I don't know who (to) [__].

(69) a. * Wem_i hat Anne [$_{PP}$ mit t_i] gesprochen?
who.DAT has Anne with talked
b. Anne hat mit jemandem gesprochen, aber ich weiß nicht *(mit) wem
Anne has with someone.DAT talked but I know not with who.DAT
[__].

However, the formulation of the PSG in (67) runs into some empirical difficulties. As the following set of examples shows, there are a number of non-P-stranding languages that nonetheless allow P-stranding under sluicing.

(70) *Finnish (Hartman 2005)*
a. * Kene-n sä leiki-t kaa?
who-GEN you.NOM play-2SG with
b. Se leiki-i jonku-n kaa, mutt-en tiiä kene-n (kaa) [__].
he.NOM play-3SG someone-GEN with but-NEG know who-GEN with

(71) *Indonesian (Fortin 2007, Sato 2011)*
a. * Siapa yang Pak Guru sedang berbicara dengan?
who COMP Mr. Teacher PROG INTR-speak with
b. Saya melihat Pak Guru berbicara dengan seseorang, tapi saya tidak tahu
I see Mr. Teacher INTR-speak with someone but I not know
(dengan) siapa [__].
with who

(72) *Serbo-Croatian (Stjepanović 2008, 2012)*

a. * Čega je Petar glasao protiv?
what.GEN is Petar voted against

b. Petar je glasao protiv nečega, ali ne znam (protiv) čega [__].
Petar is voted against something.GEN but not know.1SG against what

(73) *Polish (Szczgielniak 2008, Nykiel 2013)*

a. * Kim Anna tańczyThla z?
who Anna danced with

b. Anna tańczyThla z jednym mężczyną, ale nie wiem (z) którym [__]].
Anna danced with one man but not know with which

(74) *Spanish (Rodrigues et al. 2009, Vicente 2008)*

a. * ¿Quién ha hablado Andrés con?
who has talked Andrés with

b. ? Andrés ha hablado con alguien, pero no sé (con) quién [__]].
Andrés has talked with someone but not know.1SG with who

There is some debate in the literature over the extent to which these data challenge the PSG. For example, Almeida and Yoshida (2007) cite comparable data from Brazilian Portuguese to argue against the PSG (but see Rodrigues et al. 2009 for a critical discussion of Almeida and Yoshida's argument). A popular alternative line of attack assumes that the PSG is essentially correct and then seeks to derive the P-stranding effect by assigning the sluice a structure that doesn't involve a P-stranding violation.[30] Here I am going to concentrate on the arguments that Rodrigues et al. (2009) provide in favor of deriving Spanish (74b) from an underlying specificational copular clause. Their argumentation is based on the fact that a number of restrictions on P-stranding sluices are also found on specificational copular clauses, but not in regular wh- questions. Consider, for example, modification of the wh- phrase by *más* 'else', which is possible in regular wh- questions and non-P-stranding sluices, but not in specificational copulas and P-stranding sluices.

(75) Ana ha hablado con Beatriz,…
Ana has talked with Beatriz

a. … pero no sé con quién más ha hablado Ana.
but not know.1SG with who else has talked Ana

[30] An alternative to this view is to posit that P-stranding in non-elliptical wh- questions and P-stranding under sluicing are each controlled by an independent constraint (this seems to be the approach implied in Nykiel and Sag 2011, who write that "there is no crosslinguistic correlation of P-stranding and the possibility of P-omission in sluicing"; see also Nykiel 2013). Fortin (2007) and Merchant (2013a) both argue against this approach by pointing out that it predicts the four-way typology in the table below. Notably, this prediction fails in that, to date, no language has been attested that fits the lower left cell (i.e., a language where P-stranding is grammatical in overt wh- questions but not under sluicing). After Fortin and Merchant, I take this typological gap as an indication that whatever constraint regulates P-stranding under sluicing is not independent from the one that regulates P-stranding in non-elliptical wh- questions.

	P-stranding under overt wh- questions	No P-stranding under overt wh- questions
P-stranding under sluicing	English	Spanish
No P-stranding under sluicing	—	German

b. … pero no sé con quién más [__].
but not know.1SG with who else

c. * … pero no sé quién más es la persona con la que ha hablado Ana.
but not know.1SG who else is the person with which has talked Ana

d. * … pero no sé quién más [__].
but not know.1SG who else

Similarly, Vicente (2008) points out that P-stranding sluices are unacceptable in cases where the corresponding non-elliptical copular would create an incongruent meaning.

(76) a. Andrés ha hablado sobre un ensayo de Baroja, pero no sé *(sobre)
Andrés has talked about an essay by Baroja but not know.1SG about
qué novela de Cela [__].
which novel by Cela

b. # Andrés ha hablado sobre un ensayo de Baroja, pero no sé qué novela
Andrés has talked about an essay by Baroja but not know.1SG which novel
de Cela es el ensayo de Baroja sobre el que ha hablado Andrés.
by Cela is the essay by Baroja about which has talked Andrés

c. # Andrés ha hablado sobre un ensayo de Baroja, pero no sé sobre qué
Andrés has talked about an essay by Baroja but not know.1SG about which
novela de Cela ha hablado Andrés.
novel by Cela has talked Andrés

I refer the reader to Rodrigues et al. (2009), van Craenenbroeck (2010a) and Vicente (2008) for further discussion. It is important to note, however, that an analysis along these lines might not be extensible to all the relevant languages. For example, Nykiel and Sag (2011) and Nykiel (2013) argue against it for Polish, on the basis that remnants must necessarily bear the case assigned by the corresponding preposition (in the example below, genitive), rather than the instrumental that is invariably assigned to cleft pivots.[31] See also Stjepanović (2008, 2012), Sato (2011), and Leung (2014) for comparable claims for Serbo-Croatian, Indonesian, and Emirati Arabic, respectively.

(77) *Polish*

a. Adam regularnie dostaje prezenty od kogoś, ale nie wiem { ✓
Adam regularly gets presents from someone.GEN but not know.1SG
kogo / * kim } [__]
who.GEN who.INST

b. Adam regularnie dostaje prezenty od kogoś, ale nie wiem { *
Adam regularly gets presents from someone.GEN but not know.1SG
kogo / ✓ kim } jest osoba od której Adam dostaje prezenty.
who.GEN who.INST is person.NOM from who.GEN Adam gets presents

4.1.2 Predicational copular clauses

Barros et al. (2014) provide argument in favor of predicational copular sluices based on the claim that Left Branch Extraction (LBE) –that is, wh- movement of an attributive adjective out of its containing DP– is one of the movement violations that sluicing seems to be able to repair.

[31] This problem is not obvious from the examples provided in Szczgielniak (2008), given that he focuses on the preposition *z* 'with', which assigns the same instrumental case that cleft pivots bear.

(78) a. * [How diligent]$_i$ has Judy hired [a t_i worker]?
b. Judy has hired a diligent worker, but I don't know how diligent [__].

Somewhat surprisingly, there is a well-defined class of LBE violations that sluicing is unable to repair, *viz.*, those featuring adjectives with a non-intersective reading. This is illustrated in (79) for English. A similar paradigm can be constructed in various Romance languages (here, Spanish), where the intersective/non-intersective distinction correlates, respectively, with the postnominal/prenominal position of the adjective (i.e., *un amigo viejo* 'a friend old' is a friend of an advanced age, whereas *un viejo amigo* 'an old friend' is someone who has been in a friendship for a long time). As (80) shows, only the intersective reading survives sluicing (throughout this section, the diacritic ⋄ indicates that the sentence in question is grammatical only under the intersective reading of the adjective).

(79) a. * Judy has hired a hard worker, but I don't know how hard [__].
b. * Judy is married to a heavy drinker, but I don't know how heavy [__].
c. ⋄ Olga saw a beautiful dancer, but she won't tell us how beautiful [__].

(80) a. Andrés ha visitado a un amigo viejo, pero no sé cómo de viejo.
Andrés has visited DCM a friend old but not know how of old
b. ?* Andrés ha visitado a un viejo amigo, pero no sé cómo de viejo.
Andrés has visited DCM a old friend but not know how of old

As Barros et al. (to appear) point out, the crucial different between intersective and non-intersective adjectives is that, as (79) shows, only the former can be used predicatively (here, the # diacritic marks the unavailability of the non-intersective reading, as these examples are still grammatical under an intersective reading). Given this asymmetry, the paradigms in (79) and (80) follow if we allow these sluices to stem from a predicative source (82).[32]

(81) a. The worker that Judy has hired is diligent.
b. ⋄ The worker that Judy has hired is hard.
c. ⋄ The drinker that Judy is married to is heavy.
d. ⋄ The dancer that Olga saw is beautiful.

[32] This analysis finds additional support in languages were adjectives are inflected differently dependending on whether they are used attributively or predicatively (see Barros et al. to appear, Barros 2014; Merchant 1999, 2001 already noted these data, but downplayed their significance). Consider German (i), where attributive adjectives bear the appropriate case morphology (ia), but predicative adjectives invariably appear in their bare form (ib). When these adjectives are degree remnants of sluicing, they necessarily appear in their bare form (ic), suggesting that such sluices stem from a predicative, rather than attributive, source. The same argument can be made in Hungarian with number agreement (ii).

(i) a. Lena hat einen groß-*(en) Mann gesehen.
Lena has a.ACC big.ACC man seen
b. Der Mann ist groß-(*en).
the man is tall-ACC
c. Lena hat einen groß-*(en) Mann gesehen, aber ich weiß nicht wie groß-(*en) [__].
Lena has a.ACC tall-ACC man seen but I know not how tall-ACC

(ii) a. János ismer néhány magas-(*ak) lányt.
János knows some tall-PL girls
b. A lányok magas-*(ak).
the girls tall-PL
c. János ismer néhány magas-(*ak) lányt, de nem tudom milyem magas-*(ak) [__].
János knows some tall-PL girls but not know.1SG how tall-PL

e. ⋄ El amigo de Andrés es viejo.
the friend of Andrés is old

(82) a. Judy has hired a diligent worker, but I don't know how diligent [the worker that Judy has hired is].

b. ⋄ Judy has hired a hard worker, but I don't know how hard [the worker that Judy has hired is].

c. ⋄ Olga has seen a beautiful dancer, but she won't tell us how beautiful [the dancer that she saw is].

