# 5 Deletio redux

## 5.1 Introduction

Having seen that none of the above alternatives is feasible, we are left with an apparent contradiction: how can the form-identity effects be reconciled with the island-insensitivity? In this chapter, I will propose a two-pronged approach to this conundrum: some islands are indeed PF-phenonema, with the deviancy repaired by PF-deletion, while other cases of apparent insensitivity to islands are illusory on closer inspection.

At the core of my analysis rest two ideas: first, that the condition on identity that deletion is sensitive to is a fundamentally semantic one, not a structural one, as proposed in chapter 1, and second, that ellipsis in sluicing is the result of PF-deletion.

This combination of semantic conditions with deletion will strike some as odd: generally, the proponents of deletion have been identified with those who claim that the conditions on deletion are indeed structural, while the semantic theories of conditioning have tended to leave the syntactic side underinvestigated. But there is no inherent incompatibility in the claim that I am making here. Rather, it simply states that while ellipsis sites contain syntactic structure (unpronounced due to PF-operations of deletion, triggered by the E feature of chapter 2), the fact that they *are* ellipsis sites is due to semantic considerations (ideally also implemented by means of E, as proposed in chapter 2).

This is not to say, of course, that the syntactic structure of the ellipsis site and its antecedent play no role: since the meaning of an expression is a function of its LF structural properties, it will be constrained in certain direct ways by the structure. The novel claim here is simply that there is no *additional* LF-structural identity condition that must be met, contrary to widespread assumptions in the literature (represented by, but not limited to, Rooth 1992a, Fiengo and May 1994, and Romero forthcoming). In fact, as we have seen especially for sluicing, it is far from clear how such an LF identity

condition could ever be met. The researchers who have used such conditions (most prominently, Fiengo and May 1994, who claim that an LF-identity condition is *all* that is needed) have concentrated on VP-ellipsis, where relevant evidence is very hard to come by ('vehicle change' effects being the most prominent). Sluicing, on the other hand, provides more direct evidence bearing on the question: assuming an LF-identity condition forces one to posit otherwise unmotivated structural ambiguities at LF, or to introduce LF-repair operations whose sole purpose is to satisfy the condition. Instead, as shown in chapter 1, nothing is lost in giving up the LF-identity condition in favor of a purely semantic condition.

The second idea is in one sense a rehabilitation of the earliest approaches to ellipsis, and in particular of Ross's 1969 approach to sluicing. But the tradition behind this idea should not be mistaken for wide acceptance. Instead, such approaches have fallen into disfavor since the early 80's, and many researchers assume —tacitly or explicitly— that ellipsis does not involve deletion. As we have seen, there are two main competitors to the deletion approach: first, that in the overt syntax there is a null pronominal-like element, and that this empty category is replaced at LF by syntactic structure copied from some appropriate linguistic antecedent. Proponents of this approach include Williams 1977 (under some interpretations), Chao 1987, Lobeck 1991, 1995, and possibly Fiengo and May 1994. The second competitor is the purely 'semantic' approach, such as that advocated by Dalrymple et al. 1991, Jacobson 1992, Hardt 1993, and Shieber et al. 1996. Although these authors are not uniformly explicit in what they do assume the syntax of elliptical constructions to be, it is clear that they conceive of ellipsis as something that should be handled primarily by abstract semantic mechanisms, where syntax internal to the ellipsis site has no role to play.

The difficulty these approaches face is accounting for the form-identity facts. The preposition-stranding generalization especially seems mysterious under these approaches, if P-stranding is a syntactic property, an assumption that I know of no serious challenge to. On the deletion approach, of course, nothing special need be said to account for the data: whatever theory one adopts for P-stranding (assuming this theory to be morpho-syntactic) will account for the distribution of pied-piping attested

under sluicing as under non-elliptical wh-movement. This is the main motivation for pursuing the deletion account of ellipsis, and one which has not before received attention.

Given its importance, let us briefly review the relevant data from the P-stranding generalization, forming the major empirical problem faced by non-deletion accounts. This is illustrated in German with the following examples, repeated from chapter 3, §3.2.

(1) German

a. Anna hat mit jemandem gesprochen, aber ich weiß nicht,
*Anna has with someone spoken but I know not*
*(mit) wem.
*with who*
'Anna talked with someone, but I don't know (with) who.'

b. * Wem hat sie mit gesprochen?
*who has she with spoken*
('Who did she talk with?')

The proposed deletion analysis handles such data straightforwardly, and predicts the attested correlation. Under this analysis, the structure of the sluice in (1a) will be that in (2):

(2) ... ich weiß nicht, [mit wem]$_2$ [~~Anna t$_2$ gesprochen hat~~]
*I know not with who Anna spoken has*

The A'-movement in the syntax feeds the PF representation, where the IP is subject to deletion as in (2). Whatever accounts for overt data like (1b) will apply

without modification to the sluicing data. Since we have seen that the LF-copying alternatives fail on this domain, this is the strongest argument for deletion.[1]

This leaves us with the problem of the apparent island-insensitivity of the wh-movement that feeds deletion in sluicing. In this chapter, I propose that this problem has two subparts, requiring two different kinds of solution, depending on the kind of island involved. The following is a list of the islands that will concern us here (see Postal 1996 for a fuller list: most of the others he gives will fall into my class C; see also the papers in Goodluck and Rochemont 1992 and Culicover and McNally 1998):

(3) **Islands**

A. 1. selective ('weak') islands

B. 2. left-branches

3. COMP-trace effects

4. derived positions (topicalizations, subjects)

5. coordinate structures

i. extraction of conjuncts

C. ii. extraction out of conjuncts

6. complex noun phrases

i. relative clauses

ii. sentential complements to head nouns

7. adjuncts

As indicated by the labels A, B, and C in (3), I am (provisionally) making a division among these islands into three sorts. The first, class A, consists of the so-called 'weak' islands; a superior name for these is 'selective', which I will adopt here. I assume that Rizzi 1990, 1994 and Manzini1998 are incorrect in attempting to give a structural explanation for these; instead, I will follow Szabolcsi and Zwarts 1993, Rullmann 1995,

[1] One consequence for the proper analysis of prepositional pied-piping can be drawn from this set of facts, however. Whatever is going wrong in the derivation that gives us (1b) cannot be caused simply by a constraint that applies at PF. Otherwise, it too would be repaired by ellipsis and the correlation with sluicing, under any possible approach to ellipsis, would be completely mysterious. This rules out the approach to pied-piping in these cases suggested in Chomsky 1995.

Kuno and Takami 1997, Honcoop 1998, and others in analyzing these as essentially semantic/pragmatic. The interaction of sluicing and selective islands has been investigated by Albert 1993, Sauerland 1996, and Romero forthcoming; since the consensus is that these islands are not in any case syntactic, the 'island' effects we see under sluicing will not provide us with a testing ground for the deletion question. I will thus leave them out of consideration for the moment, returning to them briefly in section 5.5.

The second class, B, consists of islands whose effects I will argue are indeed undone by PF-deletion (with the possible exception of 5i, which seems to have both LF and PF effects). I will show in section 5.2 that this result is compatible with the amelioration effect sluicing has on these.

The final class, C, is distinguished by having one thing in common: all of them involve extraction out of a propositional domain. I will show that wh-movement out of these islands under sluicing is only illusory, and that in fact the embedded propositional domain is being used to satisfy the identity condition on ellipsis. The interpretive effects that led earlier researchers to assume that an island was present can be accounted for using independently needed mechanisms of modal subordination and E-type anaphora. Thus the sluicing facts will not be useful in determining whether these islands are PF phenomena or not (indeed, other evidence indicates that they are not).[2]

The conclusion, then, is that a deletion approach to sluicing is compatible with the apparent immunity to islands that sluicing confers.

[2] One kind of island that I do not examine in detail is wh-islands: these pattern with the other propositional islands, though certain complications make the data with them more involved, and less profitable for explaining the theory developed here.

## 5.2 PF-islands

### 5.2.1 Left branch extractions

I will begin with one of the least commonly discussed of the islands, but one for which I believe the case is the strongest that its effects arise at PF — the left branch condition. I start by examining a range of previously discussed cases, and introducing a crucial new one which shows that the Left Branch Condition (LBC) is not obeyed by sluicing. I then outline the PF-theory of the LBC developed in Kennedy and Merchant to appear, discussing the evidence that the LBC's effects should be located at PF, and show that this theory also makes the correct predictions for a number of novel facts from Dutch. I then demonstrate how the range of intricate facts can be accounted for under the theory developed in chapter 1. I conclude with a set of new facts that show that illicit subextractions from attributive DegPs that do not follow from the PF account given here continue to give rise to ungrammaticality under sluicing, indicating the sluicing is not a universal panacea to islands.

Ross's 1967 Left Branch Condition, stated in (4), conflated a number of different illicit extractions, which Grosu 1974 showed to cover more ground than is desirable.

(4) *The Left Branch Condition* (Ross 1967 (4.181) [1986:127])
No NP which is the leftmost constituent of a larger NP can be reordered out of this NP by a transformational rule.

Since Grosu's work, the LBC is generally taken to govern the ill-formedness of extractions like those in (5)-(7); see especially the detailed investigation in Corver 1990. In (5), we have the attempted extraction of a prenominal genitive, an amount phrase, and the degree word.

(5) a. * Whose did he see [__ car]?

b. * How many inches is the monitor [__ wide]?
c. * How is the monitor [__ wide]?

The examples in (6) represent extractions of attributive adjectival and amount modifiers of singular count nouns, plural count nouns, mass nouns, and predicate nominals.

(6) a. * How detailed does he want [a __ list]?
* How {expensive/fast/big} did she buy [a __ car]
b. * How thorough does she write [__ reports]?
* How expensive did he buy [__ {toys/jewelry}]?
c. * How smart is your brother [a __ doctor]?
* How good is she [a __ carpenter]?
d. * How many did she buy [__ cars]?
* How much did she find [__ gold]?

The cases in (7) exemplify one kind of attempted subextraction from a left branch.

(7) a. * How does he want [a [__ detailed] list]?
* How did she buy [a [__ {expensive/fast/big}] car]?
b. * How does she write [__thorough reports]?
* How did he buy [__expensive {toys/jewelry}]?
c. * How is your brother [a [__ smart] doctor]?
* How is she [a [__ good] carpenter]?
d. * How did she buy [__ many cars]?
* How did she find [__ much gold]?

These contrast with their (mostly) grammatical pied-piping counterparts, given in (8) and (9); the one exception here is attributive pied-piping of plurals and mass nouns, in the examples in b) (a mysterious restriction that has never been satisfactorily explained: see Bolinger 1972 for discussion, and footnote 5 below).

(8) a. Whose car did he see?
b. How many inches wide is the monitor?
c. How wide is the monitor?

(9) a. How detailed a list does he want?
How {expensive/fast/big} a car did she buy?
b. * How thorough reports does she write?
* How expensive {toys/jewelry} did he buy?
c. How smart a doctor is your brother?
How good a carpenter is she?
d. How many cars did she buy?
How much gold did she find?

Whether sluicing obeys the LBC is a question that has been touched on only briefly in the literature. Levin 1982: 605 contrasts the following examples (her (43)), building on Ross 1969:277 (74):

(10) a. * I know he must be proud of it, but I don't know how.
b. I know he must be proud of it, but I don't know how proud (of it).

These authors conclude on the basis of these examples that sluicing obeys the left branch constraint. They do note, however, that examples like (11) are grammatical (specifically, those like (11a): cf. Ross 1969:284 fn 21 and Levin 1982:653 fn 10).

(11) a. Someone's car is parked on the lawn — find out whose!
b. I should buy some peppers for the dinner, but I don't know how many.
c. She found gold, but won't say how much.

But these, as they also point out, are irrelevant to the point at hand, since English independently licenses NP-ellipsis in these contexts; cf. *Bob's (car) is on the lawn* and *Several (peppers) were missing*. There is therefore no way to be sure that examples like (11) represent left-branch extractions, and are not simply derived from well-formed questions like *Whose is parked on the lawn?* and *How many should I buy?*, exhibiting NP-ellipsis.[3]

To Ross's example of *how*-extraction from a predicate adjective we can add the following examples, with extraction of *how* from attributive position within a noun phrase as well.

(12) a. * He wants a detailed list, but I don't know how.
* She bought an {expensive/fast/big} car, but I don't know how.

b. * She writes thorough reports, and wait till you see how!
* He bought expensive {toys/jewelry}, but he wouldn't say how.

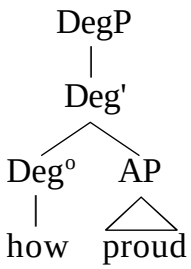
c. * Your brother is a smart doctor, but it's not clear how.
* She is a good carpenter, but it's not clear how.

d. * She bought many cars but it's not clear how.
* She found much gold, but she wouldn't say how.

These examples might be taken, as Ross and Levin take them, to show that sluicing does obey the LBC. This conclusion, however, would be premature. Corver 1990 has convincingly argued that the kind of deviance found in (4c) and (6) is due simply to the restrictions on head movement. He argues for the extended adjectival projection proposed in Abney 1987, given in (13):

[3] The fact that *how many* licenses NP-ellipsis, but *how AP* does not also argues against the common assumption that the former should be assimilated to the latter. This conclusion is reached on independent grounds in Kennedy and Merchant to appear as well.

(13)




Given this phrase structure, the relevant examples only illustrate the impossibility of extracting a head from these environments:

(14) * $[_{Deg0}$ How$]_2$ is he $[_{DegP}$ $[_{Deg0}$ $t_2$ ] $[_{AP}$ proud of it ]] ?

Since *how* is a head, not a phrase, there is no expectation that it should be able to move into SpecCP. Independently, as pointed out by Lobeck 1995:62ff, Deg° heads do not license the ellipsis of their complements. This rules out a structure like (15), which would be parallel to the kind of ellipsis we saw above after *whose* and *how many*:

(15) * $[_{DegP}$ how $[_{AP}$ *e*]]

This being the case, we do not expect sluices like those in (10a) or (12) to be well-formed, in accordance with the data. Note that this result is expected both under the movement analysis advocated here (since a head cannot move into a specifier), and under a base-generation analysis (since a head cannot be generated in a specifier, and since *how* does not permit its complement to be null).

This discussion thus dispatches the kinds of left-branch violations found in examples (5) and (7). But this is not the whole story.

### *5.2.1.1 The LBC can be violated under sluicing*

What has gone unnoticed in the literature is that it is possible to find examples of true LBC-violating sluices, corresponding to the examples in (6). These are given in (16).

(16) a. He wants a detailed list, but I don't know how detailed.
She bought an {expensive/fast/big} car, but I don't know how {expensive/fast/big}.

b. She writes thorough reports, and wait till you see how thorough!
He bought expensive {toys/jewelry}, but he wouldn't say how expensive.

c. Your brother is a smart doctor, but it's not clear how smart.
She is a good carpenter, but it's not clear how good.

Note that these cannot be reduced to any kind of DP-internal ellipsis, since English does not license ellipses of the necessary kind[4]:

(17) a. * He turned in a sketchy list, but we need a detailed.

b. * A thorough report is better than a hasty.

c. * Not only is she a carpenter, she's a good!

What I propose for these examples is that we are indeed dealing with an extraction of an attributive DegP from within a DP. I propose the following structure for these (where extraction of the DegP proceeds through the specifier of the highest projection in the nominal extended projection):

(18) I don't know [$_{DegP}$ how detailed]$_1$ ~~he wants [ t$_1$' [a t$_1$ list]]~~.

In other words, deletion at PF does indeed repair the otherwise ungrammatical extraction of attributive adjectival phrases[5]. This claim is based not solely on the above sluicing data, however: it is supported by indepedent facts from VP-ellipsis, comparative

[4] Though see Sag 1976:334 for some problematic examples, taken from Harris 1965, 1968 and Quirk et al. 1972:590).

[5] The grammaticality of the examples in (16b), with plurals and mass nouns, shows that the restriction noted for example (9b) on pied-piping of these which is found in non-elliptical DegP questions must likewise have its explanation at PF, since the sluiced versions have the same status as their singular, pied-piping, counterparts. Presumably the restriction is located in the kinds of features that are realizable in Kennedy and Merchant's (to appear) F$^o$ head; cf. the restrictions noted by Bennis et al. 1998 for a similar domain of data.

deletion, stripping, and gapping in several languages, as discussed in Kennedy and Merchant (to appear). In that work, we develop an approach to the LBC based on properties of the lexicons of individual languages. We propose that a LBC effect arises when a language lacks a particular functional head in the nominal extended projection that can support a [+wh] feature specification. Our proposal is based on facts like those in (19).

(19) a. Abby wrote a more interesting novel than Ben {wrote, did, }.
b. * Abby wrote a more interesting novel than Ben wrote [a __ novel].

The examples in (19a) contrast with that in (19b) in having some kind of constituent missing. Take the nearest relative to sluicing, the VP-ellipsis case. Under a deletion approach to VP-ellipsis, the *than*-clause in the example in (19a) will have the structure in (20).

