64 Strong vs. Weak Islands

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1 Introduction

The fundamental work on islands is Ross (1986, originally a 1967 dissertation). Ross distinguished between transformations that move a constituent and leave behind a pro-form (i.e., a resumptive pronoun) and ones that 'chop' a constituent and move it without leaving anything behind. An example of the former is left dislocation (that is, in Ross's analysis left dislocation is not base generated). An example of chopping is topicalization. Of the two, only chopping operations are constrained by islands. Islands will be enclosed in angled brackets:

(1) This kid, I must call <the teacher who punished him>.

(2) *This kid, I must call <the teacher who punished ___>.

Diagnosing islands has become more complex since Ross because it is assumed that there exist invisible pro-forms (empty resumptive pronouns), in addition to overt ones. I will use 'gap' as a pretheoretical term that covers both traces and empty pronouns.

Islands come in two main varieties: weak and strong. Note that the weak/strong qualification does not correspond to degrees of ungrammaticality.

(3) **Strong islands:**
No extraction is allowed (constructions with an appropriate resumptive pronoun may be allowed).

(4) **Weak islands (WI):**
Some phrases can extract, others cannot.

The focus of this chapter is weak islands (WI). Strong islands are considered only to set the stage for the discussion of WIs.

Up until the late 1980s nothing much beyond *wh*-islands had been thought to be a weak (selective) island. Beginning with Relativized Minimality, however, an ever growing range of weak islands have been recognized. Thus, theories of weak islands have mushroomed, each coming with a significant set of new data and important new connections to other domains. The review of weak islands will emphasize the correspondence between data sets and theories. Less attention will be given to proposals that primarily recast the theoretical account of some narrow range of data.

2 Absolute vs. selective islands

Although the notion of strong vs. weak islands as defined in (3) and (4) seems like a simple descriptive one, it is not. Consider the following examples involving *wh*-islands and adjunct islands:

(5) a. *About which topic did John ask <who was talking ___>?
b. *?Which topic did John ask <who was talking about ___>?
c. *How did John ask <who behaved ___>?

(6) a. *About which topic did you leave <because Mary talked ___>?
b. *Which topic did you leave <because Mary talked about ___>?
c. *How did you leave <because Mary behaved ___>?

These two sets might suggest that both *wh*-clauses and adjunct clauses are strong islands: the extraction of three different types of phrase was attempted and failed. On the other hand, it is easy to construct other examples in which some, but not other, phrases can extract. The percentage sign % indicates that there is variation among the speakers of English:

(7) a. %About which topic did John ask <whether to talk ___>?
b. Which topic did John ask <whether to talk about ___>?
c. *How did John ask <whether to behave ___>?

(8) a. *About which topic did you leave <without talking ___>?
b. Which topic did you leave <without talking about ___>?
c. *How did you leave <without behaving ___>?

The difference between the two sets involves Tense in the first place. While tensed clauses are themselves not islands, cf.

(9) Which topic do you think that I talked about ___?

we see that the presence of Tense may considerably strengthen other islands. This fact must be systematically controlled for in the evaluation of various islands.

(Chomsky 1986a briefly touches upon the role of Tense. Cinque 1990 uses it as an important test, and Manzini 1992 proposes a theory of its behavior.) Thus, the specific constructions in (5–6) may preclude the presence of any gaps, but this in itself does not mean that *wh*-complements and adjuncts per se are totally impenetrable. Shall we conclude now that *wh*-clauses and adjuncts per se are merely weak islands? Note a fine distinction: while adverb extraction is blocked in both, the infinitival *whether*-clause allows the extraction of both DPs and PPs (at least for some speakers), while the gerundival adjunct clause allows only DP-extraction.

The interpretation of this situation is a theoretical, rather than descriptive, matter. Making the implicit assumption that the PP vs. DP facts are highly consistent in each island type. Cinque (1990) argues that this difference warrants radically different analyses because a DP gap may be an empty resumptive pronoun but a PP gap cannot be. *Wh*-islands are indeed weak (selective); adjunct-islands on the other hand are strong (absolute) and the DP-gap that they may contain is an empty resumptive pronoun.

Cinque's distinction will serve as a basic organizing principle in this chapter because it is typically taken for granted in the weak island literature: theories of weak islands do not try to account for the islands that Cinque classifies as strong.

(10) **Cinque's diagnostic of strong vs. weak islands:**
Among the domains that do not allow all standard extractions, those that allow a PP-gap are weak islands, and those that can at best contain a DP-gap are strong islands (and their DP-gap is an empty pronoun).

This is not the only possible way to cut the cake. For instance, Postal (1997a, 1998), who uses the terms locked (absolute) and unlocked (selective) island, does not attribute this much significance to PP vs. DP. Following Ross, he assumes that extraction from unlocked islands always involves empty resumptive pronouns and subsumes Cinque's weak islands under this rubric.

A note on the data: question formation, relativization, and topicalization are all instances of *wh*-movement. Because the bulk of the literature to be surveyed focuses on examples involving question formation, this chapter follows the same practice, unless the discussion of a particular work requires us to do otherwise.