To complete the argument, notice that languages that allow LBE in non-elliptical sentences also allow non-intersective adjectives as remnants of sluicing.[33] I illustrate this pattern here with Serbo-Croatian and Russian. Clearly, this asymmetry between LBE and non-LBE languages is predicted to arise only in an analysis in which the repair effect is actually an illusion.[34]

(83) *Serbo-Croatian (Boban Arsenijević, p.c.)*

a. Jovan je zaposlio tvrdog radnika, ali ne znam [koliko tvrdog]$_i$ [je
Jovan AUX hired hard.ACC worker.ACC but not know.1SG how hard.ACC AUX
zaposlio Jovan [t_i radnika]].
hired Jovan worker.ACC

b. Marija je udata za teškog pijanicu, ali ne znam [koliko
Marija AUX married for heavy.ACC drinker.ACC but not know.1SG how
teškog]$_i$ [je udata za Marija [t_i pijanicu]]].
heavy.ACC AUX married for Marija drinker

(84) *Russian (Elena Titov, p.c.)*

On posetil starogo druga, no ja ne znaju, [naskol'ko starogo]$_i$ [on posetil [t_i
he visited old.ACC friend.ACC but I not know how old.ACC he visited
druga]]].
friend.ACC

[33] These judgments are somewhat idealized, in that some non-intersective readings disappear under LBE, regardless of whether sluicing takes place or not. What is important for this particular argument is whether the availability of a non-intersective reading under LBE sluicing correlates with its availability under non-elliptical LBE. As far as I have been able to determine, this is indeed the case.

[34] As an additional argument in favor of this view of LBE violation repair, note that many Slavic languages disallow multiple LBE. Example (ia) illustrates this restriction for Russian (data from Grebenyova 2006b). As Grebenyova points out, this restriction persists under sluicing (ib), which would be surprising if sluicing could actually repair LBE violations.

(i) a. * [Naskol'ko bogatyj]$_i$ [naskol'ko doroguju]$_k$ [t_i aktër] kupil [t_k mašinu]?
how.much rich how.much expensive actor bought car
"How rich an actor bought how expensive a car?"

b. * Včera odin actër kupil mašinu, no ja ne pomnju [naskol'ko botyj]$_i$ [naskol'ko
yesterday one actor bought car but I not remember how.much rich how.much
doroguju]$_k$ [[t_i actër] kupil [t_k mašinu]].
expensive actor bought car

4.1.3 Equative copular clauses

At present, I am not aware of any examples of non-isomporphic sluices stemming from an equative copular clause.[35] Gribanova (2013) does argue that certain Uzbek sluices do stem from an equative copula, but these sluices are arguably cases of pseudosluicing (i.e., they feature simultaneous subject drop and copula drop), rather than involving genuine deletion of the copular IP; as such, I defer discussion of the relevant Uzbek examples until section 4.3.2 below. Nonetheless, nothing in the discussion so far precludes the possibility of non-isomorphic equative copular sluices, and so the expectation is that this pattern will be eventually attested in some language. If this expectation is not met, then the current theory of sluicing will have to be modified to accommodate this gap.

4.2 Cleft sluicing

The idea that some sluices stem from an underlying cleft is hardly new or controversial. Rosen (1976) already noted that, while some English prepositions (e.g., *without*, or *against* in the collocation *against x's wishes*) are unstrandable in regular wh- questions (86a), they appear to be strandable under sluicing (86b). Her proposal is that these sluices stem from a cleft along the lines of (86c), where P-stranding is not an issue.[36] I refer the reader to van Craenenbroeck (2010a), Barros and van Craenenbroeck (2013), Barros (2014), and references therein for additional dis-

[35] An equative copular source is possible if the antecedent itself is also an equative copular clause (i). Obviously, the claim in the main text refers to examples where the antecedent is not an equative copula.

(i) Either Clark Kent or Bruce Wayne is Batman, but I don't know which one [___].

[36] Bošković (2014) describes a superficially similar paradigm: prepositions whose complement is itself a PP cannot be stranded in non-elliptical wh- questions ((ia), judgment from Cinque 1990), but can under sluicing (ib). However, the reality of this contrast is questionable: in an informal survey I have conducted, four out of eight speakers find little or no difference between (ia) and (ib), judging them as either both acceptable or both unacceptable. Therefore, it is unclear to me to what extent this particular paradigm can inform discussions about sluicing.

(i) a. * [$_{PP}$ Behind which car]$_i$ did they shoot at him [$_{PP}$ from t_i]?
b. ? They shot at him from behind one of these cars, but the report didn't say [$_{PP}$ behind which car] [___].

cussion of cleft sources of sluicing in English.[37] In addition to Rosen's argument, AnderBois (2011) and Barros (2014) point out that sluices with p-or-q antecedents (85) cannot stem from a source that is morphosyntactically isomorphic to the antecedent in any reasonable sense of the term (85). Note, however, that p-or-q sluices only show that morphosyntactically non-isomorphic sluicing is possible, but they don't discriminate between cleft sources (85a) and so-called short sluices (85b).

(85) Jack will either leave or start singing karaoke, but I don't know which [__].
  a. …but I don't know which it is.
  b. …but I don't know which he'll do.
  c. * …but I don't know which he will either leave or start singing karaoke.

(86) a. * [Whose wishes]$_i$ will Edna marry Harvey [$_{PP}$ against t_i]?
  b. Edna will marry Harvey against somebody's wishes, but I don't know whose (wishes) [__].
  c. Edna will marry Harvey against somebody's wishes, but I don't know whose wishes it is.

The goal of this section is to show that not only do clefts constitute a pervasive sluicing source crosslinguistically, but also that it is possible to classify these sluices on the basis of the specific subtype of cleft that they stem from.

4.2.1 Pseudoclefts

Let's begin with Potsdam's (2007) and Paul and Potsdam's (2012) claim that Malagasy sluices are uniformly derived from deletion of an underlying pseudocleft.[38] Of relevance here is the fact

[37] Barros (2012) provides the paradigm in (i) as an independent argument for the existence of cleft sluicing in English. The sluice in (ia) cannot stem from the regular wh- question (ib), given that (ib) is incongruent (this requires assuming that sluicing cannot repair this type of incongruence). Rather, Barros argues, (ia) must stem from the cleft in (ic), which is congruent.

(i) a. Jack kissed Sally, and he also kissed someone else, but I don't know who [__].
  b. # Jack kissed Sally, and he also kissed someone else, but I don't know who he kissed.
  c. Jack kissed Sally, and he also kissed someone else, but I don't know who it was.

However, Barros's argument is inconclusive, as it is possible to construct well-formed variants of (ia) where the remnant is not a licit cleft pivot. Lipták (2013) provides one such paradigm: (iia) cannot stem from (iib) because the latter is incongruent in the same way that (ib) is; however, (iia) cannot stem from (iic) either, as a cleft source would predict the remnant to pattern with cleft pivots in being invariably nominative. More generally, this paradigm can be reproduced in any language where sluicing remnants and cleft pivots have different distributions.

(ii) Mari meg hívta Jánost, és meg hívott még valakit,…
Mari PV invited.3SG János.ACC and PV invited.3SG also someone.ACC
  a. … de nem tudom { * ki / ✓ kit } [__].
but not know.1SG who.NOM who.ACC
  b. # … de nem tudom { * ki / ✓ kit } hívott meg.
but not know.1SG who.NOM who.ACC invited.3SG PV
  c. … de nem tudom { ✓ ki / * kit } volt az.
but not know.1SG who.NOM who.ACC was that

[38] Note that this analysis is not necessarily correct for other related languages —specifically, both Fortin (2007) and Sato (2008) claim that sluices in Indonesian (another Malayo-Polinesian language) do not stem from a

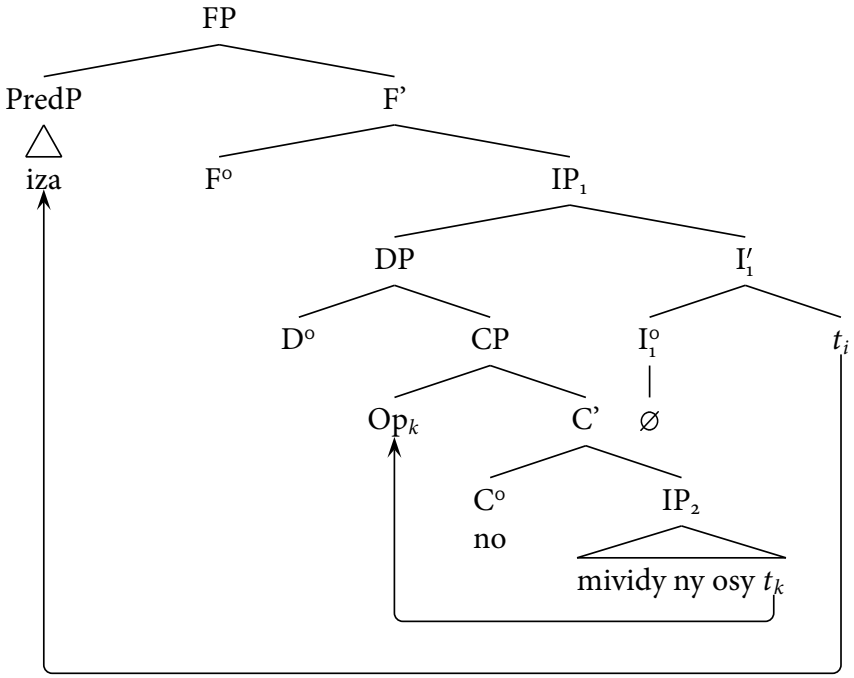
that Malagasy is a predicate-initial language (which results in a characteristic VOS order) that exhibits a subject/non-subject asymmetry in wh- questions: wh- words in non-subject questions can be either left in situ or fronted, but they are necessarily fronted in subject questions.[39] Additionally, subject questions also require the presence of the particle *no*. As Potsdam and Paul and Potsdam point out, if these questions are uniformly analyzed as pseudoclefts, then the obligatoriness of wh- fronting can be seen as a special case of the general predicate-initial order of Malagasy, and *no* can be seen as the complementizer that heads the external argument of the pseudocleft. The tree in (88) illustrates this analysis, but see Potsdam's and Paul and Potsdam's papers (and references) for a more detailed argumentation and derivation.

(87) *Malagasy (Potsdam 2007, Paul and Potsdam 2012)*

a. iza no mividy ny osy?
who PRT buy.AT the goat
"Who is buying the goat?"

b. nanontany aho hoe iza no mividy ny osy
ask.AT 1SG.NOM COMP who PRT buy.AT the goat
"I asked who is buying the goat"

(88) *Structure for (87a) and the embedded clause of (87b)*



With this much in place, we can turn now to sluicing (89). What Potsdam (2007) and Paul and Potsdam (2012) claim is that these sluices necessarily stem from pseudoclefts analogous to the ones in (87), via deletion of the node labelled IP_1 in (88). I illustrate this in (90), where, for conciseness, I ignore the internal syntax of DP.

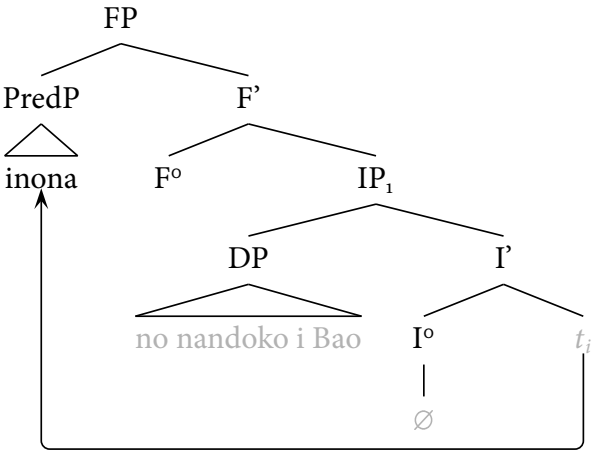
cleft/pseudocleft source. I refer the reader to the relevant sections of Fortin's and Sato's dissertations for the full argumentation.