(20) ... than [$_{\text{DegP}}$ *Op* ]$_2$ Ben did [~~write [t'$_2$ [a t$_2$ novel]]~~]

In this example, the degree operator has extracted from the DP *a novel*. In spite of this, the elided version is grammatical, unlike its non-elided counterpart in (19b). In Kennedy and Merchant (to appear), we show that the status of examples like (19b) correlates with the status of left branch wh-extraction in questions in English, Greek, Bulgarian, Polish, and Czech. We link this to a difference in the functional vocabulary of the respective languages. The hypothesis is that in Polish and Czech, where examples like (19b) as well as attributive questions of the form *How long did she write a novel?* are well-formed, the lexicon possesses an element that can realize the [+wh] feature on the highest nominal projection, through whose specifier the extraction proceeds. English, Bulgarian, and Greek[6], on the other hand, which rule out examples like (19b) as well as

[6] Although I do not have the relevant data from Bulgarian, the same seems to hold for Greek, at least, but allows sluices of the form in (i) (thanks to A. Giannakidou for discussion).
(i) Proselavan enan psilo andra, alla dhen ksero poso psilo.
*they.hired a.ACC tall.ACC man.ACC but not I.know how tall.ACC*
'They hired a tall man, but I don't know how tall.'

LBC-violating question formation, lack this element (though English does possess a [-wh] form of the head in question, realized as *of* in variants like *I can't believe he made that long of a film* and *How long of a film did you see?*). In these languages, then, the only way to eliminate the unpronounceable feature combination on this head is either to pied-pipe the entire nominal (leading to the usual *How long a novel did she write?*) or to apply an ellipsis operation to delete a constituent containing the offending structure.

Applying this to the sluicing case above, we have the structure in (21):

(21) I don't know [$_{\text{DegP}}$ how detailed]$_1$ ~~he wants [$_{\text{FP}}$ t$_1$ F$^0_{\text{[+wh]}}$ [a t$_1$ list]]~~.

Extraction of the [+wh] DegP through the highest specifier of the extended projection of the DP (here labeled FP) requires a [+wh] feature on the head F$^0$, via spec-head agreement. The usual way to check such a feature is to pied-pipe FP, checking the feature in SpecCP, and this option is certainly available in general (see (47) below). What is interesting here, though, is that ellipsis, implemented as deletion at PF, provides a second option for producing a grammatical output. The deletion of the IP containing the unrealizable F$^0$[+wh], like checking the feature in SpecCP, saves this structure from a PF-crash.

The grammaticality of sluices like (16), then, is accounted for under this analysis. Since the unrealizable [+wh] head remains inside the deletion site (here, the IP), the LBC, construed as a lexical gap in English, will not be triggered.

*5.2.1.2 Dutch (and some German)*

---

Unfortunately, the well-formedness of this example is not particularly revealing, since Greek, unlike English, licenses NP ellipsis after attributive adjectives:

(ii) a. Enas eksipnos andras ine protimeros apo enan plusio.
*a.NOM smart.NOM man.NOM is better than a.ACC rich.ACC*
'A smart man is better than a rich one.'

b. Exo ena kenurijo aftokinito kai ena palio.
*I.have a.ACC new.ACC car.ACC and a.ACC old.ACC*
'I have a new car and an old one.'

See Giannakidou and Merchant 1996, Giannakidou and Stavrou to appear for discussion of NP-ellipsis in Greek. So *poso psilo* in (i) could simply have the structure [$_{\text{DP}}$ poso psilo [$_{\text{NP}}$ ~~andra~~ ]].

A similar state of affairs seems to hold in Dutch, with one interesting complication that I return to below. Dutch, like English, does not allow attributive adjectival questions to strand their host DPs (see Corver 1990:ch.10 for extensive discussion):

(22) * Hoe lang(e) hebben zij [_ een man] aangesteld?
*how tall(AGR) have they a man hired*
(How tall a man did they hire?)

The possibilities for pied-piping with attributive adjectives are somewhat different from those found in English, though. Standard Dutch in fact lacks any pied-piping strategy, yielding the following paradigm (thanks especially to H. Hendriks for discussion).

(23) a. * Hoe lang(e) een man hebben zij aangesteld?
*how tall(AGR) a man have they hired*

b. * Hoe lang(e) man hebben zij aangesteld?
*how tall(AGR) man have they hired*

c. * Hoe een lang(e) man hebben zij aangesteld?
*how a tall(AGR) man have they hired*

d. * Hoe'n lang man hebben zij aangesteld?
*how a tall man have they hired*

e. * Hoe'n lange man hebben zij aangesteld?
*how a tall-AGR man have they hired*
(How tall a man did they hire?)

f. Een HOE lange man hebben zij aangesteld? [echoic]
*a how tall-AGR man have they hired*
'A HOW tall man did they hire?'

In some southern dialects, however, (23e) is grammatical (the data presented here are from the Brabant dialect; thanks to N. Corver, I. Mulders, and R. van Rooy for discussion):

(24) Hoe'n lange man hebben zij aangesteld? [Brabants]

This strategy is found in standard Dutch with *zo* 'so', though not with *hoe* 'how', and compares with similar constructions found in German and English (cf. Corver 1990:319 for the middle Dutch equivalent).

(25) a. Zo'n lange man heb ik nooit eerder gezien! [standard Dutch]
*so a tall-AGR man have I never before seen*

b. So einen großen Mann hab ich nie zuvor gesehen! [German]
*so a tall man have I never before seen*

c. I've never seen such a tall man before.

d. I've never seen so tall a man before.

Southern Dutch shares with standard Dutch the pattern of acceptability for sluicing attributive adjectives shown in (26a-c) and (26e) (one of the five standard Dutch speakers I consulted rejected even (26a): I have nothing to say about his judgment here). They differ with respect to the possibility of pied-piping in (26d), as above.

(26) Zij hebben een lange man aangesteld, maar ik weet niet
*they have a tall-AGR man hired but I know not*

a. hoe lang.
*how tall*

b. * hoe lange.
*how tall-AGR*

c. * hoe lang man.
*how tall man*

d. hoe'n lange (man) [* in standard Dutch; cf (23e)]
*how a tall-AGR man*

e. A: Zij hebben een lange man aangesteld.
*they have a tall-AGR man hired*
B: Ja? Een HOE lange (man)? [echoic]
*Yeah? a how tall-AGR man*

The grammaticality of (26d,e) is expected, given the well-formedness of the corresponding movement structures in (24) and (23f), with concomitant nominal ellipsis, as discussed in Kester 1996. The surprising fact in (26) is the grammaticality of the bare form of the adjective in (26a), given the ungrammaticality of any of the apparent possible sources for it ((23a,b) or (22)); this contrasts with the equally surprising ungrammaticality of the inflected form of the adjective in (26b): the inflected form of the adjective is required in attributive position with the non-neuter nouns in this environment (*een lang*(e) man* a tall-AGR man).

The bare form of the adjective which shows up in (26a) is, in a sense, unexpected. An adjective modifying a masculine or feminine noun in this attributive use would normally appear in the agreeing form *lange* (the neuter form is *lang* in this environment, and hence is uninformative for our purposes). The bare form *lang* which appears in (26a) is the form of the adjective that appears in predicative uses in Dutch, where no inflection is found, whether questioned or not:

(27) a. De man is lang(*e).
*the man is tall(AGR)*

b. * Hoe lange is de man?
*how tall-AGR is the man*

That is, (26a) might seem to be related not to any of the attributive adjectival questions in (23) or (22), but rather to the predicate question in (28):

(28) Hoe lang is de man (die zij hebben aangesteld)?
*how tall is the man who they have hired*

Despite this resemblance, I believe that pursuing the similarity between the adjectival sluice in (26a) and the adjectival predicate question in (28) is fruitless.[7] To be able to reduce (26a) to (28), we would have to weaken considerably the propositions that we allow to count as satisfying the focus condition (for example, we'd have to ignore the contribution of the definite determiner), and it is not clear that such a weakening could be accomplished without pulling the focus condition's teeth, and making it unable to render any predictions at all. There is thus little reason, besides the superficial lack of inflection, for pursuing this route.

So where does this leave us? It seems to point to the conclusion that the inflection on attributive adjectives in Dutch is itself the result of feature realization principles operative at PF. Since I would maintain that the derivation of a Dutch sluice like (26a) is parallel to its English counterpart, involving a left-branch extraction from within the DP, the reason that the otherwise attested inflectional *-e* does not appear indicates that the agreement feature on DegP, like other strong features (see Kester 1996), can be deleted at PF. This deletion voids the necessity for realization, even though the host of the realization itself (the adjective) survives the deletion. The remaining question is why the inflection must be absent. One possible answer to this

[7] Greek supports this decision. Greek requires agreement on adjectives even in predicative position, as in (i) (as above, I gloss only the relevant agreement, that for case; the adjective also declines for number and gender, irrelevant here).

(i) Poso psilos ine o andras?
*how tall.NOM is the.NOM man.NOM*
'How tall is the man?'

If 'attributive adjectival' sluices were actually some form of predicative adjective, we would expect, contrary to fact, that the case on the Greek sluiced adjective would be nominative as in (ii), not the accusative we saw in footnote 6 above.

(ii) * Proselavan enan psilo andra, alla dhen ksero poso psilos.
*they.hired a.ACC tall.ACC man.ACC but not I.know how tall.NOM*
('They hired a tall man, but I don't know how tall.')

question is to invoke principles of economy of representation: the fewer features one can get away with at PF, the better. Another possibility is that the inflectional schwa is itself structurally present within the DP (perhaps the head of an adjectival agreement projection in the DP, as proposed by Cinque 1993 and defended for Dutch by Kester 1996): under this scenario, the moved DegP will simply have stranded its inflection inside the deleted DP. In any case, it is not crucial how one wishes to implement this intuition; it is crucial only to show that the lack of inflection does not necessarily force us into assuming that the DegP in attributive adjectival sluices does not actually originate in an attributive position. Instead, this lack may open an interesting window into the nature of the inflection itself.

I conclude with some brief remarks on the equivalent German data I have collected. Standard German patterns with standard Dutch in disallowing any sort of inversion of the DegP and the article within the DP; pied-piping is possible only under the echoic reading. (Thanks to S. Winkler for discussion of these examples.)

(29) a. * Wie groß(en) einen Center haben sie eingestellt?
*how tall(AGR) a center have they hired*
('How tall a center did they hire?')

b. Einen WIE großen Center haben sie eingestellt? [echoic]
*a-AGR how tall-AGR center have they hired*

Although judgments are not entirely stable on the relevant sluicing examples (some speakers don't find (30) particularly bad), it does seem that sluicing is fairly degraded, with or without inflection.

(30) ?? Sie haben einen großen Center eingestellt, aber ich weiß nicht, wie groß(en).
*they have a-AGR tall-AGR center hired but I know not how tall(-AGR)*
('They hired a tall center, but I don't know how tall.)

cf. ...aber ich weiß nicht, einen WIE großen. [echoic]
*but I know not a-AGR how tall-AGR*

If this judgment stands up to further testing, we are left with the question of why this should be so. Though no definitive answer can be given at this point, one possibility is that German lacks the relevant functional projection (Kennedy and Merchant's FP) entirely, or that some property independent of DegP movement per se is ruling out the relevant structures (one option that comes to mind is that certain functional specifiers are unavailable, for whatever reason, as intermediate landing sites for extraction: compare the degradation found even in long wh-movement through intermediate SpecCPs).

Although more cross-linguistic data is needed, I will take the English and Dutch facts as indicating that left branch violations can in principle be repaired by PF deletion operations, subject to further language-particular restrictions in some cases.

### *5.2.1.3 Attributive adjectival sluices and the Focus conditions*

Still, this does not mean that all kinds of attributive adjectival sluicing will be possible. Strikingly, the kinds of sluicing we have been examining are impossible when there is no overt adjectival correlate in the antecedent clause, as the following data show (cf. (16) above).

(31) a. * He wants a list, but I don't know how detailed.
* She bought a car, but I don't know how {expensive/fast/big}.
b. * She writes reports, and wait till you see how thorough!
* He bought {toys/jewelry}, but he wouldn't say how expensive.
c. * Your brother is a doctor, but it's not clear how smart.
* She is a carpenter, but it's not clear how good.

These seem as bad as their overt left-branch extracted counterparts in (6) above. But given my argumentation so far, in particular the fact that I have argued that the LBC is a PF-phenomenon, the fact that overt extraction is bad can bear no relation to the ill-formedness of the examples in (31). So how do the examples in (31) differ from their well-formed counterparts in (16)? The answer does not lie in the syntax internal to the ellipsis site: in both cases, we are dealing with a licit left-branch extraction. The difference, clearly, is in the potential antecedents made available to resolve the ellipsis.

The contrast between (31) and (16) might seem to support the 'merger' approach proposed by CLM. Presumably merger would be able to rescue the impossible left-branch 'extraction', yielding the derivation in (32), where (32b) is the result of IP-copy and merger of the DegPs. (Although this requires a redefinition of merger to allow it to apply to predicates over degrees, assuming that adjectives are not Heimian indefinites, let us suppose that this modification would be innocuous.)

(32) a. He wants a detailed list, but I don't know how detailed [$_{IP}$ *e* ]. S-structure
b. ... [how detailed]$^{x}$ [$_{IP}$ he wants a [detailed]$^{x}$ list] LF

But this approach makes a strong prediction. Since merger is insensitive to islands (here, the LBC), we would expect such 'adjectival merger' to void all islands. This is not the case, as the following examples show.

(33) a. * She'll be angry if he buys an expensive car, but I don't know how expensive. (vs. It doesn't matter how expensive.[8])
b. * He got stressed because his boss wants a detailed list, but I don't know how detailed.

[8] The nature of such concessive sluices, which differ in striking ways from their non-concessive counterparts with respect to the ability to sluice over a range of otherwise inaccessible correlates (cf. *She won't talk to anyone — it doesn't matter who!* etc.), must remain a topic for future research. Clearly, though, they indicate that not only structural considerations play a role: the semantics of the embedding predicate must also be taken into account. See Haspelmath 1997:140-141 for some discussion.

c. * She met a guy who bought an {expensive/fast/big} car, but I don't know how {expensive/fast/big}.

d. * They want to hire someone who writes thorough reports, and wait till you see how thorough!

e. * She wants to meet a guy who buys old paintings, but she didn't say how old.

It is not simply that long extraction of DegPs under sluicing is impossible, as (34) shows.

(34) He said he needed a detailed list, but wait till you hear how detailed!

The contrast between (16) and (33) indicates that the structural solution of merger to the problem of the ill-formedness of the examples in (31) is inadequate. Instead, the desired contrast falls out from the Focus condition. Recall the definitions given in chapter 1, repeated here:

(35) **GIVENness** (Schwarzschild to appear)
An expression E counts as GIVEN iff E has a salient antecedent A and, modulo $\exists$-type shifting, A entails F-clo(E).

(36) **S-Focus condition on IP ellipsis** (Schwarzschildian version, modified slightly)
An IP $\alpha$ can be deleted or deaccented only if $\alpha$ is contained in a constituent that is GIVEN.

(37) **e-GIVENness**
An expression E counts as e-GIVEN iff E has a salient antecedent A and, modulo $\exists$-type shifting,

i. A entails F-clo(E), and

ii. E entails F-clo(A)

(38) **Focus condition on IP ellipsis**
An IP α can be deleted only if α is e-GIVEN.

Let us see how these apply to the pair in (39).

(39) a. She bought a big car, but I don't know how big.
b. * She bought a car, but I don't know how big.

First, note that the pronunciation of (39a) is that in (40a), not (40b).

(40) a. She bought a big car, but I don't know HOW big.
b. * She bought a big car, but I don't know how BIG.

Let us assume for the moment that this indicates that the structure we are dealing with is that in (41).

(41) She bought a big car, but I don't know [$HOW_F$ big] [~~she bought [ t' a [t car]]~~]

There are two interrelated questions to be addressed at this point, just as in the other cases of sluicing examined in chapter 1. The first has to do with the application of the general focus condition based on (35), while the second concerns the application of the narrower condition in (38). Let us begin with the former.

In order for the F-marking in (41) to be licit, there must be an alternative to the question in the CP of the form *(know) whether she bought a big car* (see the discussion in chapter 1); in other words, the common ground must contain an antecedent A that entails the following proposition, derived by replacing $HOW_F$ in (41) by a variable over quantifiers over degrees —here represented as Q— and existentially quantifying:

(42) Q [I know [Q d.she bought a d-big car]]

And since *knowing that she bought a big car* entails *knowing whether she bought a big car*, the S-Focus condition is satisfied.

The second, more narrow condition is satisfied in the following way. The first sentence in (39a) introduces the proposition in (43a), while the F-closure of the deleted IP, assuming reconstuction of the content of the DegP (see Grosu and Landman 1998), will be that in (43b).

(43) a. $IP_A' =$ d.she bought a d-big car

b. F-clo($IP_E$) = d. she bought a d-big car

Since in this case, it is the degree quantifier that is focused, the reverse relations will hold as well, namely $IP_E' =$ F-clo($IP_A$). The Focus condition on ellipsis in (38) is therefore satisfied.

In (39b), on the other hand, the antecedent IP does not supply the requisite proposition (since $IP_A' =$ *she bought a car*) and the Focus condition is therefore not satisfied.

The conclusion, then is that the constrasts observed here in (16) and (31)[9] are the result of the Focus conditions, not of special operations on ellipsis, nor —and this is the most important point of this section— of syntactic constraints on extraction.

