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UNIVERSITY OF CALIFORNIA
SANTA CRUZ
**THE SYNTAX OF SILENCE:
SLUICING, ISLANDS, AND IDENTITY IN ELLIPSIS**

A dissertation submitted in partial satisfaction
of the requirements for the degree of

DOCTOR OF PHILOSOPHY

in

LINGUISTICS

by

Jason Merchant

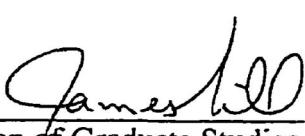
June 1999

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Abstract

The syntax of silence: Sluicing, islands, and identity in ellipsis

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Directed by Professors James McCloskey and William Ladusaw

This dissertation investigates one of the most cross-linguistically widespread forms of ellipsis: sluicing. Its goals are both empirical and theoretical. Empirically, the dissertation documents sluicing data from thirty-one languages and establishes a number of novel and partly surprising generalizations, which indicate *inter alia* that the form of the wh-remnant in sluicing reaches its position external to the ellipsis site by movement. This result stands in direct conflict with the contention, first articulated in Ross 1969 and unchallenged to date, that islands are not respected under sluicing. Theoretically, then, the dissertation aims to reconcile these apparently contradictory strands of evidence.

The proposal advanced here is that the usual operation of movement is involved in the derivation of sluicing, and that the IP out of which the wh-remnant is displaced is deleted at PF. This allows for a maximally simple syntax of ellipsis: it is simply the syntax of usual clauses, not pronounced. Although the deletion occurs at PF, I argue that the identity condition on this deletion is essentially semantic, not structural. To this end, I propose a semantic condition on ellipsis, building on Rooth 1992a but replacing his structural isomorphism requirement, and show how this proposal solves a number of problems encountered by structural accounts, including the phenomenon dubbed 'vehicle change' by

Fiengo and May 1994. The syntactic Licensing conditions on IP-deletion and the semantic identification condition are unified by assigning a semantics that imposes the identity condition to the syntactic **feature** that Licenses the ellipsis. This general approach—sluicing as wh-movement followed by deletion—directly accounts for the generalizations concerning the form of the wh-phrase in sluicing.

The behavior of islands under sluicing, it is then argued, falls into two classes. For one large class of islands, including relative clauses and adjuncts, island insensitivity under ellipsis is only apparent. The desired interpretations of the elliptical clause can be generated by using independently needed mechanisms for resolving E-type anaphora and modal subordination; the wh-movement in these cases remains local, and island-respecting. For the second class of islands, such as COMP-trace phenomena and left branch effects, a more surprising conclusion is reached: these island effects arise at PF, not as a result of constraints on syntactic movement directly, and can be therefore be repaired by PF-deletion.

The analysis of sluicing defended here thus supports a pluralistic view of islandhood where various parts of the grammar interact to constrain extractions, and integrates sluicing into a general theory of ellipsis, dispensing with the sluicing-specific operations or stipulations previously thought to be necessary.

Acknowledgments

Zeno was probably writing his dissertation when he discovered the paradox that goes by his name: the more you write, the more you realize that you are only halfway there—there is always at least as much unsaid as said and much more to be explained. Primary thanks for helping me crack this **conundrum** goes to my supervisors Jim McCloskey and **Bill** Ladusaw. Jim's insightful comments on the many drafts and discussions that led to this work always demonstrated his **unparalleled** ability to see to the heart of **an argument** and to clarify it, and his astounding **grasp** of the Literature. My meetings with Bill were also crucial to the development of the ideas presented here, and the work **would** be much poorer without the benefit of his ability to combine formal acuity with linguistic insight. I have also benefited from Sandy Chung's penetrating intelligence and healthy skepticism. I must also **thank** these three in particular for their **willingness** to generously entertain, and then to cheerfully encourage, the analysis of sluicing presented below, which runs counter to their own; few committees are faced with such a **challenge**, and none, I **am** sure, would have handled it with more grace and enthusiasm. I feel honored and privileged to have written this dissertation under their guidance, and to have spent five **wonderful** years learning from them.

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It was in part this quality of sluicing —that it is absent from typical language descriptions — which drew me to it, and indeed to theoretical Linguistics to begin with. My epiphany came in the middle of my undergraduate career at Yale, as I was studying historical Linguistics, in an *Antiquariat* in Frankfurt, where I happened across a battered copy of Postal's Cross-over phenomena. That book begins with the following words:

Given sufficient funds, one could amass a library of hundreds, possibly thousands, of works on ... grammar. These would contain a good deal of the knowledge ... gathered over several hundred years by many hundreds of students and researchers. I am confident, however, that in none of these works would it be observed that sentences like the following have the properties they do.

Paul Postal, *Cross-over phenomena*, 1971. Holt, Rinehart, and Winston: New York.

The simple excitement of the implications of this passage enthralled me. I bought the book and have never looked back. My thanks especially to Larry Horn and Hugh Stimson at Yak, who encouraged me then in the transition from philology to synchronic theoretical linguistics, sent me packing for a year in Tübingen, and recommended that I apply to Santa Cruz for graduate school.

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Στην γυναίκα μου Αναστασία

Abbreviations

The following is a List of abbreviations used in the **glosses** throughout.

| | |
|--------------|-------------------|
| | 1st person |
| | 2nd person |
| | 3rd person |
| ACC | accusative |
| AGR | agreement |
| AUX | auxiliary |
| CL | clitic |
| DAT | dative |
| ENC | enclitic |
| ERG | ergative |
| FIN | finite |
| FUT | future |
| GEN | genitive |
| INSTR | instrumental |
| LOC | locative |
| NEG | negative (marker) |
| NOM | nominative |
| PFV | perfect(ive) |
| pl | plural |
| PRES | present |
| PROG | progressive |
| PRT | (modal) particle |
| Q | question particle |
| REFL | reflexive |
| sg | singular |
| SUBJ | subjunctive |
| TOP | topic |

Introduction

The primary goal of contemporary theoretical Linguistics is to develop a theory of the correspondence between sound (or gesture) and meaning. Nowhere does this sound-meaning correspondence break down more **spectacularly** than in the case of **ellipsis**. And yet various **forms** of ellipsis are pervasive in **natural language** — words **and** phrases which by **rights** should be in the linguistic signal go missing. How is this possible?

It is possible because ellipsis is parasitic on redundancy. Elliptical processes **capitalize** on the redundancy of certain kinds of information in certain contexts, and permit an economy of expression by omitting the linguistic structures that **would** otherwise be required to express this information.

Such redundancy is a general property of biological systems, incorporating a crucial element of **fail-safe**, **and** is exploited by numerous systems (compression **algorithms** being one contemporary example). But there **will** always be a competition between economy of expression (speaker-based least-effort principles) and what Chomsky has **called** 'legibility' requirements, the requirement that the output expression be usable (i.e., interpretable) in the intended way (hearer-based least-effort principles). The use of **ellipsis** by a speaker is obviously more economical from the speaker's standpoint, by whatever metric of economy we may wish to employ (be it 'effort', however defined, number of words, phrases, etc.). By the same token, interpreting elliptical utterances is concomitantly more work for the hearer, since a meaning must be derived **from** no overt linguistic signal.

These competing **demands** on the language system ensure that it will resemble various **other** systems selected for effectively optimizing resource **allocation**. The

widespread use of ellipsis in natural languages is, from this standpoint, natural and expected: an obvious method to exploit redundancies in a system while maintaining usability.

Grammatical information is encoded redundantly in various ways in many languages. A simple example is subject-verb agreement — for example, English marks the verb as 3rd person even if the subject is unambiguously 3rd person: *she*, *is*, *smart*. Many languages mark the same grammatical information in various parts of the sentence: number is marked both on the negative auxiliary and verbal participle in Finnish, aspect is marked redundantly on each verbal head in serial verb constructions in Dagaare, tense and negation appear on each verb in serial verb constructions in Akan, etc. (these examples all taken from Niño 1997).

Such facts make the point that although expressing redundant information may be a necessary condition to license the omission of linguistic structure, it is surely not a sufficient one. In fact, languages differ extensively in how they allow redundancies to be reduced by the grammar, in typically systemic ways. Because of this, the possibility for ellipsis, being language- and structure-specific, cannot solely be attributed to general principles of information redundancy, and must be encoded in some way in the grammar. Two issues arise here, which commonly go by the names 'licensing' and 'identification'. Licensing refers to local conditions on the **omissibility** of structures, while identification refers to the recovery of the **information** that would have otherwise been expressed if the structures had been overt.

A theory of licensing will be concerned with potentially quite parochial facts about local configurations and features of the categories involved. I will address this issue in chapter 2. The problem of **identification** seems at first sight to be the more intractable one, since we come directly to the puzzle of generating meanings from silence.

This fact **alone** has inspired the considerable body of work done on ellipsis in the last thirty years, and is the primary reason that **ellipsis** continues to **puzzle and challenge** researchers, remaining an active topic of investigation. Most of this work **has** concentrated on the omission of verb phrases in English, spurred on by the **remarkable results** achieved in Sag 1976 and Williams 1977, who convincingly showed that **this kind** of ellipsis was sensitive to semantic conditions, not simply phrase structural ones as had been commonly assumed in previous work,

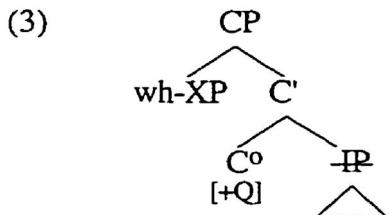
As productive and successful as the work based on **VP-ellipsis** in English has been, however, it has also been of **necessity** quite limited in scope. For reasons **that** remain unclear, **though** presumably closely linked to the particular properties of the **auxiliary** system, **VP-ellipsis** as attested in English seems to be quite rare among the world's languages. Given the subtlety of the necessary data (much of the literature is concerned with the possibilities of **anaphoric** relations under ellipsis), most work on **VP-ellipsis**, and hence on ellipsis in general, has been carried out by native speakers of English. While this is a practical boon for those of us who **are** native speakers of English, giving us almost a monopoly on theorizing in this domain, it goes **without** saying **that** this limitation makes it impossible to know whether the conclusions reached for English VP-ellipsis hold with any interesting generality cross-linguistically.

Fortunately, there are **elliptical** phenomena that are much more widespread **than** VP-ellipsis, and it is the goal of this dissertation to investigate certain properties of one of these other types of ellipsis in a number of languages. The phenomenon that will engage our attention here **is** *sluicing*.

Sluicing is the name given by Ross 1969¹ to the phenomenon exemplified in (1) and (2)—sentences in which an interrogative clause is reduced to containing **only** a wh-phrase. This wh-phrase may correspond to an overt correlate (underlined in (1)), or not (as in (2)).

- (1) a. Jack bought something, but I don't know what.
 - b. Someone called, but I can't tell you who.
 - c. Beth was there, but you'll never guess who else.
-
- (2) a. Jack called, but I don't **know** {when/how/why/where from}.
 - b. Sally's out **hunting** — guess what!
 - c. **A** car is parked on the iawn — find out whose.

These seem to have a structure like that in (3), where the struck-through IP indicates that the **sentential** part of the interrogative CP is elided.



Although it is not widely recognized, sluicing may arguably be the most **important** of the commonly studied elliptical constructions, for one reason: the class of possible

¹ Ross has always been known for his **onomastic** fecundity, though this particular example is less transparent than many **of** his other christenings. It presumably picks up on the sense of the verb *sluice* (Webster's 2nd gives the **following** etymology: from the Dutch *sluys*, *sluis* < OFr *escluse* < LLat *exclusa*, the past participle of Lat *excludere* 'exclude, shut out') meaning 'to wash off with a **rush** of water', metaphorically extended to the 'washing away' of the sentence below the wh-phrase. A more **fanciful** interpretation would **trace** the origin of the term to the approximate sound-similarity **of** sluicing to "S-losing", in the sense of "losing" the S node under the wh-phrase (cf. S-lifting 'slifting' and wh-is 'whiz' deletion).

sluiced sentences seems to be a proper **superset** of the class of **equivalent non-elliptical** 'deaccented' sentences, as we will see immediately **below**.

This is the opposite of what has been observed for VP-ellipsis: many of the properties ascribed to VP-ellipsis are found in deaccented VPs as **well**; in other words, in VP-ellipsis the elliptical cases form a proper subset of the whole phenomenon. This has led **many researchers**, notably Tancredi 1992, Rooth 1992a, Chomsky and Lasnik 1993, Tomioka 1995, Asher et al. 1997, and Fox 1998, to **argue** that the identity conditions on ellipsis would fall out (fully or in part) from a more complete investigation of the effects of focus and **parallelism** in certain **grammatical environments** (though it should be noted that earlier researchers had realized that theories concentrating solely on the identity of the missing VP and an antecedent VP —identity of predication theories— were not enough: Prüst and Scha 1990a,b, Prüst 1993, and Priist et al. 1994 noted that ***clausal parallelism*** was the crucial component, constraining quantifier interactions even outside the **ellipsis site**). Thus the problem of ***significatio ex nihilo*** **with** which analyses of ellipsis have traditionally been concerned, employing syntactic identity mechanisms, seems to be a side-issue: once we identify the conditions that license **deaccenting** in **non-elliptical structures** —so the conjecture goes—, we can apply these to the cases of ellipsis, which is itself nothing more than the most radical form of **deaccenting**, namely phonological deletion.

It is in this context, then, that the commonly accepted wisdom on **sluicing** looms large, despite its neglect in the **general** literature on ellipsis. This general wisdom regarding sluicing stems from Ross 1969 and has gone **unchallenged** to my knowledge. In his **original** investigation of this **area**, Ross noticed that wh-phrases stranded under sluicing could seemingly violate his island constraints, as the contrast **between** (4a) and (4b) **shows** (where the italicized phrase in (4b) represents the low-flat F0 intonation characteristic of deaccented material).

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

This insensitivity to islands, which received prominence in the analysis of Chung et al. 1995, is the major stumbling block to reducing elliptical structures to merely deaccented ones syntactically. If we assume that the degradation in acceptability of sentences containing extraction from islands is the result of a syntactic principle which operates to prevent such unbounded dependencies, the contrast between (4a) and (4b) is mysterious. Under the deletion approach, (4a) is derived from (4b) by a purely phonological process of deletion, operating at Phonological Form (PF). This PF operation should, under a purely *syntactic* approach to islands, have no bearing on the impossibility of extraction in this context,

One way to respond is to claim that islands are essentially PF phenomena after all, perhaps most plausibly a kind of processing constraint (on memory and associative domains), as often proposed in the literature (see Kluender 1998 for references and a recent approach)- If an island falls within an ellipsis site but is deleted at PF, no violation will be triggered. This is essentially what Ross 1969 suggested—that island violations were calculated "across the derivation" (globally), with extracted-out-of islands that remained at PF even worse than those *that* were deleted. But reducing island violations to processing difficulties in the case of overt extraction but not in ellipsis would of course also require some principled way to distinguish the processing of overt linguistic signals from the processing which must take place to assign **elliptical structures** their meaning. If human on-line language processing reflects anything about the actual comprehension of sentences, as

it surely must if it is to have any interest at all, then **this** discrepancy is entirely unexpected and extremely worrying.

Even if this discrepancy could be resolved, however, the general strategy will fail, because there **are** cases where islands **occur** inside **ellipsis** sites and **retain** their force. For example, a **VP-ellipsis** version of (4a) is impossible:

- (5) * They want to hire someone who speaks a Balkan language, but I don't remember which (Balkan language) they do {_{VP}-want to hire someone who speaks}.

Another major reason to reject **the idea** that all islands are PF phenomena comes from the evidence that certain kinds of islands —including the relative clause of (4b)— are respected by LF movement as well (see Huang 1982, Nishigauchi 1986, and for further references, May 1991). We can therefore set aside **at least** the possibility of reducing *all* islands to PF constraints (in particular, islands of the **sort** represented by (4b)).

We are then **left** with the problem posed by the contrast in (4): why does sluicing seem to be able to void islands? Although the most **successful** account to date of these facts, namely Chung et al. 1995, relies on an LF-copying mechanism supplemented by various matching and repair operations, I will show that the facts **are** in fact also compatible with a strictly deletion-based approach to **ellipsis**, sensitive to a partly novel condition on the focus structure of the deleted material (as proposed more generally for **VP-ellipsis** in Rooth 1992b and pursued for sluicing by Romero 1997a, forthcoming). My **goal** in what follows, in other words, is to rehabilitate the deletion account of sluicing.

Deletion accounts are often assumed to **require** that a **morphosyntactic** identity condition hold **between** the deleted structure **and some** antecedent. This is by no means, however, a necessary assumption, and it is not one that I **will** adopt. We will see, in fact, that any such syntactic isomorphism requirement runs into severe problems in both sluicing and

VP-ellipsis, and must be avoided in any case. This historical link between deletion approaches and syntactic isomorphism is **easily** severed: there is nothing inherently contradictory in building a theory of ellipsis which imposes a semantic identity requirement on a PF operation; in fact, as we will see, such a theory provides a **straightforward** way of linking the syntactic (licensing) and semantic (identification) requirements.

But if the syntax in the ellipsis site is the usual syntax of clauses, a major claim to be defended here, then we arrive back at the problem of **the** apparent island insensitivity. This fact, that some kinds of sluicing is not sensitive to islands, will be shown to require a revision in our understanding of the nature of some syntactic islands. In particular, I will argue that certain islands are indeed PF phenomenon, while others, like the relative clause in (4) above, are not. This means that not all islands are created equal: we need a pluralistic view of islandhood. The fact that sluicing is possible in cases **Like (4a)** is misleading: I show that there is in the end no reason to assume that there is a corresponding island in the deleted IP, and that the observed interpretations can be generated without the island.

The general answer, then, to the question we began with —how the apparent lack of the usual correlation between sound and meaning is overcome in the case of ellipsis—is the more mundane answer given to this question when the items involved have phonetic (or gestural) exponence: this correlation is mediated by **syntax** (Chomsky's 1995 'computational system for human language'). The fact that the syntax in these cases has no phonetic exponence certainly does make it more difficult to investigate, but it seems unlikely at this point that any other option can seriously be entertained. There is no avoiding the conclusion that there is indeed syntax in **the** silence.

Overview of the thesis

I will defend here the idea that there are two components to the derivations underlying the sentences in (1) and (2) — the movement rule that **extracts** a wh-phrase from **an** IP in interrogative structures in general, and **an** operation of deletion of the remaining IP fed by the movement. This gives a **maximally simple syntax**, since it is just the ordinary syntax of wh-clauses.

I begin in chapter 1 by reviewing our current understanding of ellipsis, based primarily on **VP-ellipsis** in English. I show that the commonly assumed **structural isomorphism** condition imposed on deleted structures (supplemental to more general focus conditions on deaccenting) encounters a number of severe problems when applied to even simple cases of sluicing. It furthermore encounters a better known problem regarding **anaphora** under **ellipsis**, dubbed 'vehicle change' by Fiengo **and** May 1994. I then **define** a novel focus condition on ellipsis sites, building in a two-way **implicational** relation, which **allows** us to abandon the additional structural isomorphism condition, solving the problems for sluicing and eliminating the need for a separate theory of 'vehicle change.' These general conditions apply to both **VP-ellipsis** and sluicing, **and** set the stage for the analysis of the data to come.

Chapter 2 examines the structural conditions on sluicing **and** investigates its external and internal **syntax**. I establish that sluicing involves a CP, with an IP missing, and discuss **the** licensing conditions on the null IP, building on work by Lobeck 1995. I show **that** these conditions can be captured under a deletion account, based on a single **feature** which triggers deletion; this feature, furthermore, provides the locus for **imposing** the semantic condition developed in chapter 1. Finally, I document **a** novel generalization regarding **the** elements that can appear in the C-domain in sluicing, and propose that it follows under a

natural interpretation of deletion and economy, and from general principles concerning the kinds of null elements that can follow complementizers.

In chapter 3, I turn to the core novel data presented in this work, based on informant work on twenty-four languages. I begin by documenting the relevant island facts, mostly known from the literature. I continue by establishing the novel generalization that will be crucial in chapters 4 and 5, relating to the form-identity required between the sluiced wh-phrase and its antecedent, in particular to the cross-linguistic availability of preposition-stranding under wh-movement.

In chapter 4, I examine five different approaches to sluicing, representative of extant accounts, and show that these accounts either fail to offer a way to deal with the island insensitivity or with the form-identity generalizations of chapter 3.

Finally, in chapter 5, I turn to my account of the form-identity generalizations, and show that a deletion account of sluicing captures these facts. and that the island insensitivity in the crucial cases can be analyzed away, leaving only cases where no syntactic island is violated. It is shown that this analysis supports a division between syntactic islands like relative clauses and adjuncts, and PF effects like COMP-trace phenomena, certain coordinate structures, and left branch effects. The ability of deletion to account for sluicing entails that one of the best arguments for an LF-copying approach to ellipsis resolution (or indeed, for more abstract semantic approaches) collapses. This result has the welcome consequence of making sluicing less mysterious from current theoretical perspectives, and will, I hope, make sluicing a respectable companion to VP-ellipsis in the typology of ellipsis.

Note to the reader

I should make clear at the outset that while readers interested in an expanded domain of **data** for theorizing about ellipsis will find much of interest below, readers interested primarily in VP-ellipsis in English and the perennial questions concerning strict and sloppy identity will find very little. This is on the one hand due to time and space requirements: sluicing is sufficiently complex to need to be treated on its own, leaving a possible eventual complete unification for a better understanding of all the processes — although the unification that is achieved in chapter I is quite general, many further, primarily VP-ellipsis-specific questions remain to be investigated from this perspective. On the other hand, it is difficult to investigate the question of strict and sloppy identity under sluicing, because speakers are quite uniform in finding sloppy readings under sluicing to be highly inaccessible.² For these reasons, I will turn the tables on most recent theorizing about ellipsis, relegating VP-ellipsis to the footnotes, and keeping sluicing on center stage throughout.

Although Ross 1969 gives one example of fairly acceptable sloppy identity under sluicing, even the most cursory examination of a fuller range of cases reveals that something substantially different from VP-ellipsis is involved. In the following cases, which have been checked with three speakers, it is very difficult to get the sloppy reading (there was some variation, but in the range of 'impossible' vs. 'very marginal').

- (i) a. Abby said she'd stop smoking tomorrow, but Beth wouldn't say when.
- b. Alex said someone would visit him after Ben wondered who.
- c. Abby knew how fast she'd run, but Beth had to ask how fast.
- d. Abby knew how fast she'd run, but Beth even had to ask how far.
- e. Abby already knew which students were enrolled in her seminar, but Beth didn't even know how many.
- f. Abby knew who she saw, and Beth said she knew who, too.

These should be compared to the following parallel cases of VP-ellipsis, where the sloppy reading is perfectly available. Similar contrasts can be constructed for all the above examples. The contrast is remarkable.

- (ii) a. Abby told us when she'd stop smoking, but Beth didn't
- b. Abby already knew which students were enrolled in her seminar, but Beth didn't.

See Tomioka 1996 for discussion and references to the immense literature on sloppy identity under VP-ellipsis, and especially Hoji and Fukaya 1999 and Hoji to appear for relevant discussion in an expanded domain.

Identity in ellipsis: Focus and isomorphism

Despite the stated primary goal of this dissertation to investigate sluicing, **any** discussion of the general conditions on ellipsis must begin with the best investigated case, **VP-ellipsis** in English. I therefore start with these cases, describing the general results in this area, and then move on to see how these results apply to sluicing, returning only briefly to VP-ellipsis.

Since Tancredi 1992 and Rooth 1992a, it has been **known** that the problem of **defining** the conditions under which VPs can be elided in English is related to (these authors claim that it forms a subpart of) the problem of **defining** the conditions under which English VPs can be deaccented, or phonologically reduced. Both problems seem intimately related to general conditions governing the distribution of focus, **and** several authors have sought to define the appropriate focus conditions for **regulating** both **deaccenting** and ellipsis phenomena. While this unification is not completely **uncontroversial** (see Winkler 1997), the intuitions upon which **it** is founded **are** quite robust, **and** it seems **like** a promising strategy to explore the connections between the two. Nonetheless, as we will see, identifying the conditions under which a VP can be deaccented (treated as given, in the technical sense defined below) does not answer all the questions about the conditions under which **a** VP can be omitted — ellipsis of a VP has **always** been taken to be subject to an additional, **usually** structural constraint as well.

In this chapter, I review the **general** conditions on **deaccenting** as well as the evidence for an additional structural constraint. I show that this **additional** constraint raises numerous problems in a variety of domains, both under **VP-ellipsis** **and**, **especially**, under sluicing.

(Perhaps the most widely known of these problems has been dubbed 'vehicle change' in **Fiengo and May** 1994, and concerns the conditions under which pronouns can be deleted under identity **with** R-expressions.) I then propose a revised focus condition **that** can **handle** the cases that were problematic for **the** more general focus conditions, while allowing **us** to abandon the structural isomorphism constraint that was so problematic (and eliminating the necessity for a separate theory of 'vehicle change'). Finally, I illustrate how this revised focus condition applies to a core set of data **from** sluicing, setting the stage for the investigation that follows, and in particular laying the groundwork for the analysis to be developed in chapter five.

In what follows, I anticipate **several** of the results of the following chapters, and refer to the constituent dominating the remnant wh-phrase as CP, to the missing **material** as IP, and to the process that derives the ellipsis **as** deletion. These terminological choices will be justified extensively later, but serve here only to facilitate discussion.

1.1 Semantic background

In this section, I very briefly lay out some of the relevant background notions that will be assumed in what follows. The assumptions here are entirely standard, and readers **familiar** with semantics can proceed directly to the following section.

I will be assuming a type-driven translation of **LFs**, which are expected to encode all the relevant properties (up to context) for determining meanings of syntactic structures. LF expressions are assigned translations into a logical language L (we'll use the standard predicate calculus for L), and these expressions of L are **evaluated** by an interpretation function $\llbracket \cdot \rrbracket$ relative to a model M and an assignment function g (ignoring **intensionality** for the moment), written $\llbracket \cdot \rrbracket^{Mg}$.

The relevant **definition** is given in (1).

- (1) Let $M = \langle E, I \rangle$, where E is the domain of individuals, **and** I is an interpretation function which assigns to each constant (**individual** or predicate) in L an extension in E .

If c is **an individual** constant, then $I(c) \in E$. If P is a **n-ary** predicate, then I maps P onto an ordered n -tuple of **elements** of E : $I(P) \subseteq E^n$. For **example**, for a one-place predicate P of **type** $\langle e, t \rangle$ and a constant c of **type** $\langle e \rangle$, $P(c)$ is true in M if and only if $I(c) \in I(P)$. This is illustrated in the **example** in (2).

- (2) Let $M_1 = \langle E, I \rangle$, where

$$E = \{ \text{abby}, \text{ben} \}$$

$$I = \begin{bmatrix} \text{a} \rightarrow \text{abby} & 1 \\ \text{b} \rightarrow \text{ben} & \\ \text{sing} \rightarrow \{ \text{abby} \} & \end{bmatrix}$$

Now, $\llbracket \text{sing}(a) \rrbracket^{M_1, g} = 1$ iff $\llbracket a \rrbracket^{M_1, g} \in \llbracket \text{sing} \rrbracket^{M_1, g}$, that is, iff $\text{abby} \in \{ \text{abby} \}$, which is the case in the model in (2).

While this works fine for formulas that contain **only** constants and predicates (and various logical connectives, whose definitions I will not go over here), something more is needed to interpret variables, which are used as translations of traces of movement and pronouns. **Formulas** with free variables **are evaluated wrt** assignment functions. For present purposes, where variables will **only** be of **type** $\langle e \rangle$, **an assignment** function g is a **function** from variables to **individuals** in the domain E . As an example, consider the function g_1 in (3).

$$(3) \quad g_1 = \begin{bmatrix} x \rightarrow \text{abby} \\ y \rightarrow \text{ben} \\ z \rightarrow \text{charlene} \end{bmatrix}$$

Using this assignment function, we can evaluate a formula such as $\text{sing}(y)$. This formula will be true wrt M and g if and only if the value that g returns for y is an element of the set given by $I(\text{sing})$. Using M , and g_1 as examples, we have $\llbracket \text{sing}(y) \rrbracket^{M_1, g_1} = 1$ iff $\llbracket y \rrbracket^{M_1, g_1} \in \llbracket \text{sing} \rrbracket^{M_1, g_1}$; since $g_1(y) = \text{ben}$, and since $\text{ben} \notin \{\text{abby}\}$, the formula $\text{sing}(y)$ is false under M_1 and g_1 .

Note that there is no difference between $\llbracket \text{sing}(y) \rrbracket^{M_1, g_1}$ and $\llbracket \text{sing}(b) \rrbracket^{M_1, g_1}$. This simple fact will be the key to eliminating Fiengo and May's 1994 'vehicle change', as we will see below.

In general, the recursive definition for the semantics of $\llbracket \cdot \rrbracket$ relative to a model M and an assignment function g is given in (4).

- (4) If a is an individual constant or predicate, then $\llbracket a \rrbracket^{M, g} = I(a)$.
- If a is a variable, then $\llbracket a \rrbracket^{M, g} = g(a)$.

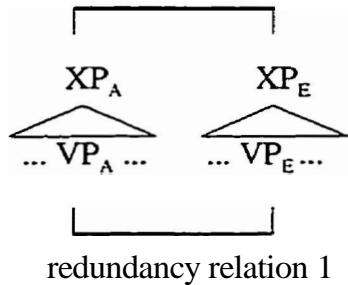
This brief overview will suffice for our purposes.

1.2 The focus and isomorphism conditions

Rooth 1992a, following an early version of Fiengo and May 1994, distinguishes two different relations between an elided VP (call it VP_e) and its antecedent (VP_a), indicated schematically in (5), order irrelevant.

(5)

redundancy relation 2



These **authors** claim that redundancy relation 1 is syntactic: in particular, to be **identified** with the notion of “reconstruction” that Fiengo **and** May **outline**, which we return to directly. While Rooth accepts this premise, he is more concerned with redundancy relation 2, which Fiengo **and** May 1994 claim **falls** under their Dependency Theory (essentially imposing syntactic isomorphism on the parallel structures, **modulo** indices). Rooth argues that redundancy relation 2 is in fact **a** semantic relation, which he identifies with his \sim operator (see Rooth 1985, 1992b, 1996). The \sim operator attaches to **an** LF constituent **a** and requires that there be a set of **alternatives** of the same **type** as **a**; I **will** not go into the details here — the reader is referred to Büring 1995a for an especially lucid exposition of Rooth’s theory of focus.

Rooth’s hypothesis is as follows:

"ellipsis should be possible exactly in **configurations** where

1. **a** verb phrase can be syntactically reconstructed, and
2. some phrase **identical** with or dominating the reconstructed **phrase** can be related by the \sim relation to **some** phrase identical with or **dominating** the reconstruction antecedent" Rooth 1992a:18

The condition in 2., applied to the schema in (5), requires that $XP_A \sim XP_E$, in Rooth's terms. Spelling this out, we can restate this condition as in (6) (as is usually done: see Johnson 1997 and Romero 1997a).

(6) **R-Focus condition on VP ellipsis (Roothian version)**

A VP a in XP_E can be deleted only if there is an XP_A , where $\llbracket XP_A \rrbracket^o$ either is or implies an element of $\llbracket XP_E \rrbracket^f$.¹

Rooth's insight can also be applied using Schwarzschild's (to appear) theory of focus, based on his definition of GIVEN.

(7) **GIVENness (Schwarzschild to appear)**

- 1 . If a constituent α is not F-marked, a must be GIVEN.
2. An expression E^2 counts as GIVEN iff E has a salient antecedent A and, modulo 3-type shifting, A entails the F-closure of E .

(8) **F-closure**

The F-closure of a , written $F\text{-clo}(a)$, is the result of replacing F-marked parts of a with 3-bound variables.

I will refrain from taking the reader through Schwarzschild's theory here;

¹ Simplifying somewhat. $\llbracket a \rrbracket^o$ is the ordinary value returned by $\llbracket \cdot \rrbracket$ for a , $\llbracket \alpha \rrbracket^f$ is the focus value of α , the set of alternatives to α , derived from α by replacing all F-marked constituents in a by variables of the appropriate type.

I use the term 'expression' in place of Schwarzschild's 'utterance' to abstract away from certain complications that he discusses; see Schwarzschild to appear.

³ Roughly, 3-type shifting is a type shifting operation that raises expressions to type $\langle \top \rangle$ and existentially binds unfilled arguments.

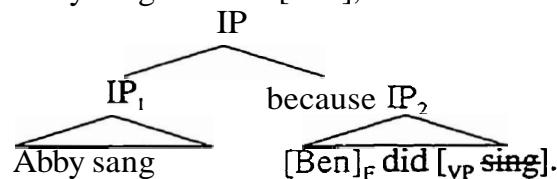
how it works will become evident as we examine various examples.

(9) S-Focus condition on VP ellipsis (Schwarzschildian version)

An VP a can be deleted only if a is or is contained in a constituent that is GIVEN.

Let us illustrate this with an example.

- (10) a. Abby sang because [Ben], did.



(10a) has the LF in (10b), where struck-through text is the diacritic for material that is not pronounced at PF (I will assume that the **feature** that triggers this deletion at PF is present at LF; *see* chapter two, §2.2.1 for implementation).

The R-Focus condition requires that $\llbracket \text{IP}_1 \rrbracket^o \in \llbracket \text{IP} \rrbracket \mathbb{I}$, that is, that $\lambda w. \text{sing}_w(a) \in \{\lambda w. \text{sing}_w(x) : x \in D_e\}$. This latter set is equivalent to $\{\lambda w. \text{sing}_w(a), \lambda w. \text{sing}_w(b)\}$ in M,. (Ignore tense and aspect here and throughout.)

The S-Focus condition is also satisfied: the deleted VP is given since the antecedent *Abby sang* entails the 3-type shifted deleted VP: $\exists x. \text{sing}(x)$. Equivalently, we could compare the containing IPs — again, *Abby sang* entails the result of replacing the F-marked $[Ben]_F$ in IP_2 by an 3-bound variable: $\exists x. \text{sing}(x)$.

Consider now the example in (11a), which contains a pronoun him,, which we translate with the variable x_2 ,

- (11) a. Abby saw **him** after [Ben]_F did.
- b.
-
- ```

graph TD
 IP[IP] --- ASH[Abby saw him₂]
 IP --- AIP[after IP₂]
 AIP --- BD[Ben]ₙ did [vP see him₂]

```

The LF in (11b) will meet **the R-Focus condition** iff  $\llbracket \text{Abby saw } x_2 \rrbracket^o \in \llbracket [\text{Ben}]_F \text{ saw } x_2 \rrbracket^f$ , that is, if  $\lambda w. \text{see}_w(a, g(x_2)) \in \{ \lambda w. \text{see}_w(y, g(x_2)) \mid y \in D_e \}$ . It meets **the S-Focus condition** iff  $\text{IP}_1$  entails  $\exists x. \text{see}(x, g(x_2))$ ; this will only hold if **see(abby, g(x<sub>2</sub>))** is true.

It is well **known** that certain kinds of VPs can be deaccented by satisfying a focus condition but not **elided** under the same conditions. The VPs in (12) and (13), for example, can be deaccented because the preceding clause provides an appropriate antecedent. Here, **capital letters** represent focal stress, and italics indicate **deaccenting** (a low  $F_0$  contour: see Hirschberg and Ward 1991 and Winkler 1997 for more detailed examination of this phenomenon and some caveats). The cases in (13) are somewhat more extreme examples of the same phenomenon, dubbed ‘implicational bridging’ cases by Rooth.

- (12) a. Abby **was** reading the book while BEN *was reading*.
- b. Abby ate **a** sandwich after BEN *ate*.
- c. Abby **Left** the party because BEN *left*.
- d. Abby sang her hymn louder **than** BEN *sang*.
- (13) a. Abby called Chuck an idiot after BEN *insulted* him.
- b. Abby **ate** a sandwich **after** BEN *had lunch*.
- c. Abby left the party because BEN *rook off*.

In each case, the antecedent implies a proposition which is in the focus value of the deaccented VP, satisfying the R-Focus condition. This is shown in (14) for (12a):

- (14)  $\llbracket \text{Abby was reading the book} \rrbracket^o \rightarrow \llbracket \text{Abby was reading} \rrbracket^o \text{ and}$   
 $\llbracket \text{Abby was reading} \rrbracket^o \in \llbracket \text{BEN}_F \text{ was reading} \rrbracket^F$

Similarly, since entailment<sup>5</sup> is built into the definition of Schwarzschild's GIVEN, the computation is direct:

- (15) *Abby was reading the book* entails  $\exists x.x \text{ was reading}$

These should be compared with examples in which the antecedent does not imply a proposition in the focus value of the deaccented VP, or, in Schwarzschild's terms, does not entail the F-closure of the IP containing the deaccented VP (these following examples are felicitous only to the extent that in the context of evaluation, the matrix predicate entails or implies the subordinate, e.g. in a model where if  $x$  reads the book,  $x$  coughs):

- (16) a. \* **Abby was** reading the book while BEN **was coughing.**

---

<sup>4</sup> Similar remarks hold for the passive-active alternation under ellipsis, which raise numerous difficult questions that I will sidestep here. These have been extensively discussed in the literature (see Hardt 1993, Kehler 1993, Fiengo and May 1994 for discussion and references). Compare:

- (i) a. First, Abby picked Ben, and then CHARLIE **was picked**.  
b. \* First, Abby picked Ben, and then CHARLIE **was fired**.  
c. \* First, Abby picked Ben, and then CHARLIE **was**.

<sup>5</sup> What is intended by 'entailment' here is "some kind of contextual entailment, where certain backgrounded information is assumed" (Schwarzschild to appear: 11), with an obvious connection to standard notions of presupposition. I assume that this somewhat laxer notion of entailment will allow the necessary equivalences, as Schwarzschild assumes, for the reductions seen in the examples in the text. For example, (13b) is felicitous only if the context supports an 'entailment' (or [perhaps accommodated] presupposition) that Abby ate the sandwich for lunch. The other cases in (13) require less contextual support, since *leave* will always entail *take off* in the relevant sense, and if **you call** someone an idiot, **you** can virtually always be sure that you have insulted him (perhaps unless he **really** is an idiot).

- b. \* Abby ate a sandwich after BEN coughed-
  - c. \* Abby left the party because **BEN** coughed.
  - d. \* Abby sang her hymn louder than BEN *coughed*.
- (17) a. \* Abby called **Chuck** an idiot after BEN coughed.
- b. \* Abby ate a sandwich after BEN coughed.
  - c. \* Abby left the party because BEN coughed.

However, the reasoning applied to the cases of phonological **deaccenting** in (12) and (13) cannot be applied to VP-ellipsis. With **VP-ellipsis**, implications alone are not enough; rather, we need identity of meaning, as a number of authors have proposed in varying forms (see Hardt 1992, 1993 for a recent approach and references). Take for example **the VP-ellipsis** in the sentences in (18) and (19); the elided VPs do not permit readings under which they would be equivalent to those in (12) and (13) above.

- (18) a. Abby was reading the **book** while BEN was.
- b. Abby ate a sandwich after BEN did.
  - c. Abby left the party because BEN did.
  - d. Abby sang her hymn louder than BEN did.
- (19) a. Abby called Chuck an idiot after BEN did.
- b. Abby ate a sandwich after BEN did.
  - c. Abby left the party because BEN did.

Instead, in each of these cases, the elided VP must be identical in meaning to the antecedent. So (18a) is true **only** if Ben **was** reading the book, not simply if Ben **was**

reading **something**.<sup>6</sup> Thus while the Focus conditions **as** stated apply to both VP-deaccenting and VP-ellipsis (and are responsible for the general **parallelism** of scope, etc; see especially Tomioka 1995, Asher et al. 1997, and Fox 1998), the elliptical structure seems to be subject to an additional, stronger requirement.

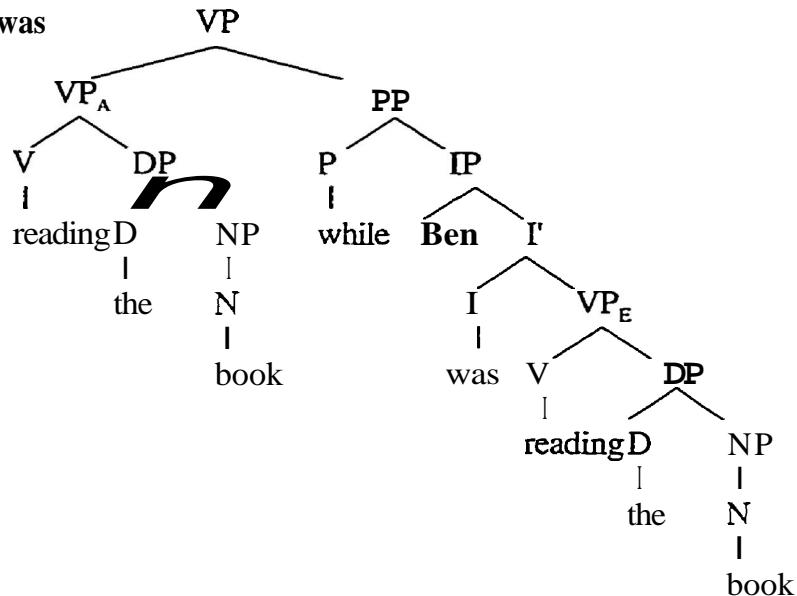
This stronger requirement is often assumed to be some kind of **structural isomorphism**. The idea is to impose a further condition that requires a syntactically identical **twin**, an antecedent — an antecedent that doesn't just 'mean' the same as **the** deletion target, but has exactly the same **structure** as **well** (meaning **actually** plays no direct role in this approach, though a convenient byproduct of identity of structure will be identity of meaning in most circumstances, presumably). If no structurally identical antecedent is available, deletion **will** not be possible. This claim is made precise in Fiengo and May's 1994 notion of 'reconstruction', which they define as a "set of token structures ... [which are] occurrences in a discourse of a given (sub-)phrase marker over a terminal vocabulary" (p. 191); a deleted phrase must be a member of a reconstruction. The **structural** component of the theory of ellipsis consists, then, of the claim that an elided phrase must have a structural isomorphic **twin available**. I will call this general **claim** the isomorphism condition on ellipsis.

Let us see how the isomorphism requirement applies to the cases at hand. For example, (18a), **has** the structure in (20).

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<sup>6</sup>These facts are why the conditions **are stated above** as necessary but not sufficient conditions on deletion; they could be strengthened to biconditionals if we took them to apply only to deaccenting, not deletion.