[39] In the same way as other Austronesian languages, Malagasy has an elaborate "voice" system that allows a variety of non-subject arguments to be promoted to subjechood. Paul and Potsdam's arguments extend naturally to these cases, but I will ignore them here in the interest of conciseness.

(89) a. nandoko zavatra i Bao fa hadinoko hoe inona [__]
paint.AT thing Bao but forget.TT.1SG COMP what
"Bao painted something, but I forget what"

b. nangalarin' ny olona ny fiarako fa tsy fantatry ny polisy hoe iza [__]
steal.TT the person the car.1SG but NEG know the police COMP who
"My car was stolen by someone but the police don't know who"

(90) nandoko zavatra i Bao fa hadinoko hoe inona



Potsdam and Paul and Potsdam support this analysis by pointing out that sluices exhibit certain restrictions that are otherwise specific to pseudoclefts; as should be obvious, such parallelisms follow without stipulation if sluices are derived from a pseudocleft base. First, there are certain constituents (e.g., accusative-marked arguments) can neither be questioned through the pseudocleft strategy (91a) nor sluiced (91b).

(91) a. * an'iza no nanasa Rabe?
who.ACC PRT invite Rabe
"Who did Rabe invite?"

b. * nanasa olona Rabe ka nanontany aho hoe an'iza [__]
invite someone Rabe and ask I COMP who.ACC
"Rabe invited someone and I asked who"

Second, pseudocleft pivots (*qua* fronted predicates) can be directly followed by a variety of elements, such as the modifiers *daholo* 'all' and *foana* 'always' (92). Potsdam's and Paul and Potsdam's analysis of this pattern relies on the well-supported assumption that *daholo*, *faona*, and similar modifiers are contained in the constituent that undergoes fronting in pseudoclefts (PredP in their terminology), which allows them to escape deletion of IP_1. As expected, the same range of elements can also follow sluicing remnants (93).

(92) a. iza daholo no namaky ny boky?
who all PRT read the book
"Who all read the book?"

b. iza foana no any an-tsena?
who always PRT LOC ACC-market
"Who is always at the market?"

(93) a. nahandro zavatra maro Rasoa fa tsy fantatro hoe inona daholo [__]
cook think many Rasoa but NEG know.1SG COMP what all
"Rasoa cooked many things, but I don't know what all the things are"

b. any an-tsena matetika ny mpivarotra sasany fa tsy fantatro hoe iza
there ACC-market often the merchant some but NEG know.1SG COMP who
foana [__]
always
"Some merchants are often at the market but I don't know who is always there"

4.2.2 Deep clefts

Arguably, Gribanova (2013) contains the most detailed discussion to date of deep and shallow clefts in relation to sluicing, in that she explicitly discusses the differences between both subtypes and the sluices that stem from each. However, given that the Uzbek examples that she focuses on are arguably cases of *pseudosluicing* (i.e., the relevant surface strings are derived via simultaneous subject-drop and copula-drop, rather than deletion of IP or an equivalent clausal constituent), I defer discussion of her work to section 4.3.2 below. Here, and in section 4.2.3 below, I focus on languages which, lacking null subjects and null copulas, cannot be subsumed under a pseudosluicing analysis.

Van Craenenbroeck (2004, 2010b) describes a pattern of sluicing in various Dutch dialects that he labels *spading* (94a).[40] The defining surface property of spading is that the remnant is followed by *da* 'that', which van Craenenbroeck argues at length is a demonstrative pronoun, rather than a complementizer. van Craenenbroeck's proposal is that this demonstrative *da* (glossed as 'that$_D$' to distinguish it from the homophonic complementizer *da* 'that$_C$') is the same demonstrative *da* that one finds in clefts like (94b) —see van Craenenbroeck (2004:16ff) for evidence.

(94) *Wambeek Dutch*

a. Jef eid iemand gezien, mo ik weet nie wou da [__].
Jeff has someone seen but I know not who that$_D$
"Jeff has seen someone, but I don't know who"

b. … mo ik weet nie wou was da da Jef gezien eid.
but I know not who was that$_D$ that$_C$ that seen has
"…but I don't know who it is that Jeff has seen"

In order to support the hypothesis that (94a) stems from (94b), van Craenenbroeck (2004, 2010b) points out that the arguments that Merchant (1999, 2001) uses to argue against cleft sluicing in English actually yield the opposite result when applied to the relevant Dutch dialects. To give a single example, Merchant observes that both wh- phrases in regular (non-cleft) interrogatives and sluicing remnants admit *else*-modification, but wh- pivots of clefts do not. In contrast, spading remnants pattern with clefts in disallowing modification by *nog* 'else' (95)/(96). Note that sluices without *da* (which van Craenenbroeck assumes stem from a regular interrogative) do allow *nog*-modification (97), in agreement with Merchant's argument.

(95) Wou (∗nog) was da (∗nog) da Jef gezien ou?
who else was that$_D$ else that$_C$ Jeff seen has

(96) A: Jef ei nie alliejn Lewie gezien.
Jeff has not just Louis seen
B: Nieje? Wou (∗nog) da (∗nog) [__]?
no who else that$_D$ else

[40] *Spading* is somewhat whimsically derived from the more transparent, but perhaps less memorable label *SPD* (Sluicing Plus Demonstrative) used in van Craenenbroeck (2004).

(97) A: Jef ei nie alliejn Lewie gezien.
Jeff has not just Louis seen
B: Nieje? Wou nog [__]?
no who else

Assume, then, that van Craenenbroeck's analysis is correct. The rest of his discussion suggests that clefts like (94b) are an instance of what Pinkham and Hankamer (1975) term *deep clefts* (as opposed to *shallow clefts*, which I discuss in section 4.2.3 below).[41] In support of this idea, consider the fact that deep clefts allow adverbial and prepositional pivots, but shallow clefts do not (Pinkham and Hankamer 1975:sec. 1.2); as expected, spades with adverbial and prepositional remnants are licit (98)

(98) a. Wui da [__]?
where that$_D$
"Where?"
b. Tege wou da [__]?
against who that$_D$
"Against who?"

Furthermore, Pinkham and Hankamer (1975:sec. 2) also note that deep clefts disallow negation, but shallow clefts do not. van Craenenbroeck (2004, 2010a) shows that spades similarly disallow the presence of negation (100). This is a significant restriction, because negation is possible in regular sluices (100). This asymmetry makes it difficult to subsume the ungrammaticality of (100) under a generalized ban on negation in Dutch sluices; rather, van Craenenbroeck suggests that it must be subsumed under the ban on negation that characterizes deep clefts.[42]

(99) Me wou (*nie) was da (*nie) da Lewie geklapt ou?
with who not was that$_D$ (not) that$_C$ Louis spoked had
"Who was it that Louid had not spoken with?"

(100) A: Lewie ei me bekan iederiejn geklapt.
Louis has with almost everyone spoken
B: Me wou (*nie) da (*nie)?
with who not that$_D$ not
B': Me wou nie?
with who not?

The following set of examples illustrate the same pattern with the emphatic affirmation particle *wel*, which van Craenenbroeck assumes has the same distribution as *nie* (cf. Laka 1990 for arguments to this effect with respect to the equivalent Basque particles *ez* and *ba*).

(101) Me wou (*wel) was da (*wel) da Lewie geklapt ou?
with who AFF was that$_D$ AFF that$_C$ Louis spoked had
"Who was it that Louid had indeed spoken with?"

[41] The labels *deep* and *shallow* come from Pinkham and Hankamer's proposal that deep clefts are "cleft in the underlying structure" whereas shallow clefts are the result of "a transformational cleaving process". Later scholarship has reinterpreted this asymmetry in various ways. As Gribanova (2013) explains, in deep clefts, "the cleft clause is connected somehow to the pivot, either as a complement of a focus projection containing the pivot or as a CP complement of the copula with the pivot attached to the left edge of CP" (see, for illustration, the tree in (103) below); in contrast, in shallow clefts "the cleft clause is generated in the subject position and adjoined to a high position in the clause, with the two positions connected via movement or coindexation". This level of analytical detail is sufficient for the purposes of this chapter.

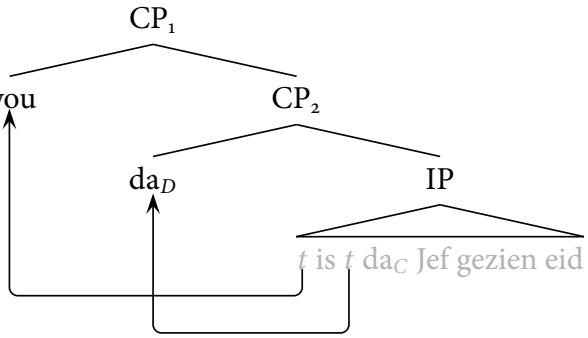
[42] Jeroen van Craenenbroeck (p.c.) notes that the ban on negation holds only for clefts with a wh- pivot —compare (i) to (99) in the main text. This suggests that, while clefts in the relevant Dutch dialects constitute a heterogeneous class of sentences when viewed as a whole, the clefts that underlie spading are invariably deep.

(i) Da was nie gisteren da gou met Jef geklapt etj.
that$_D$ was not yesterday that$_C$ you with Jeff talked had

(102) A: Lewie ei me bekan niemand geklapt.
Louis has with almost nobody spoken
B: Me wou (∗wel) da (∗wel)? B': Me wou wel?
with who AFF that$_D$ AFF with who AFF?

Pinkham and Hankamer's third asymmetry (i.e., that the pivots of deep clefts are islands, but the pivots of shallow clefts are not) cannot unfortunately be tested, given that remnants of spading cannot be complex wh- phrases. Nonetheless, the evidence that van Craenenbroeck (2004, 2010a) is suggestive enough to accept that spading instantiates the subtype of cleft sluicing based on deep clefts. The tree below illustrates the kind of derivation that van Craenenbroeck proposes for this class of sentences.[43]

(103) Jef eid iemand gezien, mo ik weet nie wou



4.2.3 Shallow clefts

As already discussed in section 3.1 above, Merchant (1999, 2001) claims that English sluices never stem from an underlying cleft. One of the arguments he adduces in favor of this generalization is that some licit sluicing remnants (e.g., PPs and adverbials) are not licit shallow cleft pivots. For the reader's convenience, I repeat the relevant paradigm below.

(104) He fixed the car,...
a. ...but I don't know { how / why / when / where } he fixed the car.
b. * ...but I don't know { how / why / when / where } it was.
c. ...but I don't know { how / why / when / where } [__].