These considerations also militate against an alternative weighed above, that of reducing apparent attributive adjectival sluices like those in (16) to predicative uses of the DegP, as in (44):

[9] The contrast in (40), on the other hand, is a result of a different constraint, Schwarzschild's to appear AvoidF:

(i) **AvoidF**
F-mark as little as possible, without violating GIVENness.

(40a) satisfies AvoidF, since knowing that she bought a big car does not entail knowing how big a car she bought. (40b), on the other hand, violates AvoidF (even assuming a secondary, perhaps inaudible focus on *how* to satisfy givenness). F-marking on BIG in (40b) is superfluous, since the preceding sentence provides an antecedent that entails (42). No violation of GIVENness would be incurred by not F-marking BIG in (40b), since (42) includes the specification that the degrees quantified over are degrees of size (bigness).

(44) She bought a car, but I don't know how big it is.

First, the intonation of (44) is that given in (45a), not (45b):

(45) a. ... but I don't know how BIG it is.
b. * ... but I don't know HOW big it is.

Deletion of 'it is' in (44), then, would not yield the desired intonation for the grammatical sluices; compare (40). In fact, deletion of 'it is' would incorrectly generate examples like (31). The attested intonation for (44), the result of the F-marking in (46), illustrates the effects of the general GIVENness condition of chapter 1 ((7), p. 15): since *big* is not GIVEN, *big* in (44) must be F-marked (or the DegP containing it, if the default accent will fall on the embedded AP):

(46) She bought a car, but I don't know how $[\text{BIG}]_F$ it is.

A final point with respect to DegP sluices is made by the following examples.

(47) a. He wants a list, but I don't know how detailed a list.
She bought a car, but I don't know how {expensive/fast/big} a car.
b. ?Your brother is a doctor, but it's not clear how smart a doctor.
She is a carpenter, but it's not clear how good a carpenter.

In these examples, the DP containing the DegP has been pied-piped, yielding the pattern of grammaticality seen above in (9). The fact that these are better than the examples in (31) shows again that the attributive adjectival sluices above are not the result of any hitherto undiscovered process of NP ellipsis in SpecCP or the like. These differ exactly in requiring a different kind of antecedent to satisfy the Focus condition. Note that the pronunciation again gives us our clue, differing yet again from those seen in the sluices above:

(48) a. She bought a car, but I don't know how BIG a car.
b. * She bought a car, but I don't know HOW big a car.
c. * She bought a car, but I don't know how big a CAR.

The ungrammaticality of (48b,c) is expected: in (48b), *big* is not GIVEN, in violation of GIVENness focus condition, while in (48c), *car* is GIVEN, in violation of AvoidF (see footnote 9). The grammaticality of (48a) reflects an F-marking parallel to the F-marking in (46) (modulo the possibility that it's the DegP and not simply the AP that is F-marked):

(49) She bought a car, but I don't know [how $[\text{BIG}]_F$ a car]$_2$ [~~she bought t$_2$~~]

Here, both *she bought* and *a car* are given, while *big* is not. Note that even though *a car* is given, it cannot be deleted (such a deletion would result in the ungrammatical (31)). This shows that GIVENness is a necessary but not sufficient condition for ellipsis, as argued in chapter 1: independent restrictions (here, the lack of NP-ellipsis after DegPs in English) play a role as well.

However, there is some reason to believe that the representation in (49) underrepresents the amount of F-marking in the structure. In fact, it seems that the F-marking must percolate up to the DP (cf. Drubig's 1994 notion of Focus-phrase) when an F-marked attributive DegP is extracted (though not necessarily when just the Deg head is F-marked), yielding (50) (I omit the F-marking presumably necessary on the intervening DegP as well):

(50) She bought a car, but I don't know [how $[\text{BIG}]_F$ a car]$_{F2}$ [~~she bought t$_2$~~]

This seems necessary in light of the contrast between (40a) and (40b). This percolation, together with the natural assumption that a constituent that is F-marked

cannot be deleted at PF, rules out the structure in (51), which would otherwise satisfy the Focus condition:

(51) * She bought a car, but I don't know [$_{DegP}$ how [BIG]$_F$]$_1$ ~~[~~$_{IP}$ ~~she bought [ t~~$_1$~~' a t~~$_1$ ~~car]~~$_F$~~]~~

Note that this is not to say that F-marking on attributive adjectives percolates in general to the DP: this is wrong. For our purposes it is only necessary that the F-marking on DegP, interpreted as a feature, necessarily be shared with the DP when DegP is extracted (via spec-head agreement, as was discussed for the [wh] feature). Though the systems involved are relatively intricate and not fully understood, it seems that there is nothing inherently incompatible between the present account and what is known about F-marking in DegPs.

There might be, however, another way of explaining the impossibility of (51) that eschews positing F-percolation onto DP. Since BIG is F-marked, we can ignore its reconstruction in what follows (cf. the discussion of the contrast sluices in chapter 1). Nevertheless, we cannot ignore the extraction of the DegP, since this leaves a DP-internal trace. Therefore, the -closure and F-closure of $IP_E$ will be that in (52), which binds the empty variable over gradable adjective meanings that contrast with *big*.

(52) $IP_E' = \text{F-clo}(IP_E) =$ P[she bought a P-car]

But one could argue that $IP_A$ does not supply such an entailment. Schwarzschild to appear [1998:12 fn 4] notes that his notion of 'contextual entailment' is purposely vague, since it is an open question just what kinds of propositions can be included in the common ground in such a way as to satisfy GIVENness. In this case, though it is possible to reason from the asserted existence of a car to the exitsence of a size for that car, this second proposition cannot be included in the common ground to satisfy GIVENness: note the oddity of the sequence *# She ate an apple before she ate a GREEN apple* (cf. *She ate an APPLE before she ate a BANANA*). Unfortunately, a number of other questions

arise at this point, most prominently the fact that adding a focused, contrasting DegP in the antecedent does not improve matters (* *She bought an OLD car, but I don't know how BIG*), leaving the purely syntactic, structural account of (51) (relying as it does on feature passing under wh-extraction) less problematic in this case.

Given the complexities of the semantics of degree phrases (see Kennedy 1997b), and the limited work on the focus in them, it is not surprising that some questions remain open. But it seems clear that the resolution of these particular questions should be compatible with the approach to ellipsis taken here, and fit in with an account of degree questions in sluicing — in particular, with an account that posits LBC-violating extraction under deletion.

#### *5.2.1.4 Left branch subextractions are not possible under sluicing*

A final set of facts indicate that not all left branch extractions are alike.[10] Corver 1990:ch.9 notes that subextractions of certain measure phrases from DegPs are possible when the DegP is in predicative position (roughly, those 'measure phrases' which are full gradable DegPs themselves: see Corver 1990:237 for discussion). He presents several arguments that the extracted DegP orginates within the predicate, and is not simply a VP-adverbial (they can pied-pipe the predicate, for example, unlike VP-adverbs).

(53) a. How badly was he [__ short of funds]?
b. How easily are these drugs [__ obtainable]?
c. How well was she [__ prepared]?
d. How badly was he [__ burned]?

(54) Hoe zwaar is hij [__ behaard]? [Dutch]
*how heavily is he haired*
lit. 'How heavily haired is he?' [i.e., How hairy is he?]

[10] Thanks to N. Corver for discussion of this section, and for the Dutch data.

These measure phrases are not extractable from attributive position (Corver 1990:Ch 10):

(55) a. * How badly did you meet [a guy [__ short of funds]]?
b. * How easily did he take [__ obtainable drugs]?
c. * How well have you examined [a [__ prepared] student]?
d. * How badly did they treat [a [__ burned] man]?

(56) * Hoe zwaar heeft zij een [__ behaarde man] ontmoet? [Dutch]
*how heavily has she a haired man met*
('How heavily haired a man did she meet?')

As Corver shows, these differences must be related to the different structural properties of DegPs occuring in predicate position (where they are properly governed, allowing extraction) versus subextractions from attributive positions. The system proposed in Kennedy and Merchant (to appear) to deal with extraction *of* attributive DegPs does not extend to extraction *from* attributive DegPs. There is at least no a priori expectation that the mechanisms of deletion will be able to repair the deviancies in (55)-(56).

In fact, extraction under sluicing tracks exactly the possibilities for overt extraction found in (53)-(54) vs. (55)-(56). The data in (57) and (58) show, for English and Dutch respectively, that sluicing over these measure phrases orginating in predicate DegPs is possible. Their structure is parallel to their overt counterparts in (53)-(54), and is given in (59). (I collapse examples with overt DegP correlates in the antecedent and those without, without indicating intonation in the remnant wh-phrase; these intontations pattern exactly as we saw above, depending on whether the DegP is given or not.)

(57) a. He was (badly) short of funds, but I didn't know how badly.
b. These drugs are (easily) obtainable, but you don't want to hear how easily.

c. She was (well) prepared — guess how well!
d. He was (badly) burned, but I don't know how badly.

(58) Hij is (zwaar) behaard, maar ik weet niet hoe zwaar. [Dutch]
*he is heavily haired but I know not how heavily*
lit. 'He is (heavily) haired, but I don't know how heavily.'

(59) He was badly burned, but I don't know $HOW_F$ badly [~~he was [$_{DegP}$ $t_2$ burned~~]].

Crucially, the sluicing counterparts to (55)-(56) are not improved:

(60) a. * She met a guy (badly) short of funds, but I didn't know how badly.
b. * He takes (easily) obtainable drugs, but I don't know how easily.
c. * They examined a (well) prepared student — guess how well!
d. * They treated a (badly) burned man, but I don't know how badly.

(61) * Zij heeft een behaarde man ontmoet, maar ik weet niet hoe zwaar. [Dutch]
*she has a haired man met but I know not how heavily*
('She met a haired man, but I don't know how heavily.')

These contrasts indicate that what is ruling out subextractions like (55)-(56) is not the same mechanism that rules out extractions of attributive DegPs in general. Under the account proposed in Kennedy and Merchant (to appear), this means that the DegP itself does not project an FP through whose specifier the measure phrase might extract. This seems to be a quite sustainable conclusion: there is no expectation that the FP posited as part of the extended nominal projection would appear in the adjectival projection as well, nor is there the empirical evidence for it ( **How easily of obtainable a drug is it?* is impossible, but compare *How obtainable of a drug is it?*).

Of course, when the measure phrase pied-pipes its attributive host DegP, the resulting sluice is grammatical, since the stranded offending $F^o$ is deleted:

(62) a. He wants a longer list, but I don't know how much *(longer).

b. ... [$_{DegP}$ how much longer]$_2$ [~~he wants [$_{FP}$ t'$_2$ F$^o$ [a t$_2$ list]]~~]

Finally, those measure phrases that resist extraction in English require the preposition *by* (see Corver 1990:220 for some brief discussion, and Abney 1987):

(63) a. ??(By) how {much/many cm} was he too tall to be an astronaut?

b. ??(By) how {much/many pounds} was the packet too heavy to be shipped airmail?

Exactly the same pattern is found under sluicing:

(64) a. He was too tall to be an astronaut, but I don't know ??(by) how {much/many cm}.

b. The packet is too heavy to be shipped airmail, but I don't know ??(by) how {much/many pounds}.

These contrasts are important because they indicate that some constraints on extraction —specifically, those responsible for ruling out left branch *sub*extractions— do not operate at PF, and hence are not affected by the deletion we have in sluicing; the contrasts also show that sluicing is not some universal panacea to islands, as Ross and others thought. On the other hand, the fact that regular attributive DegP extraction is possible under sluicing argues in favor of the hypothesis that this left branch effect should indeed be located at PF.

*5.2.1.5 Summary*

This section has discussed a wide range of novel facts from sluicing of attributive adjectives, and has shown that the fact that sluicing is possible with these is compatible

with the deletion approach to ellipsis. Extraction of attributive adjectives is ruled out, in some languages, at PF; deletion repairs the resulting structure in the way indicated above. The further intricacies in the data were seen to follow from the Focus condition on ellipsis introduced in chapter 1, in conjunction with the more general GIVENness condition of Schwarzschild to appear.

### 5.2.2 COMP-trace effects

The second class of extraction restrictions that I will examine are the COMP-trace effects, of which the *that*-trace effect is the most famous representative. The distribution of these was first noted by Perlmutter 1971 for eleven languages (though he restricts his attention to the complementizers *that* and *for*, the effects are seen also with wh-complementizers like *if* and *whether*, as noted in Hudson 1972, as well as with *like*), and have been discussed extensively since (Langendoen 1970, Bresnan 1972, Chomsky and Lasnik 1977, Culicover 1993, Déprez 1994, Browning 1996, Roussou 1998). Some typical examples are given in (65).

(65) a. Which senator is it probable (*that) will resign?
b. * Who did Sally ask {if/whether} was going to fail?
c. What did Bob want (*for) to be over the door?
d. How many students does it seem (*like) will pass?

Although opinions have been divided, it seems likely that the COMP-trace effect, though not particularly well-understood, is essentially a PF-phenomenon, as concluded by Perlmutter 1971, Chomsky and Lasnik 1977, Hoekstra 1992, and Culicover 1992 (this last on the basis of adverb amelioration effects discovered by Bresnan 1977b; see also Honegger 1996). This has also been suggested recently in de Chene 1995 on the basis of the amelioration found when the subject trace is in a constituent targeted by right node raising:

(66) a. ? That's the meeting which$_i$ I've been thinking that, and Jim's been saying that, $t_i$ could well be canceled. (de Chene 1995:3 (11a))

b. ? Which gangster did the DA claim that, though he couldn't absolutely prove, [__ was responsible for the killing]?

De Chene 1995 also gives evidence that the ECP approach is insufficient from cases of subject/object asymmetries in extraction from clausal complements to prepositions, which I will not repeat here. Although he does not propose an analysis, he does conclude that "the place to look for a new approach to such [COMP-trace] effects is ... on the PF-side of the grammar" (p. 4).

McCloskey 1997 pursues this idea as well, on the basis of the distribution of subject resumptive pronouns in Swedish. He notes, following Engdahl 1984, that a certain class of resumptive pronouns in Swedish is limited to, essentially, what would be COMP-trace environments; an example is given in (67). If the COMP-trace effect were an ECP effect, the phonological insertion of such pronouns should not affect the grammaticality of the examples, with the extraction itself being impossible. If, on the other hand, the COMP-trace effect is a problem at PF, the 'spelling out' of the trace as a pronoun could be expected to satisfy the constraint.

(67) Vilket ord$_3$ visste ingen hur {det$_3$ / *$t_3$ } stavas ? [Engdahl 1984:13 (12)]
*which word knew no-one how it is.spelled*
'Which word did no-one know how it is spelled?'

Exactly how this effect should be captured is tangential to the current enterprise, and I can do little more than speculate on the general nature the ultimate analysis of the COMP-trace effect should take. We could presumably formalize this effect in terms of what kinds of features a given language can realize on its C$^o$s, as was done in the previous section for F$^o$ in left-branch effects. This line of analysis would hopefully be able to incorporate the varieties of government approaches to the COMP-trace effect while continuing to locate the result at the syntax-lexicon interface (at lexical insertion,

in a late-insertion model). Thus although there is evidence that we are dealing with a 'phonological' effect, this does not mean that we must retreat to surface filters as proposed originally by Perlmutter 1971 (and taken up in Chomsky and Lasnik 1977). In any case, a fully worked-out theory of this effect is not crucial to us here — relevant for us is the prediction that any such analysis makes. If the COMP-trace effect is 'phonological' in the relevant sense, then we do not expect to find its effects under sluicing. The following examples demonstrate that this prediction is correct:

(68) It's probable that a certain senator will resign, but which [~~it's probable that *t* will resign~~] is still a secret.

(69) Sally asked if somebody was going to fail Syntax One, but I can't remember who [~~Sally asked if *t* was going to fail Syntax One~~] [Chung et al. 1995:(86a)]

Chung et al. used these facts to argue for an LF-copying approach to sluicing, since they assimilated the COMP-trace effect to an ECP violation. But if the COMP-trace effect is located at PF, not at LF, as the other evidence suggests, then the lack of COMP-trace effects under sluicing no longer contradicts the deletion account, as Perlmutter 1971:112 points out: "If ... [an example like (65)] is ungrammatical because of a surface ... constraint, subsequent application of Sluicing can produce a grammatical sentence. And it does."

### 5.2.3 Derived position islands: Topicalizations and subjects

The third class of islands I will call 'derived position' islands, and include in English topicalized constituents and subjects (as well as right-dislocated or extraposed constituents). (Here I will concentrate on non-sentential subjects only, though my analysis extends directly to sentential subjects as well, assuming that they originate inside the VP; we will return to them in section 5.4.2, however.) Examples are given in

(70): extraction is prohibited from a topicalized XP (a), from the subject of a passive or unaccusative (b), and from the subject of a transitive or unergative.

(70) a. * Which Marx brother did she say that [a biography of __], she refused to read?
b. * Which Marx brother did she say that [a biography of __] {is going to be published / will appear} this year?
c. * Which Marx brother did she say that [a biographer of __] {interviewed her / worked for her}?

The corresponding sluices, however, are grammatical:

(71) a. A: A biography of one of the Marx brothers, she refused to read.
B: Which one?
b. A biography of one of the Marx brothers {is going to be published / will appear} this year — guess which!
c. A biographer of one of the Marx brothers {interviewed her / worked for her}, but I don't remember which.