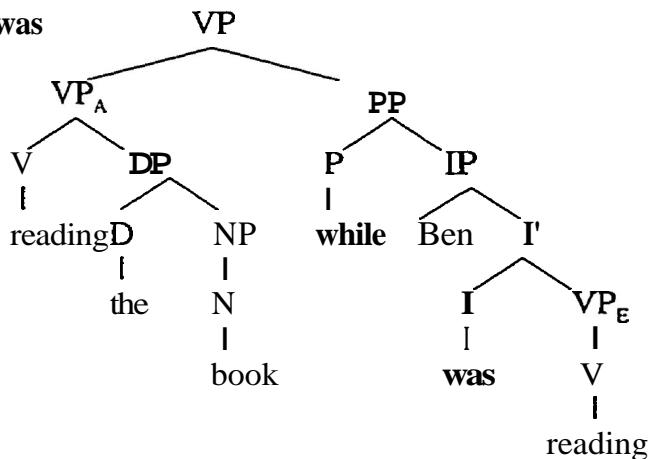
(20) Abby was



In this structure,  $VP_A$  has the same structure as  $VP_E$ . By the isomorphism condition, then,  $VP_E$  can be deleted.

The isomorphism requirement will prevent deletion of the embedded  $VP$  in a structure like (12a), as desired. That example has the structure in (21) (assuming that the implicit indefinite object of the intransitive read is not syntactically present):

(21) Abby was



Since  $VP_A \neq VP_E$ , deletion is not allowed.

An isomorphism condition on deletion is thus **successful** in accounting for **the** basic facts presented above. Note that general considerations of inferrability **seem** not to play a role here; even though *Abby was reading* is inferrable from *Abby was reading the book*, this inference is not enough to make the **structure** available that is required to license deletion.

This condition also **applies** correctly to more complex examples, such as (22).

- (22) **Abby** [<sub>VP<sub>1</sub></sub> [<sub>VP<sub>2</sub></sub> **left**] after Ben did [<sub>VP<sub>3</sub></sub> **leave**]], and Carla did [<sub>VP<sub>4</sub></sub> **leave after Ben did**]] too.

In this example,  $VP_3$  is isomorphic to  $VP_2$ , while  $VP_4$  is isomorphic to  $VP_1$ . This example shows that **any** segment of a VP **can** be used to satisfy isomorphism (see Merchant 1998c for an independent argument supporting this conclusion; see also Sag 1977).

Of course, the example in (22) can't be taken to show that **adjuncts** in general **can** be ignored for purposes of satisfying the isomorphism condition. **Adjuncts** internal to the minimal VP cannot be ignored, as (23) shows. (23) only has the reading given in (a), with the nominal adjunct in the ellipsis site, not that in (b), which ignores the adjunct.

- (23) Abby [<sub>VP</sub> met [<sub>DP</sub> [<sub>DP</sub> someone] from Kentucky]], **and** then Ben did.

a = <meet someone from Kentucky>

b. ≠ <meet someone>

It seems that this fact must be a result of the isomorphism condition, because either focus condition would be satisfied by (23b), since  $\llbracket$  Abby met someone from Kentucky  $\rrbracket \rightarrow$  [Abby met someone]. And indeed the isomorphism condition will rule out deletion of a

VP like (23b), since **it** is not isomorphic to the antecedent VP [*meet someone from Kentucky*].

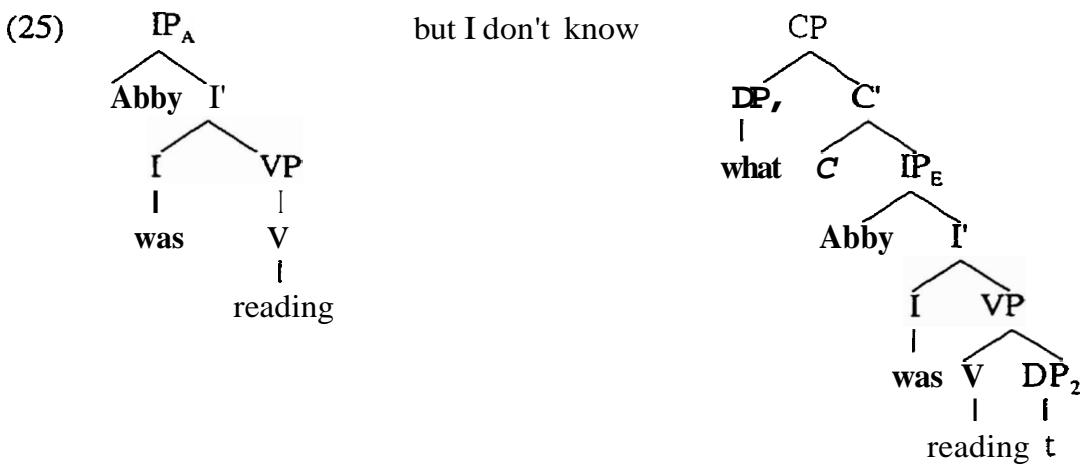
### 1.3 Problems for isomorphism

As successful as this is, it immediately runs into some problems. This section lays out a few of these problems, some potentially more serious than others, **setting** the stage for the semantic approach below.

One of the most evident problems comes from even simple cases of **sluicing with implicit correlates**, as in (24).

- (24) a. Abby was **reading**, but I don't know what.  
 b. Ben called — guess when!

The relevant parts of the antecedent IP and CP of (24a) are given in (25).



We have just seen that the intransitive use of *read* does not satisfy the isomorphism condition for **VP-ellipsis** with the transitive use, which necessarily includes **a** direct object. The same holds for **IP-ellipsis**, obviously; here,  $\text{IP}_A \neq \text{IP}_E$ . The same **kind** of problem emerges for (24b), **assuming** that adjunct wh-phrases **are** generated internal to the IP (see Johnston 1994 for convincing arguments that **this** is the case).

Faced with this **data**, we might claim that traces of moved wh-phrases aren't structurally present at LF, where the condition applies. This suggestion is reminiscent of various trace-pruning algorithms proposed to eliminate intermediate traces at LF (as in Lasnik and Saito 1984). But eliminating **the** traces **structurally** at LF goes directly against the **grain** of having an LF in the **first** place: if the trace is no longer structurally present, how do we know where the variable required by **the wh-phrase** should go? And how will the composition requirements of transitive *read* in (24a), for example, be satisfied? We would also have to develop an alternative account of **the** substantial data that suggests that traces maintain structure at LF, especially from work on reconstruction effects (Romero 1997b, Fox to appear; also Sauerland 1998, Merchant to appear). In general, such a suggestion makes a hash of transparent LF, and reduces the isomorphism condition to vacuity.

Even **in** sluicing, however, there is good evidence that the traces of moved elements should count for the purposes of ellipsis. A case in point is Dutch. Dutch is a V2 language, fronting the highest verb into C and some XP into SpecCP. Since in **V2** structures these elements have vacated IP, if their traces could be eliminated or ignored, we would expect the deleted IPs **in** sluicing not to be required to have corresponding elements. This expectation **is** not borne out. In these examples, not **only** does the **only** sensible **interpretation** come from having the **equivalents** to the moved elements in the antecedent IP internal to the deleted IP, these **are** indeed the only **grammatical possibilities**:

- (26) a. [CP Nu gaat [<sub>IP</sub> zij  $t_{nu}$   $t_{gaat}$ ]], maar ik weet niet waarom.

*now goes she but I know not why*

'She's going now, but I don't know why.'

- b. \* ... waarom {<sub>IP</sub>-zij}

- c. = ... waarom {<sub>IP</sub>-zij nu-gaat}

- (27) a. [CP Gisteren heeft [<sub>IP</sub> hij  $t_{gisteren}$  met iemand gesproken  $t_{heeft}$ ],

*yesterday has he with someone spoken*

maar ik weet niet met wie.

*but I know not with twho*

'He spoke to someone yesterday, but I don't know who.'

- b. \* ... met wie {<sub>IP</sub>-hij met iemand gesproken}

- c. = ... met wie {<sub>IP</sub>-hij gisteren heeft gesproken}

(Of course, this objection is mostly mitigated if one adopts a copy theory of movement; in **that** case, **the** question becomes, under what circumstances **can** moved material be ignored, and when must it —as above— be part of the resolution of **the** ellipsis?)

A second problem for isomorphism in sluicing comes from **Romanian**. As Dobrovie-Sorin 1993 and Grosu 1994:224 discuss, **clitic-doubling** (here, with the clitic *l-* 'him') is obligatory in questions with certain (D-Linked) wh-phrases, **like** *cure* 'which':

- (28) Pe care băiat \*(l-) ai văzut?

*ACC which boy him have.2sg seen*

'Which boy did you see?'

Nonetheless, as **C. Dobrovie-Sorin (p.c.)** notes, a deleted IP under sluicing can correspond to a non-clitic-doubled correlate in the antecedent IP:

- (29) Am văzut pe un băiat dar nu știu pe care.

*I have seen ACC a boy but not I know ACC which*

‘I saw a boy, but I don't know which.’

Here, the deleted but presumably present clitic double for the moved wh-phrase *pe care* would have no correspondent in **the** antecedent IP to **satisfy** isomorphism.

A further potential problem arises from the sluices in (30)-(32), all of which show a correspondance between a deleted infinitive and some other kind of structure: a gerund, a future auxiliary, a negated possibility auxiliary, and imperatives. These all have in common that **the** antecedent IP contains some element of modality — perhaps, if this modal element were to be structurally represented in just the right way, isomorphism to the infinitive could be met.

- (30) Decorating for the holidays is easy if you know how!

a. ≠ \* ... how [decorating for the holidays]

b. = ... how [to decorate for the holidays]

- (31) a. I'll fix the car if you tell me how.

b. ≠ ... how [I'll fix the car]

c. = ... how [to fix the car]

- (32) a. “I can't play quarterback: I don't even know how.”

[Bart, *The Simpsons*, 'Homer coaches football' episode]

b. Close the window! Do I have to tell you how?

c. Eat (something), if you can figure out what!

(33) and (34) illustrate related problems. In (33), the gerund *meeting* him must license the deletion of a finite clause *I met* him. Likewise in (34), taken from Klein 1993, where the subjunctive form *hätte* 'have' seems to be equivalent to the modal *sollte* 'should', since German doesn't have wh-infinitival questions, and the modal particles *ja* *gem* must not be present in the missing IP (the sluice does not have the reading given in (34d), only that in (34d)).

(33) I remember meeting him, but I don't remember when. [=I met him]

(34) Ich hatte      ja    gem jemandem geholfen, wußte aber nicht, wem.

*I have.SUBJ PRT PRT someone helped knew but not who*

'I would've gladly helped someone, but I didn't know who.'

a.      ≠ ... wem ich ja    gern jemandem geholfen hatte.

*who I PRT PRT someone helped have.SUBJ*

b.      ≠ ... \* wem [zu helfen]

*who to help*

c.      ≠ ... wem [ich ja    gern helfen sollte]

*who I PRT PRT help should*

d.      = ... wem [ich helfen sollte]

*who I help should*

Given these difficulties for the isomorphism condition, one might be tempted to claim that it simply doesn't apply in sluicing, holding perhaps only for VP-ellipsis, for the reasons discussed.<sup>7</sup> But the kinds of facts that motivated imposing the isomorphism condition on VP-ellipsis hold for sluicing as well. In particular, IP-deaccenting exhibits the

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<sup>7</sup> But see especially Hardt 1993, who documents a wide range of apparent structural differences between antecedent and elided VPs, in the spirit of the problems noted for IP ellipsis here.

same kinds of possibilities **and** restrictions we saw **above** for deaccented VPs. Thus while (35a) and (35b) are possible, since they are entailed in the relevant sense by the first IP, (36) is impossible, **as** in the VP cases in (16) and (17).

- (35)    a.    Abby **called** Ben an idiot, but I don't know who else ***she called an idiot.***
- b.    Abby **called** Ben an idiot, but I don't **know** who **else** ***she insulted.***
- (36)    \* Abby **called** Ben an idiot, but I don't know who else ***she dated.***

By the same token, the **sluice** in (37) cannot have the structure in (37a) — rather, it must be related to (37b).

- (37)    **Abby** called Ben an idiot, but I don't know who else.
  - a.    \* Abby called Ben **an** idiot, but I don't know **who** else ***she insulted.***
  - b.    Abby **called** Ben an idiot, but I don't know who else ***she called an idiot.***

Thus it seems that the **same** difficulties that beset the **VP-ellipsis cases** that were solved by the isomorphism condition emerge for sluicing as well-

The final, and perhaps the most important, problem for isomorphism comes from the **equivalence** between (potentially complex) R-expressions and pronouns under **ellipsis**, both in sluicing (see chapter 5, § 5.3) and in VP-ellipsis, as in (38). Since **this** problem has only been discussed with respect to the latter, I will concentrate on these **cases** for the **moment**.

- (38) a. They arrested Alex,, though he, thought they wouldn't.  
 b. They arrested [the guy who lives over **the garage**],, though he, thought they wouldn't.

As Fiengo and May 1994 point out, a perfect equivalence between the deleted VP and the antecedent VP would incorrectly predict (38) to have the same status as (39)-

- (39) a. \* He, thought they wouldn't arrest Alex.,  
 b. \* He, thought they wouldn't arrest [the guy who Lives over the garage].,

In the examples in (39), the DPs *Alex*, and[the guy *who lives over* the *garage*], are c-commanded in their respective clauses by the co-indexed pronoun *he*, in violation of Principle C of the binding theory (BT(C)), which we can take to be that in (40).

#### (40) Principle C

An R-expression  $\alpha$  with index  $i$  must not be c-commanded by any expression  $\beta$  with index  $i$ .

But the sentences in (38) are grammatical, apparently not violating BT(C). Fiengo and May 1994 propose an operation of 'vehicle change' which allows the value of the pronominal feature associated with nominals to vary within a 'reconstruction'. Although not all the details of their proposal are clear (see their pp. 218ff especially), they will not be crucial here (see Kennedy 1997, Giannakidou and Merchant 1998, Safir 1998, Potts 1999, and chapter 5, §5.3 for some discussion). In my terms, what they have discovered is that R-expressions in antecedents can license the deletion of pronouns in ellipsis sites. With

reference to the example at hand, this means that the deleted VPs are not those in (41a,b), but rather that in (41c).

- (41) a. \* [<sub>VP</sub> arrest Alex<sub>3</sub>]  
b. \* [<sub>VP</sub> arrest [~~the guy who lives over the garage~~]<sub>3</sub>]  
c. [<sub>VP</sub> arrest [him]<sub>3</sub>]

But such a deletion also would violate the isomorphism condition, since the terminal **vocabularies** of the deleted and the antecedent VPs **differ**. (For **the** case of the **definite** description, one could perhaps take this as **indirect** evidence that pronouns do have complex internal structures of exactly the kind required, **varying their** structure appropriately with context, but I regard this as a *reductio* in the absence of **independent** evidence for such internal structure, and wouldn't extend to the case of names in **any case**.<sup>8</sup> See McCawley 1998: ch. 11 for relevant discussion and references.)

So how is the **non-equivalence** between pronouns **and** such R-expressions to be reconciled with the apparent need for a structural isomorphism **requirement** we **saw above**? Fiengo and May, who are the **only** authors to have **dealt** seriously with **this** question, retain structural isomorphism and propose that values of features like [pronominal] can be treated as 'equivalence classes' for **the** purposes of structural comparison, i.e., that while the ellipsis site does indeed contain a structurally and lexically identical R-expression, this R-expression does not trigger a BT(C) violation because it is, exceptionally (that is, **only** in an ellipsis site) allowed to be [+pronominal], unlike its overt counterparts which must always be [-pronominal]. This featural mismatch, the heart of 'vehicle change', **can** be overlooked

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<sup>8</sup> The same issue arises with respect to simple interrogatives in sluicing with complex antecedents:  
(i) He talked to somebody from the Finance Department, but I don't know who.  
Here [who] would have to be structural isomorphic to [somebody from the Finance Department].

for purposes of deletion, by hypothesis. Although this is a **workable** analysis, and it is to Fiengo and May's credit to have highlighted this problem and addressed it seriously at **all**, it does not advance our understanding of the phenomenon very much, nor illuminate why **this** should hold only under deletion (and not **deaccenting**, which otherwise would seem to **pattern** with deletion).

## 1.4 The revised Focus condition and e-GIVENness

The other possible approach, and the one I will pursue here, is to revise or reject **structural** isomorphism as a condition on ellipsis. **The** strongest, **and** hence most interesting and most **difficult**, position to take is that there is no structural isomorphism condition on ellipsis **at all**. Because of the numerous problems that isomorphism encounters, I **think** it will be fruitful to abandon it entirely, and attempt to account for the **data** that it was introduced to handle in another way, one that does not at the same time force us to revise our notions of featural constancy or do violence to the syntax of **wh-movement**. The proposal to be developed below, in relying solely on a semantic, not structural, condition on ellipsis, shares the **goal** of a number of researchers who have also pursued purely semantic approaches, such as Dalrymple et al. 1991, Hardt 1993, Asher et al. 1997, Priist 1993, Prüst et al. 1995, Hendriks and de Hoop 1998, and others; the proposal here, however, is original and differs from the majority of these in explicitly assuming syntactic **structure** in **the** ellipsis site.

### 1.4.1 e-GIVENness in VP-ellipsis

Although it is not my intention to develop an entire theory of VP-ellipsis here, I will present a revised Focus condition that will capture the data given so far. My primary aim, however, will be to use a version of this new Focus condition as a condition on IP-ellipsis below. This condition is based on the definition of e-GIVEN in (42), and is stated in (43).

#### (42) 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)<sup>9</sup>, and
- ii.     E entails F-clo(A)

#### (43) Focus condition on VP ellipsis

An VP a can be deleted only if  $\alpha$  is e-GIVEN.

Several simplifications could be made here, which I omit for exposition. It should be clear that the only novel part of the definition is in (42ii); one could thus easily divorce this condition applying strictly to deleted structures from the more general conditions discussed above. Such a theory would be equivalent to the one that forms the basis of my discussion here, and more parsimonious in certain respects, since the more general Focus conditions of section 2 will certainly apply to structures that contain ellipsis as well. For

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<sup>9</sup> In general, of course, and perhaps on principled grounds (see chapter 5, §5.2.1 for some discussion), a deleted constituent will not contain any F-marked material; material extracted from the ellipsis site, on the other hand, will often —though not always—, be F-marked. I will assume, as above, that traces of constituents moved out of the ellipsis site will be 3-bound for purposes of satisfaction of the various Focus conditions.

purposes of exposition, however, I ~~will~~ collapse the two requirements on **elliptical** structures (~~the~~ more general focus conditions plus clause (ii) of (42)) **into one definition** — this will allow us to refer to a **structure** as **simply satisfying** the e-GIVENNESS requirement, though the **careful** reader **may** want to keep this conflation in mind.

First let us see how (43) handles the **examples** in (18) **and** (19), repeated here, which motivated the isomorphism condition.

- (44) a. Abby was reading the **book** while BEN was.
  - b. Abby ate a sandwich after BEN did.
  - c. **Abby Left the party because BEN did.**
  - d. Abby sang her hymn louder **than** BEN did.
- (45) a. Abby **called** Chuck an idiot after BEN did.
  - b. **Abby** ate a sandwich after BEN did.
  - c. Abby left **the party** because BEN did.

To **take** one example, what is at issue here is **making** sure that the elided VP in (45a) has **the** source in (46a), not that in (46b), in accordance with our intuitions about the possible **meanings** of (45a).

- (46) a. = ... after BEN did **call Chuck an idiot.**
- b. ≠ ... after BEN did **insult Chuck.**

The **first** task is to see how the deleted VP in (46a) is e-GIVEN. The antecedent here is the VP in the first clause, [<sub>VP</sub> call Chuck an idiot]. This VP has an open **variable**

corresponding to the subject, so **3-type** shifting must apply, **yielding** (47) (where **a** stands for the result of applying 3-type shifting to  $\alpha$ ).

$$(47) \quad VP_A' = \exists x.x \text{ called Chuck an idiot}$$

The first question now is whether  $VP_A'$  entails the result of replacing **F-marked** parts of the deleted VP by 3-bound variables. Let us assume that the VP-internal trace of the subject BEN is also F-marked, though at this point I *see* nothing crucial **riding** upon this. Replacing this trace by **an** 3-bound variable yields (48):

$$(48) \quad F\text{-clo}(VP_E) = \exists x.x \text{ called Chuck an idiot}$$

Clearly, then,  $VP_A'$  entails  $F\text{-clo}(VP_E)$ . The second question is whether  $VP_E'$  entails the F-closure of  $VP_A$ , given in (49). Since the two are identical, the answer is yes.

$$(49) \quad F\text{-clo}(VP_A) = \exists x.x \text{ called Chuck an idiot}$$

Consider now (46b).  $F\text{-clo}(VP_A)$  remains the same, but the deleted VP itself is different — 3-binding the subject trace yields (50):

$$(50) \quad VP_E' = \exists x.x \text{ insulted Chuck}$$

Now the answer to the second question changes:  $VP_E'$  does not entail  $F\text{-clo}(VP_A)$ , since you can insult someone without necessarily **calling** him or her an **idiot**. Therefore the VP in (46b) is not **e-GIVEN**, by (42ii). As **a** result, this VP does not satisfy the revised Focus

condition in (43), and cannot be deleted, **as** desired. The same reasoning applies to the examples in (44).

Eliminating the isomorphism condition also lets us **claim** that the deleted VP in the problematic cases of (38) (repeated here), which motivated **having** 'vehicle change' in the first place, simply contains a **regular** pronoun, as desired:

- (51) a. They arrested *Alex*<sub>3</sub>, though *he*<sub>3</sub> thought they wouldn't ~~arrest him~~<sub>3</sub>.
- b. They **arrested** [the guy who Lives over the garage],, though he, thought they wouldn't ~~arrest him~~<sub>3</sub>.

Consider the case in (51a). Does this deleted VP satisfy the Focus condition? It does, just in case *him* = *Alex*. This is because the result of **3-type** shifting the antecedent VP, given in (52a), entails the **F-clo(VP)** of the deleted VP in (52b) just in case the value returned by the assignment function for the translation of *him* ( $x_3$ ) picks out the same individual that is returned by the assignment function for the name *Alex*. (Schwarzschild to appear [1998:13] notes this result as well, for his definitions: "a pronoun will count as **GIVEN** if it **has an** antecedent with the same index ... [since] ...  $\llbracket \text{John}_i \rrbracket^g = \llbracket \text{he}_i \rrbracket^g$ , for any  $g$ ", thus correctly allowing **deaccenting** equivalencies between names and pronouns.) This, of course, is the desired result-

- (52) a.  $\text{VP}_A' = \exists x.x \text{ arrested Alex}$
- b.  $\text{F-clo}(\text{VP}_E) = \exists x.x \text{ arrested him}$

The second condition, that the  $\text{VP}'$  of the deleted VP entail the **F-clo(VP)** of the antecedent VP, is satisfied **as** well. (Some complications, resolvable under **natural**

assumptions about epistemic compatibility and presuppositions, arise in the case of descriptions as in (51b), but I will not go into these here; I also pass over the issues involved with voice changes mentioned in footnote 4.)

The Focus condition in (43). then, handles the **data** that motivated vehicle change<sup>10</sup>, while ruling out illicit cases of ‘implicational bridging’ in the missing VP<sup>11</sup>. Our next question is whether this Focus condition can be applied with **equal** success to sluicing.

## 14.2 e-GIVENness in sluicing

Answering this question requires a bit more background. In particular, it requires that we make some **specific** assumptions about what the **alternatives** to questions are. in order to determine what should count as **GIVEN**. Here I will use the results of Romero forthcoming, who shows that versions of the more general focus conditions in (6) and (9) can fruitfully be applied to IP-deaccenting and sluicing, accounting for a wide range of **data**, especially concerning the nature of the antecedents and **scopal parallelisms** (issues that will not concern us to a great extent here, though see chapter 5, §5.5 for a brief return to some of

<sup>10</sup> At least for the best investigated case of what goes under the **rubric** ‘vehicle change’ in Fiengo and May 1994 (equivalences between R-expressions and pronouns). The **term** ‘vehicle change’ is, however, widely applied in that work, being pressed into service in 12 different ways between pp. 201-230 to account for varieties of non-distinctness under ellipsis. Whether all these varieties can or should be accounted for in the same way will have to be taken up in **later work**. Note that the present approach also captures the equivalence of negative polarity items and indefinites under VP-ellipsis noted in Sag 1976, which Fiengo and May 1994 also label an instance of vehicle change.

It will also ensure that the correspondent to the remnant XP in **cases** like (i) and (ii) (the latter a **case** of pseudogapping, which I assume **involves** VP-deletion, following many researchers — see Kennedy and Merchant to appear for references) must bear focus:

(i) I saw [Abby]<sub>F</sub>, but [Bart], I didn't,

(ii) I want to see [the Simpsons]<sub>F</sub> more than I do [the X-Files],

In (i), for example,  $\mathbf{VP}_E' = \exists x \exists y [x \text{ saw } y]$ , and  $\mathbf{F}\text{-clo}(\mathbf{VP}_A) = \exists x \exists y [x \text{ saw } y]$ . Note that here, VP' **does** not entail  $\mathbf{VP}_A'$ , which is  $\exists x [x \text{ saw } \text{Abby}]$ . If no **F-marking** were present on Abby in  $\mathbf{VP}_A$ ,  $\mathbf{F}\text{-clo}(\mathbf{VP}_A)$  would not be entailed by  $\mathbf{VP}_E'$  and VP, could not be deleted. It seems to be necessary as well that some overt material in the clause containing the deleted VP be present to indicate the possibility of F-closure in the antecedent; see Fox 1998 for related discussion.

them). For our purposes, the basics of her analysis will suffice. The basic idea is that **the** questions in (53) should all count as alternatives to one another.

- (53) a. (know<sup>12</sup>) which P are Q
- b. (know) how many P are Q
- c. (know) whether any P are Q

She further adopts Schwarzschild's **GIVENness** condition, applying it to constituents that contain IP ellipsis (she shows that the same results hold for Rooth's version as well, which I omit here). Modifying (9) above by replacing 'VP' by 'IP', we get the condition in (55) (the definition of **GIVENness** is repeated for convenience).

- (54) **GIVENness** (Schwarzschild to appear)

An expression E counts as **GIVEN** iff E has a salient antecedent A and, modulo  $\exists$ -type shifting, A entails  $F\text{-clo}(E)$ .

- (55) **S-Focus condition on IP ellipsis (Schwarzschildian version)**

An IP a can be deleted **only** if a is or is contained in a constituent that is **GIVEN**.

Concretely, supposing this will allow the null IP in (56):

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<sup>12</sup> Here and below I use **know** as the embedding predicate, assuming that the conclusions reached for this case generalize (i.e., that semantically, **wonder-type** predicates will have some component equivalent to **know** — 'want to **know**' or the like); see Romero's discussion. Using something like **I know... as a leader** to both the antecedent and CP containing the **sluice allows** us to avoid the multiple applications 3-type shift that would be necessary to **evaluate** **GIVENness**; while these applications are routine, they clutter up the formulae considerably.

- (56) I know how MANY politicians she called an idiot, but I don't know WHICH (politicians').<sup>13</sup>

In this case, the **alternative** questions are those in (57).

- (57) a. (know) which politicians she **called an** idiot  
 b. (know) how **many** politicians she called an idiot  
 c. (know) whether she called any politicians an idiot.

The **result** of replacing F-marked parts of the CP **that** contains the missing IP by 3-bound variables of the same type yields (58); here I use **Q** to represent the variable over wh-determiners (see Romero forthcoming [1998: 18-22]).<sup>14</sup>

- (58)  $\exists Q [ I \text{ know } [Q\text{-} \text{politicians she called an idiot}]]$

A similar computation gives us the desired result in **the** following case:

- (59) I know she **called** some politician **an** idiot, but I don't know WHICH.

Since knowing that she called some politician an idiot entails knowing whether she **called** any **policitain** an idiot (i.e., *knowing whether she called any politician an idiot* will be **GIVEN**), the S-Focus condition will be satisfied.

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<sup>13</sup> I ignore for the most part the independent question of how the NP-ellipsis after *which*, etc., is resolved.

<sup>14</sup> The same result holds if we apply Rooth's condition, assuming that  $E^f = [\text{WHICH, } (\text{politicians}) \text{ she called an idiot}]^f = \{ \text{ which politicians she called an idiot, how many politicians she called an idiot, whether she called any politician an idiot } \}$  and  $A = \text{how many politicians she called an idiot}; \text{ therefore } A \in E^f$ , as required. See Romero forthcoming for detailed exemplification.

But again this is not enough for our purposes: using the one-way entailments in the definition of **GIVENness** in (54) **will** allow for the **illicit IP-ellipsis** in (60).

- (60) \* I know how **many** politicians she called an idiot, but I don't **know WHICH**  
(politicians)<sub>{IP-she insulted t}</sub>

Again, this is because *calling someone* an *idiot* entails *insulting someone*, in the relevant sense. Thus Romero, like others before her, adopts an LF-identity condition supplemental to the focus conditions in order to rule out **these kinds of ellipsis**. But we have already seen the **difficulties** associated with such an isomorphism requirement on IP-ellipsis. In line with the analysis of VP-ellipsis **above**, we can solve this problem by abandoning the isomorphism condition **and** instead adopting the revised Focus condition above, **applied now to IP-ellipsis**. Recall the definition of **e-GIVEN** in (42), repeated **here**.

**(42) e-GIVENness**

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

- i. A entails  $F\text{-clo}(E)$ , and
- ii. E entails  $F\text{-clo}(A)$

Using this, we now state the Focus condition on IP ellipsis:

**(61) Focus condition on IP ellipsis**

An IP **a** can be deleted only if **a** is e-GIVEN.

Consider how this requirement applies to the following example.

- (62) I know how MANY politicians she called an idiot, but I don't know WHICH (politicians).

First, we need to decide what to do with the traces of wh-movement, in this case, in both the elided and antecedent IP (**again**, for the time **being**, I will concentrate on cases where there is no F-marking inside the IP; I return to the other cases below). **The** same issue arose above with respect to the VP-internal subject trace; as I did there, I will translate them as simple variables, **existentially** bound. This is a convenient oversimplification which **will** make **the** exposition clearer, but it should be **borne** in mind that there is good evidence that traces have more structure **than** this notation indicates (**this** fact is **actually** crucial in accounting for several cases that I will not consider in detail here; *see Romero 1997b, Sauerland 1998, Fox to appear, Merchant to appear*).

Adopting this, then, gives us the following, in satisfaction of the **first** part of the **definition** of e-GIVENness, since  $\text{IP}_A'$  entails  $\text{F-clo}(\text{IP}_E)$ .

- (63) a       $\text{F-clo}(\text{IP}_E) = \exists x.\text{she called } x \text{ an idiot}$   
 b.       $\text{IP}_A' = \exists x.\text{she called } x \text{ an idiot}$

Second,  $\text{IP}_E'$  entails  $\text{F-clo}(\text{IP}_A)$ , satisfying the second clause of the **definition**. Therefore, by the Focus condition in (61),  $\text{IP}_E$  can be deleted.

Likewise for **the** following example:

- (64) I know she **called** some politician **an** idiot, **but** I don't know WHICH.

Here **again**, we have the following for  $\text{IP}_A$  and  $\text{IP}_E$ , in satisfaction of (42i).

- (65) a.  $\text{IP}_A' = \text{F-clo}(\text{IP}_A) = \exists x. \text{she called } x \text{ an idiot}$   
 b.  $\text{IP}_E' = \text{F-clo}(\text{IP}_E) = \exists x. \text{she called } x \text{ an idiot}$

**Again**, since these are identical (42ii) will also be satisfied.

But note **that** (42ii) will rule out the cases discussed above **that** the original **focus** conditions allowed for:

- (66) \* I know how **many** politicians she **called an** idiot, **but** I don't know WHICH  
 $(\text{politicians})_{\{\text{IP-she insulted}\}}$

Now we have:

- (67) a.  $\text{F-clo}(\text{IP}_A) = \exists x. \text{she called } x \text{ an idiot}$   
 b.  $\text{IP}_E' = \exists x. \text{she insulted } x$

Since (67a) gives rise to entailments which (67b) does not (since **she insulted**  $x$  does not entail **she called**  $x$  **an idiot**),  $\text{IP}_E$  is **not** e-GIVEN under (42ii). Therefore, by (61),  $\text{IP}_E$  cannot be deleted.

These definitions have the **additional** desirable result of accounting for **the paradigm** discovered by Chung et al. 1995 (their (21)), given in (68):

- (68) a. \* She served the soup, but I don't know **who(m)**.  
                   (cf. She served the soup, but I don't know to whom.)
- b. She served the students, but I don't **know what**.

Chung et al. 1995, who adopt a **structural isomorphism** account implemented by **LF-copying**, propose to account for these contrasts by constraints on their **LF-operation** of 'sprouting'; essentially, they propose that **sprouting** is "licensed by an extension of **the** particular argument structure used in the antecedent IP (p.262), given in Levin and Rappaport's 1988 representations for argument structure:

- (69) a. *serve*,:server < meal (diner) >  
                   DP     PP<sub>*to*</sub>
- b. serve,: server < diner (meal) >  
                   DP     DP

I return to **a** discussion of their account in chapter 4, §4.4. But their essential insight—that argument structure alternations cannot occur under sluicing—can **also** be captured in the system proposed here. Under this system, assuming the lexical entries in (69), the question is the following: why should these two verbs differ in their ability to license sluicing over their unexpressed argument? In the proposed account, this contrast must follow from a contrast in **inferrability** of existence of these unexpressed arguments (how the syntax-lexicon interface is **to** be handled appears to be irrelevant). And in fact, just the desired contrast does exist. Note the differences in coherence in the **following** two discourses:

- (70) a. I served, the food, but there were no guests.  
 b. # I served, **the** guests, but there **was** no food.

(70b) is a contradiction, since the use of *serve*, even without its optional argument, entails the existence of a theme argument. As seen by the felicity of (70a), on the other hand, *serve*, does not similarly entail the existence of a goal argument (I may simply have put the food on plates on a table). These facts also account for the impossibility of deaccenting in (71):

- (71) \* She served, the meal, but I don't know WHO *she served, it to*.  
 (cf. She served, the meal, but I don't know who *she served, it TO.*)

The preposition in (71) cannot be deaccented, because it is not GIVEN. The relevant pieces of the computation are given in (72):

- (72) a.  $\text{IP}_A = \text{she served the meal}$   
 b.  $F\text{-clo}(\text{IP}_E) = \exists x[\text{she served the meal to } x]$

By the Focus condition,  $\text{IP}_A$  must entail the F-closure of  $\text{IP}_E$ . Since this is not the case, the IP in (71) cannot be deaccented. *A fortiori*, it cannot be deleted, as would be required to derive (68a). Thus the observed contrast follows from the present system as well.

One last possibility must be considered, and dispensed with, before we can move on. From what does Chung et al.'s correct observation that *serve*, is not equivalent to *serve*,

**under** sluicing follow in the present system? In other words, **what** rules out a derivation like (73)?

- (73) \* She served, the meal, but I don't know WHO<sub>i</sub> ~~she served<sub>i</sub>, t<sub>i</sub> the meal~~.  
 (cf. She served<sub>2</sub> someone the meal, but I don't know who, ~~she served<sub>2</sub>, t<sub>i</sub> the meal~~).<sup>15</sup>

The answer to this question lies, again, in the respective **entailments** generated, given in (74).

- (74) a. IP<sub>A</sub> = she served **the meal**  
 b. F-clo(IP<sub>E</sub>) =  $\exists x[\text{she served } x \text{ the meal}]$

As we observed above, **serve**, does not entail the existence of a recipient of **the meal**. But exactly this entailment is needed to license deletion of an IP containing a moved wh-phrase corresponding to the recipient of *serve*,, since the 3-closure of such an IP will **entail** a recipient,

A related question concerns examples like **like** (75), brought to my attention by S. Chung:

- (75) \* Someone shot Ben, but I don't know by who(m) {<sub>IP</sub>-Ben was shot t}

This will be ruled out if the subject of the active transitive **shoot** induces entailments in the relevant sense which the object of the by-phrase **does** not. Although I cannot give specifics

<sup>15</sup> Note that the grammaticality of this second example indicates that the often-noted restriction on the extraction of the first object in a double object construction (as in (i)) must similarly be located at the PF interface, and not built into the mechanisms of extraction in the syntax, as pointed out to me by M. den Dikken (p.c.).

(i) ?? Who , did she serve *t<sub>i</sub>* the meal?

at this point, it does seem plausible that the active-passive difference in form corresponds to a difference in meaning, whether **this** be solely perspective-based (see Dowty 1991 for discussion and references) or actually found in lexical **entailments**. However these differences are **characterized**, it seems that the **GIVENNESS** conditions are sensitive to them. (**Further** complications, partly noted **above**, arise in the case of **VP-ellipsis**; **note**, however, that pseudogapping **examples** parallel to (75) have a **comparable** status: \* *Abby shot Ben {before / and} Chuck was by Dara.*)

Up to this **point**, we have concentrated on examples that contained no **F-marking** in the antecedent IP. But it is instructive to **examine** two of these cases as **well**.

**The** first of these is illustrated by examples **Like** (76):

- (76) She called Ben an idiot, but I don't know who else ~~{IP *she called Ben an idiot*}~~.

If there were no **F-marking** in the antecedent IP, clause (ii) of (42) would be violated, since simply existentially closing the apparent free variables in the deleted IP would give us  $\text{IP}_\varepsilon' = \exists x. \text{she called } x \text{ an idiot}$ . But  $\text{F-clo}(\text{IP}_A) = \text{she called Ben an idiot}$ , which is not entailed by  $\text{IP}_\varepsilon'$ . This should violate (42ii) and rule out the IP deletion, contrary to fact-

But this problem is resolved once we take the necessary **F-marking** into consideration. Consider the interpretations of the pair in (77):

- (77) a. ABBY, called Ben an idiot, but I don't know who else.  
 b. **Abby** called BEN, an idiot, but I don't know who else.

The interpretations of the sluices in (77a) and (77b) correspond to (78a) and (78b), respectively:

- (78) a. ... but I don't know who else called Ben an idiot-
- b. ... but I don't know who else Abby called **an** idiot.

This distribution is exactly that predicted by the Focus condition. Consider (77a) with respect to (42ii). The **relevant** elements for comparison are given in (79).

- (79) a.  $\text{IP}_\epsilon' = \exists x.x \text{ called Ben an idiot}$
- b.  $F\text{-clo}(\text{IP}_A) = \exists x.x \text{ called Ben an idiot}$

Since these are the same, the relevant entailments hold (namely,  $\text{IP}_\epsilon' \rightarrow F\text{-clo}(\text{IP}_A)$ ). This would not be the case if the antecedent IP were the first IP in (77b), though, since in that case,  $F\text{-clo}(\text{IP}_A) = \exists x.\text{Abby called } x \text{ an idiot}$ . The reverse holds, *mutatis mutandis*, for (77b): the F-marking on *Ben* ensures that the sluice can **only** derive from (78a), not (78b). (The fact that the implicit argument of *else* must be resolved to the F-marked constituent in these cases follows from a **natural** semantics for *eke*, such as that in Romero forthcoming [1998:31 (81)], and the more general Focus conditions; the reasoning is **the same as that given** for pronouns above.)

The second case where F-marking **plays a** role in sluicing is in cases like those in (80), which we can call 'contrast'-sluices.

- (80) a. She's an absolute idiot: unaware of who she is, or where. [David F. Wallace, *The Broom of the System*, 1986, Avon Books: New York]
- b. The channel **was** 15 feet wide, but I don't know how deep.

- c. Abby knew which of the MEN Peter had invited, but she didn't know which of the WOMEN.
- d. We know which streets **are being** re-paved, but not which avenues.
- e. Max has five Monets in his collection, **and** who **knows** how **many** van Goghs.
- f. There are nine women in the play, but I don't know how many men.
- g. I know how **many** women are in **the** play, **but** I don't **know** how **many** men.
- h. She **has** five **CATS**, but I don't **know** how **many** **DOGS**.

Consider (80h). We can assume it has the structure in (81).

- (81) She has [five CATS], but I don't know how **many** DOGS  $\{_{tp}\text{-she has } \#\}$ .

Here, the relevant computations are given in (82), which satisfy (42ii).

- (82) a.  $IP_\epsilon' = \exists x.\text{she has } x$   
 b.  $F\text{-clo}(IP_A) = \exists x.\text{she has } x$

If we were to only look at  $IP_A$  without being able to abstract **away** from the material that **contrasts** with the descriptive content **DOGS** in the wh-phrase, we would incorrectly predict deletion to be impossible, since  $IP_\epsilon'$  does not entail *she has five cats*. In cases where there is no contrasting material in the **wh-phrase**, as in the **usual** cases with NP-ellipsis or **the like**, the more general Focus conditions employing **GIVENness** will ensure that the correct **descriptive** content is understood (as Romero forthcoming shows) — it is **only** in

these cases, where there is some contrast in the wh-phrase, that the necessity of the formulation in (42) becomes fully apparent.

## 1.5 Summary

This chapter has examined some of **the** general conditions on ellipsis, in particular **the** question whether the conditions regulating VP and IP-deaccenting are the same as those that regulate VP and IP-ellipsis. While the more general focus conditions **still** apply to structures in which ellipsis **has** applied, we have seen that the interpretations of ellipsis sites are constrained in ways **that go** beyond their merely deaccented cousins.

While the majority of researchers either assume or have argued that these additional constraints on ellipsis reflect a structural isomorphism requirement, I have shown that such a **requirement** is extremely problematic in a number of domains. Even simple cases of sluicing fail it, and it **leaves** us without a satisfying account of the **equivalence** of elided pronouns to R-expressions in the antecedents to ellipsis. Instead, I have argued that the appropriate division in the data can be made by adopting an expanded **definition** of Schwarzschild's to appear **GIVENness** which I called **e-GIVENness**.

Using this revised definition, I proposed the following simple constraint on the interpretation of ellipsis sites, generalized here over both VP and IP-ellipses:

**(83) Focus condition on ellipsis**

A constituent **a** can be deleted only if **a** is **e-GIVEN**.

Because **e-GIVENness** incorporates 'two-way' entailment requirements (that is, checking the entailments of **the** antecedent **XP** against those of the deleted **XP** and **vice versa**, modulo

certain complications arising from focussed constituents), the antecedent will not be able **to** vary **from** the deleted constituent in the ways it can when triggering mere **deaccenting**.

This system successfully accounts for those cases which were taken to motivate the structural isomorphism condition. Because it is fundamentally semantic in **nature**, it **will** allow for syntactic variation in the **ellipsis** site, just in case these can **lead** to satisfaction **of** the focus condition. This leads **to** a **significant** overall simplification of the theory, eliminating any need for **an** additional theory of 'vehicle change' or of the other kinds of deviancies from structural identity needed **especially** under sluicing.