However, van Craenenbroeck (2010a) and Barros (2014) point out that Merchant's claim is too strong, given that other authors have provided a number of English examples that require a cleft source. They argue that, in the general case, English sluices are compatible with an isomorphic source (Ross sluicing) as well as with a non-isomorphic one (shallow cleft sluicing); in specific cases, independent factors may block one or the other. Therefore, the only conclusion that can be derived from (104) is that this particular class of examples is one of those where a cleft source is blocked.

It is possible to use this logic to show to provide a more direct argument that the clefts that underlie some English sluices are of the shallow variety. Specifically, one can construct an example based on a configuration that independently blocks an isomorphic sluice; the prediction, then, is that the sluice will exhibit restrictions characteristic of shallow clefts. Here, I use a p-or-q antecedent (see AnderBois 2011 and Barros 2014) to block the possibility of an isomorphic

[43] This tree contains a significant simplification over van Craenenbroeck's actual analysis. He proposes that the wh- phrase moves through an outer specifier of CP$_2$ on its way to SpecCP$_1$. I have omitted this step of movement because the factors that lead van Craenenbroeck to posit it are not relevant to the discussion in this section.

sluice. Consider now (105), where the antecedent is embedded under *after*: the speakers I have polled unanimously agree that the remnant must be a bare *which*, rather than the PP *after which*. Example (106) is a control to show that *after wh-* remnants are licit in environments that do not block an isomorphic sluice.

(105) Car tires should be replaced after either you put ten thousand miles on them or they are older than five years, but different manufacturers don't always agree (∗after) which [__].

(106) It just stopped working, and I don't know after which update [__].
[*http://www.wordpress.org/support/topic/simply-doesnt-work-8*]

As Pinkham and Hankamer (1975) point out, while deep clefts allow pivots of any category, shallow clefts only allow DP/NP pivots. The fact that a DP remnant is possible in (104) but a PP remnant is not suggests that English cleft sluices stem invariably from shallow clefts. Ideally, these sluices should also show the other two properties of shallow clefts that Pinkham and Hankamer discuss. The first one (compatibility with sentential negation) is not testable: unlike the Dutch sluices discussed in (100) one cannot add a sentential negation to the remnant without reverting to VP ellipsis.[44] The second one (possibility of subextraction out of the pivot) is difficult to test within the confines of p-or-q antecedents, but it might be potentially testable in other environtments that block an isomorphic sluice. I leave this issue as an open question.

4.3 Pseudosluicing

So far, the discussion of non-isomorphic sluices has presupposed that they are uniformly derived by deletion of some clausal constituent (i.e., IP or some equivalent in a more fine-grained functional structure). However, in some languages, clefts and copular clause also afford the possibility of *pseudosluicing* (Kizu 1997, Merchant 1998, Gribanova 2013, and references). The defining characteristic of pseudosluicing is that the sluicing pattern is not derived by IP deletion, but rather by a simultaneous combination of a null copula and a null subject.

4.3.1 Japanese

As far as I know, Japanese is the first language for which a pseudosluicing analysis was proposed. Consider the following example.

(107) Tetsuo-ga dareka-o mi-ta ga, watashi-wa [dare [__] ka] wakaranai.
Tetsuo-NOM someone-ACC see-PST but I-TOP who Q know.not
"Tetsuo saw someone, but I don't know who"

Takahashi (1993, 1994) proposes an isomorphic analysis of Japanese sluices, where the remnant escapes the sluicing site via focus movement. Here I am going to follow Shimoyama (1995), Kizu (1997), Merchant (1998) in assuming that Takahashi's analysis is not viable; rather, (107) and analogous examples stem from a cleft along the lines of (108). I refer the reader to these works for extensive arguments in favor of this hypothesis

(108) Tetsuo-ga dareka-o mi-ta ga, watashi-wa [$_{CP}$ [$_{IP}$ *pro* dare da/de aru] ka]
Tetsuo-NOM someone-ACC see-PST but I-TOP it who COP PRS Q
wakaranai.
know.not
"Tetsuo saw someone, but I don't know who it is"

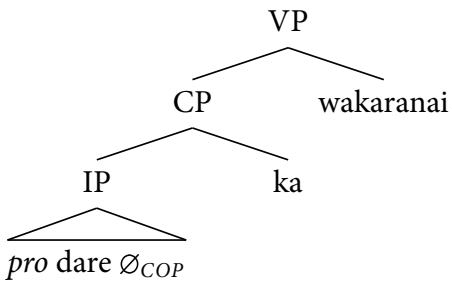
[44] The only exception I am aware of is *why not [__]* (Merchant 2006).

Later scholarship (Hiraiwa and Ishihara 2002, 2012, Fukaya 2007, 2012, Nakamura 2012, and references) largely agrees on this point (but see Iseda 2007 and Hasegawa 2008). The relevant question, though, is how (107) is to be derived from (108). One possibility is to resort to the same kind of derivation discussed in the preceding subsections, i.e., movement of the remnant to SpecCP followed by deletion of the copular IP. However, Shimoyama (1995), Kizu (1997), and Merchant (1998) propose a different approach, where the remnant doesn't (necessarily) move and the illusion of sluicing arises from the combination of subject drop and copula drop. Note that the viability of this approach requires both null subjects/expletives and null copulas to be independently available in Japanese. Example (108) already illustrates that the first requirement (i.e., that Japanese be a null subject/expletive language) is met; the following example (from Shimoyama 1995) illustrates that copula drop in embedded clauses is also possible.

(109) Boku-wa [Motoko-no koibito-ga dare (da) ka] siranai.
I-TOP Motoko-GEN boyfriend-NOM who COP Q know.not
"I don't know who Motoko's boyfriend is"

With all these pieces in place, (107) can be plausibly assigned the derivation in (110), where *pro* represents the null expletive and $\varnothing_{COP}$ the null copula

(110) Tetsuo-ga dareka mi-ta ga, watashi wa —



Readers should keep in mind that it is highly unlikely that all Japanese sluices can be subsumed under a pseudosluicing analysis (see especially Hiraiwa and Ishihara 2002, 2012, Fukaya 2007, 2012 and Nakamura 2012 for arguments in favor of a regular cleft sluicing analysis for certain classes of examples). What is relevant for the purposes of this section is that the availability of a pseudosluicing analysis (at least for some examples) is largely unavoidable once we accept (i) that Japanese sluices stem from clefts, and (ii) that Japanese allows both null expletives and null copulas.

4.3.2 Uzbek

Gribanova (2013) provides a similar analysis for Uzbek examples like (111a). It is not possible to treat these as isomorphic sluices, given that (i) Uzbek is a wh- in situ language; and (ii) while it features focus movement, the focus position is not left-peripheral. Rather, Gribanova proposes that (111a) stems from a copular clause along the lines of (111b).[45] Examples (111c) and (111d) show, respectively, that Uzbek allows null subjects and null copulas; therefore, it is possible to derive (111a) from (111b) through simultaneous subject drop and copula drop, rather than by deletion of the copular IP. The same reasoning holds for (112).

[45] Gribanova glosses the sequence *e-kan-lig-in-i* as one single word. I have changed this so that *e-kan* appears as a separate word. This choice is obviously irrelevant for the correctness of the analysis.

(111) U-lar kim-dir bilan gaplash-a-di-lar, lekin …
3SG-PL some-one with talk-PRS-3-PL but
"They talk to someone, but…

a. … [kim [__] lig-in-i] bil-ma-y-man.
who COMP-3SG.POSS-ACC know-NEG-PRS-1SG
"…I don't know who"

b. … [u-ning kim e-kan lig-in-i] bil-ma-y-man.
3SG-PL who COP-PTCP COMP-3SG.POSS-ACC know-NEG-PRS-1SG
"…I don't know who (s)he was"

c. … [*pro* kim e-kan lig-in-i] bil-ma-y-man.
who COP-PTCP COMP-3SG.POSS-ACC know-NEG-PRS-1SG

d. … [u-ning kim $\varnothing_{COP}$ lig-in-i] bil-ma-y-man.
3SG-PL who COMP-3SG.POSS-ACC know-NEG-PRS-1SG

(112) U-lar kim-ga-dir pul ber-ar-lar, lekin…
3-PL some-DAT-one money give-HAB-PL but
"They were giving money to someone, but…"

a. … [kim-ga [__] lig-i-ni] bil-ma-y-di-lar.
who-DAT COMP-3SG.POSS-ACC know-NEG-PRS-3-PL
"…they don't know who to"

b. … [u-ning kim-ga e-kan lig-i-ni] bil-ma-y-di-lar.
3SG-PL who-DAT COP-PTCP COMP-3SG.POSS-ACC know-NEG-PRS-3-PL
"…they don't know to who it is"

c. … [*pro* kim-ga e-kan lig-i-ni] bil-ma-y-di-lar.
who-DAT COP-PTCP COMP-3SG.POSS-ACC know-NEG-PRS-3-PL

d. … [u-ning kim-ga $\varnothing_{COP}$ lig-i-ni] bil-ma-y-di-lar.
3SG-PL who-DAT COMP-3SG.POSS-ACC know-NEG-PRS-3-PL

Note that, while the remnant in (112a) carries a dative case marker, the one in (111a) appears in the bare form that corresponds to the nominative. Gribanova argues that this difference is a significant one, in that it provides an important clue as to the specific subtype of copular clause that underlies each example. Specifically, the pivots of equative copular clauses are invariably nominative, whereas pivots of predicational copular clauses bear inherent case (note that in neither type of copular clause can pivots bear structural accusative; I return to this below). Given this difference, she concludes that (111a) stems from an equative copular clause, whereas (112a) stems from the predicative copula.[46]

Gribanova also points out that about 20% of speakers also accept sluices with an accusative-marked remnant (113). Such examples are exceptional in various ways: first, there is the fact that copular clauses (of either the equative or the predicational variety) disallow accusative pivots, which contraindicates subsuming (113) under the analysis presented just above. Additionally, while (113) resembles the copular pseudosluices above in optionally allowing an overt copula (and thus enabling, in principle, a pseudosluicing analysis), it differs from them in disallowing an overt subject (114).

[46] Uzbek also has non-elliptical specificational copular clauses. However, it is currently unclear whether this subtype can also underlie pseudosluicing (Vera Gribanova, p.c.). Given the discussion in Gribanova (2013), there is no particular reason to expect a negative answer; if it eventually turns out that specificational copular pseudosluices are genuinely missing in Uzbek, this gap will likely have to be accounted for through a language-specific restriction on the types of clauses that are licit pseudosluicing sources.