I group these together under the rubric 'derived position' islands, because I assume that in all of these cases, we are dealing with a constituent which has moved and whose surface position is derived. The idea that I will pursue is that the extraction we see in the grammatical sluicing examples proceeds not from the derived position, which leads to ungrammaticality as in (70), but from the base position.

Let us begin by considering the case of topicalization. Here we can see that the deviance of (70a) is due to the derived position of the object, not to any overall ban on extraction from objects, since the corresponding extraction from an in situ object is fine:

(72) Which Marx brother did she say that she refused to read [a biography of __]?

This fact, I claim, is the key to understanding the grammaticality of the corresponding sluice. I propose that the structure of the sluice is that in (73a), not that in (73b):

(73) A: A biography of one of the Marx brothers, she refused to read.

a. B: Which one ~~[she refused to read a biography of *t* ]~~?

b. B: * Which one ~~[a biography of *t*, she refused to read]~~?

In other words, there is no reason to assume that the extraction that feeds sluicing must proceed from a structure isomorphic to the surface structure of the antecedent clause. So far, I have claimed only that deletion is regulated by the Focus condition, not by any additional particular structural requirement. An antecedent that contains a topicalized object as in (73) will still provide the necessary semantic antecedent to satisfy the Focus condition. The sluice in (73a) requires, by the Focus condition, that ∃*x[x is a marx brother & she refused to read a biography of x]* be entailed by A's utterance. Since this is the case, the sluice is grammatical.

Parallel reasoning applies to the case of subjects. (An alternative would be to consider the subject island itself a PF-effect, a route I will not pursue here.) Let's begin with a passive subject (the same remarks hold, under the usual assumptions, for unaccusative subjects). The sluice in (71b) can have the structure in (74) (I ignore the question of whether there are additional intermediate positions that the subject may have moved through on the way to SpecIP, illustrating the sluice here with the subject in its base position):

(74) ... which$_2$ [$_{IP}$ ~~___ is going to be published [a biography of $t_2$]~~]

Note first that under most recent approaches to subject islands, an extraction from a base position (here, the object position) will be allowed. Extraction from SpecIP is banned because it is not the specifier of a complement to an L-related head (or not L-marked (Chomsky 1986:31), etc.), not simply because extraction is from a subject per se

(as in Chomsky 1973, Pollard and Sag 1994:195). This is borne out by the well-known contrasts in extraction from pre- and post-verbal subjects in Romance (grammatical from post-verbal subjects, not from pre-verbal ones). A similar point can be made on the basis of the following kinds of English examples. In the (a) examples in (75) and (76), the displaced subject in SpecIP is an island to extraction by virtue of its position; the same logical 'subject' in its base position in the (b) examples is not barrier to extraction.

(75) a. * Which candidate were [posters of *t* ] all over town?
b. Which candidate were there [posters of *t* ] all over town?
(76) a. * Which candidate did they say [to get *t* to agree to a debate] was hard?
b. Which candidate did they say it was hard [to get *t* to agree to a debate]?

Since I am not assuming a strict structural isomorphism between the antecedent clause and the deleted IP in sluicing, a structure like (74) will satisfy the Focus condition, while allowing the attested extraction.

The immediate question is how such a structure could be grammatical in English, given that its overt counterpart is impossible:

(77) * (Guess) [which Marx brother]$_2$ [$_{IP}$ __ is [$_{VP}$ going to be published [a biography of $t_2$ ]]]

The standard answer to the impossibility of an unfilled SpecIP in English is some version of the extended projection principle (the EPP), essentially a stipulation that SpecIP must be filled (see Chomsky 1981). In recent formulations (Chomsky 1995, Alexiadou and Anagnostopoulou 1998), the EPP has been conceived of as the result of certain featural requirements of I$^o$: for English, Chomsky claims that I$^o$ has a 'strong' EPP feature, where 'strong' means that the feature is uninterpretable at the PF-interface and hence must be checked before Spell-Out (this is the mechanism forcing overt movement in the system). While this is nothing more than a recoding of the original stipulation, it does make an interesting prediction from the present perspective. If a 'strong' feature

does not reach the PF interface as a result of deletion, then the absence of the associated checking movement should not matter. This is exactly the difference between the grammatical (74) and the ungrammatical (77). The latter violates the EPP, since the 'strong' feature on $I^o$ has not been checked, and has reached the PF-interface intact, causing the derivation to crash. In (74), however, although the 'strong' feature has not been checked, it has been deleted along with the rest of the IP, and therefore does not reach the PF-interface to cause a crash. This account of the grammaticality of subject extractions, being based on a feature implementation of the EPP, is thus parallel to the account offered above for the amelioration of left branch violations under ellipsis.

The same account applies to subjects of transitive and unergative verbs, if the internal subject hypothesis is correct — if there are positions inside the VP from which A'-movement can extract a subconstituent, we expect to be able to void the subject island in the same way we did for subjects of passives and unaccusatives. The deleted structure in (71c), then, must be as follows:

(78) A biographer of one of the Marx brothers interviewed her, but I don't remember which$_3$ ~~[$_{IP}$ — [$_{VP}$ a biographer of $t_3$ interviewed her]]~~.

Depending on exactly what formulation of the barrierhood of SpecIP one adopts, the grammaticality of extraction as in (78) might bear on whether the subject originates as a specifier of VP or as an adjunct to VP, seeming to favor the former. (This relates also to questions of whether barrierhood should be formulated in terms of θ-government as in Chomksy 1986:14-15 or L-relatedness as Chomsky 1998 suggests. The choice is not crucial here.)

An obvious question at this point is whether the fact that the subject remains low at Spell-Out, in violation of the EPP, has any further consequences for interpretation. The answer is no, but it is worth seeing why this expectation might arise and why it is not fulfilled. Given commonly held assumptions, IP of (74) should not be able to host further movement. This would follow from the Strict Cycle Condition, which forbids A'-movement out of an IP followed by A-movement inside that IP (or in general, if this

condition is reduced along the lines of Chomsky 1995's Extension Condition, no XP movement can target a position structurally inferior to the highest node in the tree; see Collins 1997 for a recent approach). If the Strict Cycle Condition applies also to post-Spell-Out movement, then we expect to see a scope-freezing effect for subjects in a structure like (74).

This expectation is not borne out. Consider the examples in (79), where indefinite subjects interact with modals and negation.

(79) a. Five pictures of one of the victims might be distributed to the press, but I can't remember which one$_2$ ~~[$_{IP}$ might be [$_{VP}$ distributed [five pictures of $t_2$] to the press]]~~.

b. Five pictures of one of the victims weren't distributed to the press, but I can't remember which one$_2$ ~~[$_{IP}$ weren't [$_{VP}$ distributed [five pictures of $t_2$] to the press]]~~.

If the subject *five pictures of* $t_2$ were frozen in its base position by the Strict Cycle Condition even after Spell-Out, we would predict that (79b), for example, would admit only the ¬ reading. In fact, both the ¬ and ¬ readings are possible here, the latter given in (80) (if anything, the latter is preferred):

(80) λp[ x.victim(x) p= ^[ $_5$Y.picture(Y, of x) ¬distributed(Y, to the press)]]

For purposes of scope, the Strict Cycle Condition does not apply, since all instances of QR are counter-cyclic under standard assumptions as well. But we might predict that A-movement of the subject after Spell-Out will be impossible, since the 'strong' feature on I$^o$ that drives this movement has been deleted. But if the Case features on the subject DP still need to be checked, we might have Greed-violating Case-driven A-movement after Spell-Out after all. (Some recent theorizing has even sought to reduce all A-movement to feature movement, with subject DPs possibly base-

generated outside the VP; see Manzini and Roussou 1998 and Pesetsky 1998b, and Hornstein 1999 for a related approach.)

These questions are, however, difficult to test. One possibility is to test whether the subject out of which extraction under sluicing has occurred can come to bind a higher pronoun. If it can, we have evidence that it has undergone A-movement, since A'-movement of this kind triggers a weak crossover violation. Although the facts are subtle, I believe that the evidence does indicate that such binding is possible, and therefore that we have evidence that covert phrasal A-movement has taken place. The relevant data is given in (81).[11]

(81) a. [Every biography of one of the Marx brothers]$_1$ seemed to its$_1$ author to be definitive, but I don't remember (of) which (Marx brother).

b. [Every soldier from one of the airborne battalions]$_2$ seemed to his$_2$ commander to be sick, but I don't know (from) which (battalion).

In these examples, cross-clausal binding is impossible (cf. **Every soldier$_2$ was sick, but I don't know whether his$_2$ commander knew.*) Since the examples are nonetheless grammatical, we have evidence that covert phrasal A-movement is occurring. The derivation for (81b) is sketched below:

(82) a. Spell-Out:

...which (battalion)$_3$ ~~[ [$_{IP}$ [$_{VP}$ seemed to his$_2$ commander to be [$_{IP}$ [every solider from one of $t_3$]$_2$ sick ]]]~~

b. A-movement at LF:

[11] Although such binding is clearly possible in examples like (i), these examples contain a confounding factor that makes their status irrelevant to the question at hand.

(i) a. [One algorithm for one of the problems]$_1$ seemed to its$_1$ inventor to be flawed, but I don't remember which (problem).

b. [A solider from one of the airborne battalions]$_2$ seemed to his$_2$ commander to be sick, but I don't know which (battalion).

The problem here is that the desired binder of the pronoun inside the sluicing ellipsis site is an indefinite; it could be the case that the indefinite in the antecedent is simply binding this pronoun, without necessitating a c-commanding binder in its own clause. This confound is controlled for in the examples in the text, where a universal replaces the indefinites of (i).

... which (battalion)$_3$ [$_{IP}$ [every soldier from one of $t_3$]$_2$ seemed to his$_2$ commander [$_{IP}$ $t'_2$ to be $t_2$ sick ]]

In (82b), DP$_2$ has raised by A-movement, coming to bind *his$_2$*. This movement is necessary, assuming that bound variable anaphora requires c-command at LF. This movement cannot be simply A'-movement, since such movement would give us a WCO effect which is not attested.

One might expect that a similiar argument for covert phrasal movement in these cases could be constructed by examining condition C of the binding theory (BT(C)) effects. As (83a) shows, overt A-movement can bleed BT(C). This should be compared with (83b), where the subject remains in situ, triggering a BT(C) violation.

(83) a. Many reports about Clinton$_2$ seemed to him$_2$ to be on TV during the summit.

b. * There seemed to him$_2$ to be many reports about Clinton$_2$ on TV during the summit.

In the comparable cases of sluicing, no BT(C) effect is seen:

(84) One of Albright$_3$'s reports on one of the Balkan countries seemed to her$_3$ to have been leaked to the press, though I don't know which (of the Balkan countries).

Comparable to (82), I give the derivation of (84) in (85):

(85) a. Spell-Out:
... which$_1$ [$_{IP}$ [$_{VP}$ seemed to her$_3$ to have been leaked [one of Albright$_3$'s reports on $t_1$] to the press ]] .

b. LF:
... which$_1$ [$_{IP}$ [one of Albright$_3$'s reports on $t_1$]$_2$ [$_{VP}$ seemed to her$_3$ $t_2$' to have been leaked $t_2$ to the press ]] .

If this were all that needed to be said, the grammaticality of (84) would provide another argument in favor of phrasal A-movement at LF, since phrasal A'-movement at LF does not generally repair BT(C) violations (though see Fox 1998, Sauerland 1998, Merchant to appear for a qualification of this relating to antecedent-contained deletion). Unfortunately, the status of (84) cannot actually tell us much, since it is known independently that BT(C) effects are not attested under ellipsis. As we saw in chapter 1, Fiengo and May 1994 have documented this surprising fact for VP-ellipsis, but it holds for sluicing as well, as shown in Merchant 1999a. Consider, for instance, (86):

(86) They said they wanted to hire Abby$_3$, but she$_3$ didn't know why.

If this sluice were resolved as in (87a), we would expect a BT(C) violation. Instead, the material that is deleted is that in (87b), in line with the analysis of the parallel facts for VP-ellipsis presented in chapter 1.

(87) a. * she$_3$ didn't know why ~~they wanted to hire Abby$_3$~~.
b. she$_3$ didn't know why ~~they wanted to hire her$_3$~~.

Since there are no BT(C) effects under ellipsis in general, the fact that (84) is grammatical unfortunately can tell us nothing about the LF position of the subject. 'Vehicle change' effects do not alter the argument based on the examples in (81), however, since even though universals are indeed equivalent to pronouns under ellipsis in some contexts, and assuming that the pronoun could be given the correct interpretation, the occurrence of a pronoun for the whole DP would eliminate the extraction site, since pronouns cannot contain extraction sites.

Note that I am not claiming that sluicing out of subjects always requires an expletive (*there* or *it*) in the deletion site. For the case of *there* in particular, the variability in scope of indefinite subjects argues against a hidden *there*, since *there* forces narrow scope for its associate. And several authors have shown that there is evidence against phrasal A-movement to replace *there*: Williams 1984, den Dikken 1995, Pesetsky 1998b. The relation between *there* and its associate is not one of phrasal movement (perhaps feature movement, irrelevant for binding theory, scope, and quantifier-variable binding). Indeed, the *there*-insertion equivalent to (82) above does not allow the required variable binding, indicating again that the *there*-associate relation is not one of phrasal A-movement at LF:

(88) There seemed (*to $his_2$ commander) to be [a soldier]$_2$ sick.

But this fact does not militate against the analysis proposed above. In the sluicing cases, there is no *there* there, and hence whatever it is that blocks phrasal movement in cases like (88) is not operative.

This analysis also has implications for Diesing's 1992 Mapping Hypothesis. Diesing 1992 proposes that material in SpecIP at LF is mapped into the restriction of quantificational adverbs, while material inside the VP is mapped into the scope. She adopts a Kamp-Heimian analysis of indefinites as open predicates, and posits that existential closure applies at the VP-level. Furthermore, subjects of stage-level (SL) predicates are base-generated in SpecVP, undergoing raising to SpecIP prior to Spell-Out, and able to reconstruct or not as the case may be, while subjects of individual-level (IL) predicates are base-generated in SpecIP, and cannot be interpreted inside the VP (i.e., they cannot be subject to existential closure; SpecVP is occupied by PRO). (See Fernald 1994 for modifications of this picture and qualifications.) If Diesing's conjecture about the structural differences between these kinds of predicates is correct, we should find corresponding differences in whether their subjects allow extractions. Subjects of SL predicates should allow extraction under sluicing; subjects of IL predicates, being base-generated in SpecIP, should not. The data in (89), exhibiting both kinds of

predicates, do not bear out this predicted contrast, however — all are equally grammatical.

(89) a. Pictures of one of the astronauts weren't available at press time, but I can't remember which one. (SL)

b. Pictures of one of the astronauts weren't visible at press time, but I can't remember which one. (SL or IL)

c. Writing samples of one of the astronauts weren't legible, but I can't remember which one. (IL)

d. Pictures of one of the astronauts weren't printable, but I can't remember which one. (IL)

e. Eggplants from one of the islands are poisonous — you better find out which one before you go! (IL)

For example, (89e), having the IL predicate *poisonous*, should not allow a derivation of the necessary kind, sketched in (90), since the subject *eggplants* from which extraction proceeds does not occur in SpecVP, by hypothesis.

(90) * ... which one$_1$ [$_{IP}$ [eggplants from $t_1$]$^i$ are [$_{VP}$ PRO$^i$ poisonous ]]

These considerations suggest that the correct account of the effects she discovered cannot be the structural one she proposed; see also Fernald 1994, who reaches this conclusion on independent grounds.

In summary, the deletion account is compatible with topicalization structures because these are equivalent to their unmoved counterparts in the ellipsis site. It is compatible with subjects for the same reason, though the movement of subjects in English to SpecIP is not optional in the general case. If the EPP is implemented as a 'strong' feature, as in Chomsky 1995, the absence of subject island effects is expected, as we saw to be the case with their left branch cousins.

Two interesting further conclusions followed from the implementation presented here: first, that there must be at least some species of covert *phrasal* A-movement, and second, that Diesing's structural solution to the differences between stage- and individual-level predicates is incompatible with the proposed account of extractions out of subjects under sluicing.

### 5.2.4 Coordinate Structure Constraint I: The conjunct condition

There are two subparts to Ross's 1967 Coordinate Structure Constraint (CSC), as stated in (91) (Ross 1967 [1986:98-99], number (4.84)).

(91) In a coordinate structure, no conjunct may be moved, nor may any element contained in a conjunct be moved out of that conjunct.

These two conditions are illustrated by the examples in (92): extraction of a conjunct in (92a), and extraction out of a conjunct in (92b).

(92) a. * Which senator did they persuade Kennedy and __ to jointly sponsor the legislation?
b. * What movie did Bob both go to a restaurant and see __ at the Nick that night ?

In this section, I will concentrate on the first kind of extraction, which I will refer to as the *conjunct condition*, following Postal's 1992 terminology (the second kind will be taken up in the next section). This distinction was made originally in Grosu 1973, and taken up in Grosu 1981:53-60.

Ross 1969 noticed that sluicing provides some amelioration of the conjunct condition. His example (71) is given here in (93).