## 2 The syntax of sluicing

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In this chapter I **examine** the structural conditions on sluicing and investigate its external and internal syntax. The first issue, the external syntax, is by far the easier to tackle, and the answer reached there is straightforward: the 'sluice' is a CP. The second, which requires investigating the structure of ellipsis, that is, the syntax of silence, can **only** be approached by more indirect means and is therefore much **more** difficult; **the** answer defended here is that the ellipsis site contains syntactic structures of the **kind** familiar from overt syntax.

This chapter proceeds roughly in order of analytic difficulty. I begin with the simplest **task**, identifying **the** category of the sluice by looking at what the external distribution of sluiced wh-phrases is. **The** conclusion is unambiguous: sluices behave as CPs. This leads to **the** hypothesis that the sluice consists of a CP in which the sentential part, the IP, has gone missing. With this in **mind**, I **turn** to the more difficult question of what mechanisms in the grammar License this silent IP. We will see that the conditions are fairly parochial, being limited to **certain** feature combinations on the C sister to the null IP. To capture these, I propose a mechanism for triggering deletion at PF based on feature movement to C. I conclude by tackling a vexing analytic question raised by a novel generalization established in section 2.2.2: nothing but the wh-phrase itself can appear overtly in the C-system under sluicing. I suggest that this fact is related to other, probably prosodic, limitations on the kinds of **null** elements that can immediately follow complementizers.

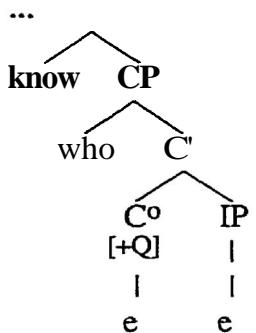
## 2.1 External syntax: The sluice is an interrogative CP

I begin by investigating the external syntax of the sluiced material: that is, by addressing the following question: how does the wh-phrase that appears in sluicing behave with respect to the surrounding syntactic material? The arguments presented here, marshalled from selectional facts, number, case, syntactic positioning, and prosody, will support the *opinio communis* on this question, namely that what appears to be a simple wh-phrase in isolation is in fact a CP. This is perhaps not a surprising conclusion, but it is one that has been challenged and must be established before we can move on to the elliptical puzzles it raises.

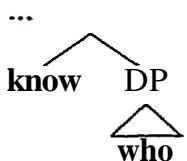
Many of the arguments originate with the initial investigation of sluicing, Ross 1969. Since much of the literature takes his conclusions for granted, I will attempt not to belabor the point here. But it has sometimes been specifically argued that sluicing need not involve a CP, most notably by van Riemsdijk 1978, and to some extent by Ginzburg 1992. What is at issue is whether a sluice like (I) has the structure of a CP as in (2), which I will defend here, or a more impoverished structure like the one in (3), defended in van Riemsdijk 1978 in particular, where wh-fragments are generated on their own, here as a complement to the verb *know*.

- (I) Anne invited someone, but I don't know who.

- (2) Sluices as interrogative CPs:



- (3) Sluices as 'wh-fragments':



As we will see immediately, the sluiced wh-phrase behaves by **all** measures not as a direct argument of **an** embedding predicate, but as a **full** interrogative CP.

### 2.1.1 Selection

**As** Ross 1969 pointed out, the **generalization** about which predicates allow **sluicing** in their complements and which do not is quite simple to state:

- (4) All and only predicates that s-select questions and c-select CPs allow sluiced wh-phrases.

Although *know* in (I) above allows both **interrogative and non-interrogative** complement CPs, when we examine a verb like *wonder* which only takes interrogative

complements, as the contrast between (5a) and (5b) shows, we see that sluicing is possible, as in (6).

- (5)    a-    \* I wonder (the time/the answer/the question).
  - b.    I wonder {what time it is/what the **answer** is/what **Ben** asked/who's coming}.
- (6)    a.    Ben wanted to **ask** something. I wonder what.
  - b.    Abby said someone's coming to dinner. We're all wondering who.

Indeed, when we examine predicates that are lexically **ambiguous**, like know or remember, we find that the sluiced reading is often **the** only one that is available **in** a given context. Although these can take DP objects as in (7) as well as CP complements as in (8), when the context requires sluicing, what would otherwise be ambiguous strings are disambiguated in favor of **the** embedded CP reading, as in (9).

- (7)    a.    Jack knows Guard Mulligan.
  - b.    Jill remembers the important announcement from yesterday.
- (8)    a.    Jack knows which guard **was** present.
  - b.    Jill remembers what I told you yesterday.
- (9)    a.    He claimed one of the guards had been present. Who knows which?
  - b.    I told you something important yesterday. Which of you remembers what?

In the context given, (9a) for example has only the sluiced CP reading of (10a), not that of a multiple DP question as in (10b). In other words, possible answers to (9a) are those in (11a), not those in (11b).

- (10) a. (9a) = Who knows which guard he claimed **had** been present?  
b. (9a) ≠ Who knows which guard?

- (11) a. Jack does. / Jack knows which.  
b. # Jack **knows** Guard Mulligan, **Bill** knows Guard **Keeley**, etc.  
# Everyone knows the guard outside his cell.

The difference between a sluicing interpretation of a wh-DP 'object' of one of these predicates, and a regular, true argument **interpretation** of the **same** would be completely mysterious under van Riemsdijk's proposal, which collapses the two. Instead, the relevant readings for (9a,b) indicate that we are dealing with a usual CP complement to these verbs.

### 2.1.2 Number agreement

A second point made by Ross 1969 is that the agreement on the main verb which appears with a sluiced wh-phrase is the typical agreement seen with CP subjects, and is independent of the number marking on the wh-phrase itself. Just as the CP subject in (12a) requires singular agreement on the verb (see McCloskey 1991c and references therein), so does the sluiced plural wh-phrase in (12b).

- (12) a. [CP Which problems are solvable] {is/\*are} not obvious.  
b. Some of these problems are solvable, but [which problems] {is/\*are} not obvious.

### 2.1.3 Case

Ross credits George Williams for noting that the "question-word must ... agree in case with some NP in a preceding clause" (p.253). He illustrates this with *the* verbs *schmeicheln* 'flatter', which assigns dative to its object, and *loben* 'praise', which assigns accusative, as in (13) and (14):

- (13) Er will jemandem schmeicheln. aber sie wissen nicht, {wem / \*wen).

*he wants someone<sub>dat</sub> flatter but they know not who,, / who<sub>acc</sub>*

'He wants to flatter someone, but they don't know who.'

- (14) Er will jemanden loben, aber sie wissen nicht, {\*wem/ wen).

*he wants someone<sub>acc</sub> praise but they know not who<sub>dat</sub> / who<sub>acc</sub>*

'He wants to flatter someone, but they don't know who.'

These examples illustrate as well that the case of the sluiced **wh-phrase** is independent of the case that would be assigned to an object of the embedding predicate, if this predicate can assign case. *Wissen* 'know', when transitive, assigns accusative to its object, as in (15). Nevertheless, the sluiced wh-phrase in the accusative is impossible if a verb like *schmeicheln* is understood, as in (13).

- (15) Sie wissen {\*der Antwort / die Antwort } nicht.

*they know the answer<sub>dat</sub> / the answer<sub>acc</sub> not*

'They don't know the answer.'

The following example from **Greek** illustrates the same point with respect to the nominative case required by subjects in (16a), which contrasts with the accusative case normally assigned by the verb *ksero* 'know' as in (16b).

- (16) a. Kapjos irthe, alla dhe ksero {pj<sub>os</sub> / \*pj<sub>on</sub>}.  
           someone *came*, but not *know.Isg who<sub>nom</sub>/whom<sub>acc</sub>*  
           'Someone came, but I don't know who.'  
       b. Dhe ksero {\*i apantisi / tin apantisi}.  
           not *know.Isg the answer,, / the answer*,  
           'I don't know the answer.'

Similar facts can be found with English prenominal genitives:

- (17) Somebody's car is parked on the lawn, but we don't know {whose/\*who}.

With whose, however, it is not possible to **be** sure that we are dealing only with a case-marked wh-phrase, since it is more likely that we have NP-ellipsis as well, as **in** [Whose {<sub>NP</sub> car}] is parked on *the* lawn? **and** [Ben's {<sub>NP</sub> car}] **is parked on the lawn** (see Lobeck 1995). But the basic point is unaffected by such invisible pied-piping: the case of the wh-phrase itself must correspond to that of its antecedent (somebody's in (17)), and cannot vary. We will return to these facts in chapter 3.

But it is not the whole story to state **only** that the case of the wh-phrase must "agree" with **an** antecedent — this is only the case when there is an **antecedent**. When no overt antecedent for the wh-phrase is **available**, the case properties of **the** sluiced wh-phrase are nevertheless not **free**, and **in particular**, are completely independent from any case that

the embedding predicate may assign to **nominal** objects of its own. The case found on the sluiced wh-phrase will **always** correspond to the case its **non-elliptical** counterpart would **have** shown in a **full** CP. I state this correlation in (18).

- (18) The wh-phrase shows only the case-marking from the elliptical **IP-internal** case position, not that of the embedding predicate.

We **can** see this in the absence of **an antecedent DP** in an example **like** (19):

- (19) A car is parked on the lawn, but we don't know {**whose/\*who**}.

This is also visible in cases where a verb assigns a particular case to its object, but can **appear** intransitively as well. as German *helfen* 'help', which assigns **dative** to its object.

- (20) Er meinte, er hatte geholfen, aber wir wüßten nicht, {**wem / \*wen**).  
*he thought he had.SBJ helped but we knew.SUBJ not who,, / who,,*  
'He claims he helped, but we wouldn't be able to say who.'

In **all** of these cases, the sluiced wh-phrase appears in the case assigned by the elliptical **predicate** or in the case required by its **function** in **the** elliptical clause, and not in the case **that** would be assigned by an embedding predicate.

Another case-related argument **against** the **bare-complement** analysis comes from adjectives which **allow** embedded questions under certain conditions, such as **obvious, clear, certain, etc.** (essentially, these allow CP complements, with the licit illocutionary force of the CP **being** determined by the matrix **clausal** characteristics: see Adger **and** Quer 1997 and references therein). One of these is **illustrated** in (21):

- (21) Somebody had called, but it wasn't clear who (**had** called).

It is **standardly** assumed however, that these adjectives cannot **assign** case, accounting for the **deviancy** of (22a). In fact, even if case considerations could be **argued** to not play a role, as in a there-insertion context **Like** (22b), a DP complement to **clear** is impossible.

- (22) a. \* It wasn't clear his idea(s).  
 b. \* There weren't clear his ideas.

The **contrast** between the sluiced version of (21) and these sentences militates *against* the wh-fragment analysis. Even an adjective like *worth*, which can assign case (see van Riemsdijk 1983) but does not license CP complements, cannot license sluicing:

- (23) a. The watch is worth five dollars.  
 b. \* The watch isn't worth which bonds he cashed in.  
 c. \* He cashed in some bonds, but I don't think the watch is worth which.

All of these cases indicate that the sluiced wh-phrase must receive case from a **case-assigner** internal to the elliptical IP, and not **from** the embedding predicate.

## 2.1.4 Positional distribution

Another powerful argument **that** sluices are CPs comes from the positional distribution of sluiced wh-phrases in a variety of languages. The basic **generalization** is **that** given in (24):

- (24) The positions available to a sluiced wh-remnant are always the same as the positions available to full interrogative CPs, not **the** positions **available** to non-moved wh-phrases.

Ross 1969 **examines** the facts of extraposition in English; his findings are given in the next subsection. I give further arguments of a similar nature from German, Dutch, Irish, and Hindi in subsection 2.1.4.2.

### 2.1.4.1 Extraposition in English

Ross 1969 notes that contrasts like those in (25) and (26) are mysterious if the sluiced wh-phrase is not **dominated** by a CP. In (25) we see that the adjectival predicate *clear* does **not** license ‘extraposition’ of a DP argument.

- (25) a. The correct approach wasn't clear.  
b. \*It wasn't clear the correct approach.

Nevertheless, exactly this pattern seems to occur with a sluiced wh-DP, as in (26b).

- (26) a. One of these approaches is correct, but [which of them] is **not** clear.  
 b. One of these approaches is correct, but it's not clear [which of them].

Of course, under the CP view, this simply reflects the fact that interrogative CPs can occur both as subjects and in extraposition contexts:

- (27) a. [<sub>CP</sub> Which of these approaches is correct] is not clear.  
 b. It's not clear [<sub>CP</sub> which of these approaches is correct].

Ross also gives examples with wh-PPs and **adverbials** phrases, which cannot occur as arguments of **clear** in any case:

- (28) a. \* {With Bob/Quickly} wasn't clear.  
 b. \* It wasn't clear {with Bob/quickly}.

But of course wh-phrases of these categories can **appear** in sluicing:

- (29) a. We know that he was eating, but {with whom/how rapidly} isn't clear.  
 b. We know that he **was eating**, but it isn't clear {with whom/how rapidly}.

These patterns would be mysterious if the wh-phrase were somehow generated **directly** as an argument of **clear**.

### 2.1.4.2 $SO_{DP}VO_{CP}$ Languages

Another argument from positional distribution comes from languages in which nominal arguments (including wh-phrases) occur on one side of the predicate, while sentential arguments (including interrogative CPs) occur on the other. German, Dutch, Hindi, and Irish are languages with this property: all are SOV with respect to nominal arguments under some circumstances (German and Dutch only in embedded clauses; Irish only in nonfinite clauses), but in general require CP arguments to appear to the right of the verb (or topicalized, as we will see). The varying predictions of the two analyses under consideration are clear: if sluiced wh-phrases are just base-generated wh-fragments in the clause like other non-sentential arguments, they should appear to the left of the verb (in the Mittelfeld). If the CP analysis is correct, sluiced wh-phrases should appear to the right of the verb (in the Nachfeld). I concentrate here on German to begin with, though the facts in Dutch are parallel. Hindi and Irish enter the discussion at the end.

In German, wh-phrases can occur clause-internally in multiple wh-questions, as in (30):

- (30) Wann hat Elke gestern {was / welches Auto} repariert?  
*when has Elke yesterday what/which car repaired*  
*'When did Eke fix {what/which car} yesterday?'*

These wh-phrases are generally assumed not to be able to scramble like other DPs (Fanselow 1990, Müller and Sternefeld 1993), giving rise to the contrasts in (31). In (31a)

we see that an object DP can scramble to precede the subject and an **adverbial**, yet in (31b) the **corresponding** wh-phrase cannot.<sup>1</sup>

- (31) a. Wann hat [das Auto], Elke gestern  $t_1$  repariert?  
*when has the car Elke yesterday repaired*  
 'When **did Elke** repair the car yesterday?'  
 b. \* Wann hat [{was/welches Auto}], Elke gestern  $t_2$  repariert?  
*when has what/which car Elke yesterday repaired*  
 ('**When** did **Elke fix** {what/which car} yesterday?')

The data in (32) show that DPs to **the right** of **the** final verb (in the Nachfeld) are degraded: wh-phrases, if anything, are **worse** here **than** definites like *das Auto* (cf. similar restrictions on **Heavy XP Shift** in English).

- (32) a. \* Wann hat Elke gestern  $t_1$  repariert [das Auto],?  
*when has Elke yesterday repaired the car*  
 b. \* Wer hat gestern  $t_2$  repariert [welches Auto],?  
*who has yesterday repaired which car*

Full embedded interrogative CPs, on the other hand, cannot appear **clause-** internally---they **must** either be extraposed as in (33a), or in SpecCP (the Vorfeld) as in (33d) (see Büring 1995b, Müller 1995 for evidence that CPs are generated clause-internally and reach their observed positions by **movement**):<sup>2</sup>

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<sup>1</sup> This picture is somewhat simplified: wh-phrases seem to behave like indefinites with respect to scrambling; see Beck 1996 for examples.

Note that in this respect, embedded questions behave differently from embedded propositions, whose positional possibilities are a function of the embedding predicate (see Webelhuth 1992, Büring 1995b). The

- (33) a. Wir haben nicht gewußt, [welches Auto **Elke** repariert hat].

we *have not known, which car Elke repaired has*

*'We didn't know which car Elke repaired'*

- b. \* Wir haben [welches Auto **Elke** repariert hat] nicht gewußt.
- c. \* Wir haben nicht [welches Auto Elke repariert hat] gewußt.
- d. [Welches Auto Elke repariert hat] haben wir nicht gewußt.

The same holds for **Hindi** (thanks to R. Bhatt for discussion and data):

- (34) a. Mujhe nahii pataa [ki Gautam ne kis se baat kii thii].

*I.DAT NEG knowledge that Gautam ERG who with talk do.PFV PAST*

*'I don't know who Gautam talked to.'*

- b. \* Mujhe nahii [ki Gautam ne kis se baat kii thii] pataa.

fact that [+wh]CPs pattern with the propositional CP complements of verbs like *sich freuen (über)* 'be happy (about)' (CP/PP-Vs, i.e. verbs that take CPs and PPs as complements) and not *verstehen* 'understand' (CP/DP-Vs — verbs that take CP or DP complements) comes as something of a surprise under Büring's insightful analysis of extraposition. In general, CP/PP-Vs require extraposition of the CP when no PP correlate is present, whereas CP/DP-Vs allow their CP complements to remain in the **Mittelfeld**:

- (i) a. Ich habe mich \*(darüber) [daß er kommt] gefreut.  
*I have REFL thereabout that he comes been-pleased*
- b. Ich habe [daß er kommt] verstanden.  
*I have that he comes understood*

But even though most of the predicates that embed [+wh]CPs also allow DP complements, and in fact disallow PP correlates, extraposition is nevertheless obligatory:

- (ii) a. Ich habe nicht verstanden, [warum er gegangen ist].  
*I have not understood why he left is*
- b. Ich habe seine Gründe nicht verstanden.  
*I have his reasons not understood*

Note that even predicates that allow PP correlates with propositional CPs do not allow them with interrogative CPs:

- (iii) a. Wir haben (\*davon) gewußt, [warum er gegangen ist].  
*We have thereof known why he left is*
- cf. b. Wir haben (davon) gewußt, [daß er gegangen ist].  
*We have thereof known that he left is*

These differences can presumably be reduced to the semantic type of the two CPs, which determines whether an object expletive can be associated with the CP in question. A full development of this approach must be left for further research.

- c. \* Mujhe [ki Gautam ne kis se baat kii thii] nahī̄ pataa.
  - d. [Gautam ne kis se baat kii thii], mujhe (yeh) nahī̄ pataa.<sup>3</sup>
- Gautam ERG who with talk do.PFV PAST I.DAT it<sub>CP</sub> NEG knowledge*

Crucially, sluiced wh-phrases in German and Hindi appear in the same positions as embedded [+wh]CPs, and not clause-internally as wh-phrases in situ do:

[Daß Elke ein Auto repariert hat] haben wir gewußt, aber...

*that Elke a car repaired has have we known, but*

'We knew that Elke repaired a car, but...'

- (35) a. wir haben nicht geahnt, [welches].
- we have not suspected which*
- 'we had no idea about who.'
- b. \* wir haben [welches] nicht geahnt.
- c. \* wir haben nicht [welches] geahnt.
- d. [welches] haben wir nicht geahnt.

Gautam ne kisi se baat kii thii, lekin

*Gautam ERG someone with talk do.PFV PAST but*

'Gautam talked with someone, but...'

- (36) a. mujhe nahī̄ pataa [kis se].
- I.DAT NEG knowledge who with*
- 'I don't know with who.'

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<sup>3</sup> For independent reasons, the complementizer *ki* cannot appear in fronted finite clauses:

(i) \* [ki Gautam ne kis se baat kii thii], mujhe (yeh) nahī̄ pataa.

*that Gautam ERG who with talk do.PFV PAST I.DAT it<sub>CP</sub> NEG knowledge*

- b. \* mujhe [kis se] nahī̄ pataa.
- c. \* mujhe nahī̄ [kis se] pataa.
- d. [kis se] (yeh) mujhe nahī̄ pataa.

**The data in(35)** and (36) are entirely expected under the hypothesis that the sluiced wh-phrase occupies the specifier of a full CP, but not if the wh-phrase is simply base-generated in the matrix clause.

Exactly the same kind of argument comes from Irish, which, while lacking the full range of possibilites seen in German and Hindi, also exhibits a difference in the positions occupied by CP vs. DP complements in some environments. (Thanks to J. McCloskey for these data.) In nonfinite clauses, a DP object must precede the verb, as in (37).

- (37) Rinne sé socrú      le    duine    den    dís,  
*made he arrangement with person of.the two*
- a      ... ach níl    sé sásta [rud ar bith] a inseacht dúinn.  
*but not. is he willing anything tell[-FIN] to.us*
  - b.     ... \* ach nil sé sásta a inseacht dúinn [rud ar bith].

'He made an arrangement with one of the two people, but he won't tell us anything.'

Embedded CPs, however, must appear clause-finally:

- (38) a.     ... \* ach níl    sé sásta [caidé a tá ar bun] a inseacht dúinn.  
*but not. is he willing what C is going-on tell[-FIN]to.us*

- b. ... ach níl sé s kta a inseacht dúinn [caidé a tá ar bun].  
 ‘... but he won't tell us what's going on.'

Again, sluiced wh-phrases appear where the CP appears, clause-finally, not clause-internally as a DP argument would:

- (39) a. ... \* ach níl sé sásta [céacu ceann] a inseacht dúinn.  
*but not-is he willing which of.them tell[-FIN] to.us*  
 b. ... ach níl sé sásta a inseacht dúinn [céacu ceann].  
 ‘... but he won't tell us which of them.'

These data again support the identification of sluiced wh-phrases with CPs.<sup>4</sup> Note also that these data show that whatever regulates the clause-peripherality of CPs in these languages, simply appealing to phonological weight as measured by number of syllables or the like will not suffice. Instead, these data clearly indicate that, if such positioning is driven by prosodic considerations as is often assumed, these prosodic rules must be sensitive to higher prosodic structure, and not necessarily to the content. In other words, if say, intonational phrases (IntP) must extrapose, but not perhaps smaller prosodic phrases, then the syntactic category CP must itself directly project IntP by virtue of its syntactic structure.

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<sup>4</sup> Judith Aissen (p.c) informs me that it should be possible to make a similar argument on the basis of the distribution of certain enclitic elements in Tzotzil, which attach to the right edge of an intonational phrase. CPs, but not DPs, can extrapose, giving rise to the order ... *enclitic* CP but not \*... *enclitic* DP. In this regard, sluiced wh-phrases should behave just like full, extraposed clauses, not like DPs, as in the following hypothetical data she provided:

- (i) [Someone left...]  
 a. pero mu sna' li Xun-e buch'u (ibat).  
*but NEG he.knows the Juan-ENC who left*  
*'but Juan doesn't know who (left).'*  
 b. \* pero mu sna' li Xun buch'u-e.  
*bitit NEG he.knows the Juan who -ENC*

If these data are correct, they also indicate that the sluiced wh-phrase is internal to a CP. See Aissen 1992 for more discussion of these enclitics.

This conclusion seems to me a welcome one, though I will not pursue the algorithms necessary for deriving the prosodic exponence from syntactic categories here.

### 2.1.5 German wh-stress shift

My last argument is based on the contrast in stress possibilities for wh-phrases in German noticed by Höhle 1983 and discussed in Reis 1985. These authors point out that **certain** multisyllabic wh-words can have variable stress in SpecCP of a **matrix** clause, as in (40) and (41); stress can fall either on the operator part of the wh-word (*wV-*) or the non-operator part (the incorporating preposition, **essentially**). In an embedded **clause**, however, these wh-words only permit stress on their non-operator portion, as in (42) and (43). My concern here **will** not be to account for this contrast, but simply to point out that sluiced wh-phrases pattern with wh-phrases in embedded contexts.

- (40) a. Warúm ist Elke gekommen?  
b. Wárum ist Elke gekommen?  
*why is Elke come*
- (41) a. Worán hat Elke gedacht?  
b. Wóran hat Elke gedacht?  
*what-on has Elke thought*

- (42) a. Wir haben nicht gewußt, [warúm Elke gekommen ist].  
       \* Wir haben nicht gewußt, [wárum Elke gekommen ist].  
                 *we have not known why Elke come is*
- (43) a. Wir wollten gerne wissen, [worán Elke gedacht hat]-  
       \* Wir wollten gerne wissen, [wóran Elke gedacht hat].  
                 *we would gladly know what-on Elke thought has*

Note that this stress contrast is sensitive to depth of **embedding**, not simply sentence-initial position, since a wh-phrase in the specifier of a **topicalized CP** still cannot take initial stress:

- (44) a. [Warúm Elke gekornrnen ist] haben wir nicht gewußt.  
                 *why Elke come is have we not known*  
       b. \*[Wárum Elke gekommen ist] haben wir nicht gewußt.
- (45) a. [Worán Elke gedacht hat] wollten wir gerne wissen.  
                 *what-on Elke thought has would we gladly know*  
       b. \*[Wóran Elke gedacht hat] wollten wir gerne wissen.

Initial stress can also sometimes occur in wh-phrases in clause-internal positions (*pace* Reis 1985); this stress pattern is found for example in echoic **multiple wh-questions**:

- (46) a. Wer will wohín fahren?  
       b. Wer will wóhin fahren?  
                 *who wants where-to to.drive*

- (47) a. Wer ist warúm gestorben?  
 b. Wer ist wárum gestorben?  
*who is why died*

Note that even in wh-expletive constructions<sup>5</sup> (see McDaniel 1989, Müller 1995), wh-words which presumably are in the initial SpecCP at LF but not at Spell-Out cannot take initial stress:

- (48) a. Was hast du nochmal gesagt, worán ich dich erinnern sollte?  
 b. \*Was hast du nochmal gesagt, wóran ich dich erinnern sollte?  
*what have you again said whar-on I you remind should*

<sup>5</sup> Sluicing over a wh-expletive itself is impossible, even when the corresponding question would be well-formed, as in (ii):

- (i) \* Du **hast** mir gesagt, ich sollte dich an jemanden erinnern, aber ich weiß nicht **mehr**,  
*you have me told I should you on someone remind but I know not longer*  
*[was\* [du mir gesagt hast, an wen\* ich dich erinnern sollte]]*  
*what you me told have on who I you remind should*  
 ('You told me to remind you about someone, but I can't remember who.')  
 (ii) \*Was\* **hast** du mir gesagt, an wen\* ich dich erinnern sollte?  
*what have you me told, on who I you remind should*  
 'Who did you tell me to remind you about?'

This is the result of the fact that the remnant wh-phrase in **the** sluice would have to be focussed, but wh-expletives, **and** expletives in general, cannot be; cf.:

- (iii) a. \* IT was raining.  
 b. \* THERE are prisoners in the **yard**.  
 c. \* IT is obvious that **Im** right,  
 d. \* WAS **hast** du **gesagt**, an wen ich dich erinnern sollte?

This clash of requirements presumably is also at work in ruling out bare wh-R-pronouns under sluicing, as in the Dutch example in (iva):

- (iv) a. \* Hij rekent **ergens** op, maar ik weet niet, waar.  
*he counts something on but I know not what*  
 ('He is counting on something, but I don't know what')  
 cf. b. \* Ik weet niet, WAAR hij op rekent. [only **contrastive** on WAARJ  
*Ik weet niet, waar hij OP rekent.*  
*I know not what he on counts*

See Gussenhoven 1983: ch. 5 and Hoekstra 1995 for discussion of accent placement in **these** elements.

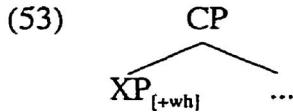
Crucially, the wh-phrase in a sluice only has **the** final stress **found** in embedded clauses ((49) and (51)), even when **topicalized** ((50) and (52)):

- (49) a. Elke **ist** gekommen, aber wir haben nicht gewußt [warúm].  
 b. \* Elke ist gekommen, aber wir haben nicht gewußt [wárum].  
*Elke is come but we have not known tvhy*
- (50) Elke ist gekommen, aber
  - a. [warúm] haben wir nicht gewußt.
  - b. \* [wárum] haben wir nicht gewußt.  
*why have we not known*
- (51) a. Elke hat an **etwas** gedacht, und wir **würden** gerne wissen [worán].  
 b. \* Elke hat an **etwas** gedacht, und wir **würden** geme wissen [wóran].  
*Elke has on something thought and we would gladly know what-on*
- (52) Elke hat an **etwas** gedacht, und
  - a. [worán] würden wir **geme** wissen.  
*what-on would we gladly know*
  - b. \* [wóran] würden wir **gerne** wissen.  
*what-on would we gladly know*

Again, this is entirely expected if the **wh-phrase** in a sluice is in the specifier of an embedded CP, but quite mysterious otherwise.

### 2.1.6 Summary

We have seen five reasons to believe that sluiced wh-phrases are the audible part of a CP whose **sentential** domain is elliptical, **and** that these sluiced XPs are not simply **fragment** XPs generated by the grammar **and** inserted in place of CPs as proposed by van Riemsdijk 1978. For **the** remainder of this dissertation, then, we can take it that sluices have at least the structure in (53). This structure supposes that the wh-XP occurs in SpecCP, which I take to be the null hypothesis based on **the overt** manifestations of interrogative structures in the languages examined above. **The** question whether such movement must be overt will briefly re-engage our attention later when we examine data from wh-in-situ languages, but in general I will proceed on the assumption that the wh-remnant is **immediately** dominated by CP.



Having established what the external **syntax** of the sluice is, let us **turn** now to the more **difficult** question of its internal syntax.

## 2.2 Internal syntax: The hidden structure of the sluice

Discerning the **internal** syntax of the sluice means investigating the structure of silence: attempting to determine what structure must be present in order to generate the perceived interpretation of **elliptical** phrases. I take it for granted that the primary desideratum of any theory of the interpretation of ellipsis is providing **the** appropriate material for interpretation.

Within the theory assumed here, this means providing appropriate structures to LF, though of course these **will** be supplemented by interpretational mechanisms that do not rely on structural conditions. I will assume that the level of LF should be transparent to the **semantics** in the sense of Heim **and** Kratzer 1998 and others, and that **all** semantically relevant material must be represented there. Since **LFs** are structural, consisting of phrase markers, this view entails that ellipsis resolution is of a different nature than general processes of inferential deduction (assuming such processes do not operate on syntactic structure *sensu stricto*).

For sluicing in particular, this means that **the** missing IP must be supplied by the syntax, either by being present throughout the syntactic derivation with the ellipsis being deletion at PF or by copying of phrase markers at LF. This point cannot be emphasized enough — it is fair to say **that** one of the major results of the data presented in this dissertation is to show that ellipsis is *structural*, that is, that an ellipsis site contains syntactic structures of the kind familiar from **overt** syntax.

This is not a trivial basis to start from, of course, and some researchers **have** sought to do without it (see for instance Ginzburg 1992, in preparation). But doing without it entails complicating the syntax-semantics interface in ways that, while clearly needed for the interpretation of certain elements which take parts of their **meaning** from the context (**indexicals**, deictics, gradable adjectives, etc.), are not so clearly needed for the interpretation of **ellipsis**. Sluicing in particular, in contrast to **the** more often studied VP-ellipsis, clearly shows syntactic dependencies which require that certain **structures which** are not audible **nevertheless** be present in **the** syntax. The alternative would be to burden the semantics with information about idiosyncratic case assignment and whether or not a language **allows** preposition **stranding**, as we will **see** in detail in the next chapter. I take it that it is desirable to construct a theory in which such information is not available to the semantics *sensu stricto*, **and** is available in the derivation only as late as LF, a syntactic structural level.

This brings us back to the point made above—if ellipsis is indeed structurally represented, we have two choices: either the structure is provided by the **syntax** as **usual**, and the **grammar** does something unusual to it (that is, it issues **instructions** not to pronounce **any** of it), or the structure that provides the input to phonology **itself** contains no **phonologically relevant** material in the ellipsis site, **requiring** that structure be provided after **Spell-Out** on the LF-side of the derivation. As has been noted in the literature (see Lobeck 1995 for discussion and references), the former **view** requires a kind of **communication** between **the distinct levels** of PF and LF which might seem problematic. But this **kind** of 'communication' is necessary in **any** case, to account for the distribution of **deaccenting** phenomena, where appeal to copying procedures is irrelevant in principle<sup>6</sup>. In much of **what** follows, whether one adopts a copy or deletion approach will not be **crucial**, the evidence being compatible with either approach. In later sections, however, anticipating the **data** and conclusions of chapter 3, I will phrase the **analytical** options in terms that implement the generalizations using deletion at PF.

## 2.2.1 Licensing conditions on IP ellipsis

The elliptical IP in sluicing is licensed only in certain environments, as has long been noted in the literature, going back to Ross 1969. It is not generally the case that IPs can be elided, as the examples in (54) show for IP complements to the complementizer *that*.<sup>7</sup>

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<sup>6</sup> This 'communication' is also required to account for semantic focus and pitch correlations, and indeed for the fact of **sound-meaning** correspondence in general.

<sup>7</sup> This holds of course for the complementizer *that* in (54b), not for the demonstrative *that*. In languages such as Greek where there is no homophony between these elements, the relevant examples are unambiguously ungrammatical (*οτι* is the complementizer 'that', while *αφτο* is the demonstrative):

- (i)      a.      Itan ekei, alla o Petros dhen iksere [CP otí [IP itan ekei]].  
*was there but the Petros nor knew that was there*  
*'She was there, but Peter didn't know she was there.'*
- b.      \* Itan ekei, alla o Petros dhen iksere [CP otí [IP e ]].

- (54) a. She was there, but Ben didn't know [<sub>CP</sub> that [<sub>IP</sub> she was there]].  
       b. \* She was there, but Ben didn't know [<sub>CP</sub> that [<sub>IP</sub> e ]].

The embedded IP in example (54a) for instance is preferably pronounced with the 'low-flat' intonation characteristic of repeated material in English. This deaccented intonation is often taken to be in essentially free variation with complete phonological reduction, that is, deletion. But while deaccenting is possible here, ellipsis is not. This means that we must postulate some additional, grammatical requirement on this kind of ellipsis which goes beyond simply allowing the phonology to interpret given structures either as 'deaccented' or 'unpronounced' .

Exactly the same holds for *that* in all other environments as well:

- (55) a. It was painted, but it wasn't obvious [<sub>CP</sub> that [<sub>IP</sub> it was painted]].  
       b. \* It was painted, but it wasn't obvious [<sub>CP</sub> that [<sub>IP</sub> e ]].
- (56) a. It was painted, but [<sub>CP</sub> that [<sub>IP</sub> it was painted]] wasn't obvious to *the* casual observer.  
       b. \* It was painted, but [<sub>CP</sub> that [<sub>IP</sub> e ]] wasn't obvious to the casual observer.
- (57) a. She had arrived, but [<sub>CP</sub> that [<sub>IP</sub> she had arrived]], they didn't tell us.  
       b. \* She had arrived, but [<sub>CP</sub> that [<sub>IP</sub> e ]], they didn't tell us.

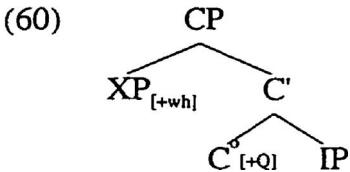
As noted by Ross 1969, the complementizers *whether* and *if* also fail to license null IP complements:

- (58) \* The Pentagon leaked that it would close the Presidio, but no-one knew for sure [<sub>CP</sub> { whether / if) [<sub>IP</sub> e ]}].

The same holds for the complementizer **for**, as pointed out by Lobeck (1995:46):

- (59) \* Sue asked Bill to leave, but [<sub>CP</sub> for [<sub>IP</sub> *e*]] would be unexpected.

Lobeck, adapting the CP projection of Chomsky 1986, gives the structure in (60) for sluicing:



Lobeck 1995 further discusses a number of cases which indicate that the null IP in sluicing is subject to quite strict Licensing and identification requirements. To begin, null IPs do not occur when lexically governed, as in (61) and (62) (Lobeck 1995: 56):

- (61) a. \* Even though Mary doesn't believe [<sub>IP</sub> *e*], Sue expects Hortense to be crazy.  
 b. \* John appears to be smart, and Mary also seems [<sub>IP</sub> *e*].  
 c. \* Mary doesn't expect Bill to win, but she wants [<sub>IP</sub> *e*].
- (62) a. \* John talked to Bill, but before [<sub>IP</sub> *e*], Mary called.  
 b. \* Mary ate peanuts during the game, and while [<sub>IP</sub> *e*], the home team made four runs.

**Lobeck** proposes that the null IP must be properly head-governed by an agreeing head, here C<sup>o</sup>, which must be specified [+wh]. This correctly rules out cases of ‘partial’ sluicing, as in (63) (her (54), p.56), since the embedded C<sup>o</sup> is not [+wh].

- (63) I know someone likes Mary, but
- a. \* who do you think [CP t [C<sup>o</sup> [IP e ]]]?
  - b. who do you think [CP t' [C<sup>o</sup> [IP t Likes her]]]?

However, even if the embedded complementizer is [+wh], such partial sluicing is still impossible:

- (64) a. \* They wondered if Marsha would invite someone, but I don't remember who they wondered whether [IP e ].
- cf. b. ? Who did they wonder whether Marsha would invite?

**Lobeck’s** system rules this out as well, by stipulating that the licensing C<sup>o</sup> must be coindexed with a lexical wh-phrase in SpecCP. However, even if this condition is met, embedded sluicing may still be impossible, as in **Williams’s** (1986) example:<sup>8</sup>

- (65) \* John knows how to do something, but I don't know what he knows how [IP e ].  
(i.e., ... I don't know what he knows how to do.)

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<sup>8</sup> I will not go into Williams’ account of the ungrammaticality of this example, since it relies on the incorrect assumption that distinct operators may not bind into an ellipsis site, from Williams 1977 and Sag 1976. Such an restriction on alphabetic variance incorrectly rules out examples like (i):

(i) I know what I like and what I don't

What seems to be causing the degradation of the ‘partial’ ellipsis examples in (64)-(65) is a prohibition on eliding less than possible: partial ellipsis as in (64)-(65) requires that redundant material be destressed adjacent to an **ellipsis** site. It is this constraint<sup>9</sup> that seems to play a role in the unexpected oddness of examples like (66b):

- (66) a. Ben knows who she invited, but Charlie doesn't.  
b. ?? Ben knows who she invited, but **Charlie** doesn't *know who*.  
c. Ben knows who she invited, but Charlie doesn't *know* who *she invited*.  
cf. d. ?? Ben knows who she invited, but Charlie doesn't *know who she did*.

To return to the conditions on the C-system in sluicing: simple agreement with a [+wh] operator in SpecCP is not enough to license the null IP, since sluicing is not possible in relative clauses (example (c) is Lobeck's (57b), p.57).

- (67) a. \* Somebody stole the car, but they couldn't find the person who.  
b. \* The judge gave 5 years each to the adults who participated in the riot, but  
she hasn't yet sentenced the minors who.

<sup>9</sup> This restriction on 'partial' deletions, or mixing ellipsis with wh-operators and deaccenting, also extends to the problematic example discussed by Tancredi 1992: 123:

(i) A: I wish I knew who brought what to the party.

B: I wish I knew who brought what to the party.  
B: I wish I did too. I have no IDEA a. \*who did.

b. *who brought what (to the party).*

Something like Tancredi's stipulation limiting this to interactions involving **wh-operators** seems necessary, given the **well-formedness** of the following examples with VP-ellipsis:

(ii) a. Abby knew that he had quit, but Beth didn't *know that* he had.

b. Abby knew that he had quit, but Beth didn't know that. Abby asked if he had quit, but Beth didn't **ask if he had**.

These examples contrast for some speakers with **examples** where the ellipsis site contains, under standard assumptions, the origin site of the fronted adjunct **when**.

(iii) a. ?? Abby knew when he had quit, but Beth didn't know when he **had**.

b. ?? Abby asked when he had quit, but Beth didn't **ask** when **he had**.

These contrasts raise interesting questions about the interaction between deaccenting, ellipsis, and wh-extraction which I will not go into here. The interested reader should see the discussion in Lobeck 1995: §6.3 and Johnson 1997, as well as Winkler 1997. I will set them aside here, and return to the core data any theory of IP-ellipsis should aim to cover.

- c. \* Although the place where is **unclear**, **the time** when the meeting is to be held is posted on the door.

Lobeck assumes that **the complementizer** that occurs in relative clauses with overt relative operators is [-wh], citing Rizzi 1990. This allows her to **maintain** that the 'strong' feature (value) [+wh] is sufficient to license and identify the **null IP**. In fact, however, Rizzi's 1990 system makes a slightly different division **than** the one Lobeck claims, though one that **can** be **modified** to her purposes easily enough. For Rizzi, the complementizer in relative clauses can **be** either [+wh], co-occurring with overt wh-relative operators, or [-wh], co-occurring with the null operator. The former is always null in English, while the latter varies, subject to conditions not of interest here. Both C°'s, however, are [+pred], while the [+wh] C° that occurs in interrogatives is [-pred]. Adapting this to Lobeck's system, we must claim that **only** the null [+wh, -pred] C° of interrogatives **will** license the null IP.

Similar reasoning extends to the cleft examples in (68):<sup>10</sup>

- (68) a. \* We thought it was Abby who stole the car, but it was Ben who.  
 b. \* Somebody stole the car, but no-one knew that it was **Ben** who.

Lobeck's earlier licensing and identification requirements were meant to have much in common with the Empty Category Principle, and as such relied **crucially** on the notion of

<sup>10</sup>

Interestingly, **pseudoclefts** seem to allow sluicing to some extent:

(i) a. ? Ben **stole** something — [what] was a car.  
 b. ? He left, and when was yesterday.

I use the order [wh-phrase]-[pivot] to avoid the distracting presence of such **collocations** as the following:

(ii) a. What did **Ben** steal? A car is what! \*What is a car.  
 b. What's **he** doing? **Dancing** a jig is what! \*What is dancing a jig.

The availability of sluicing in **pseudoclefts** is expected if these are 'self-answering' questions, as proposed in Higgins 1973 and den Dikken et al. 1998, and less free-relative-like; **free-relatives**. Like regular **relative** clauses, do not license sluicing:

(iii) \* **He's** up to something again, and I don't like [what]!

head government. In a more recent approach to these requirements on ellipsis, consonant with the Minimalist Program's program to eliminate **government** as a theoretical device, Lobeck 1999 has proposed that the null category undergoes movement into the specifier of the licensing head. Her discussion is confined to the case of VP-ellipsis: in this approach, the null VP (a **maximal** and **minimal** null element similar to *pro*) moves into SpecTP to check a strong agreement feature, since feature checking requires a spec-head **configuration**, by hypothesis. She assumes that SpecTP is free for this VP, the subject being in SpecAgr<sub>S</sub>P. Whatever the merits of this approach, it is clear that extending it to sluicing is impossible: in sluicing, a **wh-phrase** occupies SpecCP, blocking movement of the null IP.