(113) % Hasan kim-ni-dir ko'r-di, lekin [kim-ni [__] lig-i-ni]
Hasan some-ACC-one see-PST.3SG but who-ACC COMP-3SG.POSS-ACC
bil-ma-y-man.
know-NEG-PRS-1SG
"Hasan saw someone, but I don't know who"

(114) % Hasan kim-ni-dir ko'r-di, lekin [(*u-ning) kim-ni (e-kan)
Hasan some-ACC-one see-PST.3SG but 3SG-PL who-ACC COP-PTCP
lig-i-ni] bil-ma-y-man.
COMP-3SG.POSS-ACC know-NEG-PRS-1SG
"Hasan saw someone, but I don't know who (s)he was"

Gribanova shows that these two properties (accusative marking on the pivot and impossibility of an overt subject) are also properties of deep clefts (the same holds of other properties not discussed here, e.g., agreement patterns and focus interpretation). The conclusion, then, is that it is necessary to distinguish at least three subtypes of pseudosluicing in Uzbek, the properties of each one being transparently inherited from the specific clause type (equative copula, predicational copula, or deep cleft) that it stems from.[47]

5 Multiple sluicing

5.1 Genuine multiple sluicing

5.1.1 Multiple focus/wh- fronting

Given the discussion so far, it is unsurprising that multiple wh- fronting languages allow sluices with multiple remnants. I illustrate this possibility in (115) and (116) with Bulgarian and Serbo-Croatian, respectively, but comparable paradigms can be constructed in other Balkan/Slavic languages.

(115) *Bulgarian (Richards 2001)*
Njakoj vidja njakogo, …
someone.NOM saw someone.ACC

a. … no ne znaw koj_i $kogo_k$ [$_{TP}$ t_i vidja t_k].
but not know.1SG who.NOM who.ACC saw

b. … no ne znaw koj kogo [__].
but not know.1SG who.NOM who.ACC

(116) *Serbo-Croatian (Stjepanović 2003)*
Neko je vidio nekog, ….
someone.NOM is seen someone.ACC

a. … ali ne znam ko_i $koga_k$ [$_{TP}$ t_i je vidio t_k].
but not know.1SG who.NOM who.ACC is seen

[47] Gribanova also shows that Uzbek has shallow clefts, with an different array of properties from deep clefts. Her proposal is that Uzbek shallow clefts are essentially copular clauses whose subject is a free relative (rather than a pronoun) and is optionally extraposed. Importantly, she acknowledges that examples like (111a) and (111c) are ambiguous between a shallow cleft and a copular source, given that pseudosluicing masks the differences between the two clause types (i.e., the linear position of the subject and its pronoun vs. free relative status).

b. … ali ne znam ko koga [__].
but not know.1SG who.NOM who.ACC

At this juncture, it is important to remark that there are different subtypes of multiple wh- fronting languages, each one with a different cluster of properties (Rudin 1988 *et seq*). Given the approach to sluicing I am considering in this chapter, the expectation is that multiple sluices in each language will inherit the properties of the corresponding overt multiple questions. For example, Grebenyova (2006a:ch. 3) points out that Russian multiple questions allow pair-list, but not single-pair readings. The examples in (115) demonstrate that, as expected, this restriction carries over to sluicing. Note that the manipulation of the subject in the antecedent clause (*každyj* 'everyone' vs. *ktoto* 'someone') is done deliberately to induce, respectively, the pair-list and single-pair readings we want to test.

(117) *Russian (Grebenyova 2006a)*

a. Každyj priglasil kogoto na tanec, no ja ne pomnju kto
everyone.NOM invited someone.ACC to dance but I not remember who.NOM
kogo [__].
who.ACC
[*každyj* induces pair-list reading]

b. ?? Ktoto priglasil kogoto na tanec, no ja ne pomnju kto
someone.NOM invited someone.ACC to dance but I not remember who.NOM
kogo [__].
who.ACC
[*ktoto* induces single-pair reading]

In contrast to Russian, Serbo-Croatian allows single-pair readings in multiple questions (Bošković 2003, Grebenyova 2006a). As expected, this enables multiple sluices with single-pair readings.[48]

(118) *Serbo-Croatian (Boban Arsenijević, p.c.)*

a. Svako je nekog pozvao na pies, ali ne secam se
everyone.NOM AUX someone.ACC invited on dance but not remember.1SG REFL
ko koga [__].
who.NOM who.ACC
[*svako* induces pair-list reading]

b. Neko je nekog pozvao na pies, ali ne secam se
someone.NOM AUX someone.ACC invited on dance but not remember.1SG REFL
ko koga [__].
who.NOM who.ACC
[*neko* induces single-pair reading]

For a more extensive and detailed discussion of the correlations between multiple wh- fronting and genuine multiple sluicing, I refer the interested reader to Grebenyova (2006a), van Craenenbroeck and Lipták (2013), and references therein.

[48] It is not clear to me to what extent this correlation can be preserved in analyses where sluices do not have a regular syntax (specially those discussed in sections 2.1 above). Bošković (1999, 2003), Grebenyova (2006a), and others have argued at length that, for any given language, the availability of pair-list readings is contingent on whether wh- fronting is triggered by a [WH] or a [FOCUS] feature (specifically, only the latter class of languages allow single-pair readings). If this conjecture is crosslinguistically consistent (see Bošković 1999, 2003 for discussion), then the contrast between Russian-type languages and Serbo-Croatian-type languages can be construed as an additional argument in favor of sluices having a regular syntax.

5.1.2 Multiple clefting

Some wh- in situ languages also exhibit sluices with multiple remnants. Here, I will concentrate on Japanese, for which Takahashi (1994), Kuwabara (1996), Takahashi and Lin (2012) and Hiraiwa and Ishihara (2002, 2012) have noted examples like (119).

(119) Tetsuo-ga [dareka-ga nanika-o katta to] itta. Kaneda-wa [dare-ga
Tetsuo-NOM someone-NOM something-ACC bought that said Kaneda-TOP who-NOM
nani-o [__] ka] siri-tagat-e iru.
what.ACC Q know-want is
"Tetsuo said that someone bought something. Kaneda wants to know who what"

The standard analysis of such examples relies on the fact that multiple clefting is independently possible in Japanese (120) —see Kuwabara 1996, Hiraiwa and Ishihara 2002, 2012, and references.[49]

(120) [Taro-ga ageta-no]-wa Hanako-ni ringo-o san-tu da.
Taro-NOM gave COMP-TOP Hanako-DAT apple-ACC three-CL COP
"It is three apples to Hanako that Taro gave"

Hiraiwa and Ishihara (2002, 2012) discuss a number of parallelisms between multiple clefts and multiple sluices that suggest that the latter ought to be derived from the former. For example, Japanese DPs can appear without case markers under certain circumstances, but multiple clefting requires case markers to be retained (121a). In the same way, remnants of multiple sluicing must necessarily each appear with their corresponding case markers (121b).

(121) a. [Taro-ga ageta no]-wa Hanako∗(-ni) ringo∗(-o) san-tu da.
Taro-NOM gave COMP-TOP Hanako-DAT apple-ACC three-CL COP
"It is three apples to Hanako that Taro gave"

b. Taro-ga dareka-ni nanika-o ageta rasii ga, boku-wa [[__] dare∗(-ni)
Taro-NOM someone-DAT something-ACC gave seem but I-TOP who-DAT
nani∗(-o) (da) ka] wakaranai.
who-ACC COP Q know.not
"Taro gave something to someone, but I don't know what to who"

Similarly, pivots of multiple clefts generally need to be clausemates except if they are wh- expressions —see especially Ishihara 2012 and references for an analysis of this pattern. As expected, remnants of multiple sluicing pattern with wh- pivots of multiple clefts in not being subject to the clausemate restriction.[50]

[49] Specifically, Hiraiwa and Ishihara make a distinction between clefts and pseudoclefts, which exhibit a number of asymmetries (e.g., possibility of multiple pivots, possibility of case dropping, possibility of nominative-genitive conversion, etc). Given that sluices in general, and multiple sluices in particular, exhibit the same range of properties as clefts, Hiraiwa and Ishihara propose that (multiple) sluices stem exclusively from clefts, rather than pseudoclefts. Note, however, that they do not discuss how their analysis interacts with the pseudosluicing analysis discussed in section 4.3.1 above. I leave this particular issue as an open question.

[50] Although Takahashi (1994:sec. 4.2) claims makes the opposite claim, citing (i) as evidence. At present, I do not know why judgments differ in this way.

(i) * Dareka-ga [John-ga nanika-o katta to] itteita ga, Mary-wa [dare-ga nani-o [__]
someone-NOM John-NOM something-ACC bought that said but Mary-TOP who-NOM what-ACC
ka] oboeteinai.
Q not-remembers
"Someone said that John bought something, but Mary doesn't remember who what"

(122) a. * [Mari-ga [Naoya-ga nonda to] iituketa no] wa sensei-ni
Mari-NOM Naoya-NOM drank COMP told COMP TOP teacher-DAT
wine-o da.
wine-ACC COP
"It is to the teacher, wine, that Mari told that Naoya drank"

b. [Mari-ga [Naoya-ga nonda to] iituketa no] wa dare-ni nani-o
Mari-NOM Naoya-NOM drank COMP drank COMP TOP who-DAT what-ACC
na no?
COP COMP
"To who, what is it that Mari told that Naoya drank?"

c. Mari-ga dareka-ni [Naoya-ga nanika-o nonda to] iituketa
Mari-NOM someone-DAT Naoya-NOM something-ACC drank COMP told
rasii ga boku-wa [[__] dare-ni nani-o (da) ka] wakaranai.
seem but I-TOP who-DAT what-ACC COP Q know.not
"It seems that Mari told someone that Naoya drank something, but I don't know to who what"

As above, I refer the reader to Kuwabara (1996) and Hiraiwa and Ishihara (2002, 2012) for a more detailed discussion of these examples. What is relevant for the purposes of this chapter is the fact that languages with non-isomorphic sluicing allow multiple sluicing remnants, so long as the corresponding non-elliptical structure (in the case of Japanese, clefts with multiple pivots) is independently available. Consider Spanish, which Rodrigues et al. (2009) and Vicente (2008) have argued instantiates specificational copular sluicing in examples with a P-stranding effect (see section 4.1.1 above). Importantly, given Spanish specificational copulas do not allow multiple pivots (123a), multiple P-stranding sluicing is also ungrammatical (123b) —specifically, Rodrigues et al. and Vicente argue that the obligatory presence of the prepositions indicates that (123b) is an instance of isomorphic multiple *fake* sluicing, to which the discussion in section 5.2.1 below applies.

(123) a. * No recuerdo qué persona qué restaurante es la persona con la que
not remember.1SG which person which restaurant is the person with which
ha comido Juan.
has eaten Juan

b. Juan ha comido con una persona en un restaurante, pero no
Juan has eaten with some person in some restaurant but not
recuerda *(con) qué persona *(en) qué restaurante [__].
remember.1SG with which person in which restaurant

5.2 Fake multiple sluicing

5.2.1 Single sluicing + Heavy NP Shift

What is more surprising is that multiple sluicing is also a possibility in languages that do not otherwise allow multiple fronting (whether *qua* wh- or focus-driven movement) or multiple clefting. Here I use English as an example of a Ross sluicing language (124),[51] and Farsi as an example of a

[51] But note that Takahashi (1994:284) marks (i) as ungrammatical, which leads him to argue that English lacks multiple sluicing altogether (Takahashi and Lin 2012 make the same claim). I have confirmed this judgment with other speakers and, at present, I have no suggestions as to why this particular example is degraded

focus sluicing language (125). The fact that English doesn't allow multiple wh- fronting is already well established in the literature and needs not illustration. I provide (126) as an illustration that, likewise, Farsi disallows multiple focus fronting (see chapter 31 of this volume for additional discussion; Ince 2009 makes equivalent claims for Turkish).