3 Strong islands

3.1 Classical strong islands

While recent literature has identified a host of weak islands, the classical inventory, with the exception of certain *wh*-islands, consists of strong ones. What follows is a list, sometimes interrupted by comments.

Complex DP (with relative clause):

(11) *Which kid must you call <the teacher who punished ___>?
*Where must you call <the teacher who put the book ___>?

(12) *This kid, you must call <the teacher who punished ___>.
*On the table, you must call <the teacher who put the book ___>.

(13) *What size shoes did you call <the man who wears ___>?

(14) *How did you call <the man who behaved ___>?

Complex DP (with complement clause):

(15) *Which man did you hear <the rumor that my dog bit ___>?
*Where did you hear <the rumor that I put the book ___>?

(16) *This man, I heard <the rumor that my dog bit ___>.
*On the table, I heard <the rumor that you put the book ___>.

(17) *What size shoes did you hear <the rumor that I wear ___>?

(18) *How did you hear <the rumor that I behaved ___>?

But just as it was possible to arrange for a DP-gap in adjuncts by removing Tense, the same is possible with Complex DPs if the definiteness of the head is removed. (Pollard and Sag 1994 assume, for this reason, that there is no need for a Complex DP constraint.) PP-gaps remain practically excluded.

(19) a. ??What the police arrested <everyone who saw ___> was this video. (Postal 1998)
b. *I know in which building the police arrested <everyone who lives ___>.

(20) a. ??Which man did they consider <rumors that Bob would betray ___>? (Rothstein 1988)
b. *About which man did they consider <rumors that Bob would talk ___>?

In distinction from Tense, definiteness may create an island by itself (Fiengo and Higginbotham 1981; Manzini 1992):

Definites:

(21) *Which man did you discover <Mary's poem about ___>?

(22) ??Which man did you discover <the poem about ___>?

(23) Which man did you discover a poem about ___?

Subjects:

(24) *Which man did <his visiting ___> shock you?

(25) *Which book do you believe <the first chapter of ___> to be full of lies?

(26) *Which man does <everyone who knows ___> admire his sincerity?

Adjuncts (see the discussion of Tense above):
(27) *Which topic did you leave <because Mary talked about ___>?

(28) a. Which topic did you leave <without talking about ___>?
b. *About which topic did you leave <without talking ___>?

Authier (1991) argued that adjuncts can contain CP gaps besides DP gaps; for an alternative analysis, see Postal (1994):

(29) We suggest ___ to our employees, <without actually requiring ___ of them>, that they wear a tie.

Coordinate structures, unless extraction is across-the-board:
(30) *Which man did you invite <Mary and ___>?

(31) *Which man did you invite <Mary and a friend of ___>?

(32) Which man did you invite <a friend of ___ or a brother of ___>?

However, DP-gaps are acceptable under various circumstances (see Postal 1998 for detailed discussion):

(33) This is the beer that I <bought ___, loaded ___ into the car, went home, and then fell asleep>. (Jacobson 1996)

The status of tensed constituent *wh*-complements seems to vary cross-linguistically. Some speakers of English reject extractions from them entirely, whereas others find them tolerable. Likewise, they are rejected by speakers of Dutch, whereas they are acceptable in Scandinavian languages (see Engdahl and Ejerhed 1982) and in Hungarian. (Hungarian has object pro-drop, but only for singulars, thus we know that the gap in (34c) is not a dropped pronoun.) This variation is not well understood (though see Bayer 1984, 1996: section 6.6.4).

Tensed constituent *wh*-complements (in some languages/dialects):
(34) a. %Which man did John ask <who invited>?
b. *Welke man heb jij je afgevraagd <wie – gezien heeft>? Dutch
which man have you self asked who seen has
c. Mely fiúkat találgattad, hogy <ki látta ___>? Hungarian
which boys were-guessing-you that who saw

Left branches:
(35) *Which (man's) did you see <___ picture>?

As (35) shows, it is often difficult to extract from the left branch of a structure (Ross 1986). But comparable examples are perfect in other languages:

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islands; for discussion,

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bjacency: movement out of them
novement crosses more than one
1 7.1. Adjunct islands are standardly
on Extraction Domains, hence by the
domain needs to be properly governed.
e Coordinate Structure Constraint under
CP (see section 7.1). Manzini (1992) is the
Definiteness and Tense with other locality
encies based on Case-addresses, which, in her
escape from islands.

ig strong island violations

strong island violation can sometimes be salvaged by
dive pronoun strategy (whether the pronoun is overt or
ne gap in the island may be parasitic on a well-behaved
.g.:

rs did you file ___ <without reading ___>?

man who <everyone who knows ___> admires ___.

See also Engdahl (1983), Kayne (1983), Chomsky (1982, 1986a), Cinque (1990), among others.

Finally, the island itself may be pied-piped, overtly or at Logical Form:

(42) a. *Whose did you visit <___ brother's sister>?
b. <Whose brother's sister> did you visit?

Pied-piping at LF has been proposed for apparent violations of Complex DPs in *wh*-in-situ languages in Pesetsky (1987a), and for apparent violations of a single adjunct island in among others, Cinque (1990). These matters are not discussed here further; see chapters 50 and 55 for details.