It seems instead that, if we are to capture the intuitions behind the government approach to Licensing in a Minimalist framework dispensing with government per se, we should locate the necessarily local relation between the licensing head C and the elided category IP not in a spec-head relation, but in a head-head relation". We can employ the same conditions on licensing identified by Lobeck, recasting them as featural matching requirements in a head-head relation, the other structural relation available for feature checking. What is needed is a feature on I that can only be checked by a [+wh, -pred] C head, and which triggers deletion of the IP at PF. Call this feature E. E moves from I to C, along the lines discussed above, being checked in C<sup>12</sup>. E issues an instruction to the PF system to skip its complement for purposes of parsing and production. Here I am assuming a strictly left-to-right algorithm for PF: at each syntactic node, the features on that node trigger operations in the phonological component, whether these be lexical insertion or construction of prosodic categories, etc. For example, a CP node must be mapped onto some higher level prosodic category (perhaps an intonational phrase) regardless of how

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<sup>11</sup> Or feature-feature relation, to the extent these differ.

<sup>12</sup> Equivalently, the feature could start on C, not being moved there from I at all. In this case, we would state the checking requirement of E as a feature compatibility requirement, I see no reason to choose between these alternatives here.

**many** syllables occur inside CP, as discussed in §2.1.4. While some features on nodes may indicate **that** they are to be prosodically incorporated into their sisters, the E feature will indicate the opposite: its sister is not to be prosodically incorporated into the PF structure **at all**.

Depending on independent questions about how one implements semantic composition for complex heads which I will ignore, we can also give the semantics for E: essentially, E is the feature that imposes the Focus condition defined in chapter I. The simplest way of implementing this, assuming that E will combine with IP (again, how the independent contribution of C is implemented is a separate question, not unique to the current issue), is to assimilate the failure of deletions that do not respect the Focus condition to a kind of presupposition failure. Under this approach, we would have a partial identity function for the meaning of E, following the implementation of Heim and Kratzer 1998:244:

$$(69) \quad \llbracket E \rrbracket = \lambda p : p \text{ is } \text{GIVEN}_E . p$$

By giving a semantics for E, the licensing (the local featural requirements of E) and identification (the semantic condition E imposes on its complement) requirements on ellipsis can for the first time be linked.

This view of the mechanism of ellipsis retains the advantage of the government approach in requiring a very local relation to hold between the head which checks the E feature ('licensing' the ellipsis, in traditional terms) and the category affected by E, while at the same time integrating this with a more restrictive view of the possible relations employed in the syntax. Note that this particular implementation leaves open the exact nature and number of the checking features, and the requirements of E to be checked, allowing for cross-linguistic variation in this domain if necessary. This seems to me to be a promising

line of attack, opening the way to a reformulation of Lobeck's notion of 'strong agreement'.

At this point, however, we still have Little in the way of concrete empirical evidence which of the general approaches examined here is to be preferred: the data thus far are compatible either with the view that treats ellipsis sites as empty categories in the syntax, or with the view that takes ellipsis as the result of deletion at PF.

### 2.2.2 The COMP system in sluicing

This section examines that area of structure traditionally known as COMP: material dominated by CP but external to IP, in a structure like (70):

$$(70) \quad [_{\text{CP}} \underbrace{[_{\text{XP}_{[\pm \text{wh}]}} \text{C}^0]}_{\text{"COMP}} [_{\text{IP}} \dots ]]$$

Languages differ widely on what sort of material can appear in the COMP field and under what circumstances. It is not my aim here to give a review of the literature that deals with how Languages differ in this respect and how the various patterns are to be accounted for. My aim here will be limited to examining the behavior of the COMP field under sluicing, and in extracting the significance of the data presented for the proper analysis of the syntax of sluicing. The data that I will present can be described in a very simple and surprising generalization, given in (71):

(71) *Sluicing-COMP generalization*

In sluicing, no non-operator material may appear in COMP.

Here, let us understand 'operator' as 'syntactic wh-XP', as in (70) above. By 'material' in (71) I mean simply any pronounced element. This is meant to include complementizers, verbs, clitics, agreement morphemes, and the like. The claim is that only segments directly associated with the syntactic operator--the wh-XP—will be found overtly in sluiced interrogatives.

The generalization as stated subsumes two separate subcases, which I will examine independently below. The first subcase concerns elements which are usually analyzed as originating within IP and moving into COMP or cliticizing parasitically onto elements base-generated there. These include I<sup>0</sup>-to-C<sup>0</sup> verb movement in the Germanic languages, complementizer agreement, Wackernagel clitics in South Slavic and other Balkan languages, and a variety of 'second position' phenomena in general. The second subcase concerns elements that are usually assumed to be base-generated in the COMP system, namely complementizers themselves (as well as wh-expletives in some languages, see footnote 5, and wh-operators that bind resumptive pronouns, see chapter 4 §4.3).

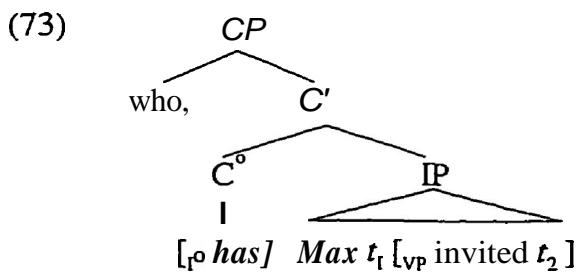
The conclusion reached is that although the facts from this domain (to the extent they have been discussed at all) have been taken to support a the null-category approach to ellipsis over the deletion approach, upon closer inspection these facts are fully compatible with the deletion approach, and may provide the basis for interesting conclusions on the nature of feature-driven movement as well. Finally, the restrictions on elements in sluicing seem best thought of as operative at the PF interface, similar in some respects to the COMP-trace effect.

### 2.2.2.1 Non-operator foreign elements in COMP

I begin with an examination of the **facts** from English, Dutch, German, and Danish **main**-clause sluicing (to the best of my knowledge, these **facts** are identical in the other Scandinavian languages as well). As is well known (see Vikner 1995 for discussion and references), all of these languages exhibit verb-second (V2) in unembedded interrogatives, as shown in (72). Though *they* differ in whether they require V2 in non-interrogative main clauses, such structures will not be of interest here, since sluicing is limited to interrogative structures only.

- (72) a. Who has Max invited? [English]  
 b. Wen hat Max eingeladen? [German]  
 c. Wie heeft Max uitgenodigd? [Dutch]  
 d. Hvem har Max inviteret? [Danish]

This is standardly analyzed as I<sup>0</sup>-to-C<sup>0</sup> movement, illustrated in (73) for English (I assume for simplicity that this movement is substitution and not adjunction, the ordering of inflectional elements within a 'complex head' being determined by principles of morphology and not directionality of adjunction):



Given the structure **in** (73), we might expect that main-clause sluices in these languages would consist of the wh-XP followed **by** some moved verb, **especially if the IP ellipsis in** sluicing is simply phonological deletion of **the** material remaining in the IP at PF. This expectation is not **borne** out:

- (74) a. A: **Max** has invited someone. B: **Really?** Who (\***has**)? [English]  
 b. A: Max hat jemand eingeladen. B: Echt? Wen (\***hat**)? [German]  
 c. A: Max heeft iemand uitgenodigd. B: Ja? Wie (\***heeft**)? [Dutch]  
 d. A: **Max** har inviteret en eller anden. B: Ja? Hvem (\***har**)? [Danish]

One might wonder whether such structures really consist of sluices **at all**—after all, fragment questions **clearly** exist, in echo functions, **and** indeed need **not** even display wh-forms, though this is certainly also possible.

- (75) A: Superman tricked Mr. Mxlpckx.  
 a. B: Who?  
 b. B: Mr. who? c. B: Superman **tricked** Mr. **who**?

But it is easy to see that such bare-echo wh-XPs differ considerably from the matrix sluices in (74). First, the intonational contour on the wh-phrase in (75a) is the same intonation that the questions in (75b,c) **bear**, namely **a rise** (L\*H; though see Gunlogson in prep. for a much **fuller** picture). The sluiced **wh-phrase** in (74a), on the other hand, bears **the** contour assigned to full questions in this context: a fall, as **in Who did he trick?**. As signalled by the differing pitch contours, the **status of bare echo wh-XPs like (75a) and that of matrix informational question (sluiced) wh-XPs as in (74)** are completely different.

Note also that the illocutionary modifier really that precedes the matrix sluice in the examples in (74) is not possible before an echo question:

- (76) A: Superman tricked Mr. Mxlplckx.

L\*H

B: # Really? Who?

This derives from the fact that *really* here indicates that B has accepted the content of A's utterance into the common ground (though perhaps signalling some surprise). This uptake is obviously not possible if B has not understood the content of A's utterance to begin with, as indicated by the use of the rise contour.

A second, syntactic piece of evidence for keeping main-clause sluicing and fragment whquestions separate comes from the limited use of R-pronoun inversion in English sluices.<sup>13</sup> We can observe that some wh-operators can invert with a governing preposition in English sluicing, as illustrated in (77):

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<sup>13</sup> Space prevents a full discussion of this phenomenon here, but I note that it is also found in the Scandinavian languages (thanks to P. Svenonius for the Norwegian and L. Mikkelsen for the Danish):

- (i) Per har gått på kino, men jeg vet ikke hvem med. [Norwegian]  
 Per er gået i biografen, men jeg ved ikke hvem med. [Danish]  
 Per *has/is gone to cinema but I know not who with*  
 'Per went to the movies but I don't know who with.'

In English at least, this inversion is limited to the 'minimal' wh-operators *who*, *what*, *where*, and *when* (and, for some speakers, *how long*). Despite this, it is not (just) prosodically conditioned, since *which* and *whose are* impossible while —as pointed out to me by J. It6 (p.c.)— compounds with *the hell are* possible (though not *generally* in sluicing; see chapter 4 §4.2.2 (3)):

- (i) a. He was talking to one of those *guys*, but I don't know which (\*to).  
 b. He **was** talking to somebody's mom, but I don't know whose (\*to).  
 c. He was **talking**, but God knows who the hell **to**.

Previous investigators have linked the available of this inversion to the R-pronoun inversion in continental West Germanic (as in German *wovon*, Dutch *waarvan* 'where-from'; see van Riemsdijk 1978 and Chung et al. 1995). Still, numerous differences distinguish the two phenomena. In English, it seems the most adequate account is to take the wh-words that participate in these to be heads that have raised to P ('minimal maximal' Xs, like clitics, in Chomsky's 1995 terms). Head-to-head movement picks out exactly this class (ruling out *which*, assuming that excorporation is banned). See chapter 4 §4.2.2 (7) for additional data.

- (77) Lois was **talking** (to someone), but I don't know [who to].

This is of course not possible in non-sluiced interrogatives:

- (78) a. \* I don't know [who to] Lois **was talking**.  
 b. \* [Who to] was Lois talking?

This inversion can **thus** be taken as sluicing-specific, for reasons **that** will not concern us yet. Crucially, such inversion **appears also in matrix** sluicing:

- (79) A: Lois was talking (to someone). B: Realty? Who to?

But this inversion is not possible in echo-wh-fragments:

- (80) A: Lois was talking to Mr. Mxlplckx.

L\*H

- a. B: To who?

L\*H

- b. B: \*Who to?

If this suggestion is correct, a modifier like *the hell* **must** either *be* head-adjoined or a **lexical affix**. This seems correct — this modifier occurs on monomorphemic **words/heads** as in *{who/where/why} the hell / how rhe hell long / what the hell book* (Pesetsky 1987:111 (40a)), but not on phrases: \* *what book the hell / \* how long the hell*. Many questions remain, of course (for example, the **difference** between *the hell* and similar modifiers like *on eanh* which **also** occur in inverted sluices like (ic) remains to be elucidated).

The remaining question, which has never been **addressed**, is why this is possible only **under** sluicing in English (R-pronoun inversion in German and Dutch being much **more general**). Clearly this possibility must be linked to the absence of prosodic **material** in IP (and C, as we will see below), perhaps indicating that this head movement occurs at PF; at this point, I **can** only suspect that this fact should inform our theory of recursive stress assignment and prosodic constituency.

With inversion, the presence of a moved auxiliary in C is impossible, parallel to (74a) above:

- (81) A: Lois was talking (to someone). B: Really? Who to (\*was)?

This brief **excursus** has been simply to establish the point that sluicing occurs **in** matrix clauses as well, pace Ross 1969 and Klein 1977, **but** in agreement with Bechhofer 1976a,b, 1977 (see the latter for further evidence). This leaves the pattern in (74) mysterious for **the** moment.

A similar **puzzle** comes from the South Slavic languages which have ‘Wackernagel’ **clitics**, such as Slovene, Bulgarian, Serbo-Croatian, and **Macedonian**. In these languages, a **certain** class of elements —auxiliaries, negation, and certain **pronominals**— are subject to positional restrictions on their distribution which places them adjacent to wh-phrases. In essence, these elements, like inflected matrix verbs in V2 languages, must occur in ‘second’ **position**, where ‘second’ is defined either prosodically, with respect to the **first** prosodic word, or **structurally**, with respect to the **first** syntactic constituent. See Rudin 1985 for discussion, and Anderson 1996, 1998 for a recent approach which attempts to **bring** the V2 facts into consideration as **well**. The account of this phenomenon and its variations is tangential here: of interest is only the fact that under certain circumstances, these elements **may appear** within or **between** complex wh-XPs in the CP system. This is **illustrated** for Slovene in (82), from Marvin 1997, where the element of **interest** is **the** aspectual auxiliary ***je***, which obligatorily **cliticizes** onto the embedded wh-phrase as seen (see also Rudin, Izvorski, and King 1996 for Bulgarian; Browne 1974, Bošković 1995 for Serbo-Croatian; and Legendre 1997 for Macedonian):

- (82) Peter se je spraševal, kako, je Spela popravila  $t_1$ . [Slovene]

*P. REFL AUX asked what AUX Spela fixed.*

'Peter wondered what Spela fixed.'

This also holds for multiple fronted wh-phrases; in such cases, the auxiliary *je* cliticizes onto the first of the wh-phrases:

- (83) a. Nisem vprašal, kaj<sub>1</sub> je komu<sub>2</sub> Spela kupila  $t_1, t_2$ .

*NEG.I.AUX asked what AUX whom Spela bought*

'I didn't ask what Spela bought for whom.'

- b. \* Nisem vprašal, kaj<sub>1</sub> komu<sub>2</sub>, je Spela kupila  $t_1, t_2$ .

Under no circumstances, however, can such a cliticized element survive under sluicing (thanks to T. Marvin for judgments):

- (84) a. Spela je popravila nekako, a nisem vprašal, kako (\*je).

*Spela AUX fixed something but NEG.I.AUX asked what AUX*

'Spela fixed something, but I didn't ask what.'

- b. Spela je kupila nekaj nekomu, a nisem vprašal,

*Spela AUX bought something someone.DAT but NEG.I.AUX asked*

*kaj (\*je) komu.*

*what AUX who.DAT*

(Lit.) 'Spela bought something for someone, but I didn't ask what for who.'

Another kind of data that is relevant in this regard comes from the various manifestations of non-wh-agreement in the C-system found in several languages. Such

complementizer agreement systems **are** particularly well-attested within the **Germanic** family. The term complementizer agreement, as used in the Germanic literature, **refers** to manifestations of agreement with **certain** features of an embedded subject **only**, **and** should not be **confused** with **complementizers** which agree with wh-phrases, as **are** found in Austronesian and Celtic. The details of **Germanic complementizer** agreement **will** not **be** my concern here (see Zwart 1993:3.3 for discussion **and** references); of interest here is **only** the fact **that** this agreement appears equally well when there is a wh-phrase in SpecCP, as illustrated in (85) (Luxemburgish, from Zwart 1993: 163) and (86) (Bavarian, from Lobeck 1995:58).

- (85) ... mat wiem (datt) s de spazéiere ganng bas. [Luxemburgish]  
*with who that 2sg you walk gone are.2sg*  
'... with whom you went for a walk.'

- (86) Du woidd-st doch kumma, owa mia wissn ned **wann-st** (du) kumma woidd-st.  
*you wanted-2sg PRT come but we know not when-2sg you come wanted-2sg*  
'You wanted **to** come, but we don't know when you **wanted** to come.' [Bavarian]

Lobeck 1995:59 points out **that** although complementizer agreement can phonologically **cliticize** onto a wh-phrase in SpecCP when no overt complementizer is present, and though sluicing is **generally** possible in these dialects, nevertheless such agreement cannot appear in sluicing (her (65)):

- (87) Du woidd-st doch kumma, owa mia wissn ned wann (\*-st). [Bavarian]  
 you *wanted-2sg* PRTcome but *we know not when -2sg*  
 'You wanted to come, but we don't know when.'

She relates this fact to the fact that when the verb **bearing** the matching agreement features is not present, as in phrasal comparatives. complementizer agreement is likewise impossible. The data are from Bayer 1984:

- (88) a. Der Hans is gresser (als) wia -st du bist. [Bavarian]  
*the Hans is taller than how-2sg you are-2sg*  
 'Hans is taller than you are.'  
 b. Der Hans is gresser (als) wia(\*-st) du.  
*the Hans is taller than how-2sg you*  
 'Hans is taller than you.'

Lobeck makes a similar point based on the distribution of the complementizer *som* in **Norwegian**, which appears obligatorily in embedded questions with subject extraction, as in (89a) (modified slightly from Rizzi 1990:57, see also Taraldsen 1986 and Vikner 1991; likewise for Danish *der* in spoken registers, if *der* is indeed in C<sup>14</sup>):

- (89) Vi vet hvem \*(som) snakker med Marit. [Norwegian]  
 Vi ved hvem ??(der) snakker med Marit. [Danish]  
 we *know* who C' talks with *Marit*  
 'We know who is talking with Marit.'

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<sup>14</sup> Thanks to L. Mikkelsen for the Danish data.

Lobock points out that this *som* is nevertheless impossible in sluicing, shown in (90) (her (68), p.60); she suggests that this is because *som* must agree with INFL (in order to license the subject trace), which on her account is missing. This assumption assimilates the deviancy of (90a) to that of the lack of complementizer agreement seen above. The Danish example in (90b) shows the same contrast (again, if *der* is in fact in C).

- (90) a. Noen snakker met Marit, men vi vet ikke hvem (\*som). [Nor.]  
 b. En eller anden snakker med Marit, men vi ved ikke hvem (\*der). [Dan.]  
*someone talks with Marit but we know not who C'*

If this assumption regarding the **nature** of the relation between *som* (and *der*) and INFL is correct, then, it provides another case of an illicit non-operator dependency holding between an element in the C-system and a position or element internal to the missing IP.

All of the data presented in this section have one thing in common: under usual assumptions, the non-operator elements which appear in the C-system originate within the clause. Consider the first case discussed above, and the most familiar one: V2 in matrix questions in the Germanic languages. The standard analysis takes the fronted elements to originate inside IP, either in I° itself (for the English **modals** and pleonastic do), or within a lower VP, raising into I° (for **have** and **be** in English; in the other languages, almost all verbs can raise). V2 is then triggered in different configurations in the various languages (in all **matrix** clauses in all the languages besides English; in matrix questions, **imperatives**, 'negative inversion', and other very **restricted** contexts for English) — crucial here is only that such fronting is I°-to-C° raising (or into **whatever** heads the projection whose specifier is the landing site for wh-movement in these languages). **Complementizer** agreement, too, is

usually analyzed as involving movement of a functional head or some of its **features** ( $I^0$  for Hoekstra and Marácz 1989,  $Agr_S^0$  for Zwart 1993) from within the IP to  $C^0$ . (Whether the Norwegian *som* facts fall into this line of analysis is unclear, it could be that **the** problem here is related to the facts described in the next section.) Finally, for the purposes of the syntax, it is clear that the Wackenagel clitic elements must originate within **the** IP: the pronominals satisfy selectional restrictions, and the auxiliaries determine the form of **their** verbal complements. How these **clitics** come to occupy their observed positions is immaterial, whether via syntactic (presumably head movement, as is sometimes supposed), or via phonological mechanisms, as argued persuasively by Anderson 1996, 1998.

The fact that none of these **elements** occur in sluicing has a number of possible explanations.

The first is to maintain, as Lobeck 1995: 58-60 does for *the facts from Norwegian* and Bavarian, that these facts support a **null** IP empty category in the **syntax**. Her reasoning, which extends equally well to the V2 cases, is straightforward: in the syntax, there is only [<sub>IP</sub> *e*], hence these elements, in  $I^0$ , will not be present at all to raise in the first place. This reasoning is also applicable to the C-agreement **facts**, as she **points out**, if "morphologically realized agreement in COMP ... is contingent on agreement with embedded INFL" (p. 60). 'Contingent' here translates directly into those **approaches** which take V2 and C-agreement to express parallel relations of (head-)movement into  $C^0$ . Identical reasoning applies to the Wackernagel clitic placement facts of the South Slavic languages: their origin site is IP-internal, and if IP is empty, by hypothesis, these elements simply will not be available for either syntactic or phonological operations to **manipulate**.

While this argument seems reasonable, it rests on a very questionable assumption. Recall that under the empty structure approach, the wh-phrase is base-generated in SpecCP, and binds nothing at S-structure (or, perhaps, binds **the** IP empty category **itself**, to extend Haïk's 1987 proposal that the relative operator in antecedent-containeddeletions binds the

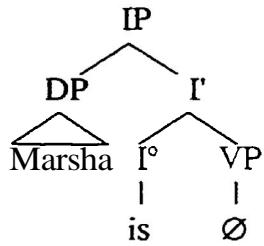
VP empty category: see Kennedy **and** Merchant 1997 for discussion). But if this is the case, what prevents us from base-generating any of the non-operator elements in their landing sites or 'moved' positions **external** to IP, **fully** parallel to the case of the wh-phrase? It would seem that we would have to stipulate a difference between operator binding, which can be voided at S-structure (or Haïk-bind a categorially distinct empty category), and head-binding (for V2, complementizer agreement, and possibly the **S.Slavic** Wackernagel clitics).

But such a distinction seems mostly unmotivated. One **might** argue that the difference is not in the category but in the level of the category: the wh-phrase is an **XP**, **and** by hypothesis binds the empty XP (IP), while the heads  $X^\circ$  cannot do so. If this were so, however, taken in conjunction with Lobeck's 1995 analysis of VP-ellipsis as also consisting of a **null** VP ( $[_{VP} \ e \ ]$ ), we might expect VP-ellipsis **with** 'raised' auxiliaries in  $I^\circ$  to be impossible, assuming that these elements are heads exceptionally base-generated in  $I^\circ$  (usually, of course, the auxiliaries in question —**aspectual** *have*, and progressive, passive, **and copular** *be*— must originate in a lower  $V^\circ$  projection). This is incorrect:

- (91) a. I've been writing, and **Bill** has, too.
- b. Frank is Learning Swahili because Marsha is.
- c. Max was arrested, but Andy wasn't.
- d. Cathy is a doctor, and so is her husband.

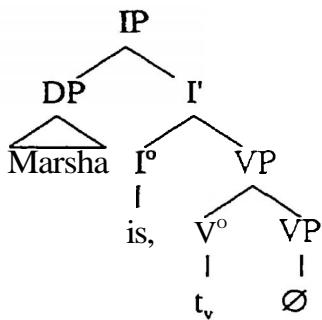
Under Lobeck's analysis, these have the structure in (92):

(92)



The force of this objection, however, is very little, since **Potsdam** 2996 has shown that a structure like that in (92) is incorrect for the sentences in (91). He argues convincingly that such sentences derive from the following structure (1996: 83-88):

(93)



The objection does go through, however, for the **Irish data** discussed in **McCloskey** 1991a (and the Hebrew data in Doron 1990, 1999). **McCloskey argues** that Irish displays a phenomenon of predicate-ellipsis similar to VP-ellipsis in English; the difference arises from the fact that Irish subjects remain low (not in SpecIP), while Irish verbs raise (say, to I°). ‘VP’-ellipsis applied to such a structure will yield apparently verb-only sentences, as in (94):

- (94) Cheannaigh siad teach?

*bought*      *they house*

'Did they buy a house?'

a.      Cheannaigh.

*bought*

'(Yes,) They did.'

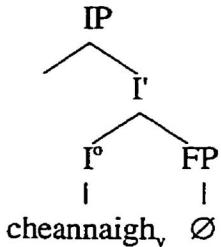
b.      Níor      cheannaigh.

*NEG.PAST bought*

'(No,) They didn't'

These **elliptical answers**, McCloskey argues, have the structure in (95) (updating his 1991a proposal slightly to reflect his 1996 arguments for a (slightly) VP-external subject, though it is unclear whether an elided VP-internal subject might not be able to avoid overt raising in any case, parallel in some respects to *There were rabbits in the garden today, though there weren't yesterday*):

- (95)

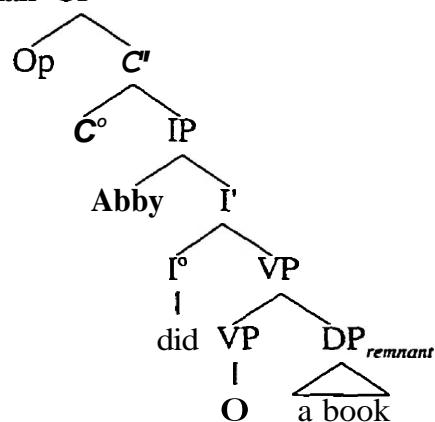


If such 'displaced' heads need to bind an empty element before LF-reconstruction, then head-binding of a maximal (**empty**) category must be countenanced. If such head-binding is simply not a requirement whatsoever, and if **only** true operators must bind an empty category at every stage of the derivation (as in Koopman and Sportiche 1982), then the **ungrammaticality** of the sluicing cases above cannot follow from this line of argument.

Another possible strategy would be to claim that while such head-binding is licit, the problem in the sluicing cases is that more than one element ---*the* wh-phrase and the head-material--- must bind the empty IP category simultaneously. Any version of Koopman and Sportiche's Bijection Principle would then rule out such multiple 'displacements'. However, this logic too fails to go through consistently, given the data discussed in Kennedy and Merchant 1997. There, it is shown that comparative ellipsis is licit with pseudogapping, as shown in (96a), with the presumed structure in (96b) (where the order of the remnant and null VP is irrelevant):

- (96) a. Jack read a longer magazine than Abby did a book.

- b. ... than CP



What this entails on the base-generation view of ellipsis is that the VP-external remnant must bind the VP empty category at the same time the **DegP** operator in **SpecCP** does (this argument rests upon the idea that 'displaced' remnants would have to 'bind' the ellipsis site like other 'displaced' elements, parallel to the head cases in sluicing above; again, if only operators are subject to the requirement, these facts are irrelevant).

In sum, under the standard null IP category approach to sluicing, there seems little reason to believe that whatever mechanism licenses the base-generation of a wh-phrase in

*SpecCP* with concomitant later satisfaction (at LF, under standard assumptions) of its **binding** requirements wouldn't also license the base-generation of **heads**, agreement, or Wackernagel clitics in these 'displaced' positions in exactly the **same way**.<sup>15</sup>

Under the deletion approach pursued here, on the other hand, **the** data fall out under an ordering solution: if deletion of **the IP** material precedes the (head) movement and prosodic reordering operations responsible for the appearance of IP-internal morphology in the C-system, none of this **material will appear**. The question to be asked at this point is whether there is a principled way to derive this **ordering**, beyond simply **stipulating** it. Some considerations suggest that there is. **First**, a general point: it seems that such prosodic reordering operations are fairly 'late' processes, fed by syntax but not necessarily generated by syntax (this is most obvious for **the** case of clitics, though similar remarks apply to I-to-C movement **as well**).

Theoretically, this state of affairs seems to be a reflection of economy (both of economy of derivation and of representation, to the extent that these differ). Simply put, if deletion is possible with these elements, it is preferred. Consider the case of I-to-C movement. This movement is usually thought to be driven by some strong feature of **C** which must be checked by a matching feature on I (see Holmberg and Platzack 1995, etc.). Under normal conditions, movement of I into **C** can be non-overt (**occurring** at LF) only if this feature is weak — in this case, **only the feature itself** need move at LF, since PF pied-

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.. The **Wackernagel** clitics present a special case, since it seems clear that the mechanisms regulating their **ordering** are phonological, and not syntactic, so it is **possible** to give an independent argument ruling **them** out in sluicing structures, along the following lines. Assume Anderson 1996 and Legendre 1997 are correct: Alignment constraints at PF require these **clitics** to be as close to **the left edge** of the clause as possible, **with** other constraints making sure that 'as close as possible' is realized as either one prosodic word or **one XP** (prosodic phrase) removed **from** the actual left edge. This prosodic material is supplied by the **syntax**, but, by assumption, the syntax does not impose any particular order on **these** elements beyond **what** is required for auxiliaries, negation, and arguments in general. If this is the case, then under sluicing, **we** would have to have exceptional base-generation of these elements (which I will assume are heads, not **phrases**) external to IP. Given constraints on adjunction, this means that they would have to **occur** in or adjoined to **C°**, since neither CP, IP, nor the wh-phrase in **SpecCP**, being maximal projections, are licit adjunction sites for a head.

piping considerations will not apply. Under **this** theory, PF requirements force ' pied-piping' when a strong feature is checked. **This** is usually thought to be because the bare feature would not be able to be spelled out at PF. But it might just as well be **the** case that the PF crash is caused by the lack of an item corresponding to the feature bundle **remaining** in I, now lacking **the** moved **feature**. There seems no way to decide **between** these alternatives.

But now consider the case where ellipsis can apply as well. One way to **interpret** the facts above, consistent with the standard approaches to I-to-C movement, is to **assume** that it is indeed the remnant **feature** bundle which is causing the PF crash. Under IP ellipsis, minimal **feature** movement out of I into C will be possible without pied-piping the rest of I, since the remnant feature bundle left behind in I will not need to be pronounced; this was implicit in the proposal regarding the **ellipsis** feature E above. Note that this **turns** Chomsky's 1995 'feature<sup>7</sup>-pied-piping convention on its head: it is the partial remnant which **triggers** the PF-crash, not the bare feature itself, which has no phonological content by itself. This line of analysis is also in line with the general idea that I-to-C movement occurs at PF, as mooted in Chomsky 1995.<sup>16</sup>

Another interpretation of the facts would be to suggest that contrary to standard analyses, it is a strong feature in I that drives I-to-C movement. Since unchecked strong features cause a PF crash, *this* will force overt I-to-C movement in the regular range of cases. But again an interesting exception emerges under **ellipsis**: if the IP is **deleted**, the strong feature on I does not reach the PF interface, avoiding the crash. (This is exactly the Logic that will be applied to several cases in chapter 5.) At this stage, I see no compelling

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<sup>16</sup> Though this idea has some familiar difficulties, including the licensing of negative polarity items in subject position by a negative auxiliary raised to C, as shown in McCloskey 1996:89 (102). Perhaps PF movement is triggered in these cases by a feature which prefigures a parallel raising in the LF component.

reason to adopt one of the interpretations of the evidence over the other, both **appearing** equally viable for the case at hand, and will leave the question open.<sup>17</sup>

To summarize, the fact that IP-internal elements **that** usually **appear** in the C-system do not appear there under sluicing is compatible with the deletion account pursued here, and do not, as sometimes assumed, support a **null-category approach** over deletion.

### 2.2.2.2 Base-generated COMP-internal elements

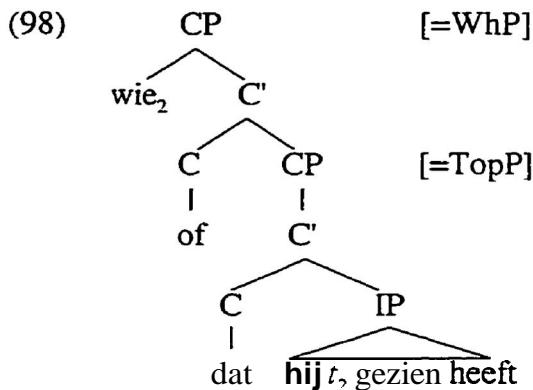
The logic applied to elements moved into the C-system above does not extend to **the data** to be considered in this section. Here, I will consider **material that** is usually analyzed as **being** base-generated in COMP, in the  $C^0$  head. While English will be of no use here, due to the effects of the Doubly-Filled Comp-Filter, we can **examine languages** that do **not** obey this filter, languages that allow an overt complementizer to co-occur with a wh-phrase in SpecCP. Certain varieties of Dutch present one example, as the following examples show ((97a) modified from Bennis 1986: 234, (97b) from Zwart 1993: 169; see also den Besten 1978: 647, 1989).

- (97) a. Ik weet niet, wie (of) (dat) hij gezien heeft. [(esp. Southern) Dutch]  
*I know not who if that he seen has*  
'i don't know who he has seen.'
- b. Hy freget wa (**of**) \*(**'t**) jûn komt. [Frisian]  
*he asks who if that.CL tonight comes*  
'He's asking who's coming tonight.'

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<sup>17</sup> Note that at least the  $C^0_{[+wh]}$  must be present to trigger the attested wh-movement; if the [+wh] on C is strong as usually assumed for English, we have evidence that the deletion targets IP, not C' — if C' were targeted, the offending [+wh] feature would be eliminated without triggering wh-movement into SpecCP.

The example (97a) has the structure given in (98) (whether or not **the** displaced *wie* has moved **through** the specifier of *dat* is **immaterial**, here, though see Zwart 1993:sec. 5.2.2 for evidence that it does not). In this tree, I use recursive CP labels for simplicity; the different projections have been identified as WhP and TopP (see Müller and Sternefeld 1993, Zwart 1993, Rizzi 1995, and below).



Given this structure, we might expect that either the CP headed by *dat* (TopP) or the IP complement to *dat* might be elidable. If the presence of *of* in (97) is simply the overt counterpart to the **null C<sup>0</sup>[+wh]** complementizer in English embedded questions, as is usually supposed, then it should bear **all** the relevant features to license **an** elliptical complement. Similarly, if *wie* moves through the specifier of *dat*, we might expect that it could bear the relevant agreement features that could license a null IP complement\*. However, as we see in (99) and (100), neither of these possibilities is attested; the only grammatical sluice is one in which only the wh-phrase itself remains (Jelle Gerbrandy, p.c.):

- (99) Hij heeft iemand gezien, maar ik weet niet [Dutch]  
*he has someone seen but I know not*

- a. wie.
  - b. \* wie of.
  - c. \* wie dat.
  - d. \* wie of dat.

*who if that*

'He saw someone, but I don't know who.'

- (100) Ien        komt jûn,    en hy freget [Frisian]  
*someone comes tonight and he asks*

- a. wa.
  - b. \* wa of.
  - c. \* wa 't.
  - d. \* w a of't.

*who if that. CL*

'Someone's coming tonight, and he's asking who.'

A similar case is provided by Slovene, as discussed in Marvin 1997. As in Dutch, Slovene also allows for complementizers to co-occur with fronted wh-phrases; whether the complementizer is the interrogative C *ali* 'whether' or the declarative C *da* 'that' is determined by the matrix predicate. The following examples are from Marvin 1997: 50.

- (101) a Rad bi vedel, koga da je Peter videl.  
*glad SUBJ know whom C[-wh] AUX Peter seen*  
 'I would like to know who Peter saw.'

- b. Sprašujm se, koga ali Spela ljubi.  
*I.ask REFL whom C[+wh] Spela loves*  
 'I wonder who Spela loves.'
- c. Nisemga vprašal, komu kaj da zameri.  
*not him I.asked whom what C[-tvh] blames*  
 'I didn't ask him who he blames for what,'

In no case, however, can any of the complementizers co-occur with the remnant wh-phrase(s) in sluicing (T. Marvin, p.c.):

- (102) a. Peterje videl nekoga in rad bi vedel, koga (\*da).  
*Peter AUX seen someone and glad SUBJ know whom that*  
 'Peter saw someone and I would like to know who.'
- b. Spela ljubi nekoga, a nisem vprašal, koga (\*ali).  
*Spela loves someone but I.not.AUX asked who if*  
 'Spela loves someone, but I didn't ask who.'
- c. Nekomu nekaj ocita, a nisem ga vprašal, komu kaj  
*someone.DAT something he.blames but not.I.AUX him asked who.DAT what*  
 (\*da).  
*that*  
 'He blames someone for something, but I didn't ask him who he blames for what-'

Likewise for the various complementizers that can co-occur with operators in Irish (J. McCloskey, p.c.):

- (103) Cheannaigh sé leabhar inteacht ach níl fhios agam céacú ceann (\*a / \*ar).  
*bought he book some but not-is knowledge at.me which one C<sub>trace</sub> / C<sub>pro</sub>*  
 'He bought a book, but I don't know which-'

And for stacked complementizers in (some registers **of**) **Danish** (L. Mikkelsen, p.c.), which I gloss simply as '*C*' (see Vikner 1991):

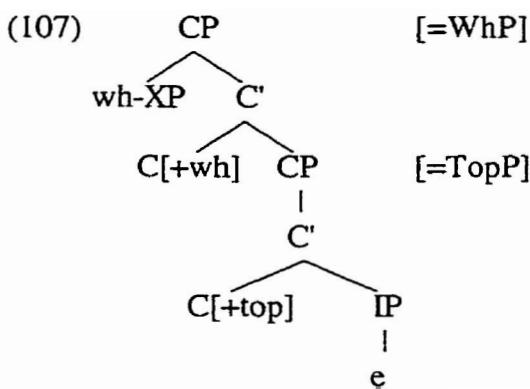
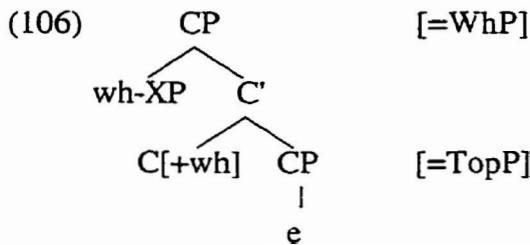
- (104) Vi ved hvem (som)(at) der snakker med Marit. [(colloq.) Danish]  
*tve know who C C talks with Marit*  
 'We know who is talking with Marit.'
- (105) En eller anden snakker med Marit, men vi ved ikke  
*someone talks with Marit but we know not*
- a. hvem.
  - b. \* hvem som.
  - c. \* hvem som der.
  - d. \* hvem at.
  - e. \* hvem at der.
  - f. \* hvem som at der.

In these cases, appealing to an IP-internal origin for the non-operator material, as Lobeck does for the Bavarian and Norwegian cases reviewed above, obviously cannot help.

Given the split CP system, then, two questions arise for a Lobeck-style analysis: first, why can't the IP complement of Top elide leaving Wh°, Top°, or both intact, and second, why can TopP elide only if C[+wh] is empty?

Under Lobeck's system, the answer to the first question comes from the hypothesis that a head that licenses the **null** IP-proform must agree with a wh-XP in its specifier position: since the wh-XP in these examples never passes **through SpecTopP**, the necessary spec-head relationship is never established, and **the** Top head does not have the appropriate features to license a null complement.

The answer to the second question is more **involved**. If we assume that the projection of functional structure is uniform across languages (as in Cinque to appear, for example), then what we have been assuming for the structure of sluices has been too simple. **Instead**, we have two options for the phrase structure of sluices, illustrated in (106) and (107):



The second structure, in (107), bears more **resemblance** to the structure traditionally assumed for sluices, as in (2) above, in that it posits an empty IP **node**. But if the wh-XP does not move through SpecTopP, we do not expect such a **null** element to be licensed.

An immediate side question arises, of course: could the **fronting** of a topic-XP to SpecTopP license such a null complement? Answering this **question** is complicated by the fact that in general, **topicalization** in the languages that provide the best evidence for such a phrase **structure** (the continental **West Germanic** varieties) **cannot** co-occur with a fronted wh-XP:

- (108) a. \* Wann {hast} den Wagen {hast} du gemietet? [German]  
       b. \* Wanneer {heb} de auto {heb} je gehuurd? [Dutch]  
                 *when have the car have you rented*  
                 ('When **did** you rent the car?')

(Use a weak pronoun subject in German here to ensure **that** the object has not scrambled over the subject; object-over-subject scrambling is not possible in Dutch in any case.) Since overtly filling both SpecWhP and SpecTopP seems to be impossible in these languages, for unclear reasons, this side question cannot be answered, at least on **the basis of** Dutch or German.

Still, the absence of a Doubly-Filled Comp Filter effect in Dutch, Frisian, and Slovene leaves the ill-formedness of (99), (100), and (102), respectively, mysterious. One possibility is that the ill-formedness of this kind of example is related to, or indeed the same as, classical COMP-trace effects like those in (109).

- (109) a. \* Who **did Lex say** that \_ kissed Lois?  
       b. \* Which **guy did Jimmy wonder if** \_ had **kissed Lois?**

If the COMP-trace effect is a PF effect, as several lines of evidence suggest (see chapter 5, § 5.2.2), then sluicing structures will trigger a violation just as examples like those

in (109). For concreteness, let us assume a filter of the form in (110), while recognizing its limitations (in subject relatives, inapplicability to pro-drop languages, etc; see Perlmutter 1971).<sup>18</sup>

- (110) \*  $[_C \alpha] [,_x \dots]$ , where  $x$  is a prosodic constituent containing no phonetic exponence, if  $\alpha$  is phonetically null

This seems to work at first sight for Dutch and Frisian, where (111) is bad:

- (111) a. \* Wie vraag je je af of \_\_ hem heeft gezien? [Dutch]  
           b. \* Wa fregest dy ôf oft \_\_ hem sjoen hat? [Frisian]  
                   *who ask you REFL PRT if him has seen has*  
                   ('Who were you wondering if \_\_ saw him?')

But in fact the deviance of (111) cannot be distinguished from the fact that in these languages, as in German, argument extraction from any position out of embedded questions leads to greater deviancy than in English:

- (112) a. \* Wie vraag je je af of zij \_\_ heefi gezien? [Dutch]  
           b. \* Wa fregest dy ôf oft se \_\_ sjoen hat? [Frisian]  
                   *who ask you REFL PRT if she has seen has*  
                   ('Who were you wondering if she saw? ' )

<sup>18</sup> See also Kayne 1994:94 for the suggestion that something like the COMP-trace effect applies to rule out overt Cs in relative clauses in Amharic and other languages with N-final relative clauses (which for Kayne have the structure  $[ IP_2 [ the [ CP [ ,picture ] [ C [ _P t_2 ] ] ] ] ]$ , with the IP complement to C fronted past the determiner head. Unfortunately, this suggestion runs directly counter to his analysis of final complementizers on p. 53, where he analyzes  $[ IP C ]$  orders in languages like Japanese as the result of IP movement into SpecCP:  $[ CP IP_2 [ C [ _P t_2 ] ] ]$ . In these latter cases, the C can be overt.

In fact, Dutch and Frisian do *not* exhibit the classical case of the COMP-trace effect, namely with extraction of subjects of non-wh CPs:

- (113) a. Wie denk je dat \_\_ kommt? [Dutch]  
           b. Wa tinkst dat \_\_ kommt? [Frisian]  
*who think.2sg you that comes*  
           'Who do you think that \_\_ is coming?'