(93) Irv and someone were dancing together, but I don't know who.

The status of these has been the subject of some debate. Ross marked his original example with ??, while Lakoff 1970 revises this to full acceptability without comment. Baker and Brame 1972 take issue with Lakoff's revision, noting that "many speakers find it completely ungrammatical" (p. 61). Levin 1982 gives the following example (her (42b)) without comment, indicating complete acceptability:

(94) Janet and one of the boys were holding hands, but I don't remember which one.

Chung et al. 1995 also note this variation, providing the following example, which they note is only slightly odd:

(95) ? They persuaded Kennedy and some other Senator to jointly sponsor the legislation, but I can't remember which one. (CLM's (83b))

To these we can add examples like (96).

(96) a. Ben baked the cake and something else, but I don't know what.
b. Abby was a member of the Students for a Democratic Society and one other organization, but it wasn't clear which.

I will thus take it that sluicing over a conjunct is in principle possible, and must be allowed by the syntax.[12]

[12] One point of variability regards the nature of the subjects involved. All the examples in the literature contain predicates that require a plural subject (Ross's "together", CLM's "jointly", Levin's "hold hands"); examples where this is not the case, or indeed where a strictly distributive reading of the predicate is forced, are sometimes worse:

(i) a. * Mark and another boy each won a prize, but I don't remember who.
b. * Some shaft and the coupler were broken — guess which!

At the least, the unacceptability of these examples argues against a conjunction reduction analysis for conjoined subjects (see the discussion below of conjoined VPs) But appealing to the lack of distributivity by itself cannot acount for the full range of data, since examples like (96) are well-formed.

Given the present enterprise of reducing sluicing to deletion, the grammaticality of these examples requires that the conjunct condition be a condition whose effects are due to a principle operative at PF, not a principle that bans extraction of a conjunct as a condition on movement rules. The representation of an example like (95) will therefore be as follows:

(97) ... but I can't remember which one$_1$ [~~they persuaded Kennedy and t$_1$ to jointly sponsor the legislation~~]

The conjunct condition, then, must be something along the lines of Grosu's 1981:56 Null Conjunct Constraint, which states that conjuncts may not be phonetically null. This claim, that the conjunct condition is a condition operative at PF, has interesting support from sentences that seem to be deviant because of the presence of a null conjunct, but are not usually derived by movement under current analyses. (Munn 1993 also denies that the conjunct condition is a constraint on extraction.) These data fall into four classes: null VPs, Right Node Raising structures, null pronouns and null topics, and illicit across-the-board extractions.

The first of these is VP-ellipsis. As Grosu 1973, 1981:53 notes, a null VP cannot be coordinated with an overt one. His example is given in (98):

(98) *I couldn't lift this weight, but I know a boy who could [__ and lift a crowbar, too].

In judging this example, one must be careful not to add a pause before *and*; such a pause renders the example grammatical but irrelevant. In such a case, we have instead a parallel to *Bob can sing — and dance, too!* (cf. *You should do it, and quickly (too)!*; see Progovac 1997 for discussion of these 'adjunct *and*' clauses). We can construct examples where such a factor does not play a role, however, by adding a 'left bracket' element like *both* or *either*, or by reversing the order of the conjuncts. Such examples are unambigously impossible.

(99) a. Bob can juggle, * and Abby both can [__ and sing], too.
b. ... * and Abby can [sing and __], too.
c. ... * and Abby can either [__ or sing].
d. ... * and Abby can either [sing or __].

Although it has sometimes been suggested that VP-ellipsis could be reducible to VP-topicalization in English (Johnson 1997, Postal 1998:180), parallel arguments can be constructed for sluicing and NP-ellipsis, where a topicalization analysis is much less likely.[13] The relevant data are given in (100) and (101).

(100) a. * Abby invited someone, but I don't know who$_2$ [ __ and Ben kissed t$_2$ ].
b. * Abby invited someone, but I don't know who$_2$ [Ben kissed t$_2$ and __].
(101) a. * I have five cats, but he has six [ __ and dogs]!
b. * I have five cats, but he has six [dogs and __]!

The second argument comes from the apparent sensitivity of Right Node Raising (RNR) to the conjunct condition, as noted by Ross 1967. The following example is from McCawley 1988:

(102) * Tom is writing an article on Aristotle and, and Elaine has just published a monograph on Mesmer and, Freud.

If RNR is in fact a prosodic deletion phenonemon, as argued convincingly by Wilder 1995 and Swingle 1995, then the ungrammaticality of (102) must also follow from constraints on deletion, not movement. See in particular Swingle 1995:58 fn 34, who shows how her theory of RNR as deletion handles this kind of example.

[13] The well-known insensitivity of VP-ellipsis to subjacency, noted by Postal 1998:180 as a "serious problem" to the topicalization line seems besides the point: the movement itself could be local to the clause, as in embedded topicalizations in general.

Another kind of support comes from various null proforms. In Greek, for example, null subjects are possible, but these cannot be coordinated with non-null DPs (similar data holds, to my knowledge, in various Romance and Slavic languages[14]). Compare the grammatical overt pronominal forms in the subject coordinations with their ungrammatical null counterparts. The order of the conjuncts is irrelevant (thanks to A. Giannakidou for judgments).

(103) a. {Aftos/**pro*} kai o Pavlos ine adherfia.
*he pro and the Paul are siblings*
'He and Paul are siblings.'

b. {Esi /**pro*} kai o Pavlos iste adherfia.
*you.sg pro and the Paul are siblings*

c. {Ego/**pro*} kai o Pavlos imaste aderfia.
*I pro and the Paul are siblings*

(104) a. O Pavlos kai {aftos/**pro*} ine adherfia.
*the Paul and he pro are siblings*
'Paul and he are siblings.'

b. O Pavlos kai {esi / **pro*} iste adherfia.
*the Paul and you.sg pro are siblings*

c. O Pavlos kai {ego/**pro*} imaste adherfia.
*the Paul and I pro are siblings*

A parallel argument comes from various 'topic-drop' constructions in German and East Asian languages (see Huang 1984). These are typically analyzed as involving a null operator in the left periphery of the clause; in German, this is SpecCP. This operator,

[14] A potential counterexample comes from Irish, as analyzed in McCloskey and Hale 1984 and McCloskey 1986 (and Old Irish, as in McCloskey 1991). In this language, it is possible to have configurations like (i), where a null left conjunct can trigger agreement:

(i) $V_{[\alpha F]}$ [$_{DP}$ $pro_{[\alpha F]}$ Conj DP ] ...

One possibility, suggested to me by Jim McCloskey, is that the agreement material is the left conjunct, and has prosodically cliticized onto V — this pattern is sensitive to adjacency in a way that suggests this is plausible, though space prevents a detailed discussion here.

although it fulfills the V2 requirement of German, cannot be coordinated with overt material:

(105) A: Hat er dir seine Infos gegeben — zum Beispiel, seinen Namen?
*has he you.DAT his vitals.ACC given for example his name.ACC*
'Did he give you his personal information — for example, his name?'

B: a. (* und sein Alter) wollte er nicht sagen.
*and his age wanted he not say*
'That (and his age), he didn't want to say.'

b. (*Sein Alter und) wollte er nicht sagen.
*his age and wanted he not say*

Another kind of argument comes from constructions where extraction would be expected to be licit in an across-the-board (ATB) manner, but the result of which would leave one or both conjuncts null. As noted by Grosu, whole conjuncts cannot be removed across-the-board, as in (106a), nor may ATB movement affect a subpart of a conjunct and a whole conjunct, as in (106b,c), taken from Gazdar et al. 1985:178 (see also Gazdar et al. 1982, Sag and Fodor 1994).

(106) a. * Which books did Bob read [__ and __]?
b. * I wonder who you saw [__ and [a picture of __]].
c. * I wonder who you saw [[a picture of __] and __].

More complicated examples are provided by constructions where the conjunction has an 'intensifying' import (Grosu 1981:55). These examples, from Grosu 1981:55, are given in (107) and (108).[15]

[15] (107) may in fact be ruled out on independent grounds by Kuno and Takami's 1997 *Ban on Out-of-Scope Extraction* or Tancredi's 1990 *Principle of Lexical Association*, which can be read as requiring operators like *only* to associate to overt lexical material in their c-command domain.

(107) * Here is the picture of Mary which John is looking for __ and {only / nothing but} __.

(108) a. John is growing eagerer and eagerer (to meet Mary) every minute.

b. *Eagerer though John seemed to be growing __ and __, Mary was still reluctant to introduce herself to him. (cf. *Eagerer and eagerer though John seemed to be growing ...* )

Since ATB extraction is in principle possible, and the conditions on ATB extraction seem to be met in these examples, an independent constraint is needed to rule out examples like (106)-(108). The Null Conjunct Constraint does just that.

Finally, in a more speculative vein, if the conjunct condition is a PF phenomenon, we may expect to find resumptive pronouns ameliorating the effects of conjunct extraction. While this is in general true in several languages that have robust resumptive pronoun strategies like Irish, this effect seems also to be attested in English, as in (109).

(109) a. That's the $guy_2$ that they were going to kill [you and $him_2$] together.

b. Which $wine_3$ would you never serve $it_3$ and sushi together? (Pesetsky 1998a: 366 fn 28)

But it is difficult to tell whether these structures actually indicate that a trace of movement can be 'spelled out' as a pronoun inside an island, as a way of repairing the island effect (as proposed, for example, by Pesetsky 1998a), or whether these examples are simply making use of the general strategy for interpreting resumptive pronouns linked to an operator base-generated in its A'-position (see Merchant 1999c for discussion). Instead, we must find an environment where we know that the normal resumptive interpretation strategy is impossible, and then see if a resumptive pronoun can occur in such an environment as a conjunct nonetheless. Such an environment is

discussed by Sells 1984: resumptive pronouns cannot be linked to relative clause operators when the relative clause modifies a universal[16], as in (110)[17]:

(110) * Every guy that you got upset when Betsy started dating him turned out fine in the end.

The crucial test, then, is to determine whether a resumptive pronoun can occur as a conjunct in such a relative clause. Such a resumptive pronoun could only be the result of a PF-spell out process turning a trace of movement into a pronoun, since the regular strategy of base generated operator and resumptive pronoun is unavailable (for reasons discussed by Sells 1984). Relevant data are given in (111):

(111) a. ?(?) Every guy that you thought {[he and Betsy]/ that [Betsy and him]} would make a good couple turned out to be a psycho in the end.

b. ?(?) She intereviewed every guy that you saw Besty and him together.

Unfortunately, judgments on these are difficult: they seem better than (110), but not as good as (109a). Pending clearer data, then, the results of this test remain inconclusive.

---

[16] This generalization is the subject of some debate; Prince 1990 has shown that the constraints on actual use of resumptives in relative clauses are not quite so clear cut.

[17] Note that these contrasts, illustrated in (i), make an interesting prediction with respect to antecedent-contained deletion (ACD) structures as well.

(i) a. ? I read the (same) book that Charlie made the claim that you had read it.
b. * I read every book that Charlie made the claim that you had read it.

Since resumptives can ameliorate subjacency effects as in (ia), then, to the extent that they can co-occur with the determiners that license ACD (*the* allows ACD to some extent: *I gave him$_2$ the book Charlie$_2$ wanted me to*), we should find a comparable amelioration of the subjacency effects discovered by Haïk 1987. The data in (ii) show this to be true. (Data similar to (iib) is noted in Fiengo and May 1994: 284 (138a), but not the crucial contrast to (iia), nor the connection to Sells's ban on resumptives in English relative clauses headed by *every*.)

(ii) a. ? I read the (same) book that Charlie made the claim that you had.
b. * I read every book that Charlie made the claim that you had.

These data indicate that the trace of QR (even DPs headed by *the* must raise, as the lack of a principle C effect in the italicized example in the previous paragraph also shows) can be equivalent to a resumptive pronoun, as expected under the semantic re-analysis of 'vehicle change' effects presented in chapter 1.

We have thus seen at least four different areas where null conjuncts are prohibited, none of which are plausibly analyzed as involving extraction.[18] This lends support to the hypothesis that the Null Conjunct Constraint, whatever the best account of its effects may be, applies to PF representations[19], regardless of whether the null conjunct was the result of movement or not. If the Null Conjunct Constraint operates at PF, we expect that sluicing should ameliorate the defect of structures arising from single conjunct extractions, as is the case.

### 5.2.5 Summary

In the above sections, we have examined the ability of sluicing seemingly to extract constituents out of a variety of islands: left branches, COMP-trace environment, derived positions (topicalizations and subjects), and conjuncts. In each case, I argued that the extraction itself was licit, contrary to naive expectation based on comparison with the overt counterpart, but that the deviance was rendered ineffectual by deletion at PF. In each case, I showed that there was independent reason for believing that the locus of

[18] Postal 1998:180 provides a further argument that the conjunct condition applies to a range of non-extraction data, based on the contrast in (i) (his (16)):

(i) a. the interrogation of (that friend of) Jane('s) (and Louise) by the attorney
b. (that friend of) Jane's interrogation (*(that friend of) and Louise) by the attorney

If the alternation between postnominal and prenominal genitives is derived by movement, then this example is irrelevant. Even if no movement is involved, it is still unclear to me how this bears on the issue at hand, given that the theme argument of a noun can only be represented in one place in the syntax.

[19] One remaining issue that I will not solve here is the fact, noted by Rodman 1976 and others since (see Ruys 1992 for discussion), that conjuncts cannot scope indepedently. If the conjunct condition is only a PF condition, the constraints on scoping in coordinations must follow not from constraints on QR, but on semantic restrictions on the interpretation of such structures (see Winter 1998).

A related issue concerns the status of wh-in-situ in conjuncts. Although Fiengo, Huang, Lasnik, and Reinhart 1988:81 report that (i) is only slightly deviant (the question mark is their judgment),

(i) ? Who saw John and who?

similar examples are judged by Bresnan 1975, Pesetsky 1982: 618, and Postal 1992: 33 as unacceptable (see also Ginzburg 1992:171, who notes that "for many speakers, [such an example] can be used only to reprise [as an echo question — JM]"); I tend to side with the latters' judgment as well. These facts are only problematics if wh-in-situ must move at LF: if so, and if the conjunct condition applies at this level as well, the latter authors' judgments can be accounted for. From the current perspective, these facts must follow from the semantic mechanisms, and not from a constraint on movement.

these island effects is in the phonological component. This was cashed out in various ways, some more explicit than others, as our current understanding of the phenomena permits. But no particular implementation of these claims is crucial to the main hypothesis supported by the sluicing data: that certain island effects are not necessarily structural in the usual sense, but rather should be located at PF.

## 5.3 E-type anaphora under sluicing

Before continuing with the next class of islands, a bit of background is needed. In this section, which builds on Merchant 1999a, I show that certain traces of movement in an antecedent IP are equivalent to E-type pronouns in the deleted IP. This will set the stage for an understanding of several of the facts we will encounter in the next section.

### 5.3.1 The problem: A'-traces under sluicing

The problem, given any approach to the resolution of IP-ellipsis, arises quite simply: IPs which contain A'-traces license deletion of IPs which apparently do not, that is, trace-containing IPs can provide the necessary antecedent IP to resolve a sluice. Constructed examples are given in (112), and some attested ones are in (113)-(115).

(112) a. The report details what IBM did and why.
b. Who did the suspect call and when?
c. We know which families bought houses on this block, but we don't know which (houses), yet.
d. It was clear which families had mowed their lawns, but we can only guess with which brands of lawnmower.
e. The judge had records of which divers had been searching the wreck, but not of how long.

f. The hospital spokeswoman told us which patients had died, but she wouldn't say when.
g. The Guiness Book records how long some alligators can hold their breaths, but not which (ones).
h. Though Abby eventually told us who she saw that night, she never revealed where.

(113) a. That's a gazebo. But I don't know who built it or why. [overheard conversation, Santa Cruz 9/15/96]
b. A ride-along with an officer shows who gets ticketed, and why. [SJ Mercury News 8/9/96]
c. A chronology was the first step in piecing together what had happened—which had to precede figuring out why. [K.S. Robinson, Green Mars, p. 222]
d. They didn't have any clear idea of what they were going to try to do, or why. [K.S. Robinson, Green Mars, p. 535]
e. What's proposed and why. [SJ Mercury News headline 11/28/96]

(114) a. [The Smart Toilet] is a paperless device that not only accommodates calls of nature, but also 'knows' who's using it and how. [SJ Mercury News 8/6/96]
b. What interveners are able to 'get out of the way', and how? [Szabolcsi and Zwarts 1993: 14]
c. Investigators want to know who is supplying the drugs—and how—since Kevorkian's medical license was suspended in 1991. [SJ Mercury News 8/17/96]

(115) a. [The police asked] who'd seen him last and where. [D. Tartt, The Secret History, p. 294]

b. But R.C. Lahoti, a High Court judge appointed to lead the investigation of the accident, must decide who will decode the recorders and where. [SJ Mercury News 11/30/96]
c. He only wanted to know whom they had met, and where. [K.S. Robinson, Red Mars, p. 515]

Even multiple wh-phrases may be in the antecedent IP:

(116) a. We need to know who saw what, and when.
b. [He] makes no empirical claims concerning what domain will be opaque for what relations, [or] why. [Szabolcsi and Zwarts 1993 fn. 4]
c. You know exactly who will laugh at which particular kind of joke, and for how long. [slightly altered ex. from L. de Bernières, Corelli's Mandolin, p. 33]

Traces of QRed constituents in the antecedent IP can also give rise to the same effect.