3.4 More on Subjacency

Subjacency is classically understood as a condition on movement and requires that movement not cross more than one bounding node. Bounding nodes were originally defined as a list: NP and S (= DP and IP) in English (Chomsky 1973b, 1977); NP and S' (= DP and CP) in Italian (Rizzi 1978b). Chomsky (1986a) redefines bounding nodes as barriers. An XP is a blocking category for α iff it is not theta-marked by a sister lexical head and dominates α. β is a barrier for α iff (i) β is a blocking category for α but not IP, or (ii) β is the first XP that dominates a blocking category for α. Chain-formation (which takes the place of movement) requires 1-subjacency: no more than one barrier may be crossed. (For an excellent introduction to *Barriers* as well as other theories of locality, see Roberts 1997a.)

Adopting Rizzi's (1990b) Relativized Minimality (the pertinent aspects of which will be discussed when we turn to Weak Islands), Cinque (1990) proposes two important changes in the understanding of strong islands: (i) strong islands constrain binding chains, not necessarily movement, and (ii) not only government but also binding chains require 0-subjacency (no barrier may be crossed).

3.4.1 Cinque (1990)

We now take a closer look at some aspects of Cinque's proposal, because they are fundamental in defining the division of labor between theories of strong and weak islands as assumed in most of the literature. Following Obenauer (1984/1985), Cinque observes that both parasitic gaps and gaps inside strong islands are restricted to the category DP and takes this to indicate that these gaps are not variables, but A-bar bound empty pronominals: pro. These pros are not moved in syntax but must move at LF (like some kind of abstract *wh*-phrase). But instead of moving on its own, it pied-pipes the minimal island it is contained in. This accounts for the fact that, if all goes well, one strong island can be evaded.

Now recall the contrast between tensed and gerundival adjunct islands:

(43) *Which topic did you leave <because Mary talked about ___>?

(44) Which topic did you leave <without talking about ___>?

Bona fide cases of pied-piping are also constrained by Tense (Nanni and Stillings 1978):

(45) *They bought a car that their son might drive which was a surprise to them.
'they bought a car and the fact that their son might drive it was a surprise to them'

(46) The elegant parties, to be admitted to one of which was a privilege, had usually been held at Delmonico's.

Cinque stipulates that Tensed Inflection weakly blocks the upward percolation of features. Thus, even one island cannot be pied-piped by pro if it is tensed. Cinque predicts that at most one island can be evaded: strong islands cannot be compounded:

(47) *the book that we left Russia <without being arrested <after distributing ___>>

The reason is that the movement of the pied-piped domain continues to be sensitive to islands (can at best be parasitic on overt movement). Postal (1998) notes, though, that an adjunct island can be compounded with a complex DP (see further section 3.4.3):

(48) It was Lucille that Mike went home <without criticizing <anyone who defended ___>>.

(49) It was Lucille that Mike criticized <everyone who went home <without defending ___>>.

To summarize, the observation that certain islands only contain DP gaps leads Cinque to a theory according to which these islands are strong, and the DP gap is not a trace of movement but A-bar bound pro. This contrasts with Weak Islands, which may also contain PP gaps. The latter must be traces since, according to Cinque, human languages generally lack resumptive pronouns of category PP. The behavior of weak islands is explained by considerations that do not apply to strong islands in Cinque's work and in the many other proposals this chapter will review. Thus, the DP–PP distinction carries a great burden in deciding which data are to be accounted for by each theory.

3.4.2 Some intriguing similarities between SIs and WIs

While the division of labor so determined has proven very useful in the literature, it may be worth pointing out some intriguing similarities between the phrases that may or may not escape from the two types of islands. First, there is dialectal variation among speakers of English regarding the acceptability of PP-extraction out of *wh*-islands (one of the weak islands). Unfortunately, no systematic empirical

study of this variation exists, to my knowledge, wherefore it is difficult to assess its significance for Cinque's theory.

Second, consider the following contrast:

***Wh*-phrase associated with pro in a strong island:**

(50) Which politician did you go to England <after meeting ___>?

(51) *How much water did you make the pasta <after boiling ___>?

***Wh*-phrase associated with a variable in a weak island:**

(52) a. Which politician did John ask <whether to worry ___>?
b. *About which politician did John ask <whether to worry ___>?

(53) a. *How much gravy did John ask <whether to cook ___>?
b. *With how much gravy did John ask <whether to cook ___>?

In both cases the *wh*-phrase needs to be referential in some sense. But the reasons are different. In the case of strong islands, the *wh*-phrase needs to be of the kind that resumptive pronouns tend to associate with; in the case of weak islands, it has to carry a referential index and corefer with its variable (see in section 7.2). Cinque (1990) characterizes the suitable *wh*-phrases rather similarly in the two cases, but neither this book nor any subsequent work known to me addresses the question whether the two requirements are exactly identical. Cinque (p.c., 1998) has kindly suggested the following contrast between a weak and a strong island:

(54) ?Quanti pazienti volevi sapere <se ogni dottore avesse potuto visitare ___>?
'How many patients did you want to know whether each doctor had been able to examine?'

(55) *Quanti pazienti vuoi incontrare <ogni dottore che abbia visitato ___>?
'How many patients do you want to meet each doctor who examined?'