Such an account runs into an identical problem in Slovene, which also lacks the *that*-trace effect (Marvin 1997:51):

- (114) Kdo je Peter mislil, da je prišel?  
*who AUX Peter thought that AUX come*  
           'Who did Peter think that \_\_ came?'

One can salvage this approach by relativizing the filter to apply only to [+wh] complementizers:

- (115) \*  $C_{[+wh]} [x \dots]$ , where  $x$  is a prosodic constituent containing no phonetic exponence,  
       if  $C_{[+wh]}$  is phonetically null

This would correctly rule out all the desired cases, while applying superfluously in cases like (111).

Another possibility would be to appeal to inherent cliticization properties of the C°s in question: if it could be shown that these elements must cliticize onto phonological

**material** to their right, we would have **an** independent explanation for the **ill-formedness** of (99b,c). It is certainly true that **complementizers** show a high degree of susceptibility to prosodic incorporation into following domains, at least in right-branching languages (see Shlonsky 1988 and McCloskey 1996 for discussion of rightward dependencies in the C-domain in Hebrew and Irish, respectively).<sup>19</sup>

Note that both of these alternatives locate the **ill-formedness** of examples with **complementizers** under sluicing at PF.<sup>20</sup> The first —assimilating these to some **kind** of generalized COMP-trace effect— might even extend to much of the **data** discussed in the previous section. Although **only** further work will determine if these suggestions bear fruit independently of accounting for the data discussed here, they do **seem** to me to place the problem in the correct **arena**, even if they do defer **formalization until** more is known about the processes that **operate** at the PF interface. These solutions strike me as more likely to be on the right **track than**, say, a structural solution that would **stipulate that** sluicing deletes a C', not an IP, given that it is **difficult** to identify other instances of rules that target **non-maximal projections**. Note that these proposals also have the **salutary effect** of reducing the demands on the nature of the **material** in the C-system: unlike Lobeck's 1995 proposal, we do not need to stipulate that SpecCP must be overtly filled (a strange stipulation even in

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<sup>19</sup> This also recalls the suggestion sometimes **made** (see Lightfoot 1998 for a recent version) that reduced **auxiliaries** in English **morphosyntactically cliticize** to their right (though **prosodically** to their left), accounting for the impossibility of getting these before ellipsis and movement sites. But see Pullum and Zwicky 1997 for a serious complication in this picture based on the contrast in (i), **among** others:

- (i)      a.      \*He is SO going!  
               b.      He's SO going!

<sup>20</sup> These have the pleasant side effect of perhaps being able to accommodate certain ameliorations to apparent '**if/whether**' sllices when these are followed **immediately** by certain **elements**, as in (i), modified slightly from Winkler 1997: 30 (33c) (see also Klein 1993), and in reverse sluicing **examples** like (ii) as analyzed in Giannakidou and Merchant 1998.

- (i)      Bitte laß mich hören, wie R. reagiert und ob \*(überhaupt).  
               please let me hear how R reacts and if at-all  
               'Please let me know how R reacts if at all.'  
       (ii)     Magdalena womed about whether and how to **break** the news to her father. (Giannakidou and Merchant 1998: 239 (18a))

These facts **recall** the 'adverb intervention' improvements to COMP-trace effects; see chapter 5, §5.2.2.

her system, since no similar requirement is found for 'strong agreement' in the NP or VP ellipsis cases she discusses).

I conclude this section with a brief **remark** on the only potential counterexample to the sluicing-COMP generalization in (71) known to me, from **Hungarian**. In wh-questions in Hungarian, the wh-phrase does not move into SpecCP overtly, occurring instead in a 'focus' position immediately preceding the verb (see Puskás 1998 for discussion and references; I only consider non-multiple wh-questions here). This wh-phrase can co-occur with the complementizer *hogy* 'that', as seen in (116) (thanks to D. Farkas and G. Puskás for judgments):

- (116) Nem emlékszem, (hogy) kivel találkoztak a gyerekek.

*not I.remember that who.with met the children*

'I don't remember who the kids met with.'

Somewhat surprisingly, from the above perspective, the same options appear under sluicing: while the complementizer may be omitted, it may also be retained:

- (117) A gyerekek találkoztak valakivel de nem emlékszem, (hogy) kivel.

*the children met someone.with but not I.remember that who.with*

'The kids met with someone, but I don't remember who.'

Hungarian therefore represents a prima facie counterexample to the generalization in (71)—there seems no reason not to assume that *hogy* in (117) is in its usual **C** position.<sup>21</sup>

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<sup>21</sup> Similarly for the Japanese [+wh] complementizer *ka* in (118) below, if these structures are indeed parallel to true sluicing as in English in the first place.

The difference between **this** case and those **discussed** above is of course that in (117) **the wh-phrase itself is** not in COMP, remaining Low in the structure, presumably in the position it occupies in (116). It might seem that **the** sluicing-COMP generalization **only** applies if the wh-phrase itself **has** moved to SpecCP. But notice that if either of the above prosodic approaches suggested above are correct, this state of affairs is **exactly what** we expect, since in Hungarian, the (sluiced) wh-phrase will **follow** the complementizer, satisfying either of the above mooted constraints. Especially the ban on **complementizers** in sluicing seems to be related to the fact that these complementizers would end up adjacent to the ellipsis site, which is **not the case in Hungarian.**<sup>22</sup>

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<sup>22</sup> The case of Hindi seems to be slightly more **complicated** — while it is like Hungarian in placing wh-phrases in a 'focus' position **preverbally**, it nonetheless disallows complementizers in sluicing, as in English, Dutch, etc. A further wrinkle is introduced in that the presence of the complementizer, unlike in Hungarian, is not wholly optional. Embedded CPs in Hindi, as in German, can occur either '**extraposed**', clause-finally, or '**topicalized**', clause-initially; see section 2.1.4.2. In final position, the presence of the complementizer *ki* is highly preferred, while in initial position it is impossible:

- (i)      a. mujhe **nahī** pataa    thaa [CP ??(ki) Gautam ne kis se baat kii    thii].  
*I.DAT NEG knowledge PAST    thar Gautam ERG who with talk do.PFV PAST*  
       b. [CP (\*ki) Gautam ne kis se baat kii    thii], mujhe (yeh) **nahī** pataa    thaa.  
*that Gautam ERG who with talk do.PFV PAST I.DAT it NEG knowledge PAST*  
*'I didn't know who Gautam had talked to.'*

While it is thus **unsurprising** that fronted **sluiced** CPs also disallow *ki*, shown in (iib), the fact that final sluices as in (iia) also prohibit *ki* is unexpected:

- (ii)     a. **Gautam** ne kisi    se baat kii    thii lekin mujhe **nahī** pataa    [(\*ki) kis se].  
*Gautam ERG someone with talk do.PFV PAST but I.DAT NEG knowledge thar who with*  
       b. G a u m ne kisi    se baat kii    thii lekin [(\*ki) kis se] mujhe **nahī** pataa.  
*Gautam ERG someone with talk do.PFV PAST but that who with I.DAT NEG knowledge*  
*'Gautam **talked** with someone, but I don't know who.'*

Thanks to R. Bhatt for these data and discussion.

## 2.3 Summary

There are two main results to be taken away from this chapter. First, the wh-phrase that appears in sluicing is not **a** floating ghost, a mysterious **fragment** XP integrated in some strange and unspecified way into the surrounding syntax. **Instead**, the sluiced **wh-phrase** sits in its usual position, in SpecCP, and occurs exactly in those circumstances where we would expect **an** interrogative CP. This **conclusion** leads **us** to the second main result: that there is a missing IP in sluicing and some structure **internal** to this missing IP — CP must dominate IP, **and** the **wh-phrase** must originate somewhere. This second result requires that we develop a theory of the distribution —**the** licensing— of such null IPs. It **was** seen that the conditions under which **an** IP can go missing are sensitive to **the** kind of features present on the **C** sister of the IP. Although such a relation **has usually** been treated in **terms** of government, **an** alternative based on local feature distribution (implemented either by base-generation or featural/head movement) is equally up to the task, and allows us to state the theory of ellipsis in terms of deletion at PF, which we will see has very desirable consequences. Happily, stating the Licensing conditions in terms of **a feature** also gives us a hook to hang our semantics on, unifying for the first time **the** licensing and identification requirements. **Finally**, a range of new facts were brought to light, embodied in **the** Sluicing-COMP generalization: in sluicing, no non-operator material **may** appear in COMP. This surprising fact seemed to **fit** in best with **the** view of ellipsis advocated **here**: that prosodic constraints, acting in league with economy **constraints**, serve to restrict the kinds of material that can occur outside, adjacent to, the target of deletion.

## Appendix: Wh-in-situ languages

An obvious question is posed by wh-in-situ languages. Do such languages have sluicing in the form found in languages with wh-movement, the focus of our attention throughout? If so, what mechanisms drive the movement that feeds the deletion? How is it that this movement is seen only with sluicing, and not otherwise (since wh-movement in these languages does not generally occur overtly)? While these questions are interesting and important, it is beyond the scope of the present inquiry to be able to delve deeply into them.

The literature on these questions is most extensive for Japanese, where several approaches to the relevant data have been pursued. An example of 'sluicing' in Japanese is given in (118); data of this sort were apparently first noted in Inoue 1976, 1978.

- (118) Abby-ga dareka-o mi-ta ga, watashi-wa dare **ka** wakaranai.

*Abby-NOM someone-ACC see-PAST but I-TOP who Q know.not*

'Abby saw someone, but I don't know who.'

There have been several approaches to this kind of data. Takahashi 1994 proposes that there is, exceptionally, a kind of wh-movement in Japanese ('scrambling' to SpecCP), followed by deletion, giving structures essentially equivalent to their English congeners. His analysis has been widely criticized, however, both from analysts who follow an LF- or post-LF copying approach (Nishigauchi 1998; and for one sort of sluicing, Fukaya 1998 and Hoji and Fukaya 1999) and those who defend an analysis of 'sluicing'<sup>7</sup> as a reduced cleft structure (Shimoyama 1995, Kuwabara 1996, Nishiyama et al. 1996, Kizu 1997,

Merchant 1998a, and for another sort of sluicing, Hoji and Fukaya 1999; see chapter 4, §4.2 for reasons why such an approach is not tenable for English).

My own limited exploration of this **kind** of data in Japanese and Chinese suggests a similar conclusion, namely that what appears to be sluicing in these languages is the result of operations different from the movement + deletion derivation found in languages with overt wh-movement. This dovetails with the conclusions of Nishiyama et al. 1996 and Kizu 1997 for Korean and Chinese as well.

The situation in languages like Hungarian, Hindi, and Turkish is somewhat less clear. In these languages, wh-phrases occur in a specified position adjacent to the verb; in Hindi and Turkish, which are strong SOV languages, this means that the wh-phrase typically occurs clause-internally, following other sentence-internal elements. Here the **limited** data available to me are mixed. While **Hindi** does seem to possess structures that at least superficially resemble sluicing in English (see for example the data in section 2.1.4.2), Kizu 1997 has claimed that Turkish lacks these, requiring instead some form of the copula. My own limited informant work has indicated that while such cleft-Like structures are clearly preferable, it is not clear whether more English-like sluicing structures are completely unacceptable. For multiple sluicing, for example (see chapter 4, §4.1 for a brief discussion), the **copula** can be absent.

One possibility is that Hindi and Turkish, to the extent that sluicing structures pattern with those found in overt wh-movement languages like English, are employing a scrambling-type movement to create the input structures for deletion, and not using 'true' wh-movement to SpecCP (i.e., scrambling as adjunction to IP, followed by deletion of the lower IP segment). Another possibility is that whatever constraint prevents overt movement into SpecCP is ameliorated by the deletion itself, however such an idea is implemented (one possibility, following the reasoning concerning I-to-C movement above, would be to argue

that the traces of wh-movement in these languages would trigger some kind of PF crash that deletion repairs, for example).

These questions seem to me to be fairly straightforward ones of fact and analysis. Unfortunately, I will not be able to resolve these issues at this point, and leave them to specialists in the relevant languages; important though is that nothing from these languages seems inherently incompatible with the overall approach taken here.

### 3 Islands and form-identity

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Having established that sluicing **involves** a CP and a null IP, I turn now to documenting a wide range of data that bears on the dual questions of where the wh-phrase in SpecCP has its origin site, **and**, concomitantly, how the **null** IP comes to be null. This chapter sets the stage for the discussion to come in chapters 4 and 5 by defining the central puzzle of this dissertation: I will present a body of evidence that suggests that the wh-phrase does not come to occupy SpecCP via movement, and an apparently contradictory body of evidence that suggests that the wh-phrase **has** moved from an origin site internal to the **null** IP. This evidence can be summarized as follows: sluicing appears not to respect islands, while the wh-phrase remnant in sluicing **displays** a language-specific regularity in grammatical form. The theoretical import of these **empirical findings** will be examined in detail in the following two chapters.

#### 3.1 Syntactic ('strong') islands in sluicing

Ross 1969 noticed that sluicing has an ameliorating effect on **several** of the islands he discovered in his 1967 thesis. In particular, he gives the following five examples, reproduced here with his original **judgments**.

(1) *Coordinate Structure Constraint* [Ross's (71b)]

?? Irv and someone were dancing together, but I don't know who.

(2) *Complex NP Constraint* moss's (72b,d)]

- a. ? She kissed a man who bit one of my friends, but Tom doesn't realize which one of my friends.
- b. I believe (??the **claim**) that he **bit** someone, **but** they don't know who.

(3) *Sentential Subject constraint* [Ross's (73b)]

?? That he'll hire someone is possible, **but I** won't **divulge** who.

(4) *Left Branch Condition* [Ross's (74b)]

\* I know that he must be proud of it, but I don't know how.

As pointed out by Levin 1982, the **marginal** degradation associated with the examples in (3b) and (3) is due to irrelevant factors: a pragmatic clash that can be repaired easily (see below for better examples). A similar point holds of (2a): there is a slight redundancy associated with the repetition of *one of my friends* in the wh-phrase; if this material is removed, the example is perfect. I will return in chapter 4 to the status of (1) and (4), where the judgments in part do hold up to closer examination ((4) in particular is completely robust).

Besides these examples, it seems that sluicing can violate a much wider range of Ross's islands, and other islands discovered since. The remainder of this brief section lays out the relevant data, which will be discussed at length throughout the chapter.

I will **Limit** myself to 'strong' islands here, **reserving** 'weak' islands for chapter 5. The 'strong' islands I will assume to be syntactic in nature; that is, the deviancy found with

extraction from these islands does not derive from a purely interpretive effect, as is the case for 'weak' islands. The illustrations here are all from English, though some relevant cross-linguistic data will be introduced in later sections as well.

The first case is the relative clause **island**, as we saw above. The grammaticality of the sluiced version contrasts with the interpretively equivalent overt question following.

(5) *Relative clause island:*

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

- cf. \* I don't remember which (*Balkan language*) *they want to hire someone who speaks t.*

The same contrast is found in adjunct islands.

(6) *Adjuncts:*

- a. Ben will be mad if Abby talks to one of the teachers, but she couldn't remember which.
- cf. \* Ben will be mad if Abby **talks** to one of the teachers, but she couldn't remember which (of *the teachers*) *Ben will be mad if she talks to t.*
- b. Ben left the party because one of the guests insulted him, but he wouldn't tell me which.

In the following cases, mostly taken from Chung et al. 1995 (henceforth CLM), I refrain from supplying the control case of illicit extraction, relying on the reader to supply these well-known facts.

(7) *Complement to nouns:* (CLM's (84c))

*The* administration has issued a statement that it is willing to meet with one of the student groups, but I'm not sure which one.

(8) *Sentential subject:* (CLM's (84b))

That certain countries would vote against the resolution has been widely reported, but I'm not sure which ones.

(9) *Embedded question:* (CLM's (84a))

Sandy was trying to work out which students would be able to solve a certain problem, but she wouldn't tell us which one-

(10) *Coordinate Structure Constraint:*

- a. They persuaded Kennedy and some other Senator to jointly sponsor the legislation, but I can't remember which one.<sup>1</sup> (CLM's (88b))
- b. Bob ate dinner and saw a movie that night, but he didn't say which (movie).

(11) *COMP-tmce effects:* (CLM's (90), (91a))

- a. It has been determined that somebody will be appointed: it's just not clear yet who.
- b. Sally asked if somebody was going to fail Syntax One, but I can't remember who.

---

<sup>1</sup> This is CLM's judgment. I will return to discussion of variability surrounding this subcase of the Coordinate Structure Constraint in chapter 5 §5.2.4.

- (12) *Left-branch* (attributive adjective case):

They hired a **tall** forward for the team — guess how **tall!**

- (13) *Derived position islands (topicalizations, subjects)*

- 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!

Many other **kinds** of islands have been documented in the literature (see Postal 1996 for an overview), though I **will** refrain from demonstrating their effects here. The above list is, I believe, comprehensively representative for our purposes, in that the analysis I will propose to deal with these extends without modification to the other **kinds** of islands not illustrated here.

These data, taken at face value, strongly suggest that the wh-phrase in sluicing did not reach SpecCP from an IP-internal position by the usual mechanisms of movement.

### 3.2 The form-identity generalizations

The goal of this section is to establish **the** validity of two closely related generalizations, one having to do with the case of the sluiced wh-phrase, and the other with prepositional pied-piping in sluicing. These generalizations will be crucial in **constraining** the theoretical options in the chapters that follow.

### 3.2.1 Case-matching

Part of the first generalization was noted in chapter 2, section 2.1.3, and goes back, as do so many of the observations regarding sluicing, to Ross 1969. Those data are repeated here in (14) and (15), with the addition of the nominative form *rver* for completeness:

- (14) Er will jemandem schmeicheln, aber sie wissen nicht,

*he wants someone.DAT flatter but they know not*

{\*wer / \*wen / wem}.

*who.NOM who.ACC who.DAT*

'He wants to flatter someone, but they don't know who.'

- (15) Er will jemanden loben, aber sie wissen nicht,

*he wants someone.ACC praise but they know not*

{\*wer / wen / \*wem}.

*who.NOM who.ACC who.DAT*

'He wants to **flatter** someone, but they don't know **who**',

Recall that the verb *schmeicheln* 'flatter' assigns dative to its object, and *loben* 'praise', accusative. **The** sluiced wh-phrases in (14) and (15) exhibit the case of their counterparts in non-elliptical embedded questions, as in (16) and (17):

- (16) Sie wissen nicht, {\*wer / \*wen / wem} er schmeicheln will.

*they know not who.NOM who.ACC who.DAT he flatter wants*

'They don't know who he wants to flatter.'

- (17) Sie wissen nicht, {\*wer / wen / \*wem} er loben will.

*they know not who.NOM who.ACC who.DAT he praise wants*

'They don't know who he wants to praise.'

These data establish that at least in monoclausal domains, the case of the sluiced wh-phrase must be the same as the case of its correlate, if there is one. Since the literature on sluicing has been mostly concerned with English, nothing more has been said about such case properties. In fact, this case-matching property holds in every language with overt case-marking on wh-phrases that I have examined (German, Greek, Russian, Polish, Czech, Slovene, Finnish, Hindi, Hungarian, Basque; the situation in Japanese is somewhat more complicated — see the references in the appendix to chapter 2). Such data seem to be *prima facie* evidence for a deletion approach, since under the deletion approach, (14) and (15) are derived from (16) and (17), respectively,

An obvious question is whether such case-matching holds across islands as well. While this question has never been investigated to my knowledge, it is easy to show that indeed the same case-matching requirement does hold across islands. I illustrate this here in German with sluicing into a relative clause island.<sup>1</sup> In these data, the verbs *helfen* 'help' and *sehen* 'see' assign dative and accusative to their respective objects.

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Here and below, I will often illustrate islands only with relative clauses and if-clauses, since these are two of the most robust islands cross-linguistically, and speakers are usually more sure of their judgments on these than on other kinds of islands. The choice of a *de dicto* object with a relative clause under an intensional verb like *want* also makes it possible for us to be sure that the island is indeed being interpreted in the ellipsis site: there seems to be no smaller propositional domain than the matrix clause that could be used to coherently resolve the ellipsis here. For this reason, I will often use such examples, and protases of conditionals (which similarly seem to admit of no alternative sensible interpretation under sluicing), since

- (18) Sie will jemanden finden, der einem der Gefangenen  
*she wants someone find who one.DAT of.the prisoners*  
 gehoiften hat, aber ich weiß nicht, {\*welcher / \*welchen / welchern).  
*helped has but I know nor which.NOM which.ACC which.DAT*  
 'She wants to find someone who helped one of the prisoners, but I don't know  
 which.'
- (19) Sie will jemanden finden, der einen der Gefangenen  
*she wants someone find twho one.ACC of.the prisoners*  
 gesehen hat, aber ich weiß nicht, {\*welcher / welchen / \*welchem}.  
*seen has but I know not which.NOM which.ACC which.DAT*  
 'She wants **to** find someone who helped one of the prisoner, but I don't know  
 which.'

Although I have illustrated this here with data from German, again, this generalization holds in the **nine** other case-marking languages I have checked as well (Greek, Russian, Polish, Czech, Slovene, Finnish, Hungarian, Hindi, Basque). This leads to the **first** form-identity generalization, stated in (20):

**(20) *Form-identity generalization I: Case-marching***

The sluiced wh-phrase must bear the case that its correlate bears.

Though this statement of the generalization explicitly mentions a correlate, we saw above in section 2.1.3 that the case properties of the sluiced wh-phrase are **fully determined**

---

making sure that speakers are judging the appropriate interpretation of otherwise ambiguous sluices would greatly increase the complexity of the judgment task, making the data potentially too noisy to be useful.

by its function in the elided IP, even if a correlate is lacking. I leave such cases out of consideration here for **the** moment, since as we will *see* below, sluiced wh-phrases without correlates cannot bind 'into' islands, for independent reasons having to do with scope and the Focus requirement. Since this is the case, I leave (20) in its present form, with no mention of intervening islands for perspicuity. The reader should, however, bear this simplification in mind.

### 3.2.2 Preposition-stranding

The second generalization concerns the distribution of adpositions with sluiced DPs, and the connection of this distribution to patterns of overt wh-movement. Broadly speaking, languages appear to choose between two simple options with respect to whether a wh-DP may be displaced from an associated adposition or not: yes or no. In fact, the first option seems hardly attested: Dryer 1997, in his sample of 625 languages, found no language outside the Germanic family that productively allowed such displacement<sup>3</sup>. The facts are simple and very well-known: in English and the Scandinavian languages, wh-movement<sup>4</sup> may strand a preposition in all **the** standard wh-movement environments: interrogatives, topicalization, relativization (including clefts and pseudoclefts), and comparatives. (In the continental West Germanic languages, such preposition stranding (henceforth **P-stranding**) is restricted to a small class of displaceable elements known as 'R-pronouns', discussed in footnotes 5 and 13 in the previous chapter). In all other languages, the only productive

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<sup>3</sup> P. Hirschbühler (p.c.) informs me that the Nova Scotian dialect of French allows P-stranding productively as well, presumably a result of heavy contact with English.

<sup>4</sup> Complications arise in A-movement constructions ('pseudopassive'), where English is more productive than the Scandinavian languages, but these are irrelevant here.

strategy for displacing a wh-DP governed by an adposition requires the adposition to be displaced along with the DP itself, a phenomenon dubbed 'pied-piping' in Ross 1967.

The second form-identity generalization is easy to state in its simplest form, which I give in (21):

(21) *Form-identity generalization II: Preposition-stranding*

*A language L will allow preposition stranding under sluicing iff L allows preposition stranding under regular wh-movement.*

The data motivating this generalization is presented below. The (a) examples present the sluicing data, and the (b) examples are controls. The first set includes the P-stranding languages English, Swedish, Norwegian, Danish, and Icelandic. The Swedish and Norwegian data I owe to Peter Svenonius, the Danish to Line Mikkelsen, and the Icelandic to Höskuldur Þráinsson.

(22) English

- a. Peter was talking with someone, but I don't know (with) **who**.<sup>5</sup>
- b. Who was he talking with?

---

<sup>5</sup> The English data are in fact somewhat more complicated than the simple picture presented in (22) would lead one to think. A more accurate statement of the facts is given in (i):

- (i) Peter was **talking** with someone,
- a. but I don't know **who**.
  - b. %but I don't know with whom.
  - c. ?but I don't know with **who**.

(ia) is most natural, and **would** be preferred in normal speech. (ib) belongs to the formal, primarily written register of English — see discussion below. (ic) is somewhat **marked**, being essentially a register clash: in the register that pied-pipes the preposition, the form whom is strongly proscribed.

## (23) Swedish

- a. Peter har talat med någon; **jag** vet inte (med) vem.  
*Peter has talked with someone I know not with who*
- b. Vem har Peter talat med?

## (24) Norwegian

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

## (25) Danish

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

## (26) Icelandic

- a. Pétur hefur talað við einhvern en ég veit ekki (við) hvern.  
*Peter has spoken with someone but I know not with who*
- b. Hvern hefur Pétur talað við?

The second set of data comes from Languages **that** do not allow P-stranding under regular wh-movement, as indicated by the ungrammaticality of the (b) examples. The data sample is restricted here to those languages that show wh-movement to a clause-initial position; I exclude for now languages **that** place the wh-phrase in a clause-internal focus position, or move wh-phrases only by scrambling, or show no wh-movement at all (*see* appendix to chapter 2 for brief discussion). Sluicing **data** of course is largely absent from

traditional grammars, so I have only been able to include data from languages for which I had access to native speaker informants. This has largely skewed the sample pool to the languages spoken in Europe and North Africa, making any strong typological claims impossible. I give here data from sixteen languages. Thirteen of these are Indo-European: Greek (Greek); German, Dutch (W.Gmc); Russian (E.Slavic), Polish (W.Slavic), Bulgarian, Serbo-Croatian, Slovene (S.Slavic); Persian (Indo-Iranian); Catalan, Spanish, French, Italian (Romance). Two are Afro-Asiatic: Hebrew and Moroccan Arabic (Semitic). The last is Basque (isolate).

The Greek data were checked with Yoryia Agouraki, Artemis Alexiadou, Elena Anagnostopoulou, Kostis Danopoulos, Anastasia Giannakidou, and Anna Roussou, and were presented to a Greek audience in Thessaloniki. The judgments were uniform across speakers and sessions.

(27) Greek

- a. I Anna milise me kapjon, alla dhe ksero \*(me) pjon.  
*the Anna spoke with someone but nor I-know with cwho*
- b. \* Pjon milise me?

The German data were checked with Daniel Büring, André Meinunger, Armin Mester, Hans Rott, and Susanne Winkler (these data were also presented to German audiences in talks in Berlin and Tübingen). The judgments were uniform across speakers and sessions.

## (28) German

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

The Dutch **data** were checked with Norbert Corver, Jelle Gerbrandy, Herman Hendriks, Iris Mulders, Henk van Riemsdijk Rob van Rooy. and Eddy Ruys. All speakers found the case with **the** preposition perfect, though three of the seven speakers also accepted, with some hesitancy, the **version** without the preposition<sup>6</sup>.

## (29) Dutch

- a. Anna heeft met iemand gesproken, maar ik weet niet ??(met) wie.  
*Anna has with someone spoken but I knotv not with who*
- b. \* Wie heeft zij {met/mee}<sup>7</sup> gesproken?

The Russian **data** are from Sergey Avrutin and Dasha Derzhinskaya.

## (30) Russian

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

---

<sup>6</sup> One of these latter, Henk van Riemsdijk, reported a contrast between (29a) in the text and the following example, which he supplied, finding the former "mildly deviant", and the latter clearly ungrammatical:

(i) Hij is getrouwde gewest met veel mooie vrouwen, maar ik weet niet \*(met) wie.  
*he is married been with many pretty women but I know not with who*  
 'He has been married to many pretty women, but I don't know who.'

<sup>7</sup> The preposition *met* alternates with the form *mee*, under conditions irrelevant here.

The Polish data are from Dorotha Mokrosinska and Adam Przepiórkowski.

(31) Polish

- a. Anna rozmawiała z kims, ale nie wiem \*(z) kim.  
*Anna spoke with someone, but not I.know with who*
- b. \* Kim rozmawiała Anna z?

The Bulgarian data are from Sevdalina Dianova.

(32) Bulgarian

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

The Serbo-Croatian data are from Svetlana Godjevac.

(33) Serbo-Croatian

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

The Slovene data are from Tatjana Marvin.

(34) Slovene

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

The Persian data are from Behrad Aghaei.

(35) Persian

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

The Catalan data are from Josep Quer.

(36) Catalan

- a. L'Anna va parlar arnb algú, per6 no sé ??(amb) *qui*.  
*the-Anna aux speak with someone but not I.know with who*
- b. \* Qui va parlar l'Anna amb?

The French data are from Caroline Féry, Paul Hirschbühler, and Marie Labelle.<sup>8</sup>

(37) French

- a. Anne l'a offert à quelqu'un, mais je ne sais pas \*(à) *qui*.  
*Anne it-has offered to someone but I NEG know not to who*

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<sup>8</sup> There was some variation in judgment among these speakers. Although all three speakers rejected examples like that in the text, two of the three didn't find examples like (ia) too deviant, as indicated. The expected variant in (ib), with the preposition repeated, was perfect for all speakers.

- (i) a. Elle a parlé avec quelqu'un, mais je ne sais pas qui.  
*she has spoken with someone but I NEG know not who*  
'She spoke with someone, but I don't know who.'  
[2 of 3 speakers judged this '?' ; 1 of 3 judged this '\*' ]
- b. Elle a parlé avec quelqu'un, mais je ne sais pas avec qui.

See below for some discussion of the variation in this domain,

- b. \* Qui est-ce qu'elle l'a offert à?

The Spanish data are from Rodrigo Gutierrez and Josep Quer.<sup>9</sup>

(38) Spanish

- a. Ana habló con alguien, pero no sé ??(con) quién.  
*Ann spoke with someone but not I.know with who*
- b. \*¿Quién habló con?

The Italian data are from Maria Aloni, Gloria Cocchi, and Paola Monachesi. Two of the three speakers found the variant without the preposition almost acceptable.

(39) Italian

- a. Pietro ha parlato con qualcuno, ma non so ?(con) chi.  
*Pietro has spoken with someone but not I.know with who*
- b. \*Chi ha parlato Pietro con?

The Hebrew data are from Edit Doron, Danny Fox, and Yoad Winter. There was considerable variation across speakers, with one speaker accepting (40a), another rejecting it, and the third finding it intermediate.<sup>10</sup>

<sup>9</sup> R. Gutierrez speaks Mexican, and J. Quer Castilian Spanish. Gutierrez reported the sluicing variant without the preposition **as** being mostly acceptable, though dispreferred to the one with it. He did find the fronted version without the preposition in (i), however, markedly **worse**:

(i) Ana habló con alguien, pero \*(con) quién, no sé.

At this point, I have no explanation for this positional variability in **judgment**.

<sup>10</sup> Edit Doron supplied the following example as unambiguously **ungrammatical**, while accepting (40a); in (i), the 'preposition' **le** is essentially the **marker** for dative case, and often glossed as such.

(i) Dani katav le-mishehu, aval ani lo yode'a \*(le-)mi.  
*Dani wrote to-someone, but I nor know to-who*

## (40) Hebrew

- a. Adam diber 'im mishehu, aval ani lo yode ?('im) mi.  
*Adam spoke with someone but I not know with who*
- b. \* Mi Adam diber 'im?

The Moroccan Arabic data are from Mohamed Damir and M'hamed Bennani-Meziane.

## (41) Moroccan Arabic

- a. Driss tkellem m<sup>c</sup>a ši wahad, walakin ma'raft š \*(m<sup>c</sup>a) man.  
*Driss talked with someone but not know-NEG with who*
- b. \* Man tkellem Driss m<sup>c</sup>a?

The Basque data are due to Arantzazu Elordieta

## (42) Basque

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

These data represent the simplest and clearest cases — monoclausal domains with argument PPs. Speakers' judgments on such examples are the most secure, and I will take

Yoad Winter pointed out that **where** the accusative marker *et* is possible (on partitive indefinites, for example, but not on regular indefinites), a similar **contrast arises**:

(ii) Ra'iti et exad me-ha-yeladim, aval ani lo yode'a ??(et) mi.  
*I.saw ACC one of-the-children but I not know ACC who*

it as a simplifying assumption that this core of data should be explained by core grammatical principles. This is not to ignore or deny variations in **the** data when the data base is extended to other **kinds** of prepositions, and other uses of prepositions (roughly, the distinction usually drawn between 'argument' and 'adjunct' uses). In some cases **and** in some languages, it seems that speakers are willing to accept a bare wh-phrase in place of the PP, though I have not yet determined with sufficient clarity under what conditions this is possible, or whether or not this is a systematic property of a class of prepositions or languages; this variability across speakers is represented by the **occasional** use of ?? or ? in the (a) examples, **averaged** across informants. Most variability of this kind was found in those languages with poor overt case systems, while the **judgments** were completely uniform and robust in the highly case-marked **languages** (German, Greek, Russian, Serbo-Croatian, Slovene, and Polish)<sup>11</sup>. For this reason, I will primarily concentrate on these latter cases, since the judgments are clearest. The variability in judgments in the other cases probably comes from one of two sources.

First, I believe that in many cases, because we dealing with an elliptical structure to begin with, particularly accommodating speakers are willing to interpret the ellipsis as desired, and judge a particular example as 'acceptable'. Because of the ellipsis, 'acceptable' comes often to mean 'interpretable', in the following sense. In eliciting these judgments, I have often found speakers hesitant about necessarily making the relevant connection: after all, in all cases, the sentence 'I don't know who', with a bare wh-phrase

<sup>11</sup> This also holds in Hindi, though I have omitted this language from discussion in the main text, since the placement of wh-phrases in Hindi is not clause-peripheral as in the above languages (it patterns with Turkish and Hungarian in preferring a placement of the wh-XP in a 'focus' position before the verb). The form identity effect is shown in (i) (thanks to R. Bhatt for this datum).

(i) Gautam-ne kisi se baat kii thii, lekin mujhe pataa nahii kis \*(se).  
 Gautam-ERG someone with talk do.PFV PAST but I.DAT knowldg. NEG who with  
 'Gautam spoke with someone, but I don't know with who.'

instead of the PP is perfectly well-formed and **interpretable**.<sup>12</sup> The point of the exercise, of course, is that it is not well-formed if the antecedent sentence, the source for the **elliptical** material, is the immediately preceding sentence, **and** only that sentence. This is not the case, for example, in judging simple **P-stranding** extractions: no interference from **string-identical** grammatical sentences is found in such cases. Judgments about sluicing thus require the kind of subtlety and control that **judgments** about possible binding relations and scope do — notoriously **difficult** areas to gather clear cross-linguistic data on from **naïve** informants. Even among **linguist** informants, however, care is required, since sluicing is not a commonly studied area, and accommodation is a **real** source of noise in the data. Particularly for elliptical structures, determining the intended reading goes hand in hand with judging a particular example **grammatical**, and it is clear **that** quite often informants **will** consider a particular example until the interpretation is clear, at which point they will pronounce the example 'acceptable', on the strength of their understanding it (of course, it is never possible to declare a sentence **grammatical** before its interpretation is clear, but **grammaticality** goes beyond **and** is distinct from simple **interpretability**). But this cannot be the whole picture, since in some languages, **judgments are** without variation. This brings me to the second probable source of variation.

It is **difficult** to believe that the correlation between overt morphological case and clarity in judging the **P-stranding** examples could be entirely due to chance. More likely is **that** sluicing **might** be able to give us a window into the mechanisms at work in controlling **P-stranding** across languages, with the **non-variation** in certain languages indicating a **strong(er)** connection between case and **P-marking than** in other languages. Although I will

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<sup>12</sup> In particular, in those languages without overt **morphological case**, we **may** be dealing with a truncation of something like '... who it is'. *as* suggested to me by several speakers, who could only give a **non-elliptical** form of the target sentence with such a continuation. Presumably this is possible in these **languages** but not in the **more explicit case-marking** languages, because of the underdetermination of case on **the wh-word in the** former; in **the latter**, the nominative marking on the wh-phrase would be required.

have nothing to say about the account of P-stranding (a notoriously open problem for cross-linguistic syntax: see van Riemsdijk 1978 and Takami 1992 for data and references), I do not believe that the most productive way to view P-stranding is in terms of some absolute notion of P as a proper governor or not (Kayne 1981) or incorporability into the verb (Hornstein and Weinberg 1981, see especially Takami 1992 and Baltin and Postal 1996 for arguments against this). Instead, it seems most reasonable to take up traditional intuitions about the role of prepositions as grammatical function markers like cases (cf. the common historical connections between these two, and the difficulty in separating them in many languages, such as Finnish, Hungarian, and Lezgian).

The basic idea is that languages vary with respect to the analyticity of the means they use to mark grammatical relations: English and the Scandinavian languages, where prepositions are separable from their notional objects, are at the extreme end of this scale of analyticity, while highly fusional systems like Lezgian might be at the other end, not allowing much of any distinction between 'prepositions' and other morphemes that attach to arguments and indicate grammatical role. This view requires us to give up a uniform scale of 'analyticity' along which an entire language can be ordered, and decompose this as a function of analyticity in several domains. How and whether these should relate is an interesting question, of course, but an independent one.

These remarks are meant only to give some context to the variation in judgment seen above: it may be that the variation of apparent P-stranding under sluicing in languages that otherwise prohibit P-stranding is telling us something about the mechanisms of analyticity in those languages. Such languages would be 'less analytic' with respect to prepositions than languages like German and Greek, where the preposition cannot be stranded under any circumstances. Again, these brief remarks should not be thought of as standing in as a theory of preposition-stranding, but simply as representing a possible way to frame the facts above.

The interfering factors of these various considerations should serve here **only** as a cautionary note; within each language, further research **and** refinements will **certainly** prove necessary. Nevertheless, for the remainder of this dissertation, I will concentrate on the data presented in this section **as forming** the core explicanda, bearing this simplification in mind.

Before continuing to **an** examination of a new kind of data, I present a few more detailed **examples** of the kind of data just discussed, from **languages** to which I have had better access, to help fill out the empirical picture. These data supplement the above more schematic kind of **data**, and address **small** side points within the individual languages in question. I will not go deeply into these data here, however, at the risk of getting side-tracked from the main investigation. Nevertheless, I feel it is important to document the **data** in a bit more detail than that done above, as a starting point for further research.

First, I give data from other kinds of argument PPs in German, Greek, Polish. Russian: the PP headed by the equivalent of 'about' selected by predicates of information transfer in all four **languages**, and the PP headed by *für* 'for' idiosyncratically selected by *entscheiden* 'decide<sup>7</sup>' in **German**. The Polish and Russian data also address a potential objection to the above use of *s/z* 'with<sup>7</sup>' in these **languages**, namely that *s/z* is so prosodically dependent that it is little different from a case-marker (compare the difficulties in distinguishing these two on principled grounds in languages like Turkish, Hungarian, Finnish, and **Lezgian**); here, the preposition o 'about' at least forms its own syllable.

#### (43) German

- a. Peter hat über jemanden aus deiner Klasse gesprochen —  
**Peter has about someone from your class spoken**  
 rate mal, \*(über) wen  
*guess PRT about who.*

'Peter was talking about someone from **your** class — guess who.'

- b. Peter hat sich für ein amerikanisches College entschieden,

*Peter has REFL for a American college decided*

*aber er wollte uns nicht sagen, \*(für) welches.*

*but he wanted us not say for which*

'Peter decided on an American college, but he wouldn't tell us which.'

(44) Greek

I gonis tou pedhiou malosan gia kati,

*the parents of the child argued.3pl about something,*

alla arnite na mas pi \*(gia) ti,

*but refused.3sg SUBJ us tell about what*

'The child's parents were arguing about something, but she refused to tell us what.'

(45) Polish

Anna rozmawiała o czymś, ale nie wiem \*(o) czym.

*Anna talked about something but not I.know about what*

'Anna was talking about something, but I don't know what.'

(46) Russian

Anna govorila o Eem-to, no ja ne pomnju \*(o) čëm.

*Anna talked about something but I not remember about what.*

'Anna was talking about something, but I don't know what.'

Second, I give data from these four languages concerning PP adjuncts — locative adjuncts in German and Greek, and comitative adjuncts in Polish and Russian.

## (47) German

Anke ist in einem Seminar eingeschlafen, aber ich weiß nicht, \*(in) welchem.

*Anke is in a class fallen.asleep but I know not in which*

## (48) Greek

I Anna apokimithike s'ena apo ta mathimata, alla dhe ksero \*(se) pjo.

*the Anna fell-asleep in-one of the classes but not I.know in which*

## (49) Polish

Anna tańczyła z kimś, ale nie wiem \*(z) kim.

*Anna was.dancing with someone but not I.know with who*

## (50) Russian

Pëtr tanceval s kern-to, no ja ne pomnju \*(s) kem.

*Pëtr was.dancing with someone but I not remember with who*

The above data, though it represents a considerable expansion of the data base for sluicing **and** has never been considered in the literature on sluicing before, is nonetheless limited in the same **way** that the initial data in the previous section were: all of the data concern monoclausal domains. Important data to be taken up in the next chapter come from the fact that the P-stranding generalization in (21) holds *even 'across' islands*. The following **data** from English, German, Greek, Polish, and Russian demonstrate that although the sluiced wh-phrase must be associated with a gap 'inside' an island, nevertheless the language-particular constraints on P-stranding must continue to be respected.

In English, of course, P-stranding is allowed, and a sluice dependent on an indefinite antecedent inside a PP need not pied-pipe the associated preposition.

- (51) a. Ben's mom will get **angry** if he **talks** with someone from his class, but I don't remember who.
- b. Abby wants to **interview** someone who lived in one of the Balkan countries, but I can't remember which.

If anything, pied-piping of the preposition in English is worse than movement of the wh-phrase alone, as is generally the case for pied-piping of prepositions (I return to this briefly in chapter 4, section 4.3).

In German, Greek, Polish, and Russian, on the other hand, P-stranding is impossible, as the (b) control examples in the main data sample in (22)-(42) above showed. The following data show **that** the impossibility of P-stranding holds even when **the** sluiced wh-phrase apparently associates into an island. I illustrate this with a relative clause island and the protasis of a conditional, as in the English examples in (51).

German:

- (52) Anke wird sich ärgern, wenn Peter mit **einem** der Lehrer  
*Anke will REFL upset if Peter with one of.the teachers*  
 spricht, aber ich weiß nicht mehr, \*(mit) welchem.  
*speaks but I know not more with which*  
 ‘Anke **will** get upset if Peter talks to one of the teachers, but I don't remember which.’