(117) a. The suspect phoned everyone on this list, but we don't know when.
b. Most gangs will be at the rumble, though it's not clear why.
c. Every boy scout helped, though most didn't know why.
d. (Only a) Few boats looked for survivors, though it's not clear why.
e. At least five guerrillas survived the raids, but no-one could figure out how.
f. The duke hid exactly six of the jewels, and even Holmes didn't know where.

If structural isomorphism required exact identity between the antecedent IP and the deleted one, we would have the representative LFs in (118), where the struckthrough material has been deleted at PF; exactly the same problem would arise for a copying approach. These LFs have the glaring defect that the wh-trace in the second conjunct is unbound. Under normal circumstances we'd expect an unbound trace to give rise to spectacular ungrammaticality—but these examples show that it doesn't.

(118) a. ... [$_{CP}$ what$_1$ [$_{IP}$ IBM did $t_1$]] and [$_{CP}$ why [$_{IP}$ ~~IBM did $t_1$~~]]

b. [$_{CP}$ who$_2$ did [$_{IP}$ the suspect call $t_2$]] and [$_{CP}$ when [$_{IP}$ ~~the suspect call $t_2$~~]]

The key to explaining the acceptability of these examples is the fact that they have interpretations parallel to the sentences in (119), which contain overt pronouns anaphoric to preceding non-c-commanding wh-phrases, but no ellipsis.

(119) a. The report details what$_1$ IBM did and why IBM did it$_1$.

b. Who$_2$ did the suspect call and when did the suspect call him$_2$?

c. Most gangs$_3$ will be at the rumble, though it's not clear why they$_3$'ll be there.

d. Every boy scout$_4$ helped, though most$_5$ didn't know why they$_{4/5}$ helped.

While no analysis has ever been proposed for sentences like those in (112)-(117), ones like those in (119a,b) were discussed in Bolinger's seminal 1978 paper and more recently in Comorovski 1996. Comorovski only mentions them in passing, since her main interests lie elsewhere, and attributes the possibility of an anaphoric link of the observed kind to the existential presuppositions of wh-questions. Whether or not this is the correct approach to the feasibility of such anaphoric links in the first place, this observation obviously doesn't solve the problem raised by the elliptical sentences in (112)-(117).

Note especially that none of these examples is plausibly the result of some novel, mysterious application of across-the-board (ATB) movement of the first wh-phrase out of both conjuncts. Such an ATB account would obviously run into numerous problems (phrase-structural, to begin with, as well as island violations); in addition, there are many examples which are not coordinate structures of the kind necessary for ATB extraction (see the Merchant 1999a for additional examples).

### 5.3.2 The solution: 'Vehicle change' and E-type pronouns

The solution I will propose is now familiar in general form: I will assimilate the deleted IPs to their nonelided counterparts above. I propose simply that the LFs of deleted IPs like those in (118) are in fact fully parallel in the relevant respects to the LFs of sentences like (119)—specifically, that wh-traces (and traces of QR) license the deletion of pronouns in these circumstances.

As mentioned in chapter 1, Fiengo and May 1994 propose and defend a mechanism for capturing exactly this kind of syntactic sleight of hand: vehicle change (see also van den Wyngaerd and Zwart 1991, Brody 1995, Kennedy 1997a, and Giannakidou and Merchant 1998). Vehicle change in essence defines certain equivalence classes under ellipsis; this is given in its general form in (120). For our purposes, the relevant instantiation of vehicle change would be the one given schematically in (121), which states that nonpronominals may be treated as pronominals under ellipsis. Specifically, a variable like a wh-trace can be treated as a pronominal—its 'pronominal correlate', in Fiengo and May's term, as in (122).

(120) *Vehicle change* (Fiengo and May 1994:218ff.)
Nominals can be treated as nondistinct with respect to their pronominal status under ellipsis.

(121) [-pronominal] $=_e$ [+pronominal]
(where $=_e$ means 'forms an equivalence class under ellipsis with')

(122) [-a, -p] (variable or name) $=_e$ [-a, +p] (*pronominal correlate* = $^{p}$e)

Fiengo and May take pains to argue that vehicle change is syntactic, and has syntactic effects, and is not simply relevant at some more abstract level of semantic equivalence (as in property-anaphora treatments of ellipsis). They show that the pronominal correlates of names and wh-traces under VP-ellipsis do not trigger Principle C violations, do trigger Principle B, and do not respect islands, all of which they assume are syntactic phenomena. Though their discussion is limited exclusively to VP-ellipsis,

the first and third of these properties can be observed under sluicing as well. Of course, if structural isomorphism is rejected, we have no reason not to posit regular pronouns in the ellipsis site, as I do here. The same conclusions hold.

#### *5.3.2.1 'Vehicle change' under sluicing*

Let us begin with the Binding Theory effect, namely the disappearance of Principle C effects. (123) presents a standard case of a Principle C violation with a name. If the trace of a moved wh-phrase is copied under a co-indexed c-commanding pronoun as in (124a), however, no deviance arises, contrary to naive expectation, since featurally names and wh-traces are indistinct. For Fiengo and May, 'vehicle change', however, converts the trace into its pronominal correlate, as in the LF given in (124b), in which the variable $t_4$ is realized as its pronominal correlate ${}^{p}e_4$; ${}^{p}e_4$, being [+pronominal], is no longer subject to Principle C. In terms of the theory defended here, this means that the deleted IP simply contains a pronoun, as in (124c).

(123) *The detectives wanted to know whether they$_3$ knew why Sue hated the Thompsons$_3$.

(124) a. The detectives wanted to know who$_4$ [Sue hated $t_4$] and whether they$_4$ knew why.

b. ... they$_4$ knew why [**Sue hated ${}^{p}e_4$**]

c. ... they$_4$ knew why [~~Sue hated them~~$_4$]

Principle B is not testable, since in sluicing an entire IP is elided, so no example with a clause-mate c-commanding pronoun can be constructed.

Second, we find that the normal binding relation between a wh-phrase and its bound trace, which is constrained by islands, is relaxed under this type of sluicing as well. In other words, the pronominal correlate of a reconstructed trace can find its antecedent outside of an island. This is indeed trivially true under sluicing, since sluicing involves wh-islands to begin with, but even embedding the CP immediately dominating

the sluiced IP inside another island does not affect the status of these examples. Again, normal binding could not be expected to hold in the first place, since the wh-phrase does not c-command the pronominal correlate.

The following example is structured as follows. The (a) example is a control, showing the ungrammaticality of extraction from the island (here, a subject; see Merchant 1999a for this kind of sluice inside twenty-four other kinds of islands as well). The (b) example shows that a wh-link into a non-elided IP is impossible. The (c) example gives a version with no ellipsis, but with a pronoun linked to the wh-antecedent. This link from a pronominal element is what makes the sluiced version in the (d) example grammatical, as its LF in (e) shows.

(125) subject island

a. *Which crime$_4$ did the FBI admit that <solving $t_4$> will prove difficult?
b. *The FBI knows which truck$_4$ was rented, but <figuring out from where $t_4$ was rented> has proven difficult.
c. The FBI knows which truck$_4$ was rented, but <figuring out from where it$_4$ was rented> has proven difficult.
d. The FBI knows which truck$_4$ was rented, but <figuring out from where> has proven difficult.
e. ... figuring out from where [~~it$_4$ was rented~~] has proven difficult.

Thus all available evidence indicates that we are dealing with a pronoun in the ellipsis site. These effects, in conjunction with their structural isomorphism condition, are Fiengo and May's motivation for proposing the operation of vehicle change. But the same effects follow directly if the ellipsis site contains a regular pronoun at all levels of representation, as seen in chapter 1. In what follows, then, I will simply represent the element in question as a pronoun, though continuing at times to use the useful term 'vehicle change' to refer to the fact that A'-traces license the deletion of pronouns under certain circumstances, and 'pronominal correlate' as the pronoun deleted under these conditions.

*5.3.2.2 Interpreting the result of 'vehicle change'*

An account of the anaphoric link between the pronominal correlate and its antecedent must distinguish them from regular bound wh-traces or bound pronouns. These are essentially a subspecies of donkey pronouns: anaphoric on a preceding quantificational expression, yet not bound by it.[20]

Let us take as our working example (126a) and its associated LF, parallel to its unelided counterpart in (127) (I ignore the trace of *when*, irrelevant here):

(126) a. Which suspect did Abby call, and when?

b. [$_{CP}$ which suspect$_2$ did [$_{IP}$ Abby call $t_2$]] and [$_{CP}$ when ~~[$_{IP}$ Abby call him$_2$]~~]

(127) Which suspect did Abby call, and when did she call him?

The immediate question to be addressed is the same question with respect to this kind of data that we asked in chapter 1: does the fact that the IP can be deleted follow from the Focus condition? As we have done before, we assume for simplicity that traces of wh-movement, like pronouns, translate as variables. Assume for the moment that pronouns and variables are translated by the same rule (recall (4) of chapter 1), both yielding *g(2)* in this case. Given this, the Focus conditon is satisfied, since in this case, the $IP_A$ and $IP_E$ yield the following:

(128) a. $IP_E' = \text{F-clo}(IP_E) = \text{Abby called g(2)}$

b. $IP_A' = \text{F-clo}(IP_A) = \text{Abby called g(2)}$

This result should follow regardless of one's approach to donkey anaphora, since the Focus condition is defined on entailments, not structures: the set quantified over by the wh-phrase (its trace) should be the set picked out by the donkey pronoun in the

[20] The interested reader is referred to Merchant 1999a, where further evidence is presented that the assimilation of these pronouns to E-type pronouns is correct, based on the distribution of quantificational variability effects in these constructions.

deleted IP, however this is implemented. Since equivalent deaccenting is possible in the cases in (119), I conclude that the Focus conditions are insensitive to the differences between 'regular' pronouns and donkey pronouns.

One might have hoped that the behavior of donkey anaphora under ellipsis might shed light on the proper analysis of donkey anaphora itself, helping us decide among the several alternatives that have been proposed in the literature (see Heim 1990, Groenendijk and Stokhof 1991, Lappin and Francez 1994, Chierchia 1995). Unfortunately for such an investigation, it seems that, to the extent that the approaches successfully handle the core data, they will extend without modification to the data presented here.

The above facts do raise one interesting question for E-type approaches such as that of Evans 1980 and Heim 1990, in which a definite description is filled in for the pronoun, which strike me as the most promising available. Semantically, as long as this description picks out the correct individual(s) (as it is designed to do), the Focus condition will be satisfied, of course. If this 'replacement' is to be done syntactically, though, we are faced with the question —given the data just presented— why such a definite description behaves like a pronoun with respect to the binding theory. Presumably, this question falls under the larger question of how such descriptions can be pronounced as pronouns in the first place, if indeed they are syntactically complex descriptions.

For this reason, I will set aside the complex questions regarding the translation and analysis of donkey anaphora, adopting an E-type approach; I will continue to translate even donkey pronouns as (simple) variables for perspicacity in what follows, however, keeping this convenient simplification in mind.

### 5.3.3 Summary

The investigation of the behavior of A'-traces in antecedents to deleted IPs has provided evidence for a number of conclusions. First, I argued that these traces are equivalent to pronouns, satisfying the Focus condition of chapter 1. The fact that what is deleted is a

pronoun explains the absence of effects associated with standard variables, namely that Principle C effects and island-sensitivity are not attested. I suggested further an interpretation of these pronominal correlates as E-type pronouns anaphoric on wh-phrases, parallel to E-type pronouns anaphoric on other non-c-commanding quantifiers investigated in the literature on donkey anaphora, and parallel in particular to the pronouns occurring in similar cases of IP-deaccenting.

## 5.4 Propositional islands

With this much as background, I turn now to the second class of islands, called class C in the introduction, which are distinguished by having one feature in common: in all cases, the island in question contains a constituent which is propositional. I will therefore call islands in this class 'propositional islands', without intending this descriptive term to signify anything about the nature of the islandhood involved. The core idea in analyzing these cases will be that the extraction proceeds only locally, from out of the embedded propositional domain, and that the interpretative effect of the island (that is, the fact that the interpretation is restricted in such a way as to have made us think that there was extraction from out of an island to begin with) can be derived through the independently needed mechanisms of E-type anaphora and modal subordination. My goal here is not to explore the accounts of these latter phenomena in any depth, but rather to concentrate on the syntactic aspects of the extraction, in particular that fact that we can avoid island-violating extractions by employing these mechanisms.

I begin with a consideration of relative clause islands of various types, and then move on to adjunct clauses and certain Coordinate Structure Constraint violations.

### 5.4.1 Relative clauses

This section discusses two kinds of relative clauses, traditionally known as indicative and subjunctive. For indicative relatives, I show that, given the results of the previous

section, the trace of the relative operator can license the deletion of a pronoun in an IP, and that this fact derives the desired interpretation. Some complications arise in the case of subjunctive relatives, but these are handled by modal subordination. The analysis presented here is representative for the analyses in the coming sections, which have essentially the same character.

#### *5.4.1.1 Indicative relatives*

Recall that sluicing out of relative clauses appears to be possible:

(129) a. They hired someone who speaks a Balkan language — guess which!
b. They hired someone who speaks a lot of languages — guess how many!

These contrass with regular extraction, as in (130).

(130) a. * Guess which (Balkan language) they hired someone who speaks!
b. * Guess how many (languages) they hired someone who speaks!

One might take the contrast between (129) and (130) to indicate, as in the cases in section 5.2, that relative clauses are PF-islands. This conclusion is unlikely to be correct, however — unlike the improvement noted above in comparatives for left branch extractions, for example, the equivalent extractions out of relative clauses inside *than*-clauses remain ill-formed (cf. example (5) from the introduction, p.7):

(131) a. * Abby hired someone who speaks a rarer Balkan language than $Op_1$ Ben did ~~hire someone who speaks [ $t'_1$ a $t_1$ Balkan language]~~ .
b. * Abby hired someone who speaks more Balkan languages than $Op_1$ Ben did ~~hire someone who speaks [ $t_1$ Balkan languages]~~ .

What I propose instead is that the parallel between (129) and (130) is only apparent, and that the sluices in (129) do not in fact contain an island. Instead, I propose that they have a structure like the following:

(132) a. Guess which$_1$ [~~she speaks *t*$_1$~~]!
b. Guess how many$_2$ [~~he speaks *t*$_2$~~ ]!

These are thus parallel to their overt counterparts in (133).

(133) a. They hired someone who speaks a Balkan language — guess which she speaks!
b. They hired someone who speaks a lot of languages — guess how many he speaks!

The interpretation of the sluicing examples will be identical to that of their non-elided counterparts. The meaning of the antecedent clause is given in (134a), and that of the sluiced CP in (134b). (I begin to use world variables here for reasons that will become clear in the following section; here @ = the actual world [more accurately, the world of the speaker], following the notation of von Stechow 1996.)

(134) a. λw. y[**balkan-language**$_{@}$(y) x[**speak**$_w$(x, y) **hire**$_w$(**they**, x)]]
b. ?y[**balkan-language**$_{@}$(y) **speak**$_w$(x, y)] =
λp. y[**balkan-language**$_{@}$(y) p = λw[**speak**$_w$(x, y)]]

Let us see how the structures leading to these interpretations will satisfy the Focus condition. Recall the relevant definition:

(135) **e-GIVENness**

An expression E counts as e-GIVEN iff E has a salient antecedent A and, modulo -type shifting,

i. A entails F-clo(E), and

ii. E entails F-clo(A)

The general focus condition requires that there be an antecedent to [[ [WHICH$_F$ (Balkan language)]$_1$ she$_6$ speaks t$_1$ ]]$^g$, which will follow *a fortiori* if the more restrictive Focus condition based on e-GIVENness (an IP α can be deleted only if α is e-GIVEN) is satisfied. I will therefore concentrate on the latter. The result of replacing the F-marked material with -bound variables is given in (136) (where [[ she$_6$ ]]$^g$ = g(6) $D_e$).

(136) $Q_{<et, <et,t>>}$[λw.Qy[**balkan-language**$_{@}$(y) **speak**$_w$(g(6), y)]]

As above, I extract the crucial part for us, simplifying as usual[21]:

(137) $IP_E'$ = F-clo($IP_E$) = x.g(6) speaks x and x is a Balkan language

The embedded IP of the antecedent clause, given in (138), can serve as an antecedent to this, provided as above that the value assigned to *she$_6$* by the assignment function *g* is the same as the value assigned to *t$_6$*.

(138) [[ [$_{IP}$ *t*$_6$ speaks a Balkan language ] ]]$^g$ = λw. y[**balkan-language**$_{@}$(y) **speak**$_w$ (g(6), y)]

[21] To be fully explicit, we have to assume that the NP ellipsis in [$_{DP}$ WHICH [$_{NP}$ ~~Balkan language~~ ]], which we've been ignoring throughout, contributes its meaning in some way to the deleted IP. The most straightforward way is to assume the copy theory of movement, yielding something like (i) for the deleted IP:

(i) ~~[$_{IP}$ she$_6$ speaks [x Balkan language ] ]~~

Existentially closing this gives us the desired entailment that *she$_6$ speaks a Balkan language*; this then satisfies clause (ii) of e-GIVENness completely. See Sauerland 1998 for detailed discussion of the contribution of traces.