But the exact generalization remains an open question. One proposal that attempts to unify weak and strong islands is Starke (2001).

3.4.3 Postal (1998)

Perlmutter (1972) proposed that all extractions leave invisible resumptive pronouns, whether they are from islands or not. Obenauer (1984/1985) proposed that all extractions from islands involve empty resumptive pronouns. Cinque (1990) developed a specific resumptive pronoun theory of apparent strong island violations. Postal (1998) proposes to generalize Cinque's idea to all islands and introduces many novel pieces of data.

Postal (1997a) asks the fundamental question whether or not constituents are islands by default. The standard answer is that by default they are not, which is

why theories attempt to characterize islands as a natural class. In contrast, he argues that non-islands form a small natural class, characterizable in Arc-Pair Grammar.

Postal (1998) distinguishes locked (absolute) and unlocked (selective) islands. Locked islands permit only left dislocation (or operations that are like LD in the relevant respect). Unlocked islands permit some gaps and comprise both strong and weak islands in Cinque's terms: interrogative clauses, complements of factive verbs like *regret*, rationale clauses (*go home* (*in order*) *to* . . .), clausal complements of certain nouns (*formulate a plan to prove* . . .), adjuncts, relative clauses with quantifier heads, subjects, and certain coordinate structures (Postal's list is not intended to be exhaustive). On Postal's analysis, every extraction from an unlocked island contains an invisible resumptive pronoun (RP). Such islands are unlocked because they permit the extraction of an RP. The mechanism is in many respects like Cinque's. The invisible RP in question requires control, hence it extracts to a position sister to the fronted phrase. This derives island-sensitivity. The reason why limited island violations are possible is that an RP controls a secondary invisible resumptive pronoun, notated as RPx, which extracts only to the left boundary of the lowest island from which the primary RP extracts. Tertiary RPs are excluded.

Postal assumes that RPs in unlocked islands are DPs. The fact that some selective islands permit PP gaps is acknowledged (n. 15 to ch. 3) but not addressed in any depth. But, unlike Cinque, Postal does not derive his reason for adopting an RP-analysis from category restrictions. Instead, the differential ability of phrases to occur in what he calls 'anti-pronominal contexts' plays a major role.

Anti-pronominal contexts are ones that do not allow weak definite pronouns. An example is the object of *tell* (as opposed to *determine*):

(56) Mike was a spy. We could easily determine/*tell it.

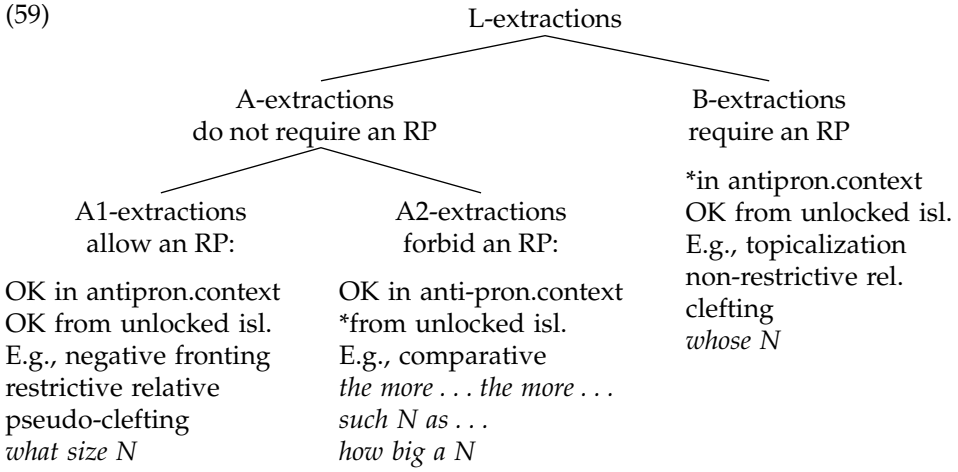
A pseudo-clefted phrase can, but a topicalized one cannot, be linked to a gap in an anti-pronominal context:

(57) What we could easily tell was that Mike was a spy.

(58) *That Mike was a spy, we could easily tell.

This is explained if topicalization requires an RP, independently of whether it is from an island, whereas pseudo-clefting does not require one. Assume further that pseudo-clefting allows, but comparative extraction forbids an RP. Then, if extraction from an island invariably involves an RP, one arrives at the typology in (59).

(59)



Note that A1-extractions are linked to an RP when escaping from an unlocked island, and they are not linked to an RP when occurring in an antipronominal context.

This typology predicts that when an anti-pronominal context is embedded in an otherwise unlocked island, no extraction is possible since the two ingredients impose contradictory requirements. Consider, for instance, the existential *there* context. The examples indicate that it is antipronominal; it disallows topicalization, it permits negative fronting, but when embedded in a factive island, it disallows negative fronting even though the latter is otherwise possible from a factive island:

(60) *There are them in the bottle.

(61) *Such chemicals, he thought there were ___ in the bottle.

(62) No such chemicals did he think that there were ___ in the bottle.

(63) *No such chemicals did he regret that there were ___ in the bottle.

(64) No such chemicals did he regret that we used ___.