- (53) Anke will jemanden heiraten, der in einem bestimmten mittel-europäischen Land gewohnt hat, aber ich erinnere mich nicht, \*(in) welchem.
- Anke wants someone marry cwho in a certain central-european country lived has but I remember REFL not in which*
- 'Anke wants to marry someone who has lived in a certain central European country, but I don't remember which.'

Greek:

- (54) I mitera tou Gianni tha thimosi an milisi me kapjon
- the mom of Giannis FUT get.angry if he-talks with someone*
- apo tin taksi tou, alla dhe thimame \*(me) pjon.
- from the class his but not I.remember with who*
- 'Giannis's mom will get angry if he talks with someone from his class, but I don't remember who.'

- (55) 1 Maria theli na milisi me kapjon pu na exei polemisi
- the Maria wants SUBJ talk with someone who SUBJ has fought*
- s'enan apo tous Valkanikous polemous, ala dhen ksero \*(se) pjon.
- in-onefrom the Balkan wars but not I.know in cvhich*
- 'Maria wants to talk to someone who fought in one of the Balkan wars, but I don't know which.'

Polish:

- (56) Anna wścieknie się jeśli Piotr zatańczy z jedną z jej
- Anna angers REFL if Piotr dances with one of her*

kolezanek i Piotr chciałby wiedzieć \*(z) którą.

*friends and Piotr wants to know with which*

'Anna will get mad if Piotr dances with one of her friends, and Piotr wants to know which.'

(57) Piotr chciałby ożenić się z kimś, kto mieszka w jednym

*Piotr wants to marry REFL with someone who lives in one*

*z krajów bałkańskich, ale nie wiem \*(w) którym.*

*of countries Balkan but not I.know in which*

'Peter wants to marry someone who has Lived in a certain Balkan country, but I don't remember which.'

Russian:

(58) Anna rasserditsja esli Petr budet tancevat's odnoj iz ee

*Anna get-angry if Pëtr will dance with one from her*

*podrug, no on ne pomnit \*(s) kakoj.*

*friends but he not remembers with which*

'Anna will get mad if Petr dances with one of her friends, but he doesn't remember which,'

(59) Petr xočet ženit'sja na ženščine kotoraja živët v odnoj

*Pëtr evants marry on woman who lives in one*

*iz balkanskix stran, no ja zabyl \*(v) kakoj.*

*from Balkan countries but I forgot in which*

'Petr wants to marry a woman who lives in one of the Balkan countries, but I forgot fin) which.'

These data indicate **that** the second form-identity generalization posited above in (21), and repeated here, holds regardless of whether or not there is apparently an island interior to the ellipsis site (i.e., in the interpretation of the elliptical IP).

**(60) *Form-identity generalization II: Preposition-stranding***

A language  $L$  will allow preposition stranding under sluicing iff  $L$  allows preposition stranding under regular wh-movement.

The data presented in sections 3.2.1 and 3.2.2 shows that there is an intimate connection between the form of the wh-phrase in SpecCP in sluicing and the form of the wh-phrase that would appear under wh-movement with no IP ellipsis. Both the case facts and especially the P-stranding facts, seem to indicate that **the** usual mechanisms for case-assignment and determination of targets of wh-movement that operate in a given language to regulate the shape of wh-phrases in nonelliptical questions operate in identical ways under sluicing as well. All of these facts strongly suggest that wh-movement of the usual sort has taken place, displacing an IP-internal wh-phrase to SpecCP.<sup>13</sup>

This conclusion stands in direct conflict to the conclusion reached at the end of section 3.1, where the apparent lack of island sensitivity suggested **that** no movement had taken place. The remainder of this dissertation is devoted to resolving this conflict.

The data presented in this chapter will be instrumental in testing the hypotheses about the nature of islands and ellipsis to come. Having documented the data which support

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<sup>13</sup> Similar considerations suggest a movement approach to a variety of parallel (though to some extent less robust) form-identity effects in stripping, comparatives, fragment answers, the remnants of gapping, and 'elliptic conjunctions' (*except* phrases etc.), which often show case and P-stranding dependencies like their sluicing cousins.

the two form-identity generalizations, I turn now to an exploration of their theoretical significance.

## 4 Previous accounts

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This chapter reviews representative accounts of extant approaches to sluicing, and shows that each of them fails either to deal with the apparent island-insensitivity of sluicing or with the form-identity facts documented in chapter 3.

This is of course not to say, however, that the conclusions reached in this chapter are wholly negative. Along the way, we will have occasion to uncover a richer set of data **than** the schematic data presented in chapter 3, and will begin to touch on a range of analytic questions that will be taken up again in chapter 5.

### 4.1 Ross 1969: **deletio nata atque mortua**

Ross 1969 proposes a simple deletion account, where deletion of the **sentential** part of an embedded question is licensed by phrase-marker identity with a **preceding** sentence. The particular formulation he gives will not concern us (even at the time, Ross recognized its shortcomings), but rather its overall approach, **translated** into our current understanding of PF-deletion.

For Ross, the great advantage of the deletion account, contrasted with a purely **interpretive** account, was that it could account directly for the **case-matching** effects. Although he didn't give an actual derivation of his **German** examples (because his particular formulation of **sluicing** actually couldn't handle them, **due** to the **V2/V-final** alternations involved), we can see how such a derivation would proceed, provided that the condition **regulating** identity is not, as assumed by Ross, a condition on S-structure phrase-marker

identity, but rather the condition proposed in chapter I. Under this conception, the sluice in (1) simply derives from the corresponding embedded question (where deletion is indicated by struck-through text). Since the verb *schmeicheln* assigns dative *case*, this will be the only possibility for the case of **the** remnant wh-phrase.

- (1) Er will jemandem schmeicheln, aber sie wissen nicht,  
*he wants someone.DAT flatter but they know not*  
 $\{\text{*wer} / \text{*wen} / \text{wem}\}$  ~~er  $t_{\text{wem}}$  schmeicheln will.~~  
*who.NOM who.ACC who.DAT he flatter wants*  
'He **wants** to flatter someone, but they don't know who.'

Although Ross did not note this consequence of **the** deletion approach, it straightforwardly predicts the P-stranding facts as well. In languages like German, which lack P-stranding, the only well-formed **output** of wh-movement will have the preposition pied-piped. It is the resulting structure which is subject to deletion, correctly yielding (2) as the only possible grammatical sluice.

- (2) Anna hat mit jemandem gesprochen, aber ich weiß nicht,  
*Anna has with someone spoken but I know not*  
 $[\text{mit wem}]$  ~~sie  $t_{PP}$  gesprochen hat.~~  
*with who she spoken has*

This simple fact is the **single** strongest possible argument for the deletion approach. As we will see, it is a major stumbling block for most other approaches.

Another fact that a deletion approach correctly predicts is that in languages with multiple wh-fronting, sluicing with more than one wh-XP remnant should be possible. One

language that has **multiple wh-fronting** is Bulgarian, as the data in (3) and (4) show, for **matrix** and embedded questions, respectively (see Rudin 1985:82ff., 1988; thanks to **Lily Schürcks-Grozeva** and **Sevdalina Danova** for judgments on the Bulgarian examples in this section).

- (3) a. [<sub>CP</sub> Koj kogo [<sub>IP</sub> *e* vidjal]]?

*who whom AUX seen*

'Who saw who?'

- b. \*Koj *e* vidjal kogo?

- (4) a. Ne znam [<sub>CP</sub> koj kogo [<sub>IP</sub> *e* vidjal]].

*not-i-know who whom AUX seen*

'I don't know who saw who.'

- b. \*Ne znam koj *e* vidjal kogo.

Such a language also allows multiple wh-phrases under sluicing, dubbed 'multiple sluicing' in Takahashi 1994:

- (5) Njakoj *e* vidjal njakogo, no ne znam [<sub>CP</sub> koj kogo [<sub>IP</sub> *e* — vidjal]].

*someone AUX seen someone, but not I.know who whom AUX seen*

'Someone **saw** someone, **but** I don't know who saw who.'

A further consequence of **deletion** is that if these languages show **Superiority** effects, and if Superiority is the **result** of derivational **but** not **representational** constraints, then the fact that Superiority effects are attested under sluicing as **well** argues that **wh-movement**, constrained by Superiority, has occurred, followed by deletion. The control **data**

that show that Bulgarian exhibits Superiority effects is given in (6), from Rudin 1985:115. The corresponding sluicing case is in (7), and should be compared to its grammatical counterpart in (5).

- (6) a. **Koj kogo e vidjal?**

*twho tvhom AUX seen*

‘Who saw who?’

- b. \* **Kogo koje vidjal?**

- (7) \* Njakoj e vidjal njakogo, no ne znam kogo **koj.**

*someone AUX seen someone, but not I.know whom who*

(‘Someone **saw** someone, but **I** don't know who **saw** who.’)

There is, however, a serious complication in the picture: it appears that not **only** multiple wh-fronting **languages like** Bulgarian allow for multiple wh-remnants. The following data, from German, Dutch, Greek, Turkish, and Japanese respectively<sup>1</sup> show that this phenomenon is attested in other, non-multiple-fronting languages as well.

- (8) a. Jemand hat was gesehen, aber ich weiß nicht, **wer** was.

*someone has something seen but I know not who what*

(lit.) 'Someone saw something, but I don't know who what.'

- b. Iemand heeft iets gezien, maar ik weet niet wie wat.

*someone has something seen but I know not who tvar*

(lit.) 'Someone saw something, but I don't know who what.'

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<sup>1</sup> For judgments on these and the following examples, thanks to Armin Mester (German), Hotze Rullmann (Dutch), Anastasia Giannakidou (Greek), and Dilara Grate (Turkish).

- c. Kapjos      idhe kapjon,      alla dhe ksero    pjos      pjon.  
*someone.NOM saw someone.ACC but not I.know who.NOM who.ACC*  
 (Lit.) 'Someone saw someone, but I don't know who whom.'
- d. Biri      bir s,ey      gördü ama, kim      ne      bil-mi-yor-urn.'  
*someone something saw but who.NOM what.ACC know-NEG-PROG-1sg*  
 (Lit.) 'Someone saw something, but I don't know who what.'
- e. Sono toki, dareka-ga      nanika-o      mise-ta.  
*that time someone-NOM something-ACC showed*  
 Sikasi, dare-ga      nani-o      ka omoidase-nai (Nishigauchi 1998: 146 (70))  
 but      who-NOM what-ACC Q remember-not  
 'At that moment, someone showed something (to me). (lit.) But I can't  
 remember who what.'

Even in English, although the relevant construction is already somewhat marginal (though noted for example in Bolinger 1978), we do find instances of apparent 'multiple

The Turkish case raises numerous interesting questions that deserve further examination. Most interesting is the fact that the non-elliptical version, given in (i), requires the genitive on the embedded subject (embedded clauses in Turkish being very similar to nominalizations in many respects).

Biri      bir s,ey      gördü ama, kim-\*(in) ne      gör-düG-ünü bil-mi-yor-um.  
 someone something saw but who-GEN what see-DIK-ACC know-NEG-PROG-1sg  
 'Someone saw something, but I don't know who saw what.'

This case marking<sup>\*</sup> cannot appear in the 'sluiced' version, however: nominative is required, as in (8d).

(ii)      Biri      bir s,ey      gordii ama, kim-in      ne      bil-mi-yor-um.  
 someone something saw bur who-GEN what know-NEG-PROG-1sg  
 ('Someone saw something, but I don't know who what.')

These contrasts indicate that multiple 'sluicing' in Turkish may not be as directly related to its apparent cousins in other languages as first inspection would imply. One possibility is that the multiple sluice is actually some kind of reduced coordination. This suspicion is supported by the fact that a strong pause is required between *kim* and *ne* in (8d), and that (iii) is a possible, perhaps more natural variant.

(iii)      Biri      bir s,ey      gördü ama, kim {ve/veya} ne      bil-mi-yor-um,  
 someone something saw but who and/or what know-NEG-PROG-1sg  
 (lit.) 'Someone saw something, but I don't know who and/or what.'

Cf. Lewis's (1967:73) example *neyi ve ne zaman yaptın?* (lit.) 'What and when have you done?' (i.e., 'What have you done, and when?'). See Browne 1972, Bechhofer 1976b, Giannakidou and Merchant 1998, and Merchant 1999a for related discussion,

sluicing':

- (9) (?) Everyone brought something (different) to the potluck, but I couldn't tell you who what-

In the English case, though not in the languages in (8), this multiple sluicing seems restricted to environments where an appropriate pair-list reading can be generated (see the discussion in Nishigauchi 1998), i.e., one of the quantifiers in the antecedent IP must be a generator. When we have two **indefinites**, for example, a multiple sluice parallel to the examples in (8) is impossible: *\* Someone said something, but I couldn't tell you who what.* (This is not to imply that examples **parallel** to (9) are ruled out in German, Dutch, Greek, Turkish, and Japanese — on the contrary, such examples are to my knowledge possible, and show interpretational restrictions reminiscent of the English facts, as noted in Nishigauchi 1998 for Japanese.)

Thus any interesting implication of the form 'multiple sluicing iff overt multiple fronting'<sup>7</sup> cannot hold. Though I **will** have nothing more to say about the syntax of this phenomenon here, one possible interpretation is that Procrastinate can be overridden if deletion applies. (Suggesting an implementation of Procrastinate not as a global evaluation metric, but as a local one, encoded by some feature of traces which is repaired by the deletion, along the lines discussed in chapter 2.)

In any case, the prediction with respect to Superiority can be tested in those languages that exhibit Superiority effects. The situation in German and Dutch is the subject of some controversy, making these languages less than ideal as test cases. In English and Greek, however, Superiority effects are clearly attested in the relevant simple monoclausal structures:

- (10) a. \* I couldn't tell you what who brought to the potluck.
- b. \* Dhen ksero pjon pjos idhe. (on non-echo reading for *pjos*)  
*not I.know who.ACC who.NOM saw*  
 ('I don't know whom who saw.')

Crucially, these effects are equally attested in the corresponding multiple sluicing structures:

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

This patterning in the data is expected if Superiority is the result of a derivational constraint on wh-movement (perhaps a result of the Minimal Link Condition as in Chomsky 1995; see also Hornstein 1995 and Pesetsky 1998b for recent discussion), and if the remnant wh-phrases reach their surface position in sluicing by the application of the usual processes that drive overt wh-movement. Since they undergo wh-movement, the Superiority condition will apply, with the desired results.

Despite these successes, a serious problem remains for the deletion approach. The problem, as Ross recognized, is the apparent violation of the islands. Under his approach, examples like (12a) and (13a) have the derivations in (12b) and (13b), where wh-movement has violated the island, hidden by deletion.

- (12) a. They want to hire someone who speaks a Balkan language' but I don't remember which.
- b. \* I don't remember which (~~Balkan language~~) ~~they want to hire someone [who speaks]~~.
- (13) a. Ben **will** be mad if Abby talks to one of the teachers, but she couldn't remember which.
- b. \* Ben **will** be mad if Abby **talks** to one of the teachers, but she couldn't remember which ~~(of the teachers)~~ ~~Ben will be mad [if she talks to]~~.

Ross's solution to this problem was to conclude that ungrammaticality was calculated across the derivation, that is, that global rules were necessary that could inspect island violations and determine whether they had been 'repaired' by deletion (whether "the island-forming node does not appear in surface structure", p.277), in which case a lesser mark of deviance would be assigned. This conclusion is repeated in Lakoff 1970, 1972.

Besides the murkiness of such an evaluation metric —see the rebuttal in Baker and Brame 1972— there is good reason to reject this approach to the island facts on empirical grounds. As I pointed out in the Introduction, VP-deletion does not repair island violations, though the Ross approach would expect them to.

- (14) [**Everyone** wants to hire someone who speaks a different Balkan language]
- \* Abby wants to **hire** someone who speaks Greek, but I don't remember which (**language**) Ben does ~~want to hire someone [who speaks]~~.

- (15) \* Ben will be mad if Abby talks to Mr. Ryberg, and guess who Chuck will be ~~mad~~  
if she talks to.

These examples indicate that for at least these islands, the effect is due to **the** crossing of an island boundary by wh-movement, **regardless** of whether the island-inducing node surfaces at PF. The re-analysis of these facts suggested by Chomsky 1970 and reiterated in Baker and Brame 1972—namely that crossing an island-node marks that node with some feature (Lakoff 1972 calls it '[+bad]'), and that this feature, if not deleted, causes the ungrammaticality—fails for the same reason.

## 4.2 Pseudosluicing

Faced with these difficulties, it was not long before the suggestion was made to reanalyze Ross's sluicing facts as the result not of island-insensitive wh-movement, but rather as related to **an** entirely different, non-island-containing structure. This suggestion was made independently in both Erteschik-Shir 1977 [1974] and Pollmann 1975.

In the last footnote on the last page of her dissertation (Erteschik-Shir 1977: 107-108, fn 4), Erteschik-Shir mooted an "interesting alternative to sluicing [that] might be worth investigating", in which a sluice like (16a) would be derived from the underlying structure in (16b) by deletion of the subject it and the copula:

- (16) a. Someone just left — guess who.  
 b. Someone just left — guess who ~~it was~~.

She was concerned exactly with the island-ameliorating examples that we have been discussing, and supposed that the question of such island effects becomes irrelevant if the structure of such an example (her (iii)) contains only matrix elements (it will be).

- (17) That he'll hire someone is possible, but I won't divulge who ?(it will be).

Precisely the same suggestion is made in Pollmann 1975, who formulates an optional transformation that deletes ' $[+pro, +def]_{NP} + \text{copula}$ '<sup>3</sup>, though he does not recognize the solution it provides to the island problem.

Neither author explicitly identifies the reduced structures posited as underlying sluices as related to the structure found in clefts, but it does not seem far-fetched to make this identification, and in fact what appears to be sluicing in Japanese has been claimed by a number of authors to derive exactly from a cleft (see Merchant 1998a for discussion and references). In other words, (16b) is itself most likely a reduced form of a cleft whose pivot is an extracted wh-phrase, as in (18a). This type of ellipsis I will call 'pseudosluicing', as it gives rise to structures seemingly indistinguishable from 'true' sluicing (wh-Fragments, derived, by hypothesis, from more usual interrogative structures as in (18b)).

- (18) a. Guess who [~~it was~~ that just left ]. pseudosluice  
 b. Guess who [just left] sluice

---

<sup>3</sup> Pollmann's formulation is meant to include *dat* 'that' as well as *het* 'it'. This incorrectly allows for potential reductions of the kind in (i), as pointed out by Klein 1977:71 (his (34)); similarly for the English translation.

(i) We hebben gisteren Pollini horen spelen. Raad eens wie \*(dat is).  
*we have yesterday Pollini hear play guess PRT who that is*  
*'We heard Pollini play yesterday. Guess who \*(that is).'*

Both derivations, in other words, potentially give rise to the attested data. In the following sections, I develop a number of diagnostics to distinguish the two, and conclude that it is at best highly unlikely that 'sluicing' can be reduced to pseudosluicing in any interestingly general way. These sections are mostly restatements of arguments presented in Merchant 1998a, though several are new.

#### 4.2.1 Initial considerations

Let us begin by considering the CP portion of the pseudosluice. If the suggested reduction of 'it be XP' structures to 'it be XP that-' cleft structures is correct, we might wonder whether there is reason to believe that the presuppositional (relative-clause-like) part of a cleft could be omitted to begin with. Such 'ellipsis' would seem to be available in English as well, if the short forms of the answers below are indeed transformationally related to their non-elliptical apparent counterparts. Compare the following pairs of questions and answers.

- (19) a. Q: Who knocked?  
**A:** It was {Alex / me} (who knocked).
- b. Q: What did they steal?  
**A:** It was the TV and stereo (that they stole).
- c. Q: Why is the bus late?  
**A:** It's because of the traffic (that it's late).

In fact, sometimes the presuppositional part must be missing:

(20) Q: Who's that?

A: It's me (\*that is that).

But even if these structures are somehow related, the nature of this 'ellipsis' is quite different from the head-licensed ellipsis generally discussed in the literature (NP-ellipsis, VP-ellipsis, IP-ellipsis), consisting as it does of a CP. There is in fact good reason to doubt that CP-ellipsis in this form exists. Let us examine the two likeliest candidates.

There are two other kinds of environments which would seem to involve missing CPs in English. The first is in comparative clauses such as (21).

- (21) a. More people came than we thought (would come).
- b. He's sicker than the doctor {thought/expected/realized/admitted} (that he was).

Given the perceived interpretation, and the fact that these verbs do not in general allow null complements (cf. I **didn't** expect \*(that)), it seems reasonable to assume that their CP complements have been elided (perhaps via some generalized comparative deletion) in (21). But as Kennedy and Merchant 1999 show, this assumption is wrong. In fact, there is good reason to believe that the embedded verbs in (21) take DP, not CP, complements.

Several pieces of evidence point to this conclusion: here I will only mention one, relating to the fact that DPs, but not CPs, need Case. Observe that if the verbs in (21) are passivized, the examples become ungrammatical.

- (22) a. \*More people came than it was thought-
- b. \*He's sicker than it was {thought/expected/realized/admitted}.

This effect extends as well to adjectives **that** take CP complements:

- (23) \*Sally had a more serious problem than it was {evident/known/apparent}.

The ungrammaticality of these examples would be surprising if it were simply a matter of a CP being **missing**, all the more so given **that** when a CP is present, the examples are **fine**.

- (24) a. More people came **than** it was thought would come.
- b. He's **sicker** than it was {thought/expected/realized/admitted} **that** he **was**.
- c. Sally had a more serious problem than it was {evident/known/apparent} that she had.

The contrast between the examples in (22) and (23) and those in (24) is completely surprising if the former **are** simply elliptical versions of the latter. Instead, Kennedy and Merchant 1999 propose **that** what is missing in (22) and (23) is a DP, not a CP, and that this DP, like all argument DPs, requires Case. Support for this approach is given by the fact that (22) and (23) improve if the expletive subject is omitted: this allows the DP to move into subject position, getting Case there.

- (25) a. More people came than **was** thought.  
 b. He's sicker **than** was {thought/expected/realized/admitted}.  
 c. Sally had a more serious problem than **was** {evident/known/apparent}.

We can thus conclude that what appeared to be a form of CP ellipsis in comparatives does not in fact involve a CP at all.

The second environment in which a CP complement appears to be missing is as the complement to certain verbs, as in (26):

- (26) a. **A:** They're late again. B: I know (that they're late again).  
 b. **A:** Will **she** come? B: I don't know (if **she'll** come).

But here again it is highly unlikely that a syntactic operation of CP-ellipsis is at work. The fact that certain verbs, like *know*, *insist*, and *wonder*, can appear without a complement seems to be an idiosyncratic fact about these verbs (generally called 'Null complement anaphora', cf. Hankamer and Sag 1976, Fillmore 1986, and many others) that requires some other explanation. Note that if deletion of a complement CP were in general possible, we would need some way to prevent it from applying in cases like those in (27):

- (27) a. I {regret/asserted} \*(that we bought the charcoal grill).  
 b. I {proposed/demanded} \*(that we buy the charcoal grill).

There therefore seems to be no reason to believe that English has an independent operation of CP-ellipsis, and that, contrary to first appearances, structures of the form *It's Bob* do not represent syntactically reduced clefts.

But even if, for the sake of the argument, English *did* license ellipsis of CP, it is equally **highly** implausible to **assume** that the expletive it present in clefts **and** the copula (with concomitant **modals**, if present) could be missing, since these are not properties found independently in English (i.e., English is neither a pro-drop nor a **null** copula language). This **difficulty** was noted by Erteschik-Shir 1977, who admits tersely that "[the deletion transformation that deletes 'it + be (tensed)'] cannot occur equally well in **all** environments, and an investigation of the conditions on this deletion transformation is necessary" (p. 108).

What is **at** stake is wild overgeneration, of course. A proponent of such an approach would have to answer why 'it + be' deletion could not apply in the cases in (28), for example.

- (28) a. Q: Who knocked?  
**A:** \*(It **was**) {Alex / me} who knocked.
- b. Q: What did they steal?  
**A:** \*(It was) the TV and stereo that they stole.
- c. Q: Why is the bus late?  
**A:** \*(It's) because of the traffic that it's late.

In general, in fact, **fragment** answers do not have the same properties as pivots of clefts: they do not enforce **exhaustivity** the way the pivot of a cleft does, for example, nor do they have the same presuppositional properties. A cleft is generally assumed to have a true existential presupposition (though see Prince 1978, Delin 1992 for some caveats to this blanket claim: new information can sometimes appear in **the** 'presuppositional' part, especially in **performatives** in clefts), whereas a question is typically assumed to have a **conversational** implicature of existence of something that satisfies the kernel of the question

(see the series of papers **culminating** in Karttunen and Peters 1979). This difference is illustrated here with negative quantifiers in **answers**, which are well-formed, while negative quantifiers in the pivot of clefts are not (since the assertion contradicts the presupposition).

- (29) a. Q: What did **the** burglar take?  
**A:** Nothing.
  - b. #**It** was nothing that the burglar took.
- 
- (30) a. Q: What did he do to help you?  
**A:** Nothing at all.
  - b. #**It was** nothing at all that he did to help us.

These initial considerations cast serious doubt on the plausibility of the operations necessary to produce the posited ellipsis. In the next section, I present a number of other differences **that** make any attempt to reduce sluicing to pseudosluicing seem **unlikely**, differences that would remain mysterious under such a reduction.

#### **4.2.2 Contra the equation 'sluicing = pseudosluicing'**

There are **at least ten** differences between sluicing **and** cleft questions with wh-XP pivots. My goal here is not to offer explanations or analyses of these differences — my point is served simply by showing that they exist, **since** their very existence makes any assimilation of sluicing to **elliptical** clefts problematic. These differences concern the distinct behavior of sluices and wh-pivot **clefts** with respect to adjuncts **and** implicit arguments, prosody, **aggressively non-D-linked** wh-phrases, 'mention-some' modifiers, 'mention-all' modifiers,

else-mo cation, wh-preposition inversion, languages **with** limited or no cleft strategies, languages with nominative pivots of clefts, and **left** branch sluices.

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### *1. Adjuncts and implicit arguments*

The first reason to keep sluicing and clefting distinct is provided by a simple comparison of the behavior of adjuncts and implicit arguments in these two constructions. As the data in (31) for adjuncts (similar to **the** data given by Klein 1977:70) and that in (32) for implicit arguments show, sluicing with these is grammatical, but a **wh-adjunct** or implicit argument is highly degraded as the pivot of a bare cleft in English. (The cleft versions improve substantially if **the** presuppositional part of the **cleft** is retained, at the risk of prolixity. The significance of this fact is difficult to assess, however, lacking a better understanding of what makes **wh-adjuncts** and implicit arguments **ungrammatical** pivots in the first place.)

- (31) a. He **fixed** the car, but I don't know how (\*it was).
  - b. He **fixed** the car, but I don't know why (\*it was).
  - c. He fixed the car, but I don't know when (\*it was).
  - d. He's hidden the jewels, but I don't know where (\*it is).
  - e. He served time in prison, but I don't know how long (\*it was).
- (32) a. They served the guests, but I don't know what (\*it was).
  - b. He said they had already eaten, but I don't know what (\*it **was**).
  - c. They were **arguing**, but I don't know about what (\*it was),

2. *Prosody*

The second difference comes from the intonational contour associated with sluicing. Standard cases of sluicing require that the greatest pitch accent fall on the **wh-phrase**. In wh-pivot **clefts**, on the other hand, the pitch accent must fall on the **copula**, as the following contrasts show.

- (33) Someone gave me a valentine, but

- a. I don't know WHO.
- b. I don't know who it WAS.
- c. \*I don't know WHO it was,

- (34) a. Someone KISSED you, and you can't remember WHO?!?

- b. Someone KISSED you, and you can't remember who it WAS?!?
- c. \*Someone KISSED you, and you can't remember WHO it was?!?

This is actually somewhat surprising, given that in general the pivot of a **cleft** must contain the pitch accent. Note that the above contrasts cannot be simply reduced to the effects of some **general** preference for the nuclear accent to fall at the end of the utterance, since exactly the same **judgments** obtain if the embedded CP is left-dislocated, for example.

3. *Agressively non-D-linked wh-phrases*

Agressively non-D-linked wh-phrases (as in Pesetsky 1987) generally cannot occur in sluicing", though they are unobjectionable as pivots of a cleft:

(35) Someone dented my car last night—

- a. I wish I knew who!
- b. I wish I knew who the hell it was!
- c. \*I wish I knew who the hell!

The problem in (35c) is not with emphasis on who *the hell*, as the well-formedness of (36) demonstrates:

(36) Who the HELL do you ~~think~~ you are?!?

4. 'Mention-some' *modification*'

Because of the exhaustivity entailed by the pivot (see Kiss 1998), only a 'mention-all' interpretation (see Groenendijk and Stokhof 1997, sec. 6.2.3 for discussion) will be compatible with a wh-phrase in the pivot. Thus wh-pivots will be incompatible with modifiers *Like for example*, which explicitly requires the 'mention-some' interpretation, in contrast to sluicing, which allows such modification. (37a) illustrates the contrast in embedded sluicing, and (37b) does so for a matrix sluice.

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<sup>A</sup> The one exception to this rule being in sluices with inverted prepositions. as discussed in footnote 13 of chapter 2.

<sup>5</sup> Thanks to S. Tomioka for suggesting this test.

- (37) A: You should **talk** to somebody in the legal department for help with that.
- a. B1: Could you **tell** me who (\*it is), for example?
  - b. B2: Who (\*is it), for example?

### 5. '*Mention-all*' modification

The reverse argument holds for the **exhaustivity** enforcing wh-modifier 'all' as in *Who all was at the party?* (see McCloskey to appear). Such modification seems degraded in sluicing in some examples; crucially, this degradation does not carry over to the **clefted** counterpart:

- (38) A bunch of students were protesting, and the FBI is trying to find out who all \*(it **was**).

### 6. *Else-modification*

Likewise, the modifier *else* applied to wh-words can occur in sluicing, but not in clefts.

- (39) Harry was there, but I don't know who else (\*it was).

### 7. *Wh-preposition inversion*

A further difference between sluicing and clefts comes from a somewhat intricate set of facts concerning the ability of certain wh-words in English to invert with a selecting

preposition under sluicing. This fact looks at first glance similar to West Germanic R-pronoun inversion: it is well-known that certain elements (known as 'R-pronouns' in the literature) can **invert** with a preposition, as illustrated in (40) and (41) for German:

- (40) a. ?An **was** denkst du *eigentlich*?  
       b. Wo-r-an denkst du *eigentlich*?  
            *where-on*    *think you actually*  
            'What are you thinking of, **anyway**?'

- (41) a. ?Nach **was** hat es *gerochen*?  
       b. Wonach hat *es* *gerochen*?  
            *where-after*    *has it smelled*  
            'What did it smell like?'

As observed in Ross 1969 and Rosen 1976, sluicing also allows a seemingly 'stranded' preposition. Van Riemsdijk 1978 and Chung et al. 1995 assimilate this inversion to R-pronoun inversion in the other West Germanic languages (see chapter 2, footnote 13).

- (42) a. She bought a robe, but God knows who **for**.  
       b. They were **arguing**, but we couldn't figure out what about.  
       c. This opera **was** written by someone in the 19th century, but we're not  
            sure who by. [Chung et al 1995: (4d)]  
       d. He was shouting to someone, but it was impossible to tell who to.  
       e. A: She's going to leave her fortune to someone. B: Really? Who to?

- f. He'll be at the Red Room, but I don't know when **till**.
- g. She's **driving**, but God knows where **to**.

Like R-pronoun inversion in **German** and Dutch, this kind of inversion under sluicing is **very** restricted, though somewhat **more liberal than the** continental varieties of the phenomenon (see Hoekstra 1995 for a survey of the various continental dialects). In English, only certain 'minimal' wh-operators can invert: **who**, **what**, **when**, and **where** (and, for some speakers, how long). We should note here that whatever **the** correct account of this restriction, it is not **simply** a prosodic condition on inversion, as the following examples with **which** demonstrate.

- (43) a \*She bought a robe for one of her nephews, but God knows which (one) for.
- b. \*They were **arguing** about animals, but we couldn't figure out what **kind** about.
- c. \*This opera was written by an Italian composer in the 19th century, but we're not sure **which** (one) by.
- d. \*He was shouting to one of the freshmen Republican senators supporting the bomber program, but it **was** impossible to **tell** exactly which (senator) to-
- e. \***He'll be** at the Red Room, but I don't **know what** time **till**.
- f. \*She's **driving**, but God knows which town to.

Crucially, however, this inversion is impossible in wh-pivot clefts:

- (44) a. It was [for **Humphrey**] that I voted.  
 b. [For who] **was** it **that** you voted?  
 c. \*[Who for] was it (that you voted)?
- (45) a. It was [**about** the election] that they were **arguing**.  
 b. [About what] **was** it that they were arguing?  
 c. \*[What about] was it (that they were arguing)?

**Again**, this asymmetry between the behavior of wh-words in PPs under sluicing and **as** pivots of clefts would be unexpected if the **former** were simply a case of the latter.

#### 8. *Languages with limited or no cleft strategy*

The eighth argument comes from the fact that there are languages which either have a very Limited cleft strategy, or lack any kind of cleft construction at all, but which nevertheless allow sluicing.

The first kind of language is illustrated by German, which does not allow PP pivots of clefts (among other restrictions; see Grewendorf and Poletto 1990). But of course, as we have seen above, PP wh-phrases can be remnants of sluicing, even 'into islands'.

- (46) a. \* Mit wem war es, **daß** er gesprochen hat?  
           *with who was it that he spoken has*
- b. Er hat mit jemandem gesprochen — rate mal mit wem!  
           *he has with someone spoken guess PRT with who*  
           'He spoke with someone — guess who!'

The second kind of **language** is represented by Romanian **and** Hungarian. As the following data, **given** in Grosu 1994:203-204 (see also Dobrovie-Sorin 1993), show, Romanian does not permit structures like the English cleft.

- (47) a. \* E Maria (că) vreau s intîlnesc.  
*is Maria that want.1sg SUBJ meet.1sg*  
 'It's Maria that I want to meet.'
- b. \* E Ion {ce/ care} a cîștigat premiul intîi.  
*is Ion that/who has won prize.the first*  
 'It's Ion that won first prize.'
- c. \* E Ion pe care (l-) am intîlnit ieri.  
*is Ion ACC who him-have-1sg met yesterday*  
 'It's Ion who I met yesterday.'

Whatever the explanation for this fact (Dobrovie-Sorin 1993 suggests that Romanian may lack the appropriate kind of null operator), the lack of cleft structures in this language predicts, if the pseudosluicing hypothesis were correct, that Romanian should lack sluicing structures as well. This, however, is incorrect:

- (48) a. Vrea să intîlnească pe cine-va, dar nu s,tiu pe cine.  
*want.3sg SUBJ meet.3sg ACC someone but not I.know ACC who*  
 'She wants to meet someone, but I don't know who.'
- b. Cine-va a cîștigat premiul intîi — ghici cine!  
*someone has won prize-the first guess who*

'Someone **won first** prize — guess who!'

- c. **Am**  întîlnit pe  unul diutre  frat,ii  tăi,  dar nu  
*I have met ACC one among brothers you but not*  
 t,in  minte   pe  care.  
*I have memory ACC which*

'I met one of your brothers yesterday, but I don't remember which.'

A parallel argument comes from Hungarian, which employs a preverbal position for identificational focus, but lacks the cleft construction of English. Thus (49a), modified from Kiss 1998:249 (her (8a)), corresponds to the English cleft (hence the translation), while (49b) is impossible.<sup>6</sup>

- (49) a. Mari a  kalapot  nézte.  
*Mary the hat. ACC looked-at*  
 'It was the **hat** that Mary was looking at.'  
 b. \* Volt a  kalap   amit       Mari nézte.  
*it.was the hat- NOM which. ACC Mary looked.at*

But Hungarian does allow sluices of the relevant form:

- (50) Mari nézett  valamit,              de  nem emlékszem, mit.  
*Mary looked-at something. ACC but not I.remember what. ACC*  
 'Mary was looking at something, but I don't remember what-'

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<sup>6</sup> Structures like (49b) are possible, but receive an existential interpretation; the use of the definite pivot in (49b) rules out this irrelevant possibility. Thanks to G. Puskás for discussion.

**9. Languages with pivots of clefts in the nominative**

The ninth argument against **assimilating** sluicing to cleft or cleft-like structures comes from languages like Greek, which do have both sluicing and clefts, but which also have clearly distinguishable case. In Greek, the pivot of a cleft, including wh-pivots, appears in the nominative in the environments relevant for this discussion. The case of a sluiced wh-phrase, in contrast, must match the case of its correlate (as discussed in chapter 3, §3.2.1 above). This gives rise to the contrasts seen in (51a) and (51b) (thanks to A. Giannakidou for judgments).

- (51) I astinomia anekrine enan apo tous Kiprious prota, ala dhen ksero  
*the police interrogated one<sub>acc</sub> from the Cypriots first, but not I.know*
- a. {\*pjɔs / pjɔn}.  
*which<sub>nom</sub> which,,*

- b. {pjɔs itan / \*pjɔn itan}.  
*which,, it.was which,, #.was*

'The police interrogated one of the Cypriots first, but I don't know (which/ which it was}.'

A related concern comes from English, where assimilation to clefting would allow ill-formed sluices to be generated such as the following:

- (52) The police said that finding someone's car took all morning, but I can't remember who \*(it was).

## 10. *Left branch sluices*

Finally, sluices can violate certain instances of the left branch constraint, illustrated here with an attributive adjective (see chapter 5, §5.2.1 for more discussion of these cases):

- (53) He married a rich woman — wait till you hear how rich!

But these have no well-formed cleft counterparts:

- (54) a. \* How rich is it (that he married [a \_\_ woman])?  
b. \* He married a rich woman — wait till you hear how rich it is!

### 4.2.3 Summary

This section has presented a number of reasons to be skeptical of any attempt to reduce sluicing in English to a kind of pseudosluicing. In addition to syntactic difficulties in accounting for the missing copula, expletive it, and CP, I provided evidence from adjuncts and implicit arguments, prosody, aggressively non-D-linked wh-phrases, 'mention-some', 'mention-all', and *else* modifications, wh-preposition inversion, languages with limited clefts, languages with nominative cleft pivots, and left branch sluices to support the conclusion that wh-pivot clefts and sluices should be kept distinct.

### 4.3 Sluicing ≠ wh-Op + resumptive

This section explores the possibility of reducing the cases of sluicing **which** violate strong islands to cases in which a resumption strategy is employed to rescue what would otherwise be **an** illicit movement configuration. This approach would allow us to maintain the standard account of islands as arising through *illicit* (syntactic) *movement* operations. **since** wh-operators can bind resumptive pronouns in **configurations** in which movement is impossible (see McCloskey 1990 for **an** overview). A closer inspection of the relevant data, however, will show that this approach is untenable,

Let us first examine why a reduction of sluicing into strong islands to the mechanism used to form the operator-variable chain with resumptive elements might be attractive. Though this approach has never been explored in any detail in the literature<sup>7</sup>, it is nevertheless suggestive, based on certain distributional parallels. Compare the following examples—the examples in (55) are standard cases of strong extraction islands, while in (56), the initial wh-operator can associate with a resumptive pronoun inside the island. For terminological ease, I will call a wh-operator which binds a **resumptive** pronoun a *resumptive-binding operator* (I will show below that resumptive-binding operators have a number of peculiar properties cross-linguistically that distinguish them from their more usual trace-binding counterparts). In (57), a sluiced wh-operator **seemingly** binds a variable in those very positions.

- (55) a. \* Who, did the Brazilian team improve after t, started playing for them?  
 b. \* What play, does he want to interview the woman who wrote  $t_2$ ?

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<sup>7</sup> It was suggested in passing in Sauerland 1996 (pp. 307-308), who gives one example, though his main interest is elsewhere (see chapter 5, §5.5).

- (56) a. Who, did the **Brazilian** team improve after he, started playing for them?
- b. What play, does he want to interview the woman who wrote it,?
- (57) a. The Brazilian team improved after somebody from Ajax started playing for them, but I can't remember who.
- b. He wants to interview the woman who wrote some play, but I can't remember **what** play.

The basic idea is **that** the sluicing examples **derive** not from movement **variants** in (55) but **rather** from their resumptive counterparts in (56). Since the grammar makes this strategy available in any case, the logic would go, there is no reason not to employ it here. For the deletion to proceed, the parallelism condition must simply allow (variable bound by) the indefinite in the antecedent clause to be equivalent to the resumptive pronoun in the elided IP, instead of to a trace of wh-movement. **As** we saw in chapter 1, such a move is harmless, and necessary in any case (see chapter 5, § 5.3); such equivalencies are pervasive under **ellipsis**, and have been known to hold since the beginning of research on this topic. going under various names (Ross's 1967 and Bouton's 1970 sloppy identity, Fiengo and May's 1994 vehicle change).

The table below lays out this parallelism:

(58) *Three types of Op-variable association*

|                               | Is such an association possible across a strong island? |
|-------------------------------|---------------------------------------------------------|
| wh-Op and gap (trace):        | No                                                      |
| wh-Op and resumptive pronoun: | <b>Yes</b>                                              |
| sluiced wh-Op and 'variable': | <b>(Apparently)</b> yes                                 |

This parallelism, while initially attractive, unfortunately breaks down in a number of places. ultimately proving only superficial. It is the purpose of the following sections to brings these **failings** to Light.

#### 4.3.1 Initial considerations

To begin with, there are a number of possible wh-remnants that don't seem to have readily available resumptive strategies: *when*, where, and amount/degree *how*.<sup>8</sup> Though *then, there*, and *that* are in English the demonstrative equivalents to *when*, *where*, and amount/degree *how*, these elements do not generally function as resumptives (see McCloskey 1990:243 and Finer 1997:717 for recent discussion and references):

- (59) a. \* Where, does he want to find a person [who camped (there,)]?
- b. \* When, is she looking for journal entries [that describe a battle (then,)]?
- c. ?? How much (weight), did he promise to work out [until he lost (that much,)] ?

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<sup>8</sup> I leave out of consideration manner *how* and *why*, since there are no simple demonstrative elements corresponding to these; this is related to the fact, often noted in the literature, that *how* and especially *why* are non-D-linked, and do not admit of an ordering relation easily (see Szabolcsi and Zwarts 1993). So while it is possible to specify a manner or reason with a wide-scope indefinite, sluicing over these indefinites requires the DPs in *what way* or *what reason*, and still does not allow *rwhy* or, to a lesser extent, *how*, for reasons that remain unclear at present.

- (i) a. She's practicing her serve so that she'll be able to hit the ball in a certain deadly way, but her trainer won't tell us (in what *way*? *how*).
- b. He wants to interview someone who works at the soup kitchen for a certain reason, but he won't reveal yet {?what *reason*/*\*why*}.