This gives the following for $IP_A$:

(139) $IP_A' = F\text{-}clo(IP_A) =$ x.g(6) speaks x and x is a Balkan language

So $IP_A$ and $IP_E$, stand in the required relations, as desired.

This equivalence between a trace in the antecedent and a pronoun in the ellipsis site is the same as that discussed in the previous section for the traces of wh-XPs in questions and under QR. It should come as no surprise that the traces of wh-movement in relative clauses give rise to the same effects. Again, unless we are committed to a particular kind of structural identity condition on the deleted IP, no explicit appeal to a syntactic mechanism of 'vehicle change' is necessary. The pronoun in the ellipsis site will qualify as deletable under the Focus condition only if its index is the same as that of the trace in the antecedent. The interpretation of this pronoun, as in the previous section, will be that of an E-type pronoun, since it is not bound by the relative operator. This predicts that if an E-type pronoun is impossible in a given context, the sluice will fail, just as the overt versions fail. That this prediction is correct is shown by the deviance of the following examples.

(140) a. They hired {*no / ??few} people who spoke a lot of languages — guess how many!

b. * They didn't hire anyone who speaks a Balkan language, but I don't remember which.

These correspond exactly to the degree of deviance associated with their overt counterparts:

(141) a. They hired {*no / ??few} people who spoke a lot of languages — guess how many they spoke!

b. * They didn't hire anyone who speaks a Balkan language, but I don't remember which she speaks.

The antecedent DPs in these cases, headed by *no*, *few* and the negative polarity *any*, respectively, do not in general license E-type anaphora, as is well-known. Under some circumstances, however, E-type anaphora is licensed with *few*, at least (though not with *no*), as in the following attested example (as in Evans's 1980 original examples (5) and (7)).

(142) The May day was still quite chilly and few people were out. I looked at them idly across the intervening MacArthur Lock... . [Sarah Paretsky, *Deadlock*, 1984 p. 150. Ballantine: New York.]

To the extent that such anaphora is possible, then, we expect sluices relying on this kind of anaphora to be correspondingly improved. This seems to dovetail with the reactions of informants, who sometimes hestitate on judging the relevant examples (those in (140) with *few*), no doubt indicating that they are attempting to construct the relevant context to allow the anaphora, usually with poor results.[22]

These contrasts are replicated with traces of QR in antecedent IPs as well. When the QRed DP licenses cross-sentential anaphora, sluicing exhibits the ambiguity shown in (143)-(146).

(143) Everyone helped, but I don't know why.
  a. = ... why everyone helped
  b. = ... why they helped

(144) Five scouts helped, but I don't know why.
  a. = ... ?why five scouts helped
  b. = ... why they helped

[22] In some cases, comp-set anaphora is possible (see Moxey and Sandford 1993), a possibility I put aside here.

(145) At least three flags will be flown; when will be announced later today.

a. = ... ?when at least three flags will be flown

b. = ... when they will be flown

(146) Exactly five officers were fired, but I don't know why

a. = ... why exactly five were fired

b. = ... why they were fired

In each case, there is a systematic ambiguity in what is deleted. The sluice can be interpreted as either (a) or (b), which represent the structures of the deleted material. The (a) examples are expected, since they are exactly equivalent to the antecedent IP, by the following logic. Take for example (146a). For the sluice to have this reading, the deleted IP is as in (147).

(147) ~~[$_{IP}$ exactly five were fired ]~~

Clearly, since this is identical to the antecedent, its deletion is licensed by the Focus condition. Here, $IP_A$ and $IP_E$ are as in (148).

(148) a. $IP_E' = {}_5!x.x$ were fired

b. $IP_A' = {}_5!x.x$ were fired

The availability of the (b) readings is again the result of the fact that the Focus condition can evaluate a pronoun as equivalent to a trace.[23] So for (146b), we have:

[23] This result shows that Safir's 1998 claim that vehicle change cannot apply to the traces of QR cannot be sustained. This conclusion is also supported by the following data.

5 (i) a. I met with every suspect$_1$, though most$_2$ claimed I hadn't.

b. Everyone$_1$ helped, though most$_2$ weren't sure why.

These examples are ambiguous in the same way as the examples in the text; the crucial reading is where the trace of QR in the antecedent is equivalent to a pronoun bound by the local, c-commanding quantifier (let us call this an example of 'rebinding'), as in (ii). (Note that Binding Theory tests show that we have a pronoun, not a syntactic variable, in the ellipsis site: BT(C) is voided, but BT(B) is not.)

6 (ii) a. ... most$_2$ claimed I hadn't [**met with them$_2$**].

b. ... most$_2$ weren't sure why [**they$_2$ helped**].

This isn't just telescoping, and is impossible if the rebinding quantifier has a different restriction:

(149) $IP_E$ = ~~[$_{IP}$ they$_2$ were fired ]~~ = g(2) were fired

The lower IP segment of the antecedent IP after QR of *exactly five officers* supplies $IP_A$:

(150) a. ~~[$_{IP}$ [exactly five officers]$_2$ [$_{IP}$ *t*$_2$ were fired ]]~~

b. $IP_A$ = ~~[$_{IP}$ *t*$_2$ were fired ]~~

---

7 (iii) I met with every suspect$_1$, though most cops$_2$ claimed I hadn't.
= [**met with {every suspect/them$_1$}**]
≠ [**met with x$_2$**]

These may provide support for the copy theory of A'-movement, if the restriction in situ is something like [x suspect], interpreted as something like a definite description (see Sauerland 1998). This conclusion only goes through, however, if pronouns are themselves minimal spell-outs of such definite descriptions (à la the traditional analysis of E-type pronouns), since the same interpretive restrictions are found with overt pronouns in the equivalent deaccented counterparts:

(iv) I met with every suspect$_1$, though most cops$_2$ claimed I hadn't *met with them$_{\{1/*2\}}$*.

Interestingly, these anaphoric possibilities track set/subset relations (assume: **lifer** ⊂ **inmate**). Compare the interpretations available for (v) vs. those possible for (vi) (parallel, again, to their overt deaccented counterparts, though I omit the data here).

8 (v) a. I met with every inmate$_1$, though {many/most} lifers$_2$ said I hadn't.
= [met with them$_1$] or
= [met with them$_2$]

b. I met with every lifer$_2$, though {many/most} inmates$_1$ said I hadn't.
= [met with them$_2$]
≠ [met with them$_1$]

9 (vi) a. I met with most inmates$_1$, though many lifers$_2$ didn't want me to.
= [meet with {most/the} inmates]
= [meet with them$_2$]

b. I met with most lifers$_2$, though many inmates$_1$ didn't want me to.
= [meet with {most/the} lifers]
≠ [meet with them$_1$]

The only evidence I have against using the copy theory to derive these data comes from the fact that the same anaphoric possibilities show up with with "situational" *it*, as the data in (vii) show.

(vii) a. I met with every inmate$_1$, though {many/most} lifers$_2$ didn't like/denied it.
*it* = [that I met with every inmate] or
*it* = [that I met with them$_2$]

b. I met with every lifer$_2$, though {many/most} inmates$_1$ didn't like/denied it.
*it* = [that I met with every lifer]
*it* ≠ [that I met with them$_1$]

It is generally assumed that this *it* is not derived by deletion (see especially Bresnan 1971 for arguments). If this is true, then the inferential similarities should be derived by general mechanisms of cross-sentential anaphora, and not from structural conditions encoded by a copy theory. (The obvious other conclusion is that even this *it* is derived by a mechanism of 'minimal spell-out', encoding complex structure; see Grinder and Postal 1971, Hankamer and Sag 1976, and McCawley 1998: Ch.11 for discussion. By Lakoff's 1968 test —if such pronouns occur in Bach-Peters

This equivalence will only go through provided that the anaphora can be resolved in the first place (i.e., just scoping a correlate to provide a structurally useful antecedent IP segment is not enough). If the antecedent DP is downward-entailing, such anaphoric links will be difficult or impossible, as the following data show.

(151) No-one helped, but I don't know why.
  a. = ... why no-one helped.
  b. ≠ ... * why they helped.

(152) Few scouts helped, but I don't know why.
  a. = ... why few scouts helped.
  b. ≠ ... * why they helped.

(153) Fewer than six States voted for Mondale — the big question is why.
  a. = fewer than six (i.e., so few) voted for him
  b. = ? they voted for him (i.e., why those six voted for him at all)

These could satisfy the Focus condition as above, if only structural conditions had a role to play. But the conditions on the availability of such anaphora are not structural, but rather semantic/pragmatic. The fact that these sluices are unambiguous, in contrast to those in (143)-(146) has nothing to do with the mechanisms that resolve ellipsis or sluicing in particular — they follow from general constraints on the availability of E-type anaphora.

#### *5.4.1.2 Subjunctive relatives and modal subordination*

Up to this point, we have been concerned with relative clauses occurring in DPs that could be taken to have referents in the real world. In several languages with robust indicative/subjunctive mood distinctions, such as Greek, French, and Catalan, the predicates inside such relative clauses appear in the indicative, indicating that the DP in which they occur must outscope any intensional operators (i.e., the descriptive content

---

sentences, they must be non-derived pronouns— this *it* is non-derived: '**The guy who denied <u>it</u>** was

must be evaluated with respect to the world of the speaker). The solution to the apparent island nature of the relative clauses examined above relied on this fact, using E-type anaphora to resolve the posited pronoun in the deleted IP. Such a strategy cannot extend directly to subjunctive relative clauses, however. (See Quine 1960, Farkas 1985, Giannakidou 1997, 1998, and Quer 1998 for discussion of the scopal properties of these clauses.) This is because DPs that are modified by relative clauses whose predicates are in the subjunctive must take scope under an intensional operator — therefore, no referent in the speaker's world is guaranteed.

A naive view might lead us to think that this fact would imply that sluicing over correlates in subjunctive relatives would not be possible. This is in fact false, as the following data from Greek and English demonstrate. In Greek[24], the embedded verbs are preceded by the subjunctive particle *na*; in English, which lacks a morphological subjunctive in these cases, we find the simple present form.

(154) Theli na vri ena imerologio pu na exi grapsi enas stratigos
*wants SUBJ find a diary that SUBJ has written a general*$_{nom}$
tou Nixon, alla dhen thimame pjos
*of.the Nixon but not I.remember which*
'She wants to find a diary that a general of Nixon's may have written, but I don't remember which (general).'

(155) Psaxnun kapjon pu na milai mia Valaniki glossa, alla dhe ksero pja.
*they.seek someone that SUBJ speaks a Balkan language, but not I.know which.*
'They're looking for someone who (would) speak(s) a Balkan language, but I don't know which.'

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

---

arrested for wiretapping **his** employee's offices'. )

The Greek examples allow only for the de dicto reading of the indefinite DP object of the intensional predicate, while the English is ambiguous (though for present purposes we will only be concerned with the narrow scope reading). Thus the antecedent clause of (155) has only the reading given in (157b) (modulo the scope of the embedded indefinite *a Balkan language*, which must have wide scope to license the sluice in the first place) and does not permit the reading in (157a); I will restrict attention to the English case of this reading as well — for the remainder of this section, we can ignore the wide-scope reading.

(157) a. ≠ $\exists y[\textbf{Balkan-language}_{@}(y) \quad \forall x[\textbf{person}_{@}(x) \quad \textbf{speak}_{@}(x,y) \quad \textbf{want}_{@}(\textbf{they}, \lambda w[\textbf{hire}_{w}(\textbf{they},x)])]]$

b. = $\exists y[\textbf{Balkan-language}_{@}(y) \quad \textbf{want}_{@}(\textbf{they}, \lambda w[\ \forall x[\textbf{person}_{w}(x) \quad \textbf{speak}_{w}(x,y) \quad \textbf{hire}_{w}(\textbf{they},x)]])]$

Since in these cases, there is no individual whose existence is entailed, it makes no sense to think of the pronoun in the sluiced IP as referring to that individual. The key to this puzzle is given by the behavior of pronominals in intensional contexts, however. As investigated especially in Roberts 1989, 1996, it is possible for anaphora to succeed across sentence boundaries in some cases just in case the sentence in which the pronoun occurs contains one of an appropriate class of modal markers. Some of her examples are given in (158).

(158) a. You should buy a lottery ticket$_1$. It$_1$ might be worth a million dollars.

b. He wants to marry a Norwegian$_2$. She$_2$ should like the cold.

c. If you (should) see a finch$_3$, stop moving. It$_3$ might get scared off.

This property of modal contexts applies equally in questions (see Groenendijk 1998, van Rooy 1998 as well):

[24] Thanks to A. Giannakidou for judgments and discussion of the Greek examples in this section.

(159) a. A patient might come in complaining of pressure in the head. What questions should you ask him?

b. Where can I find an Italian newspaper, and how much will it cost?

Roberts dubs this possibility 'modal subordination', and shows convincingly that it is primarily a pragmatic phenomenon. The exact account of modal subordination is not crucial here, only that it is possible — it is this possibility that permits a pronoun in the sluice to be used. The sluices are equivalent to the following overt continuations.

(160) a. ... which she { should speak / *speaks }.

b. ... pja *(na) milai
*which* SUBJ *speaks*

In these cases, some kind of modal element is necessary. In Greek, this is supplied simply by the use of the subjunctive, which is obligatory in this case. In English, presumably due to the lack of robust subjunctive morphology, a full modal must be used. This is the same as the fact that some kind of modal must be used to trigger modal subordination in the standard cases in (158), as well as in questions (the anaphora is successful only on the undesired wide scope use of the indefinite in the first sentence in English):

(161) a. You should buy a lottery ticket. # It is worth a million dollars.

b. # Where can I find an Italian newspaper, and how much does it cost?

The same contrast obtains in Greek, where the data leave no room for ambiguity, unlike the English, since the presence of a subjunctive relative will require narrow scope of the indefinite with respect to the intensional operator in the first sentence.

(162) Theli na pandrefti mia norvigidha pu na exei polla lefta.
*he.wants SUBJ marries a Norwegian who SUBJ has much money*
a. Prepi na tis aresi to krio.
*it.is.necessary SUBJ her pleases the cold*
b. * Tis aresi to krio.
*her pleases the cold*
'He wants to marry a Norwegian who has a lot of money. She {should like / #likes } the cold.'

Returning to the sluices, then, the ability of pronouns in intensional contexts to 'pick up' antecedents in previous embedded contexts will account for the observed data. The sluices, then, simply are the IP-deleted versions of (160) above:

(163) a. ... which ~~she$_6$ should speak $t_2$~~.
b. ... pja$_2$ ~~*pro*$_6$ na milai $t_2$~~
which SUBJ speaks

These will have roughly the semantics given in (164)[25]:

(164) ?y[ **balkan-language**$_{@}$(y) L **speak**$_w$(g(6),y) ] =
λp y[**balkan-language**$_{@}$(y) p(@) p = λw' w[w'Rw → **speak**$_w$(g(6),y) ]]

This deletion will satisfy the Focus condition just in case there is an antecedent that can yield the formula in (165).

[25] Here I use the standard definitions given in Hughes and Creswell 1996. Let a model be an ordered triple M = <W, R, V>, where R is an accessibilty relation over W, W a non-empty set of worlds, and V is a valuation function over propositional variables such that V(p,w) =1 iff V assigns the value 1 to p in w, and V(p,w) = 0 iff V assigns the value 0 to p in w. Then we define the necessity operator L as in (i)
(i) V(Lφ, w) = 1 if w' [ wRw' → V( φ, w') = 1 ], otherwise V(Lφ, w) = 0
Modal subordination is just restricting R by the modal base $f$ (i.e., by excluding those worlds $w_i$ from the range of R which are not in $\cap f(w)$).

(165) $Q_{<et,<et,t>>}$[Qy[**balkan-language**$_{@}$(y) L **speak**$_{w}$(g(6), y)]]

We can assume that the subjunctive in the relative clause provides the L operator[26], unseen morphologically in English. It is the presence of the subjunctive —translated as some kind of modal operator— in the deleted IP that licenses the modally subordinated anaphora.

This derives the desired interpretation of the sluices in (154)-(156), but does so without having to claim that the island is itself present or reconstructed in the missing IP in the sluice. Instead, the appropriate restriction to the 'want-worlds' that is part of the meaning of these sluices is a by-product of modal subordination.

Just as we saw that the E-type anaphora involved in the sluices with indicative relatives is sensitive to discourse functions (see the discussion of (140) and (141)), the modally-subordinated anaphora needed in the case of the subjunctive relatives is also ruled out when the antecedent cannot license cross-sentential anaphora, regardless of whether there is deletion or not. I illustrate this fact with the clearest cases — emphatic negative polarity items in Greek with subjunctive relatives (see Giannakidou 1998: Ch.3 for the scopal properties of Greek emphatic NPIs). Such DPs do not license cross-sentential anaphora even with a modal element.

(166) * Dhen ithelan na proslavoun KANENAN pu na milai mia Valkaniki
*not wanted.they SUBJ hire anyone that SUBJ speaks a Balkan*
glossa, alla dhen ksero pja.
*language but not I.know which*
('* They didn't want to hire anyone who speaks a Balkan language, but I don't know which.')