(124) a. ? I know that, in each instance, one of the girls got something from one of the boys. But which [__] from which?

b. ? One of the students spoke to one of the professors, but I don't know which student [__] to which professor.

(125) *Farsi (Maziar Toosarvandani, p.c.)*

Yeki az shâgert=â bâ ye ostâd=i sohbat karde dar morede
one from student=PL with a teacher=INDEF speech do.PERF.3SG in subject-EZ
moshgel=esh, vali ne-midun-am kudum shâgerd [__] bâ kudum ostâd
problem=3SG but NEG-know.PRES-1SG which student with which teacher.
"One of the students talked with a teacher about his/her problem, but I don't know which student with which teacher."

(126) *Farsi (Maziar Toosarvandani, p.c.)*

a. Râmin hamishe be Vis gol mide.
Ramin always to Vis flower give.PRES.3SG

b. [RÂMIN]$_F$ hamishe be Vis gol mide
Ramin always to Vise flower give.PRES.3SG

c. [GOL]$_F$ Râmin hamishe be Vis mide.
flower Ramin always to Vis give.PRES.3SG

d. * [RÂMIN]$_F$ [GOL]$_F$ hamishe be Vis mide.
Ramin flower always to Vis give.PRES.3SG

Note that the placement of the [__] diacritic in between the two remnants in (124) and (125) is not accidental. Richards (2001) originally proposed that sluicing exceptionally licenses multiple overt wh- movement in English (and, by extension in other non-multiple wh- fronting languages): thus, (124) would involve leftward wh- movement of each remnant to a separate SpecCP. Similarly, (125) would involve multiple focus fronting, despite the fact that this is not a possibility in non-elliptical sentences (Maziar Toosarvandani, p.c.). Against this background, Lasnik proposes an alternative analysis, where only the first remnant undergoes regular focus/wh- fronting: the second one escapes the sluicing site through rightward Heavy NP Shift (127).

(127) …but I don't know [$_{CP}$ [which students]$_i$ [t_i talked t_k] [to which professors]$_k$]

Among Lasnik's arguments in favor of (127) is the fact that the second remnant doesn't allow P-stranding (128a). This is a surprising restriction, given that P-stranding under sluicing is otherwise possible in English (cf. Merchant 2001 and section 2.2.1 above); however, it follows directly from (127), given that P-stranding under HNPS is likewise impossible (128b)/(128c).

(i) * John said someone bought something. Mary wonders who [__] what.

(128) a. Some of the students talked to some of the professors, but I don't know [$_{CP}$ which students [__] *(to) which professors].
b. Some of the students talked t_i yesterday [$_{PP}$ to some of the professors]$_i$.
c. * Some of the students talked [$_{PP}$ to t_i] yesterday [$_{DP}$ some of the professors]$_i$.

Additionally, Lasnik also notes that multiple sluicing becomes impossible if the two remnants are not clausemates (129a). Farsi obeys the same restriction (130).[52] This restriction follows directly from Lasnik's proposal, as the second remnant would have to undergo HNPS across a finite clause boundary in violation of Ross's (1967) Right Roof Constraint (illustrated in (129b) for English).

(129) a. * Some of the students say that Harvey talked to some of the professors, but I don't know [$_{CP}$ which students [__] to which professors].
b. * Some of the students said that Mary will speak t_i yesterday [to some of the professors]$_i$.

(130) *Farsi (Maziar Toosarvandani, p.c.)*
* Yeki az shâgerd=â goft ke Râmin bâ ye ostâd=i sohbat
one from student=PL say.PAST.3SG that Ramin with a teacher=INDEF speech
karde dar mored-e moshgel=esh, vali ne-midun-am kudum shâgerd
do.PERF.3SG in subject-EZ problem=PL but NEG-know.PRES-1SG which student
bâ kudum ostâd.
with which teacher
"One of the students said that Ramin spoke with a teacher about his/her problem, but I don't know which student with which teacher."

Note that, under Lasnik's analysis, this clausemate restriction is predicted not to hold in languages where multiple sluicing can be derived through regular multiple wh-/focus fronting (see section 5.1.1 above), at least to the extent that fronting of non-clausemate multiple wh- phrases is possible. The paradigm in (131) illustrates this effect for Serbo-Croatian. Lasnik points out that not all the speakers he consulted accept (131a). Importantly, though, those same speakers didn't accept (131b) either, which provides additional support for the hypothesis that there is a direct connection between the acceptability of the sluiced and unsluiced forms of these questions.

(131) *Serbo-Croatian (Lasnik 2014)*
a. % Neko misli da je Ivan nesto pojeo. Pitam se [$_{CP}$ ko sta [__]].
someone thinks that is Ivan something ate ask self who what
b. % Ko sta misli da je Ivan pojeo?
who what thinks that is Ivan eaten

[52] In an informal survey, I have found that some speakers of Norwegian do accept analogous examples (ib). Note that all the speakers I have surveyed report Lasnik-like judgments in accepting multiple sluicing with clausemate remnants (ia), and rejecting P-stranding on the second remnant. I have currently no explanation for this pattern.

(i) a. Noen studenter har snakket med noen professorer, men jeg vet ikke hvilke studenter [__] med
some students have spoken with some professors but I know not which students with
hvilke professorer.
which professors
b. % Noen studenter sier at Per har snakket med noen professorer, men jeg vet ikke hvilke
some students said that Per has spoken with some professors but I know not which
studenter [__] med hvilke professorer.
students with which professor

5.2.2 Null coordination of simple sluices

Gribanova (2013) provides the Uzbek example (132), which appears to instantiate multiple pseudosluicing. However, she points out that this is likely a case of two separate pseudosluices joined by a null coordinator (which is an independent option in Uzbek). As evidence in favor of this view, she argues that, "when larger, more weighty conjuncts are coordinated [...] a large pause (133a) or an overt coordinator (133b) becomes necessary".

(132) Kecha kim-dir kim-ga-dir pul ber-di, lekin [kim kim-ga [__]
yesterday some-one some-DAT-one money give-PST.3SG but who who-DAT
lig-i-ni] bil-ma-y-man.
COMP-3SG.POSS-ACC know-NEG-PRS-1SG
"Yesterday, someone gave money to someone, but I don't know who to whom"

(133) a. Kecha bir bola bir qiz-ga pul ber-di, lekin [qaysi bola [__]] *(#)
yesterday one boy one girl-DAT money give-PST.3SG but which boy
[qaysi qiz-ga [__] lig-i-ni] bil-ma-y-man.
which girl-DAT COMP-3SG.POSS-ACC know-NEG-PRS-1SG
"Yesterday, some boy gave money to some girl, but I don't know which boy (it was and) which girl (it was)."

b. Kecha bir bola bir qiz-ga pul ber-di, lekin [qaysi bola [__]] *(va)
yesterday one boy one girl-DAT money give-PST.3SG but which boy
[qaysi qiz-ga [__] lig-i-ni] bil-ma-y-man.
which girl-DAT and COMP-3SG.POSS-ACC know-NEG-PRS-1SG
"Yesterday, some boy gave money to some girl, but I don't know which boy (it was and) which girl (it was)."

To my knowledge, Gribanova (2013) is the first author that has explicitly discussed this possibility. Obviously, if her analysis is correct, then (132) instantiates multiple sluicing only superficially, not in any analytically meaningful sense of the term.

6 Conclusions and outlook

As we have seen throughout this chapter, sluicing exhibits a range of variability (both across and within languages) that contraindicates treating it as a syntactically homogeneous construction. Arguably, the most elegant approach to this variability consists on assimilating each given instance of sluicing to some type of wh- interrogative independently available in the language in question, so that the syntactic and semantic properties of the latter are inherited by the former; the immediate advantage of this hypothesis is that it offers a number of ways of treating sluices in wh- in situ languages (see, for illustration, many of the papers collected in Merchant and Simpson 2012, and references there), for which a monolithic Ross sluicing analysis would obviously be either insufficient or stipulative. One way of handling this correspondence is by assuming that sluices have the same syntax and semantics as their unsluiced counterparts, but readers should be aware that this is not the only logical possibility. In particular, if one wishes to deny that sluicing sites have a regular syntax, one could posit a less direct link between a certain class of structures and their observed clusters of properties, so that the correspondence between sluiced and unsluiced sentences need not be directly mediated by syntax —see, for example, the class of analyses in Construction Grammar and related frameworks (Ginzburg and Sag 2000, Culicover and Jackendoff 2005, Nykiel and Sag 2011, chapters 4 through 8 of this volume and

references therein). The downside of this alternative line of attack is that it doesn't offer any obvious way of dealing with the locality and connectivity effects discussed in section 2 below and the Appendix 2 below. As far as I can see, the only way to integrate these effects into these analyses is by denying their validity as evidence of an invisible regular syntax, as Jacobson (2013) does.

Unfortunately, Ross's and Merchant's very direct correspondence between sluiced and unsluiced sentences does break down on occasion (see, for example, the discussion of Polish and Indonesian P-stranding sluices in section 4.1.1). Obviously, these cases are problematic for the approach I have sketched in this chapter, and they can be taken to suggest that the strongest form of this hypothesis (i.e., that sluicing involves PF deletion exclusively, and that PF deletion has absolutely no effect on syntax and semantics) is not correct. Folding these cases under the PF deletion analysis (or, alternatively, using them to falsify the PF deletion approach in a general way) remains an open research question.

Appendix 1: surprisingly impossible sluices and the identity condition on ellipsis

There is a wide consensus that the identity condition that licenses sluicing (and ellipsis in general) has to be formulated in semantic terms. For example, Merchant (1999, 2001) introduces the following formulation.[53]

(134) *e-*GIVEN*ness and ellipsis*

a. An expression E can be elided if it is e-GIVEN.

b. E counts as e-GIVEN iff E has a salient antecedent A and, modulo $\exists$-type shifting, A entails the F-closure of E and E entails the F-closure of A.

c. The F-closure of α is the result of replacing F-marked parts of α with $\exists$-bound variables.

Given the pervasivity of morphosyntactic mismatches between the antecedent and the sluicing site (e.g., the whole of §4 above), this much is uncontroversial. The configurations I present in this section are surprising in the sense that semantic identity is arguably preserved, but ellipsis fails nonetheless. As I explain below, this has been taken as evidence to the effect that the semantic identity condition must be supplemented with a more strict morphosyntactic identity condition. However, the proper integration of semantic and morphosyntactic conditions still remains to be properly worked out (although see Merchant 2013b, Chung 2013, Barros 2014, chapter 2 of this volume, and references therein).

A1.1 Voice and argument structure mismatches

As Merchant (1999, 2001) and Chung (2006) point out, sluicing disallows antecedent-sluice voice mismatches. Examples (135a) and (135b) illustrate this restriction with an active antecedent and a passive sluice, and vice versa, respectively. The grammatical, unsluiced (b) examples serve as a control to show that the ungrammaticality of the (a) examples is in fact a sluicing effect.