Note of course that though the expressions (in) *that way* and *for that reason* might be thought to be able to stand in as resumptives for *how* and *why* in extraction dependencies, this is impossible:

- (ii) a. \* How, did she practice her serve so much that she could hit the ball (*that way*)?
- b. \* Why, did you interview someone who quit the Red Cross (*for that reason*)?

Of course, 'non-island violating' sluices with *how* and *why* are fine.

Nevertheless, if the correlate makes a wide-scope place, time, or amount variable available, as in (60), 'island-insensitive' **when**, **where**, and **how much** are possible:

- (60) a. He **wants** to find a person **who has** lived somewhere specific in the Pacific, but I can't remember where.
- b. She is looking for journal **entires** that describe a **battle** { at a certain time/in a certain year), but I don't remember when.
- c. He promised to work out until he lost a certain number of pounds. but I don't remember how much.

This line of reasoning is corroborated by Irish, which, although it has **available** an extremely productive resumptive strategy, nevertheless lacks resumptives corresponding to **then** and **there** (McCloskey 1990: 243 fn.10). If such elements are generally absent from the repertoire of resumptive elements (presumably for type reasons: resumptive elements seem only to be of type <e>), it would be surprising to imagine that they are in fact possible, but only as null resumptives in sluicing.<sup>9</sup>

Irish would also be a **natural** language to **examine** in general to see whether or not sluicing (at the very least the apparently island-insensitive variety) makes use of a resumptive strategy, since it marks the presence of the resumptive not only in the base-position, as in English, but also on the **complementizer** (see McCloskey 1979, 1990). Unfortunately for the purposes of conducting this test, as discussed in chapter 2, § 2.2.2.2,

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<sup>9</sup> There are some instances of locative resumptives cited in the literature: Suñer 1998 gives examples from Spanish and Australian English in restrictive relatives, and Prince 1990 gives **examples** in such relatives as well (see also Bissell 1999). Wahba 1984: 13–14 gives examples of resumptive locatives in **topicalizations** in Egyptian Arabic, and discusses the fact that, **although** these resumptives are impossible in non-island contexts (only a gap may appear), one may appear in **an island**. Crucially, none of these involve **wh**-questions (in Egyptian Arabic, **questioning** Locatives out of islands involves the wh-in-situ strategy: see Wahba 1984: 118–126), **which** would be required if the sluicing examples were to be reduced to **resumptives**. Interestingly, temporal resumptives seem to be absent even from restrictive relatives.

sluicing never allows for the presence of a complementizer co-occurring with the wh-remnant, as in (61), repeated from chapter 2:(103). Here, the relevant **data** would come from the (affirmative) past tense, since in the present the mutation on the verb following the complementizer (lenition for the complementizer that co-occurs with traces, glossed as  $C_{\text{trace}}$ , nasalization for the resumptive complementizer, glossed as  $C_{\text{pro}}$ ) is the only signal of which complementizer we are dealing with, and of course in sluicing, the relevant verb is not pronounced. In the past, however, the resumptive complementizer is realized as *ar*, while the trace complementizer is a (see McCloskey 1979:11).

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

Irish does however provide an argument against assimilating all kinds of sluicing to resumptive behavior. This argument is based on the fact that no resumptive element can occur as the highest subject in the clause (McCloskey 1979, 1990:210) (the same restriction holds in Hebrew and Arabic, and the sluicing data in those languages is parallel to that given here for Irish).

- (62) \*an fear a raibh sé broite  
*the man  $C_{\text{pro}}$  be.PAST he ill*  
 lit- 'the man that he was ill'

If sluicing structures were only the result of resumptive strategies, we would expect Irish not to allow sluices over the highest subject. But of course such sluices are perfectly well-formed (J. McCloskey, p.c.):

- (63) Tá duine inteacht broíte, ach ní fhios agam cé.  
*be-PRES person some ill, but NEG.be knowledge at.me who*  
 'Somebody is ill, but I don't know who.'

### 4.3.2 Resumptivity and case

Another important argument against the **resumptive** strategy comes from case-marking languages. I will illustrate here with examples from the genitive case in English, and other cases below in German, Russian, Polish, **Czech**, and Greek. The basic point of the **argument** is simple: while moved wh-phrases **always** take their case from their base position, wh-phrases linked to **resumptives** need not do so, and in general cannot, appearing instead in some default case if possible. If the remnant wh-phrase in sluicing were binding a resumptive element, we would expect the case of this wh-phrase to be the default case associated with **resumptive-binding** wh-phrases in general. If, on the other **hand**, the wh-phrase were actually the product of movement as in **regular** trace-binding configurations, the contextually appropriate case is to be expected. As I will show, the facts show the latter to be the case. In fact, some of these **languages** make the point even more clearly: it appears that with a wide variety of wh-phrases, there is simply no **resumptivity** strategy available at all. These same wh-phrases can, however, perfectly well appear in sluicing. Whether this lack of resumptivity is a systemic property of the languages in question or not (which is a separate question, addressed in the following section), even a single non-equivalency between the range of wh-operators available to sluicing and those available as **resumptive-binding** operators makes a reduction of the former to the latter dubious.

It **has** been known since Ross 1969 that case-matching effects hold in sluicing, as we saw above in chapters 2 and 3. But the cases discussed in chapter 2, and throughout the Literature, represent examples where the case-marked **wh-phrase** does not **originate** in a strong island (indeed, only **monoclausal** examples have ever been discussed for case-**marking** languages), and hence **might** be argued not to bear on **the** point at hand. Since in none of these cases do we have a strong island **interior** to **the** sluice, an advocate of the deletion + resumption approach might reasonably argue that these **non-island** cases involve simple movement **followed** by deletion, with no resumptive strategy necessary. It is only for the cases where the sluiced wh-phrase must **apparently** originate within a strong island that the resumptive strategy must be called upon to save the deletion analysis, assuming that island constraints hold of movement in general. That is, we wish to reduce **island-violating** cases of sluicing to base-generation of the wh-phrase in SpecCP and concomitant deletion of the IP **that** contains both the island and **the** resumptive element bound by the **base-generated** wh-operator.

#### 4.3.2.1 English

In order to test this hypothesis against the **case-marking** facts, we must Look at sluicing out of strong islands, as we saw in chapter 3, §3.2.1. For ease of illustration, I begin with the one remnant of case left in the English wh-system, the genitive *whose*.<sup>10,11</sup> Sluicing of

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<sup>10</sup> I disregard the direct object **whom**, which has been completely lost From (at least) American English dialects—this form is extremely prescriptive and **must** be thought of on a par with such extra-grammatical epiphenomena such as the injunction not to 'split infinitives', i.e., not to insert **adverbials** between to and **following** verb, as in *to* boldly go, etc. Such prescriptive elements show vanishingly little about the underlying structure of the system; rather, they reflect conscious modifications of the system which can be brought about, similar to **deliberately** speaking with a lisp or the like. While such modifications are presumably constrained in a **general way** by underlying grammatical principles, I do not believe that any judgments about such data are at all reliable, and **will** henceforth ignore them in what follows.

<sup>11</sup> I am ignoring the question of whether *whose* is truly the **morphologically** case-marked genitive **of** who, or simply **who** with the 's in D°. The evidence bearing on this question is equivocal; the question

*whose* out of an island is possible, as shown in (64) for the subject island (in addition to being a left-branch violation):

- (64) The police said that finding someone's car took all morning, but I can't remember
- whose.
  - \***who**.

Crucially, when a **resumptive** strategy is used, only the bare wh-operator *who* is possible, as in (65a), not the case-marked *whose* which agrees in case with the genitive resumptive pronoun *his* that it binds in (65b). ((65b) is equally bad without the resumptive *his*, being additionally a left-branch violation.)

- (65) a. Who, did the police say that **finding** his, car took **all** morning?
- b. \* Whose, did the police say that finding (his,) car took all morning?

This is precisely the opposite of the data in (64), of course. If the grammaticality of the sluice in (64a) were to be reduced to a resumptive source, we would expect just the opposite judgments, parallel to the judgments on the resumptives themselves in (65).<sup>12</sup>

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essentially reduces to the question whether *whose* should be assimilated to other case-marked pronouns like *his*, *its*, etc., or to **phrasal** genitives like *who* the *hell's* (thanks to J. McCloskey for this example). If the latter, then the examples in the text illustrate the lack of pied-piping with resumptive-binding operators; if the former, then they show the lack of **case-marking** on resumptive-binding operators (if this does not in fact reduce to the ban on pied-piping). None of these questions arise with the data from the variety of other languages discussed below.

<sup>12</sup> Similar facts were noted in Grosu 1981:25, who gives the following example, in arguing against a copying (movement) analysis for 'non-standard relative clause constructions':

(i) The man {**who/\*whom/\*whose**} I told you that his pants are always wet has been arrested by the police,

He proposes to account for this in relative clauses by **analyzing** 'who' in (i) not as a relative pronoun but as a base-generated **complementizer**. While such an account may work in relative clauses, it is unclear how it would extend to the parallel data in interrogatives discussed in the **text**,

These data are made slightly less transparent by the fact that *whose* in English Licenses an elliptical NP complement, **as** in (66):

- (66) Abby's car is parked in the driveway, but whose is parked on the **lawn?**

We can assume that this *whose* has the structure  $[_{DP} \text{whose } [_{NP} e]]$ , without going into details of the NP-ellipsis involved (see Lobeck 1995, Kester 1996). It is quite possible in fact that the sluicing in (64a) hides an elliptical NP, and does not in fact represent a true left-branch extraction at all (see chapter 5 for the *case* of **attributive** adjective sluices). Even if this is the case, however, it does not affect the force of the comparison between (64) and (65): the fact that (64b) is impossible while (65a) is **fine** already destroys any biconditional relationship between the availability of a resumptive strategy and the possibility of sluicing. This pair shows that there are cases where a resumptive strategy is **available** to void a strong island, yet the corresponding sluice remains **ungrammatical**. In fact, a resumptive strategy **utilizing** a complex operator **Like** *whose car* or, to make the **parallel** complete,  $[_{DP} \text{whose } [_{NP} e]]$ , is itself **ungrammatical**:

- (67) a. \*?(Whose car], did the police say that finding it, took all morning?  
 b. \* I **know** that the police said they found Ben's car right away, but  
 [whose *e*], **did they** say that finding it<sub>2</sub> took all **morning**?

Thus no objection to the contrasts in (64) and (65) can be constructed on the basis of the elliptical form  $[_{DP} \text{whose } [_{NP} e]]$ . If such a **form** were all that is responsible for the grammaticality of (64a), the fact that the resumptive strategies in (67) are not possible would remain completely mysterious.

This discussion of the differences between *whose* and *who* in sluicing over genitives, and of the contrasts in (67), has raised another interesting point, namely that complex operators cannot bind resumptive pronouns. For example, resumptive-binding operators in English **may** not pied-pipe prepositional phrases—the resumptive-binding operator must be bare.<sup>13</sup>

- (68) a. (\*For) which candidate, did they receive reports that more than 60% of eligible voters were planning to vote for him,?
- b. Lincoln **was** the candidate {who,/ Op, that/ \*for whom,} they received reports that more **than** 60% of eligible voters were planning to vote for **him**.
- (69) a. (\*Against) what measure, did they elect a candidate who made it clear that she was against it?
- c. Proposition 209 was the measure {?which,/<sub>3</sub>Op<sub>3</sub>, that/ "against which,} they elected a candidate who had made it clear that she **was** against it.

In contrast, sluicing with prepositional phrases, either with or without an island intervening, seems odd only to the general extent that pied-piping of prepositions in standard American English is odd across the board (see discussion in McDaniel et al.

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<sup>13</sup> The inability of resumptive-binding operators to pied-pipe (both specifier and P-pied-piping) seems to be a quite general property across languages; see discussion below and in Merchant 1999c. Indeed, complex operators of any type are disallowed with resumptives; since pied-piping in questions (and hence in sluicing) is quite limited, this won't be a point of divergence here, but it can be clearly seen in relative clauses, where, although pied-piping is more free, such pied-piping is impossible with resumptives:

- (i) a. the president, a biography of whom she wrote last year
- b. \* the president, a biography of whom he's married to the professor who wrote (it) last year

This may be accounted for if all resumptives are in fact bound by null operators. Such null operators will have to be identified (à la pro; see Browning 1987, Grosu 1994), but when the wh-phrase with the identifying phi-features is embedded, the null operator will fail to be licensed. Exactly how this would extend to questions in English must be left open at this point.

1998). I mark such forms with ® to indicate **that** they are restricted to a formal register.

- (70) a. ® For which candidate were more than 60% of eligible voters planning to vote?
- b. More than 60% of eligible voters were **planning** to vote for one of the Red candidates, but I don't remember (® for) which.
- c. They received reports that more **than** 60% of eligible voters were planning to vote for one of the Red candidates, but I don't remember (® for) which-

We can avoid the vagaries of case and prepositional phrase **pied-piping** in English by turning our attention to languages with robust **case** systems like German, Russian, Polish, Czech, and Greek.

#### *4.3.2.2 German*

German<sup>14</sup> has four cases: nominative, accusative, dative, and genitive, which it marks in various ways throughout all nominal and adjectival categories, in particular on interrogative pronouns and the interrogative determiner, which will be relevant to us here for sluicing. The paradigm for the first of these is given below (the paradigm for the determiner *welcher* 'which' is similar, though it also inflects for number and gender):

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<sup>14</sup> Thanks to H. Rott and especially S. Winkler for patient judgments on the many examples in this section,

- (71) Declension of German interrogative pronoun *wer* 'who'

|            |        |
|------------|--------|
| <i>nom</i> | wer    |
| <i>acc</i> | wen    |
| <i>dat</i> | wern   |
| <i>gen</i> | wessen |

Recall from chapter 3, §3.2.1 that the case of a sluiced wh-phrase in German, even across a strong island, must bear the case which its antecedent bears, if it has one. This fact led to **the** formulation of the **first** form-identity generalization, repeated here as (72):

- (72) *Form-identity generalization I: Case-matching*

The sluiced wh-phrase must bear the case that **its** correlate bears.

The account which reduces sluicing to **resumptivity** makes a direct prediction from this **generalization**: the case of the resumptive-binding operator should **match** the case of the resumptive pronoun it binds. This, presumably, is because the ellipsis is sensitive to the equivalency between the (case of the) correlate in the source clause and the (case of the) resumptive pronoun in the target (**elliptical**) clause.

This prediction, however, is false:

- (73) \* {Welchem Gefangen<sub>1</sub>, / wem,} will sie jemanden finden, der ihm<sub>1</sub>  
*which.DAT prisoner / who.DAT wants she someone find rvho him.DAT*  
 geholfen hat?  
*helped has*

('{Which prisoner / who} does she **want** to find someone who helped him?')

- (74) \* {Welchen Gefangen<sub>2</sub>, / wen,} will sie jemanden finden, der ihn<sub>2</sub>  
*which.ACC prisoner / who.ACC wants she someone find who him.ACC*

gesehen hat?

*seen has*

('{Which prisoner / who} does she want to find someone who saw him?')

In these examples, **although** the case of the resumptive-binding operator matches the case of the resumptive pronoun, the sentences are **ungrammatical**.<sup>15</sup> Compare, on the other hand, the **grammatical** sluices from chapter 3, (18) and (19), repeated here:

- (75) Sie will jemanden finden, der einem der Gefangenen geholfen hat, aber  
*she wants someone find who one.DAT of.the prisoners helped has but*  
 ich weiß nicht, {\*welcher / \*welchen / welchem}.

*I know not which.NOM / which.ACC / which.DAT*

'She wants to find someone who helped one of the hostages, but I don't know which.'

- (76) Sie will jemanden finden, der einen der Gefangenen gesehen hat, aber ich  
*she wants someone find who one.ACC of.the prisoners seen has but I*  
 weiß nicht, {\*welcher / welchen / \*welchem}.

*know not which.NOM / which.ACC / which.DAT*

'She **wants** to find someone who helped one of the hostages, but I don't know which.'

<sup>15</sup> Similarly in relative clauses, though these are less important for our present purposes. German has no null operator (i.e. 'that -') relatives, allowing only the case-marked relative pronoun (*der, das, die, die, etc.*). With these, no resumptive is possible:

- (i)      \* Peter is der **Gefangene**, dem, sie **jemanden finden** will, der ihm, **geholfen** hat.  
 Peter is the prisoner *who.DAT* she **someone find** wants who *him.DAT* helped **has**  
 ('Peter is the prisoner that she wants to find someone who **helped him**.' )
- (ii)     \* Peter is der **Gefangene**, den, sie **jemanden finden** will, der ihn, **gesehen** hat.  
 Peter is **the prisoner who.ACC** she someone find **wants who him.ACC seen has**  
 ('Peter is the prisoner that she wants to **find** someone who saw him.' )

The contrasts between these two sets of data —the ungrammatical resumptive strategies in (73) and (74) on the one hand, and the grammatical sluices of (75) and (76) on the other— are an insurmountable problem for the resumptivity approach to sluicing.

The following **data** illustrate this restriction on case-matching on the resumptive-binding operator in adjunct islands as well.

- (77) \* Mit welchem Lehrer, wird Anke sich ärgern, wenn Peter mit ihm,<sup>16</sup> spricht?

*with which.DAT teacher will Anke REFL upset if Peter with him.DAT speaks*

- \* Welchem Lehrer, wird Anke sich ärgern, wenn Peter mit ihm, spricht?

*which.DAT teacher will Anke REFL upset if Peter with him.DAT speaks*

'Who will **Anke** get upset if Peter talks to him?'

- (78) \* Wen<sub>2</sub> glaubst du, daß Italien besser spielt, seitdem sie ihn, in der

*who.ACC think you that Italy better plays since they him.ACC in the*

**Mannschaft haben?**

**team have**

'Who **do** you think that Italy has been playing better since they have him on **their team?**'

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<sup>16</sup>

I use the regular dative pronoun *ihm* here, taken from the set of unreduced frontable pronouns in German. There is also a set of demonstrative ('deictic') pronouns in German, **whose** forms coincide with those of the relative operator, and which are known in the literature as 'd-pronouns'. Though these are often fronted, they can occur in situ, and in particular in contexts like the one discussed in the text, as in (i).

(i) Anke wird sich ärgern, wenn Peter mit dem spricht.  
*Anke will REFL upset if Peter with demonstrative.DAT speaks*  
 'Anke will get upset, if Peter talks to that {one/guy}.'

Though **these** might be thought to make better **resumptive** elements than the **simple** pronoun series, this is not the case — (ii,a,b) have the **same** status as (77):

(ii) a. \* Welchem Lehrer, wird Anke sich ärgern, wenn Peter mit dem, spricht?  
 b. \* Mit welchem Lehrer, wird Anke sich ärgern, wenn Peter mit dem, spricht?

I have systematically tested d-pronouns as **resumptives** alongside their **simple** counterparts, though the data given in the text are limited to **the** latter. Because reporting all of these additional data would **not** add to the argument and would make for tiresome reading, I omit **them** here, since they pattern without exception with their simple pronominal brethren.

**Again**, though, parallel sluicing examples are possible (modulo the necessary PP in (79), as discussed in chapter 3, §3.2.2 above):

- (79) Anke wird sich ärgern, wenn Peter mit einem der Lehrer spricht, aber ich  
*Anke will REFL upset if Peter with one.DAT of.the teachers speaks but I*  
 weiß nicht mehr, mit welchem.  
*know no longer with which.DAT*  
 ‘Anke will get upset if Peter talks to one of the teachers, but I don't remember which.’
- (80) Er glaubt, daß Italien besser spielt, seitdem sie einen von Ajax in der  
*He thinks that Italy better plays since they one.ACC from Ajar in the*  
 Mannschaft haben, aber ich weiß nicht mehr, wen.  
*team have but I know no longer who.ACC*  
 ‘He thinks that Italy is playing better now that they have someone from Ajax on their team, but I don't remember who.’

These non-parallels show that an account that reduces sluicing out of islands to resumptivity fails: such a reduction cannot generate the grammatical case-matching wh-operators in the grammatical sluices. In fact, standard German seems not to possess the kind of resumptive strategy familiar from English ('intrusive' resumptives) at all, regardless of the case of the resumptive-binding operator. In particular, no 'default' case strategy appears to be available, taking nominative to be the default (as appears in hanging topic left dislocation structures, for example; see Vat 1981 and van Riemsdijk 1997, and cf. Maling and Sprouse's 1995 discussion). This is illustrated in the following examples, for relative clause islands in (81) and (82), and for adjunct islands in (83) and (84).

- (81) \* {Welcher Gefangene / wer} will sie jemanden finden, der ihm  
*which.NOM prisoner / who.NOM wants she someone find who him.DAT*  
 geholfen hat?  
*helped has*  
 ('{Which prisoner / who} does she want to **find** someone who helped him?')
- (82) \* {Welcher Gefangene / wer} will sie jernanden finden, der ihn  
*which.NOM prisoner / who.NOM wants she someone find who him.ACC*  
 gesehen hat?  
*seen has*  
 ('{Which prisoner / who} does she **want** to find someone who saw him?')
- (83) \* {Welcher Lehrer / wer} wird Anke sich ärgern, wenn Peter mit ihm  
*which.NOM teacher / who.NOM will Anke REFL upset if Peter with him.DAT*  
 spricht?  
*speaks*  
 ('Who will Anke get upset if Peter talks to him?')
- (84) \* Wer glaubst du, daß Italien besser spielt, seitdem sie ihn in der  
*who.NOM think you that Italy better plays since they him.ACC in the*  
 Mannschaft haben?  
*team have*  
 ('Who do you think that Italy has been playing better since they got him on their  
 team?')

For completeness, I should note that resumptivity is equally impossible if the resumptive pronoun is nominative, making case-matching requirements **and** 'default<sup>7</sup>' case indistinguishable in any case:

- (85) \* {Welcher Gefangene / wer} will sie jemanden finden, dem er  
*which.NOM prisoner / who.NOM wants she someone find who he.NOM*  
 geholfen hat?  
*helped has*  
 ('{Which prisoner, / who,} does she want to find someone who he, helped?')
- (86) \* Wer glaubst du, daß Italien besser spielt, seitdem er in der Mannschaft ist?  
*who.NOM think you that Italy better plays since he.NOM in the team is*  
 ('Who do you think that Italy has been playing better since he's been on the team?')

Particularly striking is the **ungrammaticality** of the following examples. where the resumptive-binding operator is the R-pronoun wh-operator *wo* (here glossed 'what' for convenience) which has sometimes been argued not to need any case **at all** (as an adverbial: Trissler 1993, Müller 1995). In (87a) the (attempted) resumptive element is the [-wh] R-pronoun *da*, glossed 'that'.

- (87) a. \* Wo, glaubst du, wären alle glücklich, wenn Peter da,mit aufhörte?  
*what think you would.be everyone happy if Peter that-with stopped*  
 ('What do you think that everybody would be happy if Peter stopped doing it?')

- b. \* Wo<sub>2</sub> glaubst du, wären alle glücklich, wenn Peter das, tun würde?  
*what think you would.be everyone happy if Peter that do would*  
 ('What do you **think** that everybody would be happy if Peter would do it?')

Bayer 1996 uses the island-sensitivity of data like these to argue that the operator *wo* in fact originates in the PP in examples like (87a)<sup>17</sup>, a conclusion shared by Hoekstra 1995. Crucially, Bayer argues (citing Wiltschko 1993, contra Müller and Trissler), that the elements *wo* and *da* must have case. This seems a reasonable conclusion, and fits in with the picture of resumptivity in German that emerges above.<sup>18</sup>

In short, standard **German**, while possessing a **familiar range** of sluicing across strong islands, appears to have no resumptive strategy available at all. Obviously, any account which attempts to reduce the former to the latter is doomed to failure.

#### 4.3.2.3 Slavic

The Slavic languages are another case in point. I begin with **Russian**<sup>19</sup>, which, like German,

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<sup>17</sup> He actually **argues** that the combinations *wo* ... *da* are impossible, ruled out by a featural mismatch [*+wh*] *wo* vs. [-*wh*] *da*. While doubling is certainly better with *da* ... *da*, and much rarer with *wo* .., *da*, the latter is at least marginally possible, at least with the reduced *d(r)*; Oppenrieder 1991 gives several examples, as well as Trissler 1993:265: *Wo hast du dich den ganzen Tag drauf gefreut?* (lit. 'What have you been looking forward to it the whole day?').

<sup>18</sup> Here the standard German *wo* (which is an XP) differs from the Swiss German *rvo* found in relatives, which is a realization of C (see also Bayer 1984 for arguments for this from the Bavarian relativizer *wo*). This *wo* can co-occur with resumptives, as the following data, reported in Demirdache 1991:21 (citing a 1988 unpublished ms. by van Riemsdijk), show:

- (i) de vrund wo ich immer mit em gang go suufle  
*the friend that I always with him go go drink*  
 'the friend that I always go drinking with'
- (ii) s auto wo du gsäit häsch das es sich de Peter nod chönti läischte  
*the car that you said have that it REFL the Peter not could afford*  
 'the car that you said that Peter couldn't afford'

This strategy is also found in spoken American English, as in the following attested example:

- (iii) I've had dreams where he's been in them. [TV interview, *Entertainment Tonight* 1 Jan-1999]

<sup>19</sup> Thanks to S. Avrutin for judgments on the examples in this section.

possesses a rich case system, having **six** cases to German's four. (88) gives the paradigm for *kto* 'who'; the paradigms for the interrogative *čto* 'what' and the interrogative determiner and relative pronoun *kto**roij* 'which' are similar.

- (88) Declension of Russian interrogative pronoun *kto* 'who'

|              |      |
|--------------|------|
| <i>nom</i>   | kto  |
| <i>acc</i>   | kogo |
| <i>dat</i>   | komu |
| <i>gen</i>   | kogo |
| <i>instr</i> | kern |
| <i>loc</i>   | kom  |

Also **Like** German, it allows for sluicing across strong islands, subject to the first form-identity generalization, given in (72). The third relevant point of similarity is that the operators in (88) cannot bind **resumptive** pronouns, as the following data illustrate.

- (89) a. \* Kogo ty dumaeš' italjancy stali lušče posle togo kak oni vklučili  
*who.ACC you think Italians became better after that how they put*  
 (ego)v komandu?  
*him in team*
- b. \* Kto ty dumaeš' italjancy stali lušče posle togo kak oni vklučili  
*who.NOM you think Italians became better after that how they put*  
 (ego)v komandu?  
*him in team*  
 ('Who, do *you* think that the Italians became better since they put him, on the team?')

- (90) a. \* Kto ty dumaeš' italjancy stali lušče posle togo kak (on) v  
*who.NOM you think Italians became better after that how he in*  
komandu?  
*team*  
('Who, do **you think** that the Italians became better now that he, is on the team?')
- b. \* Cto ty dumaeš' italjancy stali lušče posle togo kak oni  
*what.NOM/ACC you think Italians became better after that how they*  
uvideli (èto)?  
*saw it*  
('What, do you **think** that the Italians became better since they saw it,?')  
c. \* Kakju p'esu Ivan xočet vstretit' ženščinu kotoraja napisala (ee)?  
*which.ACC play.ACC Ivan wants meet woman who wrote it*  
d. \* Kakaja p'esa Ivan xofet vstretit' ženščinu kotoraja napisala (ee)?  
*which.NOM play.NOM Ivan wants meet woman who wrote it*  
('What play, does **Ivan** want **to** meet the woman who wrote it,?')

The same facts hold in Polish, though I will not illustrate them all (thanks to D. Mokrosinska for judgments). Like Russian, Polish has six cases, marks its wh-operators for these cases, allows sluicing across islands with case-matching, but does not permit case-marked wh-operators to function as resumptive-binding operators. Only the final property, of interest here, is illustrated:

- (91) \* Która sztuce on chce rozmawiać z kobietą która (ja) napisala?  
*which play.ACC he wants to.talk to woman who it.ACC wrote*

\* Która sztuca on chce rozmawiać z kobietą którą (ja) napisała?  
*which play.NOM he wants to-talk to woman who it.ACC wrote*  
 ('What *play*<sub>2</sub> does he want to talk to the woman who wrote it,?')

Like Polish and Russian, Czech also **has** six cases (thanks to A. Pilátová for judgments). Although case-matched sluices are required, as illustrated in (92), no resumptive strategy is possible, as shown by (93).

- (92) Chce mluvit s tou ženou, která napsala nějakou hru, ale  
*wants.3sg to.talk with the woman who wrote some.ACC play.ACC but*  
 nemohu si vzpomenout, {kterou / \*která}.  
*NEG.can.1sg REFL recall {which.ACC / tvhich.NOM}*

'He wants to talk to the woman who wrote some play, but I can't remember which.'

- (93) \* {Kterou hru / ktera hra} chce mluvit s tou  
*which.ACC play.ACC / which.NOM play.NOM wants.3sg talk with the*  
 ženou, která napsala (tu) ?  
*woman who wrote it.ACC*

('Which *play* does he want to talk to the woman who wrote it?')

#### 4.3.2.4 Greek

Greek<sup>20</sup> provides yet further evidence along these lines. It has three **cases** of interest: nominative, accusative, genitive (the vocative does not occur on wh-operators for obvious

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<sup>20</sup> Thanks to A. Giannakidou and Y. Agouraki for judgments.

reasons). These are marked on the interrogative pronoun/determiner *pjos* 'who, which' as follows (I give only the masculine form here): nominative *pjos*, accusative *pjon*, genitive *pjanou or tinos*. None of these can occur as resumptive-binding operators — neither the case-matching (a) examples are possible, nor the (b) examples with the resumptive-binding operator in the 'default' nominative.

- (94) a. \* Pjon, psaxnun enan giatro pu na (ton,) voithisi?

*who.ACC they.seek a doctor that SUBJ him helps*

- b. \* Pjos, psaxnun enan giatro pu na (ton,) voithisi?

*who.NOM they.seek a doctor that SUBJ him helps*

('Who are *they* looking for a doctor who can help him?')

- (95) a. \* { Pjanou<sub>1</sub> / tinos<sub>1</sub> } ipe i astonomia oti to na vroune to

*who.GEN who.GEN said the police that the SUBJ they.find the*

aftokinito (tou<sub>1</sub>) dhiirkese olo to proi?

*car his took all the morning*

- b. \* Pjos, ipe i astonomia oti to na vroune to aftokinito (tou<sub>2</sub>)

*who.NOM said the police that the SUBJ they.find the car his*

dhiirkese olo to proi?

*rook all the morning*

('Who did the police say that finding his car took all morning?')

But of course sluices comparable to these do show case-matching effects in accordance with the generalization in (72):

- (96) Psaxnun enan giatro pu na voithisi kapjon, alla dhen ksero (pjon / \*pjos).

*who.NOM*

'They're looking for a doctor to help someone, but I don't know who.'

- (97) I astinomia ipe oti to na vroune to aftokinito enos apo tous ipoptous  
*the police said that the SUBJ they.find the cur of.one from the suspects*  
 dhiirkese olo to proi, alla dhen thimame {pjano / tinos / \*pjos}.

*took all the morning but not I.remember who.GEN who.GEN who.NOM*

'The police said that finding the car of one of the suspects took all morning, but I don't remember which one's.'

### 4.3.3 Conclusions

The collective force of the data from these languages, then, is to put a nail in the coffin of any hope that sluicing could be reduced to a **resumptivity** strategy in any sufficiently general way. If these languages simply lack **resumptives** altogether (as proposed, for example, for West Flemish and Dutch by Hoekstra 1995), then, by this token, they should lack sluicing, contrary to fact.

In particular, the simple picture of the table in (58) above based on apparent island sensitivity has proven to be inadequate; the full picture is represented by the following table:

(98) *Three types of Op-variable association*

|                                      | Association possible across a strong island? | Form-identity effects? |
|--------------------------------------|----------------------------------------------|------------------------|
| wh-Op and gap (trace):               | No                                           | Yes                    |
| wh-Op <b>and</b> resumptive pronoun: | Yes                                          | No                     |
| sluiced wh-Op and 'variable':        | (Apparently) yes                             | Yes                    |

This suffices to establish **the** main point of this section, namely that sluicing (especially into islands) cannot in **general** be reduced to the binding of **resumptive** elements. (This conclusion is supported by the interpretation of the wh-phrase in sluicing, i.e. **the** fact that functional reading are still available, which is not the case with **resumptives**; see Doron 1982 and Sells 1984.)

The data we've examined here, as well as additional data from ten other languages, discussed in Merchant 1999b,c, lead to the formulation of a very general principle, stated in (99):

(99) *Case and resumptive-binding operator* generalization

No resumptive-binding operator **can** be case-marked.

This follows directly if **resumptive-binding** operators are **base-generated** in SpecCP, and can never check their Case **features**. Note that this is meant to apply especially to operators that are separated from the **resumptive** pronouns **they** bind by an island: when no island **intervenes**, languages differ in whether **the** resumptive element is actually the spell-out of the trace of movement or not (see Aoun and Benmamoun 1998 for a recent discussion). The fact that (99) holds, at least for **binding** into islands, supports several strands of evidence that resumptive pronouns inside islands are **not** related to the operators that bind them by movement (*pace* Pesetsky 1998a, for example).

The most important point for the purposes of the investigation of sluicing is that the fact that (99) holds rules out using **resumptivity** as a possible fix for the apparent island-insensitivities documented in chapter 3.

#### 4.4 Chung et al. 1995: IP copy, merger, and sprouting

To deal with the problem of island insensitivity, Chung et al. 1995 [CLM] propose that the ellipsis in sluicing is not the result of PF-deletion. Instead, following Chao 1987, Lobeck 1995, and others, they posit an empty IP category in the syntax, as in (100), with the wh-XP base-generated in SpecCP:

- (100) Someone called, but I don't know [<sub>CP</sub> who [<sub>IP</sub> *e*]]                      Spell-out

In order for interpretation to proceed at LF, however, this empty category must be replaced by a syntactic constituent of the appropriate type (namely an IP). This copying operation is a structural **isomorphism** condition, applied at LF, implemented by copying phrase-markers. As such, almost all the problems noted in chapter I for such a structural isomorphism account will plague CLM's. The one exception is the case of non-overt correlates, for which they propose a novel LF structure-building operation they dub 'sprouting'; we will return to this below. Let us first examine how their account works on the example in (100).

In this example, the first IP can serve as the antecedent to the ellipsis, and can be copied in for *e* in the second clause, yielding (101) (I use boldface to indicate LF-copied material):

- (101) ... but I don't know know [<sub>CP</sub> who [<sub>IP</sub> **someone called**]] After IP-copy at LF

CLM follow Kamp 1981 and Heim 1982 in assuming that **indefinites** are not quantificational but rather simply provide a variable (with a descriptive content), which is bound by a separate operation of existential closure that can apply at different points in the structure, deriving the variable scope of **indefinites**<sup>21</sup>. With this view, the copied indefinite in (101) is free to be bound by the **existential** operator which binds the variable introduced by the wh-phrase in **SpecCP** (similarly an indefinite), a process CLM call 'merger'. They represent merger as co-superscripting at LF; the LF output of merger in (102a) will then yield the desired Karttunen-style interpretation for the embedded question in (102b) by standard techniques.

- (102) a. ... [<sub>CP</sub> who" [<sub>IP</sub> **someone<sup>x</sup> called**]] After merger at LF  
 b. ...  $\lambda p[\exists x.\mathbf{person}(x,w_o) \wedge p(w_o) \wedge p = \lambda w.\mathbf{call}(x,w)]$

In doing this, CLM make the **grammaticality** of sluicing dependent on the **availability** of an unbound variable (usually supplied by an indefinite) in the copied IP. If no such variable can be found (for example, if no **indefinite** is present, or if the **indefinite** has been existentially closed within the IP, as is the case with narrow-scope **indefinites**, negative polarity items, etc.), sluicing will fail. CLM thus correctly predict that sluicing will always require a wide scope reading for the correlate in its own clause, **deriving the scopal parallelism** (since the wh-phrase itself has wide scope over its clause **as well**).

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<sup>21</sup> The CLM account can also be cast in a theory using choice functions for the interpretation of **indefinites**, as shown in Reinhart 1995.

Since there is no movement of the sluiced wh-phrase, island constraints are not expected to hold. For CLM, **the** derivation of an example Like (103) is straightforward. At Spell-out the structure is **that** in (104a)<sup>22</sup>, while after IP-copy and merger, the structure is **that** given in (104b).

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

- (104) a. ... [<sub>CP</sub> **which** [<sub>IP</sub> *e*]]  
 b. ... [<sub>CP</sub> **which**<sup>x</sup> [<sub>IP</sub> **they want to hire someone who speaks [a Balkan language]**<sup>x</sup>]]

Since sluicing resolved by merger is simply a species of variable-binding, which is not sensitive to syntactic constraints on A'-movement, no **island** sensitivity is expected. Instead, sluicing is sensitive to the scope of the correlate: if this **indefinite** has **a** scope narrower than that required by sluicing, sluicing will fail. The **scopal** parallelism enforced by sluicing can be seen in (103), for **example**. The **indefinite** *a Balkan language* in **the** first clause can only have scope over **want**, as in (105a), not inside it as in (105b); though the narrow scope reading in (105b) is **certainly available** to this sentence in other contexts, when the clause is meant to serve as **the** antecedent to the elliptical IP under sluicing, this **reading** is excluded. This is because using the LF that **generates** the reading in (105b) to resolve the IP-ellipsis in the second clause in (103) would lead to vacuous quantification of the existential operator in SpecCP, since the necessary variable associated with a *Balkan language* has already been bound by the lower  $\exists$ .

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<sup>22</sup> The problem of the **NP-ellipsis** in the which-phrase will be ignored here and throughout — presumably similar mechanisms will be used to retrieve the appropriate descriptive content of the ellipsis as are used for resolution of 'one' **anaphora**. **This** is one aspect of merger which thus seems redundant, since it is clear that such interpretive mechanisms for NP-ellipsis are needed independently of sluicing,

- (105) a.  $\exists y. \text{Balkan-language}(y) \wedge \text{want}(\text{they}, \wedge [\exists x. \text{person}(x) \wedge \text{ speak}(x, y) \wedge \text{ hire}(\text{they}, x)])$
- b.  $\text{want}(\text{they}, \wedge [\exists x. \text{person}(x) \wedge \exists y. \text{Balkan-language}(y) \wedge \text{ speak}(x, y) \wedge \text{ hire}(\text{they}, x)])$

When no overt **correlate** is available, however, some other operation must be used to supply the bidee for the base-generated wh-phrase in **SpecCP**. This is the operation of 'sprouting'. They hypothesize that sprouting is an instantiation of the syntactic operation of **FormChain**, and subject to island **constraints**, conceived of as constraints on A'-chain formation (independent of movement, following Cinque 1990). Quite apart from questions of the theoretical import of this approach, accounting for **the** locality restrictions on **implicit correlate** sluices solely by imposing island constraints on **FormChain** overgenerates. There are cases of licit A'-chains as in (106a) and (107a) which nevertheless do not make good sluices, as in (106b) and (107b).

- (106) a. When was no nurse on **duty**?  
       b. \* No nurse was on duty, **but** we don't know when.
- (107) a. When is **a** nurse **rarely** on duty?  
       b. \* **A** nurse is rarely on duty—guess when!

For CLM, the ill-formedness of the (b) examples is unexpected, since, as attested by the (a) examples, the corresponding A'-chains are well-formed. Instead, as pointed out by **Albert** 1993 and **Romero** forthcoming, the 'sprouting' cases are uniformly sensitive to selective islands (**Sauerland** 1996 makes a related point). This can be reduced again to 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 (106b), for example, the implicitly bound temporal variable has narrow scope with respect to no *nurse*, as in (108a), **and** does not **have** the reading expressed in (108b). It is this second reading which would have to be available for the sluice in (106b) to be well-formed.

- (108) a.  $\neg\exists x \text{nurse}(x) \wedge \exists t \text{time}(t) \wedge \text{on-duty}(x, \text{at } t)$
- b.  $\exists t \text{time}(t) \wedge \neg\exists x \text{nurse}(x) \wedge \text{on-duty}(x, \text{at } t)$

Thus there is no reason to make an **analytical** distinction between 'merger' and 'sprouting' cases: both cases can profitably be analyzed as requiring an unbound variable in the antecedent. They differ **only** in that implicit **existentials** (whether arguments or adjuncts) **always** take narrow scope in their clause, and therefore cannot provide the open variable needed in sluicing when certain other operators intervene (as in selective islands). We can therefore assume that 'sprouting' as an operation can be dispensed with, and concentrate on examples with overt correlates, as these are the ones that *can* (apparently) violate islands.

When there is an overt correlate as in (103), for example, the possible sluices over **that** antecedent are constrained only by whether or not the **indefinite** in question can be bound **at** a level **parallel** to that needed for resolution of the ellipsis, i.e., external to the IP needed for copying at LF. Since such wide-scoping behavior is only found with (certain kinds **of**) overt indefinites, island-insensitivesluicing will **only** be found with these.

While accounting for the **scopal** parallelism is a **significant** achievement of CLM's system, it is not unique to theirs. As Romero 1997 has shown, scopal parallelism also falls out from even the more general focus conditions; indeed, scopal **parallelism** between

quantificational elements in elided or deaccented constituents and those in their antecedents is a quite general property, not limited to sluicing. See Fox 1998 for discussion relating to VP-ellipsis and Romero forthcoming for discussion covering sluicing and IP-deaccenting as well. This being the case, the fact that merger derives scopal parallelism in sluicing is not a particularly overwhelming argument for it.

As CLM acknowledge, their view of the possible interactions between indefinites and wh-phrases leaves the ungrammaticality of examples Like the following something of a mystery-

- (109) \*Who<sup>x</sup> did you see someone"?

Since their system makes use of just such bindings, they cannot rule this out on principled grounds, suggesting inside that it derives from some additional property holding only of overt wh-chains.

Even if this problem could be overcome, the merger account runs into several other difficulties.

First, merger cannot handle cases where the descriptive content in the sluiced wh-phrase clashes with that of its correlate (the 'contrast -sluices of chapter 1, §1.4):

- (110) a. She's an absolute idiot: unaware of who she is, or where.  
 b. The channel was 15 feet wide, but I don't know how deep.  
 c. Abby knew which of the MEN Peter had invited, but she didn't know which of the WOMEN,  
 d. We know which streets are being re-paved, but not which avenues.  
 e. Max has five Monets in his collection, and who knows how many van Goghs.

- f. There are nine women in the play, but I don't know how many men.
- g. I **know** how many women are in the play, but I don't know how many men.
- h. She has five **CATS**, but I don't know how **many** DOGS.

These are problematic for a merger account, since the variable bound by the wh-operator will incorrectly come to have two restrictions, contrary to intuition. (110h), for example, certainly does not mean **that** I don't know how many **animals** she has which **are** both dogs and cats, since such animals don't exist.