Postal identifies the following further antipronominal contexts (illustrated with the impossibility of topicalization):

(65) **Existential there:**
No such chemicals did he believe that there were ___ in the bottle.
*Such chemicals, he believed that there were ___ in the bottle.

(66) **Change of color:**
*Green, he never painted the car ___.

(67) **Name position:**
*Raphael, I would not name anybody ___.

(68) **Inalienable possession:**
*His ear, I never touched him on ___.

(69) **Predicate nominals:**
*That kind of surgeon, Frank never became ___.

(70) **Adverbial NPs:**
*That reason, he resigned for ___.

(71) **Extraposed PPs:**
*Such a scurrilous review, they published ___ last year of his book.

(72) **Infinitival extraposition:**
*A definite wish, I did not perceive ___ in Sylvia to retire.

(73) **Exceptive shifting:**
*Something dangerous, he might have handed ___ to Rita other than the gun.

(74) **Temporal NPs:**
*That much time, Frank could never stay ___ in Italy.

(75) **Idiomatic V+NP:**
*That much headway, which they made ___ on the job, . . .

(76) **Place name as locative:**
*Argentina, our president is said to have been born in ___.

Postal remains non-committal as to why each extraction type allows, forbids, or requires an RP. It would clearly be desirable to identify syntactic or semantic properties that entail either that an RP is forbidden or that an RP is required, and to analyze the permissive type as syntactically or semantically ambiguous. This would be especially tempting in connection with the *wh*-phrases *how big a N* (RP forbidden), *whose N* (RP required), and *what size N* (RP permitted), whose divergent behavior Postal notes. Postal's data, whether well understood or not, provide some novel counter-examples to certain claims in the literature. Although many of the anti-pronominal contexts involve adjuncts or non-referential expressions, many others are argumental and/or referential, i.e., their island sensitivity is surprising. On the other hand, while Cinque takes the island-sensitivity of Italian negative phrases to support the referentiality generalization, (64) shows that negative fronting in English is not blocked by weak islands.

As was mentioned at the outset, Postal lumps all unlocked islands together and does not distinguish between Cinque's two subtypes, weak islands and single

strong islands. The restricted viability of such a position is in fact implicit in Cinque's work. The DPs that can escape from weak islands are described quite similarly to those that can escape from strong ones. If this is correct, then, as long as only DP-extraction is considered, we do not expect to be able, or need, to distinguish between the two subtypes. Recall that Cinque distinguishes the two subtypes with reference to the possibility of PP-extraction. In support of his unitary analysis, Postal (p.c.) notes that (77b, c) pose a problem for Cinque's dual analysis. Only one of the gaps being inside an island, the two members of the conjunction in (b) and the two individuals that make up the plural in (c) need to participate in two different filler–gap relations:

(77) a. Which cop/1 did Lucy believe Sam called ___/1 and May faint after meeting ___/1?
b. Which cop/2 and which nurse/3 did respectively Lucy believe Sam called ___/2 and May faint after meeting ___/3?
c. Which two cops/3i,j did respectively Lucy believe Sam called ___/3i and May faint after meeting ___/3j?

The island sensitivity of an extraction may not be fully equated with its inability to link to an RP, however, whether the latter property be a primitive or a derived one. As will be detailed in section 5.6, collectively interpreted arguments of one-time-only predicates are sensitive to weak islands (in the sense that extraction out of a WI forces a multiple events reading on the naturally one-time-only predicate):

(78) Which relatives do you <regret that you heard this rumor from ___>?

(79) ??Which relatives do you <regret that you got this present from ___>?

The same collective arguments can nevertheless antecede resumptive pronouns, in contrast to some amount phrases, for example:

(80) a. These relatives of mine, they gave me this present.
b. These relatives of mine, I got this present from them.

(81) *This much pain, Mary endured it.

Whether or not the unification of all unlocked islands that Postal proposes is eventually viable, in the rest of this chapter, I follow standard practice in excluding the islands that Cinque calls strong from the discussion of weak (selective) islands.

4 Weak islands: a preview

The historical starting point is the assumption, made in Huang (1982a), Lasnik and Saito (1984, 1992), Chomsky (1986a), that the paradigmatic (if not the only)

case of weak (selective) islands is *wh*-islands, and the expressions whose extraction is sensitive to WIs are adjuncts, as opposed to arguments. Since *Barriers*, a number of new theories of weak islands have appeared in quick succession. What makes this process especially interesting is the fact that practically each theory comes with a significant new set of data. The survey below will reflect this spirit. The critical data come in two dimensions:

(A) What extractions are sensitive to WIs?
(B) What induces a WI?

Much of the literature can be conveniently surveyed along the dimensions in (A) and (B). I will thus begin by drawing ever-widening circles of data, first for (A), then for (B). The third part of the discussion will review what theories account for what data sets. Sections 5 and 6 are not simple data surveys, though. Detailed and often theoretical arguments will be put forth as to why exactly the proposed generalizations hold. Also, when certain pieces of literature offer important analyses of WI-phenomena without proposing their own overall theory of WI, they will be summarized in these sections. In both these sections and in section 7, where we turn to theories, we will see that the proposals are less and less syntactic. Some of them include pragmatic or semantic factors in the description of what expressions are WI-sensitive or WI-inducers, although they formulate the explanation in syntactic terms. Others even derive the explanation from semantics.