[53] Other formulations are similarly semantically based: Chung et al. (1995) require copying of the LF of the antecedent onto the sluicing site; Schwarzschild (1999) proposes a condition identical to (134) except that it doesn't require E to entail the F-closure of A; AnderBois (2011, to appear) requires that the antecedent and the sluicing site entail each other in the inquisitive dimension; and Barros (2014) requires that the antecedent and the sluicing site both answer the same salient Question under Discussion.

(135) a. * Someone took the trash out, but I don't know who by [__].
b. Someone took the trash out, but I don't know who it was taken out by.

(136) a. * The trash was taken out, but I don't know who [__].
b. The trash was taken out, but I don't know who took it out.

Moreover, the status of (135a) and (136a) cannot be attributed to a general ban on voice mismatches under ellipsis, given that VP ellipsis allows comparable configurations (see especially Merchant 2013b and Kertz 2010 for discussion of this pattern).[54,55]

(137) a. The janitor must remove the trash whenever it is apparent it should be [__].
b. This information could have been released by Gorbachev, but he chose not to [__].

Similarly, sluicing doesn't allow argument structure alternations. The paradigm in (138)/(138) illustrates this with the spray-load alternation. As above, the grammatical, unsluiced (b) examples show that the unacceptability of the (a) examples is an ellipsis effect.

(138) a. * Sally embroidered a flag with those peace signs, but I don't know which flag on [__].
b. Sally embroidered a flag with those peace signs, but I don't know which flag she embroidered those peace signs on.

(139) a. * Sally embroidered some signs on the flag, but I don't know which signs with [__].
b. Sally embroidered some signs on the flag, but I don't know which signs she embroidered the flag with.

Merchant (2013b) argues that these data can all be traced down to a constraint that prohibits certain functional heads contained in the ellipsis site from having a feature specification different from that of the corresponding functional head in the antecedent. For illustration, assume that the active-passive alternation depends on whether the Voice head carries an [ACT] or a [PASS] feature. If so (135a) is ungrammatical because the [ACT] feature in the antecedent clashes with the [PASS] feature in the sluicing site (the same reasoning holds, in reverse, for (136a)); in contrast, voice mismatches are acceptable under VP ellipsis (137) because, by hypothesis, Voice is not contained in the VP ellipsis site (see Merchant 2013b for support of this particular assumption). The argument structure restrictions in (138) and (138) follow from the same analysis, on the assumption that the spray-load alternation can be reduced to the feature specification of some functional head(s) in the expanded VP. We may encode this restriction as follows.[56]

[54] Voice alternations involving the middle are also disallowed under sluicing (ia). Notably, they are also disallow under VP ellipsis (ib), which suggests that they might receive a different analysis than that of active-passive mismatches.

(i) a. * This book reads easily, but I don't know who [__].
b. * This book reads easily, but nobody did [__].

[55] Merchant (2013b) similarly argues against explaining (135a) and (136a) by appeal to semantic identity conditions on ellipsis: "the fundamental difficulty is that voice mismatch has an uneven distribution: it is found in some, but not all, kinds of ellipsis. For theories that posit only semantic identity [...], the puzzle is why voice mismatches should be disallowed in so many cases, since active and passive clauses are mutually entailing and allow for the relevant inferences".

[56] In principle, (140) also derives the fact that sluicing doesn't tolerate tense and aspect mismatches either. There is some overlap here, though, in that tense and aspect mismatches are arguably also independently ruled out by standard semantic identity conditions.

(140) *Functional feature identity*
Functional heads contained in the ellipsis site must have the same feature specifications as the corresponding functional heads in the antecedent.

As the reader might have noticed, the notable feature of this account is that it requires morphosyntactic identity between functional heads, which requirement must be added as a supplement to the more familiar semantic identity conditions on ellipsis.[57]

A1.2 Argument switches

Barros (2014:ch. 5) observes that an apparently similar effect holds with irreducibly symmetric predicates like *make out with* and *dance with*.

(141) a. * Someone was making out with Bill, but I don't know { with who(m) / who with } [Bill was making out].
b. * Someone was dancing with Bill, but I don't know { with who(m) / who with } [Bill was dancing].

A predicate is irreducibly symmetric if (i) it expresses a binary relationship, and (ii) its two arguments have necessarily identical participation in any event described by the predicate (Dimitriadis 2008). The second clause of this definition is important, as it entails that there is no thematic asymmetry between the arguments of an irreducibly symmetric predicate (e.g., in *Bill is making out with Sally*, one can't categorize *Bill* as the agent and *Sally* as the theme, or something to this effect). This makes it difficult to extend the analysis in the previous subsection to the examples in (141), as they do not involve voice or argument structure alternations: the functional structure of the sluice is identical to that of the antecedent, the only difference being the position of the arguments. Similarly, the symmetric nature of these predicates makes it difficult to capture the ungrammaticality of (141) by appealing to semantic identity conditions between the sluicing site and its antecedent. Rather, Barros proposes that (141) indicates a necessity for standard identity conditions, which regulate the relation between the sluicing site and its antecedent, to be supplemented with conditions on the relation between the remnant of sluicing and its correlate. Specifically, he proposes condition (142) and then offers the commentary that I quote below. As this quote makes clear, Barros attributes the deviance of (141) not a DP/PP categorial asymmetry, but specifically to the different semantics of PPs and DPs.

(142) *The Remnant Condition (Barros 2014:129)*
The remnant must have a syntactic correlate, which is a semantically identical XP in the antecedent.

> "I claim that the problem with the examples in [(141)] is that the PP remnant [*who with*] has no semantically equivalent XP in the antecedent. [...] PPs are standardly

[57] Merchant argues that this account also extends to the beneficiary/oblique alternation in ditransitive predicates, ((i), paradigm from Chung et al. 1995). However, Barros (2014) observes that some predicates can escape this restriction (ii). At present, I do not know what the relevant difference between (i) and (ii) is.

(i) a. They served someone the meal.
b. They served the meal to someone.
c. * They served someone the meal, but I don't know who to [___].

(ii) a. They baked someone a cake.
b. They baked a cake for someone.
c. They baked someone a cake, but I don't know who for [___].

> assumed to have meanings distinct from argumental DPs. The PP in the antecedent *with Bill* is not semantically equivalent to *with whom*, since the latter has an existentially quantified DP as its prepositional object"
>
> [Barros 2014:131–132]

Barros aptly observes that (142) can also account for the ungrammaticality of some of the data that condition (140) in the previous subsection is supposed to take care of (most prominently, argument structure mismatches). I refer the reader to the relevant sections in chapter 5 of Barros (2014) for a detailed discussion of this overlap and its implications.

A1.3 Morphological case and cleft/copular sluices

Van Craenenbroeck (2012) has noticed that the possibility of using an underlying copular clause (or, alternatively, a cleft) as a means to circumvent P-stranding restrictions under sluicing is sensitive to morphological case marking. As already shown in (69) above, German sluices do not generally allow a case-marked remnant to strand its selecting preposition inside the sluicing site. Note that switching the case of the remnant to nominative, the case invariably assigned to cleft pivots, doesn't salvage the situation (143) —note specifically that the non-elliptical version of (143a) is grammatical (143b), so the ungrammaticality of (143a) is exclusively an ellipsis effect.

(143) *German*

a. * Anne hat mit jemandem gesprochen, aber ich weiß nicht wer [__].
Anne has with someone.DAT talked but I know not with who.NOM

b. Anne hat mit jemandem gesprochen, aber ich weiß nicht, wer es ist.
Anne has with someone.DAT talked but I know not who.DAT it is

This doesn't mean that P-stranding sluices are invariably ungrammatical in German. Van Craenenbroeck points out that a P-stranding sluice is possible if the case assigned by the relevant preposition is syncretic with the case assigned to cleft pivots. This is illustrated in (144), where *über* 'about' assigns accusative and *was* 'what' is nominative/accusative syncretic.

(144) Anne hat über etwas überraschend gesprochen, aber ich weiß nicht
Anne has about something.ACC surprising talked but I know not
was [__].
what.NOM/ACC

Note that this is not an idiosyncracy of German. As van Craenenbroeck reports, Greek (along with a number of other non-P-stranding languages) exhibits exactly the same effect. The nominative wh- word *pjos*, which is not syncretic with the accusative *pjon*, cannot be used as a remnant for the accusative correlate *kapjon*, even though the corresponding non-elliptical cleft is fully grammatical; on the other hand, the wh- word *ti*, which exhibits nominative/accusative syncretism, is not subject to this restriction.

(145) *Greek*

a. * I Anna milise me kapjon, all dhe ksero pjos [__].
the Anna spoke.3SG with someone.ACC but not know.1SG who.NOM

b. I Anna milise me kapjon, all dhe ksero pjos itan.
the Anna spoke with someone.ACC but not know.1SG who.NOM was

(146) O Giannis anakateftike se kati, asa dhen ksero ti [__].
the Giannis mixed.up.3SG in something.ACC but not know.1SG what.NOM/ACC

These data can be clearly accommodated under the case matching condition in in (34) above, which I repeat here for convenience (and see also the associated footnote 17 for additional discussion).

(34) *Case matching under sluicing*
In sluicing, given a correlate *C* and a remnant *R*, if *C* is a case-bearing category, *R* and *C* must have the same case morphology.

As in the previous sections, the implication of this condition is that a purely semantic identity condition is not sufficient, and must be supplemented with some morphosyntactic conditions.

A1.4 Cleft and copular antecedents

Vicente (2008) observes that, while non-cleft or non-copular antecedent can license a cleft or copular sluice (see sections 4.1 and 4.2), the reverse doesn't seem to hold true: a cleft or copular antecedent cannot license a non-cleft/non-copular sluice. Specifically, he points out that, in Spanish, a copular antecedent with a prepositional correlate requires a P-stranding effect in the sluice (147). On the assumption that the presence/absence of a P-stranding effect correlates, respectively, with a copular/non-copular source for the sluice (Rodrigues et al. 2009), Vicente concludes that this class of sluices invariably stems from an underlying copular clause.

(147) * La persona con la que ha hablado Andrés es alguien de Contabilidad, pero
the person with which has talked Andrés is someone from accounting but
no sé (∗con) quién [__].
not know.1SG with who

As in the previous subsection, this is not an idiosyncracy of Spanish. English, where P-stranding effects are otherwise largely optional, displays the same obligatoriness as Spanish (148a). German is an arguably more surprising example of this pattern (148b), given that, outside this one context, it doesn't seem to allow the use of copular sluices to create a P-stranding effect (see section A1.3 right above); additionally, the necessity of a nominative remnant constitutes further evidence in favor of an underlying cleft or copular clause, as the pivots of these clauses are invariably nominative.