Second, the range of possible correlates isn't always as predicted (Romero 1997 especially documents a number of counterexamples). To hers, we can add the following, correlates that can't be analyzed as **Heimian** indefinites:

- (111) a. More **than** 3 of the boys quit, but I can't remember {**which/ who**}.
- b. I counted fewer **than** 6 sorts, but I couldn't tell which.
- c. Most of the boys passed, but I don't know exactly how many.

Even pronouns, under the right conditions, can be the correlates to a sluiced wh-phrase, as the following dialog in Dutch attests, where the copied IP would contain the pronoun **er** (Romero 1997 also gives some constructed examples in Spanish **and Catalan**, which for some reason are less felicitous in English, **as** she points out; see also Fukaya 1998:11 fn 6 for discussion of the English data):

- (112) "Omdat je er nu gewoon **mee** kan stoppen?"  
*because you it now just with can stop*

... "Waarmee?" i.e [Waarmee kan ik nu gewoon stoppen?]

*what-with* what-with *can I now just stop*

'A: "Because you can call it quits now?"

B: ... "With what?"

Joost Zwagerman. *Vals licht*, 1991, p. 248 De Arbeiderspers: Amsterdam.

Further, sometimes merger just gives the wrong restriction:

(113) More than three books were missing, but we didn't know how **many**.

- a. = we didn't know how many books were missing.
- b. ≠ we didn't know how many more than 3 books were missing.

But the biggest problem looming for Chung et al.'s 1995 account is the fact that the form-identity effects documented in chapter 3 are completely mysterious. For CLM, it is crucial that the **wh-phrase** be base-generated in SpecCP — the lack of movement accounts for the lack of island effects. But the form-identity effects seemed to be diagnostic exactly of movement.

First, as concluded in section 4.3, it is unclear how the case features of a wh-phrase base-generated in SpecCP could be checked; indeed, there is convincing evidence that such case features cannot be checked accounting for the distribution of these operators in resumptive structures. But such base-generation is exactly what is posited in the CLM system.

Second, the P-stranding generalization comes as a surprise, since there is nothing in the operation of merger that would lead us to expect that 'bare'<sup>7</sup> wh-phrases could not bind **indefinites** in prepositional phrases in German, for example, as they do in English. Instead? the facts of P-stranding are the best indication we have that wh-movement has occurred. A

base-generation analysis like CLM's would have to in effect replicate the constraints on movement out of PPs in the definition of binding relevant to merger. Since merger is supposed to be an interpretative operation, this sensitivity to parochial morphosyntactic facts is surprising. Indeed, it is the *correlation* between P-stranding under overt movement and the form of wh-phrases found under sluicing that makes any such re-definition of merger suspect: since building this condition into merger and then parametrizing it across languages would be independent of the (different) constraint on movement, we might expect to find a random distribution across languages with respect to P-stranding under sluicing and under wh-movement in non-elliptical structures. But this is not what we find: instead, the two go together with a remarkably close fit.

Thus, despite its successes, Chung et al.'s 1995 account is beset by serious problems. For a syntactic point of view, the most serious of these is its inability to accommodate the form-identity effects of chapter 3. One might wonder, however, if there might be some way to retain the advantages of this account over a pure PF-deletion approach. I turn to this question in the next section.

## 4.5 IP-copy and A'-chain uniformity

In this section, I present a possible alternative to Chung et al.'s 1995 LF-copying approach that attempts to capture the form-identity effects, proposed in Merchant 1998b. This account, like CLM's, is based on the premise that the identity condition on ellipsis is a fundamentally structural one, implemented by copying of LF phrases markers. After laying out the basics of the account, I point out its weaknesses, and show why ultimately it does not strike me as a viable alternative.

The data presented in chapter 3 §3.1, showing that islands are voided under *sluicing*, seemed to show that the PF-deletion approach to islands is inadequate. The preposition pied-piping facts of section 3.2, however, showed that Chung et al.'s 1995 approach to LF-copying, in which the *indefinite* is interpreted as a Heimian variable, could not account for the grammatical sensitivities attested.

One difficulty with Chung et al.'s approach can be traced to their adoption of the Heimian approach to indefinites. For them, the correlate undergoes no movement, remaining *in situ* in the target clause, interpreted as an unbound variable. They assume only that the operation of existential closure must apply in the target clause before IP-copy, in order to account for the scope parallelism. It is this reliance on the Heimian theory, then, that precludes any account of the second *form-identity* generalization above.

Nevertheless, the island-insensitivity facts would seem to favor an LF-copy approach over a PF-deletion. How can we retain the advantages of the movement approach while continuing to make sluicing track the scope of *indefinites*? One possible answer is suggested by Bayer's 1996 results concerning P-stranding at LF.

On the basis of an investigation of focussing particles and wh-in-situ, Bayer claims that languages differ not only in whether or not they allow P-stranding under overt A'-movement, but also under covert A'-movement, at LF (contra Aoun 1985:63-69 and references there). His conclusions are based on data like that in (114) and (115), from English and Greek<sup>23</sup> (he does not actually discuss Greek, but this language patterns in the relevant respects exactly like German, his language of illustration). By hypothesis, certain types of focussing particles, like *only*, on their non-scalar readings, require LF movement of *their* associates. In English, which allows P-stranding, these focus particles can associate directly with a DP inside a PP as in (114b), since the DP can licitly move out of the PP at

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<sup>23</sup> Thanks to A. Giannakidou and A. Roussou for judgments on the examples in this section.

LF. In Greek on the other hand, **which** does not allow P-stranding, the focus particle must attach to the PP, as in (115a). The distribution of the **focus** particle follows, Bayer argues, if PPs in Greek are islands at LF as well; since the **particle+XP must move at LF for scopal reasons**, a P-stranding violation will result at LF, correctly **ruling** out (115b) (assuming for the moment, that overt **and** covert movement are subject to the **same** constraints in this domain).

- (114) a. I spoke only to Bobby. LF: [<sub>PP</sub> only to Bobby], I spoke *t*,
  - b. I spoke to only Bobby. LF: [<sub>DP</sub> only Bobby]<sub>2</sub> I spoke [<sub>PP</sub> to *t*, ]
- (115) a. Milisa mono me ton Bobby. LF: [<sub>PP</sub> mono me ton Bobby], milisa *t*,  
*I.spoke only with the Bobby*
- b. \* Milisa me mono ton Bobby. LF: \*[<sub>DP</sub> mono ton Bobby], milisa [<sub>PP</sub> me *t*, ]  
*I.spoke with only the Bobby*

We can use this result to solve the form-identity problem for an LF-copying approach if we give up the assumption **that indefinites do not move at LF**. Instead, we must adopt the view that indefinites, like other scope-bearing elements, are generalized quantifiers, **and** as such must move at LF for type-hygienic reasons. After the **indefinite** has been **scoped**, the resulting IP can be used to resolve the **ellipsis** in the sluice. For a simple case like (116a), this will result in the derivation whose parts are given in (116b,c).

- (116) a. Idha kapjon, alla dhen ksero pjon.  
*I.saw someone but not I.knowwho*  
‘I saw someone, but I don’t know who.’

- b. kapjon, [<sub>IP<sub>2</sub></sub> idha t,<sub>1</sub>]  
 $\llbracket \text{kapjon} \rrbracket = \lambda P. \exists x \text{ person}(x) \wedge P(x)$   
 $\llbracket [\text{IP}_2 \text{ idha } t_1] \rrbracket = \lambda y. \text{saw}(I, y)$
- c. [pjon]<sub>1</sub> [<sub>IP<sub>2</sub></sub> idha [<sub>D<sub>P</sub></sub>t]<sub>1</sub>]

The indefinite *kapjon*, 'someone' in the antecedent clause raises at LF (by whatever version of QR is appropriate for indefinites), adjoining to IP, whose lower segment is labelled here IP<sub>2</sub>. IP<sub>2</sub> can then be copied in for **the** missing IP under the sluiced *pjon* 'who', yielding **the** LF in (116c), after A'-chain formation, represented by the syntactic subscripts.

This approach will also derive the **scopal** parallelism of Chung et al.'s account. If the **indefinite** scopes too low, namely inside the copied IP, the existential quantifier of the wh-phrase **will** vacuously quantify in its second argument (lambda-conversion **will** not be able to occur, hence the second conjunct **will** not be type  $\Delta\Delta$  as required). Only if **the indefinite** scopes outside the IP used to resolve the ellipsis **will** an appropriate variable be made available. This purely **mechanical** approach to the syntactic resolution of the missing IP of course does not rule out other elements **scoping out and** providing a variable. Though in some cases, such IPs may indeed be able to provide a syntactically appropriate IP<sup>24</sup>, we might imagine that other factors **may** intervene to **make** the resulting interpretation infelicitous (namely constraints on focus alternatives; see Romero 1997). For the purposes of developing this account, we will here be concerned only with the narrower requirement for the structural resolution of the ellipsis (Rooth 1992a's "redundancy relation 1", Fiengo and May's 1994 "reconstruction"). As a structural account, of course, this approach inherits all the problems discussed in chapter 1; I **will** assume for the *sake* of argument, though, that these could be put aside.

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<sup>24</sup> Though even **this** is not obvious — according to Beghelli and Stowell 1997, non-indefinite quantifiers scope to hierarchically different, and lower, positions than wide-scope indefinites.

We are now in a position to see how to derive the preposition-matching effect under sluicing. **Again**, the **result** is general, though I use Greek for exemplification. Indefinites, like other DPs, **must** pied-pipe a governing preposition at LF, if **Bayer** is correct. This entails that the derivation of a well-formed example like (117a) will proceed in the steps given in (117b) and (117c). First the QRed indefinite along **with** the preposition raises in the antecedent clause to its scope-taking position outside IP, **as** in (117b). **The** resulting IP, is then used to resolve the ellipsis as in (117c).

- (117) a. I **Anna milouse** me kapjon, alla dhen ksero me pjon.  
*the Anna spoke with someone but not I.know with who*  
 'Anna was speaking with someone, but I don't know with who.'
- b. [me kapjon], [<sub>IP<sub>2</sub></sub> i **Anna milouse** [<sub>PP</sub> t<sub>1</sub>]]]
  - c. [me pjon], [<sub>IP<sub>2</sub></sub> i **Anna milouse** [<sub>PP</sub> t<sub>1</sub>]]]

In the representation in (117c), the base-generated wb-PP A'-binds a syntactic variable of the same category, namely PP. What is needed now is to subject the resulting A'-chain to a condition that requires every link in the chain to **share** certain basic features, here **category** features. But, as we **saw** above, such **uniformity** among the links of an A'-chain is not limited to category features, but rather extends to case (**and φ-features**) as **well**. We can state this in the following condition on A'-chains:

## (118) A'-chain uniformity

$$\forall \alpha, \beta . \alpha, \beta \in C \rightarrow F(\alpha) = F(\beta)$$

where

- a.  $C = <\alpha_1, \dots, \alpha_n>$ ,  $\alpha_i$  in an A'-position and  $\alpha_n$  in a Case-marked position, and
- b.  $F(x) = \{F \mid F \text{ a feature of } x\}$  (let ‘feature’ here range over at least category, case, and φ-features)

The constraint in (118) states that the features of every link in an A'-chain must match the features of every other link of the chain (including of course self-matching). This is simply one of many conceivable ways of stating the condition; we could have enforced uniformity to any arbitrarily chosen link of the chain ( $\alpha_i$ , or  $\alpha_n$ , for example) with the same results.

Let us now examine what goes wrong in an ill-formed example like (119).

- (119) \* I Anna milouse me kapjon, alla dhen ksero pjon.

*the Anna spoke with someone, but not I.know cwho*

(‘Anna spoke with someone, but I don't know who.’)

There are two possible derivations to consider. First, parallel to its grammatical English counterpart, we might attempt to provide an appropriate IP for copying into the ellipsis site by scoping the correlate DP *kapjon* 'someone' directly, as in (120).

- (120) \* [kapjon], [<sub>IP2</sub> i Anna milouse [<sub>PP</sub> me [<sub>DP</sub> t<sub>i</sub>]]]]

While the resulting IP, would be able to resolve the ellipsis, the movement of *kapjon* out of its governing PP is illicit, violating the PP island which holds at LF; cf. (115b) above.

The second derivation to consider satisfies LF-movement constraints by pied-piping the PP as in (117b) above, yielding (121) *as* the LF for the antecedent clause,

- (121) [me kapjon]<sub>t</sub> [<sub>IP<sub>2</sub></sub> i **Anna milouse** [<sub>PP</sub> t<sub>1</sub>]]]

IP, is now the only structural antecedent available to resolve the ellipsis under pjon; copying this IP in yields (122).

- (122) [pjon]<sub>t</sub> [<sub>IP<sub>2</sub></sub> i **Anna milouse** [<sub>PP</sub> t<sub>1</sub>]]]

*Pjon* must form an A'-chain with a trace inside the IP; the only trace available here is [<sub>PP</sub> t<sub>1</sub>], and the chain formed is <[<sub>DP</sub> pjon], [<sub>PP</sub> t ]>, as indicated by the indexing in (122). But this chain violates the A-Chain Uniformity condition in (118) ~~since~~ *pjon* is a DP but *t* is a PP, their category features do not match as required by (118).

Since neither of the possible derivations for (119) are Licit, the example is ruled out. This reasoning applies to all cases of correlates inside PPs. Note that this account places the ungrammaticality of such sluicing examples not on some violation concerning the sluiced wh-phrase itself—DP sluices can be perfectly well-formed. Instead, the ungrammaticality arises through an inability of the grammar of Greek (or German. etc.) to provide an appropriate IP antecedent to resolve the ellipsis; since PPs are islands to LF-movement, no DP trace inside a PP can be provided as required by A'-Chain Uniformity.

We have now seen how A'-Chain Uniformity, combined with Bayer's hypothesis, can derive the form-identity effects documented in chapter 3. This account rests on treating indefinites as regular generalized quantifiers which reach their scopal positions at LF via some kind of movement operation. Since indefinites can take scope out of islands (see

especially Farkas 1981), licit IP antecedents will be able to be generated to resolve the ellipsis in sluicing out of islands as well. Recall for example (103), repeated here as (123).

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

Fixing the scope of the **indefinite** someone who... under *want*, the first clause has two possible interpretations, corresponding to the **scopal** possibilities of the embedded **indefinite a Balkan language**. These two possibilities are represented by the LFs in (124a,b), and correspond in essentials to the formulas in (105a,b) discussed above.

- (124) a. [a Balkan language], [<sub>IP</sub> they want to hire someone who speaks *t*, ]  
b. [<sub>IP<sub>1</sub></sub> they **want** [[a Balkan language], [<sub>IP<sub>2</sub></sub> to hire someone who speaks *t*, ]]]

Only the LF in (124a) provides an IP with an appropriate trace for the sluiced *which* in (123) to bind. In (124b), neither IP<sub>1</sub> nor IP<sub>2</sub> suffice: IP<sub>1</sub> does not contain an unbound trace (since *t*, is still bound within IP<sub>1</sub> by [a *Balkan language*]), while IP<sub>2</sub>, if it yields an appropriate interpretation at all, does not generate the desired **meaning** for (123) (in particular, it loses the subordination of someone *rwho* to want).

As in the non-island cases, the present LF-copying approach correctly derives the observed **scopal** parallelism. Since the mechanisms for resolving sluicing inside islands as in (123) are the same as discussed for simple cases like (116a), the account of the form-identity effects **will persist**.

But this account of the form-identity effects 'across' islands requires that indefinites must move at LF out of islands. This is a very dubious conclusion, one that many have sought to avoid for very good reasons (see especially Winter 1997 and Reinhart

1997, whose best argument comes from Eddy Ruys's observation that distributed readings of plural indefinites are indeed island restricted).

In other words, this account leaves it a mystery why only indefinites can move out of islands, and leaves it up to a yet-unspecified theory of islands to allow just such invisible scopal movements. Again, the prospects for a successful development of such a theory are slim. But once such a syntactic approach to the wide-scoping of indefinites is abandoned, we are left with the paradox that has plagued us throughout this chapter.

A further serious objection is that the effects of the uniformity condition in (118) are usually derived from the definition of the operation Move; Move copies an element whole, and does not alter any of its features, thereby ensuring chain uniformity. In other words, such uniformity should be a *derived* property of chains, not a *stipulated* one. Note that such a uniformity condition is actually quite problematic: it would have to have a nontrivial exception clause stipulating that it *not* apply to A'-chains terminating in resumptive pronouns inside islands; operators that bind resumptive pronouns have a number of properties that distinguish them from the operators in sluicing, as we saw above in section 4.3, one of which is that they *cannot* bear case or occur inside a PP, just the opposite of the effect of imposing a uniformity condition like (118). At this point, I see no way to make the necessary distinction.

Finally, it is up for debate whether the fundamental assumption that this account relies on —namely Bayer's analysis of LF-movement based on the distribution of focus particles— is correct (see Büring and Hartmann 1999 for a competing approach to the restrictions on the placement of these particles). As Bayer himself notes, there are languages with overt P-stranding that seem not to have P-stranding under LF movement, and languages that lack overt P-stranding but which for him must have P-stranding at LF, at least as diagnosed by association with focus particles. This kind of discrepancy between overt and covert movements is not found for the form-identity effects under sluicing.

## 4.6 Summary

This chapter has **examined** five different proposals for the structure of sluices. I have shown **that** each proposal suffers from serious empirical shortcomings, mostly related to a failure to be able to **deal** with the core **data laid** out in chapter 3. This is an important **result**, because it will force us into accepting what **might** otherwise be considered a too radical **departure** from conventional wisdom. In demonstrating the inadequacies of the sometimes quite plausible seeming analyses above, I have eliminated the **competitors** for what is to come, **and** have **drastically** limited our theoretical options, laying the groundwork for the proposals in the following chapter. We have, in effect, been painted into a corner, **a corner** into which we might otherwise have been loath to go. It is the purpose of the next chapter to explore the nature of this corner, and to bring to **Light what** its properties require us to believe about the nature of islands-

## 5 Deletio redux

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### 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 cf 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 oven 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 always 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.

### (I) German

- a.     **Anna hat mit jemandem gesprochen, aber ich weiß nicht,**  
*Anna has with someone spoken      but I know not*  
*\*(mit) wem.*  
*with who*  
'iAnna 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 (La) will be that in (2):

- (2) ... ich weiß nicht, [mit wem]<sub>2</sub> [Anna t<sub>2</sub> 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.<sup>1</sup>

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)

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<sup>1</sup> 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.

- 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 Manzini 1998 are incorrect in attempting to give a structural explanation for these; instead, I will follow Szabolcsi and Zwarts 1993, Rullmann 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).<sup>1</sup>

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

## 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

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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.

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 [\_\_ can]?
- \* 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 fmd?

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.<sup>3</sup>

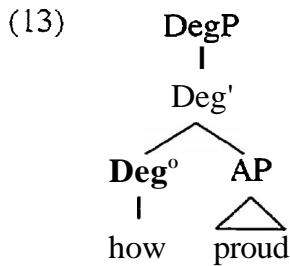
To Ross's example of how-extraction from a predicate adjective we can add **the** following examples, with extraction of **how** from attributive position within a noun phrase as well.

- (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):

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<sup>3</sup> The fact that **how many** licenses NP-ellipsis, but **how A P** 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.



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

- (14) \*  $[_{\text{Deg}^0} \text{How}]_2 \text{ is he } [_{\text{DegP}} [_{\text{Deg}^0} t_2 ] [_{\text{AP}} \text{ proud of it } ] ] ?$

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,  $\text{Deg}^0$  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) \*  $[_{\text{DegP}} \text{ how } [_{\text{AP}} e]]$

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<sup>4</sup>:

- (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):

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<sup>4</sup> Though see Sag 1976:334 for some problematic examples, taken from Harris 1965, 1968 and Quirk et al. 1972:590.

- (18) I don't know [<sub>DegP</sub> how detailed], ~~he wants [t<sub>1</sub>'[a t<sub>1</sub> list]]~~.

In other words, deletion at PF does indeed repair the otherwise ungrammatical extraction of attributive adjectival phrases<sup>5</sup>. This claim is based not solely on the above sluicing **data**, however: it is supported by independent facts from VP-ellipsis, comparative 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, O}.
- 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 [<sub>DegP</sub> *Op*] <sub>2</sub> Ben did [write [t<sub>2</sub>'[a t<sub>2</sub> novel]]]

---

<sup>5</sup> 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° head; cf. the restrictions noted by Bennis et al. 1998 for a similar domain of data.

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<sup>6</sup>, on the other hand, which rule out examples like (19b) as well as 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.

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<sup>6</sup> 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 bur nor I.know how tall.ACC*  
 'They hired a tall man, but I don't know how tall.'

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 [DP poso psilo [NP *andra*]].

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

- (21) I don't know [<sub>DegP</sub> how detailed], **he wants** [<sub>FP</sub> **t**<sub>i</sub> 'F<sup>0</sup><sub>[+wh]</sub> [a **t**<sub>i</sub> -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<sup>0</sup>, 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<sup>0</sup>[+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)

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 Herman 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 hotv 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 Norbert Corver, Iris Mulders, and Rob **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)?  
*hotv 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.<sup>7</sup> 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

<sup>7</sup> 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.')

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 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 Susanne 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 angestellt, 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 [<sub>IP</sub> e ]. **S-structure**  
           b. ... [how detailed]" [<sub>IP</sub> he wants **a** [detailed]' 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**.<sup>8</sup>)  
           b. \* He got stressed because his boss **wants** a detailed list, but I don't know how **detailed**.  
           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.

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<sup>8</sup> 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.

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 **3-type shifting**, A entails  $F\text{-clo}(E)$ .

- (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  $F\text{-clo}(E)$ , and
- ii. E entails  $F\text{-clo}(A)$

- (38) **Focus condition on IP ellipsis**

An IP  $\alpha$  can be deleted only if  $\alpha$  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<sub>F</sub> big] [~~she bought~~ {~~t~~ a ~~[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<sub>F</sub> in (41) by a variable over quantifiers over degrees —here represented as **Q**— and existentially quantifying:

- (42)  $\exists Q [I \text{ know } [Q \text{ d.she bought a d-big car}]]$

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 **reconstruction** of the content of the **DegP** (see Grosu and Landman 1998), will be that in (43b).

- (43) a.  $IP_A' = \exists d. \text{she bought a d-big car}$   
 b.  $F\text{-clo}(IP_E) = \exists d. \text{she bought a d-big car}$

Since in this case, it is the degree quantifier that is focused, the reverse relation<sup>c</sup> will hold as well, namely  $IP_E' = F\text{-clo}(IP_A)$ . 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  $IP_A' = \text{she bought a car}$ ) and the Focus condition is therefore not satisfied.

The conclusion, then is that the constraints observed here in (16) and (31)<sup>9</sup> 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.

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<sup>9</sup> The contrast in (40), on ~~the~~ other hand, is a result of a different constraint, Schwarzschild's I998 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

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):

- (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. 17): 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 [BIG], 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.

---

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).

- 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 [BIG], a car], [~~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 [BIG]<sub>F</sub> a car]<sub>F<sub>2</sub></sub> [~~she bought~~ t<sub>2</sub>]

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 [<sub>DegP</sub> how [BIG]<sub>F<sub>1</sub></sub> {<sub>IP</sub>-she bought {t<sub>1</sub>' a t<sub>1</sub> car}<sub>F<sub>2</sub></sub>}]

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 3-closure and F-closure of  $\text{IP}_\epsilon$  will be that in (52), which binds the empty variable over **gradable** adjective meanings **that** contrast with ***big***.

$$(52) \quad \text{IP}'_\epsilon = \text{F-clo}(\text{IP}_\epsilon) = \exists P[\text{she bought a } P\text{-car}]$$

But one could argue that  $\text{IP}_A$  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 **exitgence** 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 are an apple before she are a GREEN apple* (cf. *She ate on APPLE before she are 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.<sup>10</sup> 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** originates 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?]

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

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<sup>10</sup> Thanks to N. Corver for discussion of this section, and for the Dutch data.

- (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 occurring 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 **originating** 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 intonations 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, badly [he was [<sub>DegP</sub>-t<sub>2</sub>-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 hairy 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°** is deleted:

- (62) a. He wants a longer list, but I don't know how much "(longer).  
 b. ... [<sub>DegP</sub> how much longer], [~~he wants [FP t'₂ F° [a t₂ 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 subextractions—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 *far*, 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**?  
       \* 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'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<sub>3</sub> visste ingen hur {det<sub>3</sub> / \*t<sub>3</sub>} 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°s, as was done in the previous section for F° 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 sllicing. 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 197L: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.
- B: Which one ~~[she refused to read a biography of *t*]~~?
  - 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  $\exists x[x \text{ is a } \textit{marx brother} \& \textit{she refused to read a biography of } x]$  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<sub>2</sub> [<sub>IP</sub> ~~—is going to be published [a biography of t<sub>2</sub>]~~]

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 oft] all over town?  
       b. Which candidate were there [posters oft] **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], [<sub>IP</sub> \_\_\_ is [<sub>VP</sub> going to be published [a biography of <sub>t<sub>2</sub></sub>]]]

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<sup>0</sup>**: for English, Chomsky claims that I<sup>0</sup> 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<sup>0</sup> 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,  $t_{IP} = [t_{VP} \text{ a biographer of } t_3 \text{ interviewed her}]$ .

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 0-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, ~~{<sub>I<sup>P</sup></sub> might be [VP distributed [five pictures of <sub>t<sub>2</sub></sub>] to the press]}~~.
- b. Five pictures of one of the victims weren't distributed to the press, but I can't remember which one, ~~{<sub>I<sup>P</sup></sub> weren't [VP distributed [five pictures of <sub>t<sub>2</sub></sub>] to the press]}~~.

If the subject *five pictures of t<sub>2</sub>*, 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  $\neg\exists$  reading. In fact, both the  $\neg\exists$  and  $\exists\neg$  readings are possible here, the latter given in (80) (if anything, the latter is preferred):

- (80)  $\lambda p[\exists x.\text{victim}(x) \wedge p = ^{\wedge}[\exists y.\text{picture}(y, \text{of } x) \wedge \neg\text{distributed}(y, \text{to the press})]]$

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  $I^0$  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 Homstein 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).<sup>11</sup>

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

b. [Every soldier from one of the airborne battalions], seemed to his<sub>2</sub> commander to be sick, but I don't know (from) which (battalion).

In these examples, cross-clausal binding is impossible (cf. *\*Every soldier, was* sick, *but I don't know whether his, 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), [<sub>IP</sub> [<sub>VP</sub> seemed to his, commander to be [<sub>IP</sub> [every soldier  
from one of <sub>t<sub>3</sub></sub>, sick ]]]]

b. A-movement at LF:

... which (battalion), [<sub>IP</sub> [every soldier from one oft,], seemed to his,  
commander [<sub>IP</sub> <sub>t'<sub>2</sub></sub>, to be <sub>t<sub>2</sub></sub>, sick ]]]

<sup>11</sup> 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], seemed to its, inventor to be flawed, but I don't remember which (problem).  
b. [A solider from one of the airborne battalions], **seemed** to his<sub>2</sub>, 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).

In (82b), DP, has **raised** by A-movement coming to bind *his<sub>2</sub>*. 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, seemed to him<sub>2</sub> to be on TV during the summit.
- b.    \* There seemed to him<sub>2</sub> to be **many** reports about Clinton<sub>2</sub> on TV during the summit.

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

- (84) One of Albright<sub>3</sub>'s reports on one of the **Balkan** countries seemed to her, 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, [<sub>IP</sub> [<sub>VP</sub> seemed to her, to have been leaked [<sub>one</sub> of Albright<sub>3</sub>'s reports on t,] to the press ]].

b. LF:

... which, [<sub>IP</sub> [one of Albright<sub>3</sub>'s reports on  $t_1$ ]<sub>2</sub> [<sub>VP</sub> seemed to her,  $t_2'$  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,, but she, 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, didn't know why ~~they wanted to hire Abby~~<sub>3</sub>.  
 b. she, didn't know why ~~they wanted to hire her~~.

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, commander) to be [a soldier], 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, [<sub>0</sub> [eggplants from <sub>1</sub>t]<sub>1</sub>] are, [<sub>0</sub> PRO<sup>i</sup> 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** Brarne 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.<sup>12</sup>

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, [~~they persuaded Kennedy and t<sub>1</sub> to jointly sponsor the legislation~~]

<sup>12</sup> 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 account for the full range of data. **since** examples like (96) are well-formed.

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, tool.

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 unambiguously impossible.

- (99)
- |          |                        |                                             |
|----------|------------------------|---------------------------------------------|
| <b>a</b> | Bob <b>can</b> 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 <b>can</b> 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.<sup>13</sup> The relevant data are given in (100) and (101).

- (100) a. \* **Abby** invited someone, but I don't know who, [ \_\_ and **Ben** kissed t, ].
  - b. \* **Abby** invited someone, but I don't know who, [ **Ben** kissed t, 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 phenomenon, 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.

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

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<sup>13</sup> 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.

holds, to my knowledge, in various Romance and Slavic languages<sup>14</sup>). 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*  
'iHe 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*  
'iPaul 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*

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<sup>14</sup> 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<sub>[αF]</sub> [D<sub>β</sub> pro<sub>[αF]</sub>] Conj DP I ...

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.

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

- (105) A: Hater 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).<sup>15</sup>

- (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**, that they were going to kill [you **and** him<sub>2</sub>] together.
- b. Which wine, would you never serve it<sub>3</sub> and sushi together? (Pesetsky 1998a: 366 fn 28)

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<sup>15</sup> (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.

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**<sup>16</sup>, as in (110)<sup>17</sup>:

- (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

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<sup>16</sup> 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,

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*, the **book** Charlie, *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 2994: 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.

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 interreviewed 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.

We have thus seen at least four different areas where null **conjuncts** are prohibited, none of which are plausibly analyzed **as** involving extraction.<sup>18</sup> This lends support to the hypothesis that the Null Conjunct Constraint, whatever the best account of its effects may be, applies to PF representations'', regardless of whether the **null conjunct** was the **result** of

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<sup>18</sup> 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.

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 **independently**. 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 latter's 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,

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 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-dong **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. ... [<sub>CP</sub> what, [<sub>IP</sub> IBM did  $t_1$ ]] and [<sub>CP</sub> why [<sub>IP</sub> IBM did  $t_1$ ]]
- b. [<sub>CP</sub> who, did [<sub>IP</sub> the suspect call  $t_2$ ]] and [<sub>CP</sub> when [<sub>IP</sub> 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, IBM did **and** why IBM did it.,
- b. Who, did the suspect call and when did the suspect call **him**<sub>2</sub>?
- c. Most gangs, will be at the rumble, though it's not clear why **they**<sub>3</sub> 'll be there.
- d. Every boy scout, helped, though **most**<sub>5</sub> didn't know why **they**<sub>6</sub>, 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] =<sub>e</sub> [+pronominal]

(where =<sub>e</sub> means 'forms **an** equivalence class under ellipsis with')

- (122) [-a, -p] (variable or name) =<sub>e</sub> [-a, +p] (*pronominal correlate* = '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**, knew why Sue hated the Thompsons<sub>3</sub>.

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

- b. ... they, knew why [Sue hated  $^p e_4$ ]
- c. ... they, knew why [Sue hated ~~them~~<sub>4</sub>]

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**<sub>4</sub> did the FBI admit that <solving t<sub>4</sub>> will prove difficult?
- b. \*The FBI knows which **truck**<sub>4</sub> was rented, but <figuring out from where t<sub>4</sub> was rented> has proven difficult,
- c. The FBI knows which truck, was rented, but <figuring out from where it, was rented> has proven difficult.
- d. The FBI knows which truck, was rented, but <figuring out from where> has proven difficult.

- e. ... figuring out from where [it<sub>4</sub>-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.<sup>20</sup>

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. [<sub>CP</sub> which suspect<sub>2</sub> did [<sub>IP</sub> Abby call t<sub>2</sub>]] and [<sub>CP</sub> when f<sub>IP</sub> Abby call him<sub>2</sub>]]  
 (127) Which suspect did Abby call, and when did she call him?

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<sup>20</sup> The interested reader is referred to Merchant 1999c, 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.

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  $\text{IP}_A$  and  $\text{IP}_E$  yield the following:

- (128) a.  $\text{IP}_E' = \text{F-clo}(\text{IP}_E) = \text{Abby called g}(2)$   
 b.  $\text{IP}_A' = \text{F-clo}(\text{IP}_A) = \text{Abby called g}(2)$

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 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**. **Fit**, 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 contrast 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*, Ben did ~~hire someone who speaks [t', a t, Balkan language]~~.
- b. \* **Abby** hired someone who speaks **more** Balkan languages **than** *Op*, Ben did ~~hire someone who speaks [t, 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, [she speaks  $t_1$ ]!  
 b. Guess how many, [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.  $\lambda w. \exists y [\text{balkan-language}_@ (y) \wedge \exists x [\text{speak}_w(x, y) \wedge \text{hire}_w(\text{they}, x)]]$   
 b.  $?y [\text{balkan-language}_@ (y) \wedge \text{speak}_w(x, y)] =$   
 $\lambda p. \exists y [\text{balkan-language}_@ (y) \wedge p = \lambda w [\text{speak}_w(x, y)]]$

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 if E has a salient antecedent A and, modulo  $\exists$ -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  $\llbracket \text{[WHICH}_F$  (Balkan language)], she, speaks  $t_1 \llbracket^g$ , which will follow a *fortiori* if the more restrictive Focus condition based on e-GIVENness (an IP  $\alpha$  can be deleted only if  $\alpha$  is e-GIVEN) is satisfied. I will therefore concentrate on the latter. The result of replacing **the** F-marked material with  $\exists$ -bound variables is given in (136) (where  $\llbracket \text{she, } \llbracket^g = g(6) \in D_e$ ).

$$(136) \exists Q_{\langle et, \langle et, \rangle \rangle} [\lambda w. Qy [ \mathbf{balkan-language}_@ (y) \wedge \mathbf{speaks}_w (g(6), y) ]]$$

As above, I extract the crucial part for us, simplifying as usual":

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

<sup>21</sup> To be fully explicit, we have to assume that the NP ellipsis in  $[_{DP} \text{WHICH} [_{NP} \text{Balkan language}]]$ , 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:

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

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.

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*, by the **assignment function**  $g$  is the same as the value assigned to  $t_6$ .

$$(138) \quad [\![ [_{\text{IP}} t_6 \text{ speaks a Balkan language} ] ]^{\mathbb{E}} = \lambda w. \exists y [\text{balkan-language}_@ (y) \wedge \text{speak}_w (g(6), y)]$$

This gives the following for  $\text{IP}_A$ :

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

So  $\text{IP}'$  and  $\text{IP}_{\mathbb{E}}$ , 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 I ??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** hesitate 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.<sup>22</sup>

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

(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).

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<sup>22</sup> In some cases, compset anaphora is possible (see Moxey and Sandford 1993), a possibility I put aside here.

(147) {<sub>IP</sub>-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.  $IP_E' = \exists_5 !x. x \text{ were fired}$   
 b.  $IP_A' = \exists_5 !x. x \text{ were fired}$

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.<sup>23</sup> So for (146b), we **have**:

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,

- (i) a. I met with every suspect., though most, claimed I hadn't.  
 b. Everyone, helped, though **most<sub>2</sub>** 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.)

- (ii) a. ... **most<sub>2</sub>** claimed I hadn't [met with **them<sub>2</sub>**].  
 b. ... **most<sub>2</sub>** weren't sure why [**they<sub>2</sub>** helped].

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

- (iii) I met with every **suspect<sub>1</sub>**, though most **cops<sub>2</sub>** **claimed** I hadn't.  
 = [met with {every suspect/**them<sub>1</sub>**}]  
 ≠ [met with **x<sub>2</sub>**]

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<sub>1</sub>**, though most **cops<sub>2</sub>** claimed I hadn't **met with them<sub>1</sub>/<sub>2</sub>**..

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 own deaccented counterparts, though I omit the data here).

- (v) a. I met with every inmate., though {many/most} lifers, said I hadn't.  
 = [met with **them<sub>1</sub>**] or  
 = [met with **them<sub>2</sub>**]  
 b. I met with every **lifer<sub>2</sub>**, though {many/most} inmates, said I hadn't.

- (149)  $\text{IP}_E = \{\text{IP}_{\text{they}} \text{ were fired}\} = g(2)$  were fired

The lower IP segment of the antecedent IP after QR of *exactly five officers* supplies  $\text{IP}_A$ :

- (150) a.  $\{\text{IP}_{\text{exactly five officers}}\}_2 \{\text{IP}_{\text{t}_2 \text{ were fired}}\}$   
 b.  $\text{IP}_A = \{\text{IP}_{\text{t}_2 \text{ were fired}}\}$

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.

- (vi) a. I met with most inmates,, though many lifers<sub>2</sub> didn't want me to.  
 $= [\text{met with them}_2]$   
 $\neq [\text{met with them}]$   
 $= [\text{meet with (most/the)} \text{ inmates}]$   
 $= [\text{meet with them}_2]$
- b. I met with most lifers,, though many inmates, didn't want me to.  
 $= [\text{meet with \{most/the\} lifers}]$   
 $\neq [\text{meet with them},]$

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 "situational" *it*, as the data in (vii) show.

- (vii) a. I met with every inmate,, though {many/most) lifers<sub>2</sub> didn't like/denied it.  
 $it = [\text{that I met with every inmate}]$  or  
 $it = [\text{that I met with them},]$
- b. I met with every lifer,, though {many/most} inmates, didn't like/denied it.  
 $it = [\text{that I met with every lifer}]$   
 $it \neq [\text{that I met with them},]$

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 sentences, they must be non-derived pronouns—this *it* is non-derived: 'The guy who denied *it* was arrested for wiretapping his employee's offices!')

- (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 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<sup>24</sup>, 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,,*  
 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 rnia 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.'

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<sup>24</sup> Thanks to A. Giannakidou for judgments and discussion of the Greek examples in this section.

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

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.  $\neq \exists y[\text{Balkan-language}_\circ(y) \wedge \exists x[\text{person}_\circ(x) \wedge \text{speak}_\circ(x,y) \wedge \text{want}_\circ(\text{they}, \lambda w[\text{hire}_w(\text{they},x)])]]$   
 b.  $= \exists y[\text{Balkan-language}_\circ(y) \wedge \text{want}_\circ(\text{they}, \lambda w[\exists x[\text{person}_w(x) \wedge \text{speak}_w(x,y) \wedge \text{hire}_w(\text{they},x)]])]$

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,. It, might be worth a million dollars.  
 b. He wants to marry a Norwegian<sub>2</sub>. She, should like the cold.

- c. If you (should) see a **finch**, stop moving. It<sub>3</sub> might get scared off.

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

- (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<sub>6</sub>-should-speak-t<sub>2</sub>~~.  
 b. ... pja<sub>2</sub> ~~pro<sub>6</sub>-na-milait<sub>2</sub>~~  
           which     SUBJ speaks

These will have roughly the semantics given in (164)<sup>25</sup>:

$$(164) \ ?y[ \text{balkan-language}_@(y) \wedge L \text{ speak}_w(g(6), y) ] = \\ \lambda p \exists y [ \text{balkan-language}_@(y) \wedge p(@) \wedge p = \lambda w' \forall w [ w' R w \rightarrow \text{speak}_w(g(6), y) ] ]$$

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

$$(165) \ \exists Q_{<\text{et}<\text{et.}\gg} [ Qy [ \text{balkan-language}_@(y) \wedge L \text{ speak}_w(g(6), y) ] ]$$

We can assume that the subjunctive in the relative clause provides the L operator<sup>26</sup>, 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

<sup>25</sup> 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 accessibility 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)  $V(L\phi, w) = 1$  if  $\forall w' [ wRw' \rightarrow V(\phi, w') = 1 ]$ , otherwise  $V(L\phi, w) = 0$   
**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  $\cap f(w)$ ).

<sup>26</sup> Oversimplifying, this would mean that the sentence with the subjunctive relative would have a translation like that in (i):

(i)  $\exists y [ \text{balkan-language}_@(y) \wedge \text{want}_@(\text{they}, \lambda w [ \exists x [ \text{person}_w(x) \wedge \forall w' [ wRw' \rightarrow \text{speak}_w(x, y) \wedge \text{hire}_w(\text{they}, x) ] ] ) ] ]$

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.

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 glossa,  
*not wanted. they SUBJ hire anyone that SUBJ speaks a Balkan language*  
 alla dhen ksero pja.

*but not I.know which*

('\* They didn't want to hire anyone who speaks a **Balkan** language, but I don't know which.)

- (167) \* Dhen ithelan na proslavoun KANENAN pu na milai mia Valkaniki glossa,  
*not wanted. they SUBJ hire anyone that SUBJ speaks a Balkan language*  
 alla dhen ksero pja na milai.

*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)  $\exists x[\text{person}_@(x) \wedge \forall w[\text{talk-to}_w(\text{ben}, x) \rightarrow \text{mad}_w(\text{abby})]]$

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

- (170) a. ...who [~~he talks to~~   ]  
 b.  $\exists x[\text{person}_@(x) \wedge L \text{ talk-to}_w(\text{ben}, x)]$

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<sup>4</sup> 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,, and how much does it, 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,  $V(\llbracket \text{CP} \rrbracket, @) = 1$ ), 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,   
 b. ... with **what**, [Maxwell killed the judge]

In fact, it has often been noted that fronted sentential subjects tend to be **factive** (Kiparsky and Kiparsky 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, ate dinner and saw a movie that night* which cannot be derived from the impossible *No-one, ate dinner and he, 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, ~~[he ate dinner and saw t, that night]~~
- b. ... how many, ~~[he ate dinner and saw t, that night]~~

- c. ... how expensive, [he saw a movie and ate [ $t'_3$ , a  $t_3$ -dinner] that night]
- (176) a. ?? Which movie, did Bob eat dinner **and** see  $t_1$  that night?  
 b. \* How many **movies**<sub>2</sub> did Bob eat dinner **and** see  $t_2$ , that night?  
 c. \* How expensive a dinner, 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<sup>x</sup> [he ate dinner and saw [a movie]<sup>x</sup> 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<sup>27</sup>. 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-

- (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:

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<sup>27</sup> 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 f i t and then did.  
 (ii) \* Abby ate a more expensive dinner than Ben saw a **movie** and then (ate / did).

- (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<sub>6</sub>~~ ate dinner and saw *t* that night]  
 b. ... which [~~he<sub>6</sub>~~ 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)  $\exists x[\text{movie}(x) \wedge \text{saw}(g(6), x, \text{that-night})]$

**And** we can indeed infer (183) from the first sentence of (174a), Bob, *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 independently 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 never **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.  $\neg\exists x[\text{nurse}(x) \wedge \exists t[\text{time}(t) \wedge \text{on-duty}(x, \text{at } t)]]$
- b.  $\exists t[\text{time}(t) \wedge \neg\exists x[\text{nurse}(x) \wedge \text{on-duty}(x, \text{at } t)]]$

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 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.

- (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 ~~many~~ 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 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). On 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.

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