The data to be discussed are as follows:

Ad (A) What extractions are sensitive to WIs:
(A1) Arguments vs. adjuncts.
(A2) Referential vs. non-referential.
(A3) Re-evaluating the role of D-linking.
(A4) Individual vs. non-indvidual, and *how many*-phrases.
(A5) Functional readings and event-related readings.
(A6) Individuals: is it being type e that matters?
(A7) Split constructions.
(A8) Negative polarity item (NPI) licensing.
(A9) Cross-sentential anaphora.
(A10) Elements of anti-pronominal contexts.

Ad (B) What induces a WI:
(B1) *Wh*-islands.
(B2) Negatives and other affective operators.
(B3) Response stance and non-stance vs. volunteered stance predicates.
(B4) Extraposition islands.
(B5) VP-adverbs.
(B6) Scope islands.

Section 7 presents the theories that account for these data and generalizations. To anticipate, the division of labor is as follows: when a theory accounts for only some of the data falling under some generalization, the generalization is marked with a percentage sign (%):

- ECP and Subjacency for (A1)–(B1)
- Relativized Minimality for (A2, A7)–(B1, B2, B3%, B4, B5%)
- Monotonicity for (A3, A4, A7%)–(B1, B2, B3%, B5%)
- Scope Theory, algebraic version for (A3, A4, A5, A6, A7%)–(B1, B2, B3, B5, B6)
- Scope Theory, dynamic semantic version (A4, A5, A7, A8, A9)–(B1, B2, B3, B5, B6)

5 What extractions are sensitive to WIs? (A)

Here we survey the main distinctions that have been found useful in describing what extractions are sensitive to WIs. To keep new information manageable, *wh*-islands will be used to illustrate the phenomena. Two other familiar WIs, negative and factive islands, will be added where necessary (e.g., because subject extraction out of a *wh*-island may be independently ungrammatical). The full set of WIs is much greater, though, and will be presented when dimension (B) is addressed.

5.1 Arguments vs. adjuncts (A1)

Huang (1982a), Lasnik and Saito (1984, 1992), and Chomsky (1986a) draw the distinction between arguments (claimed not to be sensitive to WIs) and adjuncts (claimed to be sensitive to them); see (82) and (83).

(82) Which problem did John ask <how to phrase ___>?

(83) *How did John ask <which problem to phrase ___>?
'what is the manner such that John asked which problem to phrase in that manner'

In addition to *how*, *why*, and, to a somewhat lesser extent, *when* are WI-sensitive adjuncts.

(84) *Why did John ask <whether to fire him ___>?
'What is the reason such that John asked whether it is a good reason for firing him'

(85) ??When did John ask <whether to fire him ___>?
'What is the time such that John asked whether it is a good time for firing him'

Where does not fit the picture very well because its WI-sensitivity does not depend much on whether it is subcategorized for (as with *put*) or not (as with *read*):

(86) ?Where did John ask <whether to put/read this book ___>?
'What is the location such that John asked whether to put this book there/ whether to read this book there'

The morphological constitution of these *wh*-words may also play a role. It has been noted that when counterparts of *why* and *when* have an articulated PP structure in a language, they extract better. Korean, Japanese, and Hungarian are cases in point.

5.2 *Referential vs. non-referential/Existential presupposition (A2)*

A major revision of the argument/adjunct distinction is prompted by observations by Ross (1984), Kroch (1989a), Comorovski (1989), Rizzi (1990b), Cinque (1990), Obenauer (1992), and Kiss (1993). In a nutshell, the claim is that originating in an argument position is not enough: a successful extractee must also be referential in some sense. Some subcategorized for, and thus, presumably, argumental, XPs are unexpectedly WI-sensitive:

(87) *What did John ask whether these pearls cost ___? (Ross)
cf. *These pearls cost.

(88) *How did John ask whether to behave ___? (Rizzi)
cf. *John behaved.

According to Rizzi (1990b), amount and manner phrases may be arguments but they do not have the theta-roles of event-participants (referential theta-roles). On the other hand, as events take place in time and space, Rizzi surmises that the event specification may license a temporal and locative index that accounts for the fact, noted above, that such phrases are less sensitive to WIs than manners and reasons.

On the basis of the fact that expletive *wh*-phrases do not have referential theta-roles, Rizzi (1992) extends this reasoning to partial *wh*-movement, which is blocked by a negative island (for cross-linguistic variation, see Dayal 1994):

(89) Was glaubst du (*nicht), mit wem Jakob jetzt spricht?
what think you (*not) with whom Jacob now talks
'With whom do(n't) you think Jacob is talking now?'

Drawing from work by Kroch and Comorovski, Cinque (1990) makes a finer distinction that involves pragmatics: a referential *wh*-phrase, in addition to having

a referential theta-role, needs to be Discourse-linked, i.e., drawn from a pre-established set.

Some of the most persuasive examples involve *how many*-phrases:

(90) *How many books are you wondering <whether to write ___ next year>?