(148) a. * The person that Jack has talked to is someone from Accounting, but I don't know (∗to) who [__].

b. * Der Mann, mit dem Oskar gesprochen hat, ist jemand aus der
the man with which.DAT Oskar spoken has is someone.NOM from the
Buchhaltung, aber ich weiß nicht { ∗ mit wem / ∗ wem / ✓ wer
accounting but I know not with who.DAT who.DAT who.NOM
} [__].

Note that the unsluiced non-copular/non-cleft counterparts of the sentences above are clearly much more acceptable, which suggests that this is a genuine restriction on ellipsis.

(149) a. ? La persona con la que ha hablado Andrés es alguien de Contabilidad,
the person with which has talked Andrés is someone from accounting
pero no sé con quién ha hablado Juan.
but not know.1SG with who has talked Juan

b. ? The person that Jack has talked to is someone from Accounting, but I don't know who Jack has talked to.

c. ? Der Mann, mit dem Oskar gesprochen hat, ist jemand aus der
the man with which.DAT Oskar spoken has is someone.NOM from the
Buchhaltung, aber ich weiß nicht, mit wem Oskar gesprochen hat.
accounting but I know not with who.DAT Oskar spoken has

However, there are some clues as to the nature of this restriction. One relevant fact is that, if the examples are constructed so as to avoid the difficulties associated to prepositions, a remnant cannot take an indefinite inside the relative clause as its antecedent. This is arguably due to the fact that constituents inside the predicative argument of copular clauses cannot be focused (Mikkelsen 2005 and references) and, as such, cannot be used as correlates of sluicing remnants.

(150) a. * La persona con la que ha hablado alguien de Contabilidad es Andrés,
the person with which has talked someone from accounting is Andrés
pero no sé quién [__].
but not know.1SG who

b. * The person that someone from Accounting has talked to is Jack, but I don't know who [__].

c. * Der Mann, mit dem jemand aus der Buchhaltung gesprochen hat, ist
the man with who someone.NOM from the accounting spoken has is
Oskar, aber ich weiß nicht wer [__]
Oskar but I know not who.NOM

Consequently, the remnants must take the referential (post-copular) argument as their correlate. Note that this correlate is a DP, rather than a PP; as such, the impossibility of prepositional remnants in (147), (148a), and (148b) can be taken as a special case of the remnant condition introduced in (142) above.

Appendix 2: known answers and open questions on island repair effects

As already mentioned in section 2.2, the island repair effect is one of the outstanding problems in the study of sluicing. While a comprehensive theory of island repair under ellipsis remains to be formulated (though see Merchant 2008 and Barros et al. 2014 for very enlightning discussions), it is nonetheless possible to formulate a more precise set of research questions. Let me emphasize, to begin with, that the repair effect cannot be ascribed to the sluicing site having little or no internal syntax, as Chung et al. (1995), Ginzburg and Sag (2000), Culicover and Jackendoff (2005), and others do. While it is true that this class of analyses derives the lack of certain island effects trivially, it doesn't offer any obvious way of accounting for those island effects that fail to be repaired (see section 2.2), nor the variety of effects associated to the different structures that may underlie the sluicing site.

Similarly, the island repair effect cannot be derived (at least in a general way) by positing that the sluicing site contains a resumptive pronoun that helps void the island violation. Merchant (1999, 2001) already argues against this line of attack by pointing out that the properties of sluices do not match the properties of the corresponding non-elliptical questions containing

a resumptive pronoun.[58] For example, some wh- phrases (e.g., *where*, *when*, and *how much* in English) lack island-circumventing resumptive expressions, but they are nonetheless acceptable as remnants if their correlate takes widest scope.[59]

(151) a. * Where$_i$ does he want to find a person that lived (there$_i$)?
b. * When$_i$ is he looking for books that describe a battle (then$_i$)?
c. ?? [How much (weight)]$_i$ did he promise to work out until he lost ([that much (weight)]$_i$)?

(152) a. He wants to find a person that lived somewhere specific in the Pacific, but I can't remember where [__].
b. He is looking for books that describe a battle in a certain year, but I can't remember when [__].
c. He promised to work out until he lost a certain amount of weight, but I can't remember how much (weight) [__].

Second, resumed wh- phrases typically do not match the case of their resumptive pronoun. This can be illustrated in English with the *who*/*whose* alternation (153): If a resumptive pronoun underlied the LBE repair effect, one would incorrectly predict the remnant to surface as *whose*, rather than *who*.

(153) a. { ✓ Who$_i$ / * Whose$_i$ } did the police say that finding his$_i$ car took all morning?
b. The police said that finding someone's car took all morning, but I can't remember { * who / ✓ whose} [__].

Additionally, Rottman and Yoshida (2013) point out that resumptive pronouns fail to repair island violations involving proper subparts of idioms (I use [$_{ID}$] to mark the idiomatic constituent). The fact that proper subparts of idioms can be sluicing remnants suggests that resumptive pronouns are not the cause of the repair effect; example (154a) is a control to show that long distance extraction of proper subparts of certain idioms is, in principle, possible.

(154) a. [What strings]$_i$ did Harvey say that Edna [$_{ID}$ pulled t_i] to get her job?
b. * [What strings]$_i$ is Harvey angry because Edna [$_{ID}$ pulled t_i] to get her job?
c. * [What strings]$_i$ is Harvey angry because Edna [$_{ID}$ pulled them$_i$] to get her job?
d. Harvey is angry because Edna [$_{ID}$ pulled some strings] to get her job, but I don't know what strings [__].

To circumvent these problems, Merchant (1999, 2001, 2004) proposes that certain island should be seen as violations of some PF condition (Merchant 2004 implements this proposal through the PF-uninterpretable diacritic $*$, which is assigned to nodes at island boundaries if some constituent moves across them; note, however, that the discussion here is independent of any particular implementation one might choose). The repair effect is then a consequence of sluicing preventing PF from parsing the offending portion of the structure. The major problem that this analysis has to face is that not all putative PF island violations are repaired by ellipsis. We have already seen an example of this pattern in section 4.1.2, involving the asymmetry of LBE sluices with intersective and non-intersective adjectives: (155) below provides a relevant minimal pair.

[58] Both Wang (2007) and Boeckx (2008) argue that a more sophisticated theory of resumption can circumvent Merchant's objections. However, as Rottman and Yoshida (2013) point out, neither author spells out this putative theory of resumption in enough detail to determine whether it actually delivers the benefits it is claimed to deliver.

[59] More generally, Merchant points out that some languages (e.g., West Flemish) seem to lack a resumptive strategy altogether in non-elliptical wh- questions, but nonetheless exhibit the same range of island repair effects under sluicing that English does.

(155) a. They hired a smart worker, but I don't know how smart [__].
b. * They hired a hard worker, but I don't know how hard [__].

Similarly, various island-repair asymmetries between sluices and certain apparently analogous fragment answers remain mysterious under this analysis (156). For such pairs, Merchant proposes that sluices and fragments have different syntaxes, such that the PF violation is located inside the ellipsis site in sluices but outside of it in fragments. However, this analysis is somewhat circular, given that there is little independent evidence that the syntaxes of sluices and fragments differ in this particular manner.

(156) a. They want to hire someone who speaks a Balkan language, but I don't know which Balkan language [__].
b. A: They want to hire someone who speaks a BALKAN language.
B: * No, a BALTIC language [__]!

A more promising line of attack is what Barros et al. (2014) call an *evasion approach*, which is based on the idea that sluicing in particular, and ellipsis in general, lacks any ability to repair island violations.[60] Apparent repair effects are an illusion arising from the fact that the sluice can be derived from a non-isomorphic structure that doesn't contain the relevant island boundary. A large part of Barros et al.'s argumentation is devoted to showing that, when one manipulates the examples so as to block an evasion sluice, island effects reappear. Consider, for example, the discussion of LBE sluices in non-LBE languages (section 4.1.2 above). Here, the evasion sluice consists of a predicative copular clause, with the remnant acting as the predicative argument of the copula; when one blocks this specific sluicing source (i.e., by using non-intersective adjectives, which can't appear in predicative positions), the LBE violation reappears.

In an ideal world, all island repair effects ought to be subsumable under an evasion approach. I call this kind of world "ideal" because it is arguably the closest to Ross's (1969) original vision —i.e., sluicing simply requires non-pronunciation of a certain subconstituent of a question, with all the ancillary properties of unsluiced questions (island sensitivity included) being inherited by the corresponding sluices. The relevant question at this juncture is whether we do, in fact, live in such an ideal world —i.e., whether an evasion approach can account for the complete paradigm of island repair and non-repair effects. At present, it is not possible to give an affirmative answer, as there remain data that do not follow from this line of analysis. Barros et al. themselves admit that sentential subject and topicalization islands cannot be easily folded under an evasion approach, although they hypothesize that this is related to our current imperfect understanding of why sentential subjects and topics are islands. Outside their work, Nykiel (2012, 2013), Sato (2011), Stjepanović (2008, 2012), and Leung (2014) all make a strong cases to the effect that P-stranding sluices in Polish, Indonesian, Serbo-Croatian, and Emirati Arabic (respectively) cannot be derived from an underlying cleft or copular clause, as Rodrigues et al. (2009) propose for Romance languages. Similarly, as noted in §2.2.1, there is a lack of repair effect with adjunct wh- phrases ((15) and (16), from Nakao and Yoshida 2007 and Nakao 2009) and under certain

[60] Merchant (1999, 2001) proposes a hybrid repair/evasion approach, in the sense that some islands are literally repaired by sluicing (i.e., they are PF islands in the sense outlined in the previous paragraphs), whereas others simply involve an alternative source structure that doesn't contain an island boundary (what Merchant calls a "short sluice"). Specifically, the first class of islands includes left branch extractions, Comp-trace effects, derived position islands, and certain types of coordinate islands, whereas the second class includes relative clause islands, CNPC islands, adjunct islands, and subextraction out of conjuncts. Merchant (2004) seems to do away with this division, in that it extends the PF-violation analysis to relative clause and adjunct islands. This seems to have been a reaction to Lasnik's (2001) criticism of the relevant parts of Merchant (1999, 2001).

combinations of islands ((17), from Cantor 2013). This is surprising under an evasion approach, because at least some of these sluices have grammatical non-elliptical counterparts involving the kinds of clefts or copulas that Barros et al. assume underlie other English sluices (17b).

(15) John wants to hire someone who fixes cars for a certain reason, but I don't know why [__].
= I don't know why John wants to hire this person.
≠ I don't know why this person fixes cars.

(16) John wants to hire someone who fixes cars in a certain way, but I don't know how [__].
= I don't know how John wants to hire this person.
≠ I don't how this person fixes cars.

(17) a. ?? [A biography [of a big man]] sold the most books last year, but the report didn't say how big [__].
[Left Branch island inside Subject island]
b. I rented [a car that had hit [a big dog]], but the dealer didn't want to tell me how big [__].
[Left Branch island inside Relative Clause island]

It is not clear to me whether these cases are genuine counterexamples to an evasion analysis (and therefore indicate that literal island repair is irreducibly necessary) or whether they simply reflect our current lack of analytical ingenuity.

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