[26] Oversimplifying, this would mean that the sentence with the subjunctive relative would have a translation like that in (i):
(i) y[**balkan-language**$_{@}$(y) **want**$_{@}$(**they**, λw[ x[**person**$_{w}$(x) w'[ wRw' → **speak**$_{w}$(x,y)] **hire**$_{w}$(**they**,x)]])]
See especially Quer 1998 for a more refined view. For my purposes, it is not crucial exactly what the semantics of L is, just that it is the same for the subjunctive both in the subjunctive relative clause and in the modal subordination-triggering question.

(167) * Dhen ithelan na proslavoun KANENAN pu na milai mia Valkaniki
*not wanted.they SUBJ hire anyone that SUBJ speaks a Balkan*
glossa, alla dhen ksero pja na milai.
*language but not I.know which SUBJ speaks*
('They didn't want to hire anyone who speaks a Balkan language, but I don't know which s/he (would) speak(s).')

In sum, then, it is possible to sluice over a correlate in a relative clause just in case the independent constraints regulating the distribution of (E-type) anaphora are met: again, we see that nothing particular to sluicing need be said. This is a very attractive feature of the present approach over those that posit various operations found only under ellipsis or permit exceptions to structural isomorphism.

### 5.4.2 Adjuncts and sentential subjects

The above analysis extends directly to adjuncts, since these also can introduce modal bases restricting the evaluation of subsequent modal operators. The prototypical case is the protasis of a conditional, but the same holds of concessive, reason, and temporal adjuncts as well (in fact, in their veridical uses, these latter are even simpler, parallel to the case of the indicative relatives above).

(168) If Ben talks to someone, Abby will be mad, but I don't remember who.

It is standard to analyze the *if*-clause as restricting a (possibly covert) adverb of quantification (see Kratzer 1980, von Fintel 1994). The same holds for other adjuncts (see discussion and references in Giannakidou and Zwarts 1998 and Kratzer 1998). This formalization is given in (169), parallel to the cases examined above.

(169) $x[\mathbf{person}_{@}(x) \quad w[\mathbf{talk\text{-}to}_{w}(\mathbf{ben}, x) \rightarrow \mathbf{mad}_{w}(\mathbf{abby})]]$

The sluice in (168) will have the structure in (170a), having the translation in (170b):

(170) a. ...who [~~he talks to ___~~]

b. ?x[**person**$_{@}$(x) L **talk-to**$_{w}$(**ben**, x)]

Here again, modal subordination must restrict the domain of L to those worlds that satisfy the consequent of the conditional in the antecedent. This effect can be paraphrased as something like 'who he would have to talk to [to make Abby mad]' or less naturally, 'who he might talk to in the Abby-mad worlds'. Interestingly, although I have eliminated the island *per se* from the base structure of the sluice, it remains a fact that there seems to be no particularly natural way to express the meaning of the missing material overtly. This contrasts with the case of the relative clauses above, where especially in languages with overt mood marking, the relevant non-elliptical version is possible. Whether this should be a matter for concern or not is not entirely clear to me at this point. Perhaps this is simply another case where, speaking pre-theoretically, language prefers an 'economical' solution; the parallel that suggests itself is with E-type pronouns, where filling in some overt, explicit description is unwieldy at best. Since this fact has not prevented many analysts from assuming that such a description is in fact constructed, I will not let the strangeness of any overt version of (170) concern me further here. Perhaps the awkwardness should be related to the fact that the 'subjunctive' in English, which I am assuming is the form of the verb that the overt antecedent in the protasis takes (not to be confused with the form of the verb that occurs in the complement to predicates like *require* etc., which are also often termed subjunctive) based on the parallel forms in languages with overt morphological marking, cannot occur without an overt binder for its world variable. This contrast, whatever properties of the defective subjunctive morphology in English that it follows from, can be seen in the fact that non-modals cannot support modal subordination in contexts parallel to those in (159) above:

(171) * Where can I buy an Italian newspaper$_4$, and how much does it$_4$ cost?

For sentential subjects, we have several options. In the case of veridical sentential subjects, there is no reason to suppose that we have extraction out of the subject CP at all, since there is no interpretive difference:

(172) [$_{CP}$ That Maxwell killed the judge] was proven, but it's still not clear with what.

Since the subject CP is true in the actual world (that is, V( [[ CP ]] , @) = 1), there is no reason on grounds of interpretation to claim that the sluice has the structure in (173a) over that in (173b).

(173) a. ... with what$_2$ ~~[[Maxwell killed the judge $t_2$ ] was proven]~~

b. ... with what$_2$ ~~[Maxwell killed the judge $t_2$ ]~~

In fact, it has often been noted that fronted sentential subjects tend to be factive (Kiparsky and Kiparksy 1970:167), but, as pointed out especially in Svenonius 1994:77, they need not be. When they are not, we will need to have recourse either to the kind of discourse subordination effect discussed above, or we can claim that the extraction proceeds from the base position of the CP, as was argued for non-sentential subjects in section 5.2.3 above. I am not aware of any evidence that would help us decide between these alternatives at this point, so I will leave the choice between them in abeyance.

### 5.4.3 Coordinate Structure Constraint II: Extraction out of a conjunct

Similar considerations come into play in the analysis of extraction out of conjuncts, in particular out of VP conjuncts, which I will restrict my attention to here as the most problematic and interesting of the potential cases (extraction out of just one CP conjunct or the like will be readily amenable to the treatment sketched above for sentential subjects, if only a single CP is in the deletion site). At issue are cases like the following.

(174) a. Bob ate dinner and saw a movie that night, but he didn't say which.
b. Bob ate dinner and saw a couple movies that night, but he didn't say how many.
c. Bob saw a movie and ate an expensive dinner that night, but he didn't say how expensive.

I will assume that the structure of such examples involves VP coordination, and not some kind of operation of conjunction reduction applying to conjoined IPs (given the well-formedness of *No-one$_2$ ate dinner and saw a movie that night* which cannot be derived from the impossible *No-one$_2$ ate dinner and he$_2$ saw a movie that night*; see Winter 1998 for recent discussion and references). I will further assume that coordinated VPs are indeed islands, a sometimes debated assumption defended forcefully in Postal 1998: Ch. 3.

With these assumptions, the deleted IPs cannot be those in (175), since these should have the same status as their overt counterparts in (176).

(175) a. ... which$_1$ ~~[he ate dinner and saw $t_1$ that night]~~.
b. ... how many$_2$ ~~[he ate dinner and saw $t_2$ that night]~~.
c. ... how expensive$_3$ ~~[he saw a movie and ate [ $t'_3$ a $t_3$ dinner] that night]~~.

(176) a. ?? Which movie$_1$ did Bob eat dinner and see $t_1$ that night?

b. * How many movies$_2$ did Bob eat dinner and see $t_2$ that night?

c. * How expensive a dinner$_3$ did Bob see a movie and eat $t_3$ that night?

Chung et al.'s 1995 solution to this problem is to allow binding into a conjunct, via merger. For them, an example like (174a) would have the structure in (177) at LF (modulo vehicle change, presumably):

(177) ... which$^x$ [**he ate dinner and saw [a movie]$^x$ that night**]

Since merger, unlike sprouting, is by hypothesis insensitive to islands, the sluice in (174a) is well-formed. Unfortunately for this account, examples like the following are also well-formed.

(178) a. I packed up all the dishes and dumped them without telling her where.

b. He sold his farm and moved away, but no-one knows where to.

c. Abby quit and got a new job — guess what as!

d. Ben was sitting in the back and playing the trumpet, but I couldn't tell how loudly.

Under the Chung et al. 1995 system, the resolution of these sluices would have to involve sprouting, which is posited to be sensitive to islands.

An alternative would be to claim that the ban on extraction out of conjuncts is a PF-effect, as argued above for the ban on extraction of conjuncts[27]. But this would leave the following contrasts mysterious — when the subject is headed by the determiner *no*, sluices of all kinds are impossible, whether with overt correlates or not.

[27] It is somewhat difficult to construct examples relevant for testing this claim directly, especially since it is not clear what exactly would be going wrong at PF to cause the ungrammaticality. The example in (ii), to the extent that it tests this, shows that simply embedding the illicit extraction site in an ellipsis site does not remedy the island violation. (The examples in (i) give various controls.)

(i) a. Abby ate a more expensive dinner than Ben did.

b. Abby ate dinner; Ben saw a movie first and then did.

(ii) * Abby ate a more expensive dinner than Ben saw a movie and then {ate / did}.

(179) a. * No farmer sold his farm and moved to a certain town — I don't remember which.

b. * No-one quit and got a new job — guess what as!

c. * Nobody was sitting in the back and playing one of the horns, but I couldn't tell {which / how loudly}.

d. * Not one critic ate dinner and saw a couple movies that night, but I don't know how many.

If extraction out of the conjunct were itself possible, these examples should have the same status as an example like the following:

(180) Which town did no farmer move to?

And indeed, as seen above in (151)-(153), it is possible in some instances to sluice over IPs containing downward entailing DPs:

(181) No-one moved to a certain town — guess which!

The fact that the sluices in (179) fail provides the key to the puzzle. I propose that the deleted IP contains an E-type pronoun licensed by the VP-internal subject. Thus instead of (182a) as the deleted IP for the sluice in (174a), I propose that the IP that is deleted is in fact that given in (182b).

(182) a. ...* which [~~he$_6$ ate dinner and saw *t* that night~~]

b. ... which [~~he$_6$ saw *t* that night~~]

This IP can be deleted just in case there is an antecedent which entails (183), where *g(6)* is an E-type pronoun, as above.

(183) x[**movie**(x) **saw**(g(6), x, **that-night**)]

And we can indeed infer (183) from the first sentence of (174a), *Bob$_6$ ate dinner and saw a movie that night*. In the cases in (179), however, no such inference goes through, since no E-type interpretation will be available. Again, the sluices have the same status as overt counterparts with pronouns:

(184) a. Bob ate dinner and saw a movie that night, but he didn't say which he saw.
b. * No farmer sold his farm and moved to a certain town — I don't remember which he moved to.

The availability of sluicing, then, will track the availability of E-type anaphora in these contexts. This also correctly predicts that there will be no difference between 'merger' and 'sprouting' cases:

(185) Ben was sitting in the back and playing the trumpet, but I couldn't tell how loudly (he was playing it).

These examples also point to the difficulty in imposing a strict structural isomorphism requirement on the sluiced material. Here, such a requirement would have to be relaxed enough to allow a VP to license deletion of an entire IP. No such difficulty arises for the present account, however, since the semantic condition can be satisfied indepedently of how much structure is projected in the phrase that provides the antecedent.

## 5.5 Selective ('weak') islands

The behavior of sluicing out of selective islands is illuminating in that it demonstrates again that sluicing does not confer some kind of absolute immunity to islandhood — in fact, as we will see, sluicing over implicit correlates in selective islands sometimes gives

rise to a deviance that cannot be explained in any syntactic way at all. This fact lends support to the range of analyses in the literature (Kroch 1989, Comorovski 1989, Szabolcsi and Zwarts 1993, Kuno and Takami 1997, Honcoop 1998) which claim that selective islandhood is a semantic or pragmatic phenomenon, not a syntactic one at all (contra Rizzi 1990, 1994, Manzini 1998).

The question of sluicing and selective islands has been investigated in Albert 1993, Sauerland 1996, Merchant 1998b, and Romero forthcoming. My goal here is to review the conclusions reached in those works, and show that the relevant data can be handled under a deletion account of the syntax of sluicing.

Albert 1993 was the first to notice that sluicing over implicit correlates (either implicit arguments or adjuncts) shows a systematic sensitivity to selective islands. Some of his data, for implicit arguments, are reproduced in (186); (187) is from Merchant 1998b:

(186) a. * Nigel nevers hunts, but I don't remember what.
b. * No-one drank, but I can't say which kind of wine.
c. * The new chef refused to bake,but we don't recall what.
d. * No-one talked, but it's not clear to whom.
e. * Mitch refused to go to the party, but we can't remember who with.
f. * Reggie avoids reading novels, but I don't know what about.
g. * It's hard for Megan to dance, but I don't know who with.
h. * Mario denied Sally got in a fight, but it's unclear who with.
i. * Judy rarely borrows a car, but I can't recall whose.

(187) a. * No nurse was on duty, but we don't know when.
b. * A nurse is rarely on duty—guess when!

Extraction of certain kinds of wh-expressions from the environments in (186) and (187) are deviant, as is well known (see the above works for examples). What is surprising about the data in (186)-(187) is that the wh-phrases which are the remnants of the sluicing in those examples do not in fact show this deviance under overt extraction:

(188) a. What does Nigel never hunt?
b. Which kind of wine did no-one drink?
c. What does Reggie avoid reading novels about?
(189) a. When was no nurse on duty?
b. When is a nurse rarely on duty?

The contrast between the licit extractions in (188)-(189) and the impossible sluices in (186)-(187) is problematic for Chung et al's 1995 account of island sensitivities as being a property of their 'sprouting' operation: in these cases, the chain connecting the operator and the 'sprouted' trace should be well-formed, since the extraction is possible, yet the sluices remain deviant.

It is also not the case that sluicing overt implicit correlates is deviant in all cases (we have seen numerous examples to the contrary before), nor even when, say an adverb of quantification occurs. Consider the contrast in (190), from Albert 1993:1 (1).

(190) a. Sonny always eats around noon, but I don't know what.
b. * Sonny rarely eats around noon, but I don't know what.

To these we can add the parallel contrast in the following examples:

(191) a. Ralph bought an old boat, but I don't know how old.
b. * No-one bought an old boat, but I don't know how old.
(192) Jake {always/*rarely} takes his eggs salty — wait till you hear how salty!

The key to understanding these contrasts comes from the scopal properties of the implicit correlates: implicit arguments and adjuncts always take narrowest scope in their domain, as noted by Mittwoch 1982 and others (see Romero forthcoming [1998:38f] for further references and discussion). This being the case, these contrasts can be explained by the requirement for scopal parallelism between the implicit quantifier in the

antecedent clause and the quantifier associated with the wh-phrase in the sluicing clause. In the first clause in (187a), for example, the implicitly bound temporal variable has narrow scope with respect to *no nurse*, as in (193a), and does not have the reading expressed in (193b). It is this second reading which would have to be available for the sluice in (187a) to be well-formed.

(193) a. ¬ x[**nurse**(x) t[**time**(t) **on-duty**(x, **at** t)]]
b. t[**time**(t) ¬ x[**nurse**(x) **on-duty**(x, **at** t)]]

This follows from the Focus condition, as Romero forthcoming shows in detail. As she notes, when the intervenor is not downward monotonic, sluicing is possible (as in (190a), (191a) and (192)), because such elements are equivalent to E-type elements in the deleted IP (as seen above).

It is thus not necessarily the type of the sluiced wh-phrase that matters, so much as the possibility for the correlate, overt or implicit, to take the necessary clause-level (i.e., outside the modal) scope. This accounts for the following gradability in judgments, where the remnant wh-phrase remains constant (an amount phrase, typically highly sensitive to extraction islands); the grammaticality of the resulting sluice depends on the ability of the amount phrase in the antecedent to take clausal scope, reflecting differences in how robustly certain kinds of antecedents license anaphora in modally subordinated contexts.

(194) a. He wants to marry someone who speaks {a certain number of/??several/*Ø} languages, but I don't know how many.
b. She needs to interview someone who has been in {a predetermined number of/??several/??some/*Ø } S.American countries — I don't know how many.
c. We'll get reprimanded if {some special number of/*more than one/*some/*many/*Ø} customers complain, but I forgot how many.

d. He wants to marry someone with {a certain amount of/*Ø} money, but he didn't say how much.

In summary, the contrasts discussed in this section illustrate that the conditions on acceptability in sluicing can relate directly to scopal parallelism requirements, and cannot be derived solely from structural conditions. This conclusion is perfectly compatible with the deletion approach advocated here, though since these conditions are ultimately not syntactic in nature, it is not particularly revealing as a probe on the syntactic nature of ellipsis.

## 5.6 Summary

This chapter has shown that the data presented in chapter 3 relating to islands and form-identity effects can be successfully handled by a deletion-based theory of ellipsis as applied to sluicing. While the form-identity effects follow directly from this approach, the apparent island insensitivity requires in some part a re-thinking of our notions of syntactic islandhood (selective islands, at least, not being syntactic in any case). One the one hand, I argued that a large class of islands are in effect irrelevant to the investigation of islandhood under sluicing —those that properly contain a propositional domain—, since there is no reason to assume that the deleted material contains an analog to the overt island. On the other hand, this left a residue of interesting effects that had to be re-analyzed as essentially products of ill-formedness at PF, and I presented independent evidence in each case that this was a plausible and coherent alternative.

The picture that emerges, then, is that we need a more pluralistic view of islandhood than is often assumed, and that various components of the grammar may give rise to extraction deviations. It is only by looking at extraction from out of an ellipsis site that we can begin to determine what parts of the grammar are responsible for what kinds of constraints on extraction. Our view of some of these matters has in effect been occluded by the overt, audible syntax — there is much to be learned from undertaking

the difficult task of investigating the inaudible structures underlying ellipsis, the syntax of silence.