(91) How many books on the list are they wondering <whether to publish ___ next year>?

(92) *How many points are you wondering <whether to earn ___>?

(93) How many points are the jurors debating <whether to take off ___>?

The good examples involve a contextually established set of books or a specific range of points that figure skating jurors conventionally assign to mistakes in the program. Similar contrasts are easy to construct with other *wh*-phrases, including adjuncts. For instance, although *how*-extraction out of a *wh*-island or a negative island is by default bad, it becomes rather acceptable given a contextually specified checklist of ways to solve the problem:

(94) How are you wondering <whether to solve the problem ___>?
(OK when choosing from salient checklist)

(95) How did <no student solve the problem ___>?
(OK when choosing from salient checklist)

In a similar spirit, Kiss (1993) assumes that specificity in the sense of Enç (1991) is a prerequisite for extraction out of a *wh*-island.

We might say that these proposals define WI-sensitivity in terms that combine syntax with pragmatics. In the name of philological correctness it should be mentioned that Kroch's influential paper apparently had more than one version, and the 'official, unpublished' version gives a different explanation than the one Cinque relies on. According to Kroch, what saves (91) is not that the *how many*-phrase is D-linked but, rather, the fact that the context licenses the existential presupposition that there is a particular amount such that you are wondering whether to publish that amount.

A similar interpretive contrast is pointed out in Obenauer (1992). He characterizes it in terms of specificity and correlates it with a difference in agreement with the past participle. The split construction (*combien . . . de fautes* 'how many . . . errors') never allows agreement and only the non-specific reading is available. In the non-split construction, on the specific reading agreement is optional: *Dis-moi combien de fautes tu as fait/faites* 'Tell me how many (of the typical, expected) errors you made', and on the non-specific reading, which asks about the number of errors, participle agreement is excluded.

5.3 Re-evaluating the role of D-linking (A3)

The pragmatic argument is very powerful: indeed, almost any *wh*-phrase (save for *why*, perhaps) can be made immune to WIs by D-linking. But it has been argued that D-linking is not the discriminating factor. Szabolcsi and Zwarts (1990, 1993) argue that the moral of the salient-checklist examples is different from what Kroch and Cinque draw from them. The checklist in effect turns elements of a non-individuated domain into discrete individuals. D-linking may thus play an important role in transforming a domain but, they claim, it is not D-linking itself but the emergent set of individuals that is decisive. Likewise, the pragmatic approach predicts that *wh-the-hell* can never be extracted out of a weak island, because it is aggressively non-D-linked, in the words of Pesetsky (1987a). Szabolcsi and Zwarts (1993) submit that it is an independent property of *wh-the-hell* that makes it difficult to extract from WIs. For example,

(96) Who the hell saw John?

Unless it is a rhetorical question, (96) is felicitous only if we have unquestionable evidence that someone saw John and merely wish to identify the person. The requirement of unquestionable evidence is often difficult to fulfil in the complex situations described by WI-violations:

(97) ??Who the hell are you wondering <whether to invite ___>?

On the other hand, when such evidence is available, a WI-violation by *wh-the-hell* is acceptable. E.g., seeing someone rifling through a dictionary, we may felicitously ask,

(98) What the hell do you still <not know <how to spell ___>>?

Perhaps the clearest example demonstrating the significance of individuals, in distinction to D-linking, comes from Dobrovie-Sorin (1994c). Clitic doubling in Romanian signals D-linking, and indeed, it enables a *how many*-phrase to extract from a factive island:

(99) Pe cîte femei regreţi <că le ai iubit ___>?
'how many (of the) women are such that you regret having loved them'

On the other hand, *cîte femei* 'how many women' can be extracted even if it is not doubled by *le* and, consequently, is not D-linked. It turns out that the critical factor is whether it is interpreted as quantifying over numbers of women (case (i), which is bad) or over individual women (case (ii), which is OK):

(100) Cîte femei regrei <câ ai iubit ___>?
(i) *'for what number, you regret having loved that number of women'
(ii) 'how many women are such that you regret having loved them'

These data lead to the conclusion that semantics, rather than pragmatics, plays the real role in the characterization of WI-sensitivity. (On the other hand, the WI-sensitivity of certain expressions in anti-pronominal contexts, e.g., place names in (76) remains a mystery.)

5.4 *Individual vs. non-individual, and* how many-*phrases (A4)*

Szabolcsi and Zwarts argue that the individual/non-individual distinction is what sets apart WI-escaping *which/what*-phrases from manners, reasons, amounts, and other WI-sensitive expressions (when the latter are not individuated by contextual brute force). A very similar conclusion is reached by many authors, specifically in connection with the ambiguity of *how many*-phrases. Dobrovie-Sorin proposes to split QR into two Logical Form operations: NPR (the raising of noun phrases with a quantifier feature) and DR (the raising of determiners). The first leaves an individual variable and is immune to WIs. The second leaves a higher order, determiner-type variable and is sensitive to WIs. (NPR may be followed by DR but that does not matter in relation to island escaping.) The distinction is of course highly reminiscent of the contrast between overt *combien* extraction and *combien de N* extraction (Obenauer 1984/1985):

(101) Combien as-tu (*beaucoup) consulté ___ de livres?
how many have-you (*a lot) consulted ___ of books

(102) Combien de livres as-tu (beaucoup) consulté ___?
how many of books have-you (a lot) consulted

The overt extraction of *combien* 'how many' is blocked by WIs, whereas the overt extraction of the full noun phrase (generally) is not; see also Rizzi (2000a) for a similar case of 'splitting' in Italian, involving *wh-d'altro 'wh* else'. The finer point that Dobrovie-Sorin makes is that *combien de livres* is in itself ambiguous between an amount and an individual reading, and the amount reading is absent when *combien de livres* is (grammatically) extracted out of a WI, exactly as was observed in connection with *cîte femei*:

(103) Combien de livres as-tu consulté ___?
ambiguous (DR/NPR)

(104) Combien de livres as-tu beaucoup consulté ___?
not ambiguous (*DR/NPR)

In fact, even overt *combien de N* extraction out of a WI may be ungrammatical when, as the object of a verb of creation, the phrase can only have an amount reading (Szabolcsi and Zwarts 1993). The contrast between this and grammaticality of (102) is taken to show that *combien de livres* is ambiguous:

(105) Combien de cercles as-tu (*beaucoup) dessiné ___?
how many circles have-you (*a lot) drawn

The same interpretive contrast holds for non-*wh* numeral phrases whose amount reading is produced by DR, and whose individual reading is produced by NPR, at Logical Form (Dobrovie-Sorin 1994c):

(106) John read fifty books.
(i) 'John read books. Their number was fifty.'
(ii) 'There are fifty books such that John read them.'

(107) John didn't read fifty books.
(i) *'John didn't read books. Their number was fifty.'
(ii) 'There are fifty books such that John didn't read them.'

Agreement facts in Italian clefts appear to support the claim that the amount/individual distinction has its own independent existence: amount readings, as opposed to individual readings, lack number agreement (F. Beghelli's observation, quoted in Szabolcsi and Zwarts 1993):

(108) È cinque donne che (*non) ho invitato. (amount)
is five women that (*not) have-I invited

(109) Sono cinque donne che (non) ho invitato. (individual)
are five women that (not) have-I invited

It is interesting to note that mass expressions are more irrevocably WI-sensitive than count ones, and abstract ones are more WI-sensitive than concrete ones. Thus, the following have no individual readings.

(110) a. How much milk did(*n't) you spill on your dress?
b. How much pain did(*n't) you suffer?

The pragmatic proposal would make this natural (mass and abstract denotations are difficult to D-link), but once we saw that D-linking is not a panacea magna, the explanation must lie elsewhere. Dobrovie-Sorin (1994c) proposes a thorough analysis of the amount–individual ambiguity of *how many*-phrases in terms of distinguishing the raising of determiners (DR) and the raising of noun phrases with a quantifier feature (NPR). But she does not develop a new theory of WIs; rather, she simply assumes that DR, unlike NPR, is sensitive to WIs. Other authors who identify individuality as the crucial factor are Aoun (1986), Frampton (1990), Rullmann (1993), and Cresti (1995).

An important difference between the approaches of Dobrovie-Sorin and Szabolcsi and Zwarts on the one hand, and Frampton, Rullmann, and Cresti, on the other, is that the former posit an amount–individual ambiguity even in

sentences where *how many N* does not interact with another scopal expression, whereas the latter do not. Cresti addresses the ambiguity manifested in what Longobardi (1987) called scope reconstruction facts:

(111) How many people do you think I should talk to ___?
  (i) 'For what number n: you think it should be the case that there are n-many people that I talk to.'
  (ii) 'For what number n: there are n-many people x such that you think I should talk to x.'

Cresti (and in a very similar proposal, Rullmann 1993) derives the two readings without actual reconstruction. In the derivations below, x is a trace of type e (individuals), and X is a trace of the same type as *N-many people* (intensionalized generalized quantifiers). Working bottom-up, each trace is bound by a lambda-operator to allow the next trace or the moved phrase itself to enter the chain. The lowest, argument, position of the chain is always occupied by a trace x of the individual type, but intermediate traces may make one switch to the higher type X. The scope difference with respect to *should* is due to the fact that in (i), the switch from x to X takes place within the scope of *should*, whereas in (ii), *should* has a trace x of the individual type within its scope.

(112) (i) Narrow scope (amount):
  $[_{CP}$ how many people $\lambda X[_{IP} \ldots$ think $[_{CP}$ X $\lambda X[_{IP} \ldots$ should $[_{VP}$ X $\lambda x[_{VP} \ldots x \ldots]]]]]$
  (ii) Wide scope (individual):
  $[_{CP}$ how many people $\lambda X[_{IP}$ X $\lambda x[_{IP} \ldots$ think $[_{CP}$ x $\lambda x[_{IP} \ldots$ should $[_{VP} \ldots x \ldots]]]]]$

If *wonder whether* replaces *think that*, in derivation (i) it inescapably has a higher type trace X in its scope; in derivation (ii), it can have a trace x of the individual type in its scope. Cresti stipulates that when CP constitutes a *wh*-island, the trace adjoined to CP must be of the individual type. This rules the *wonder*-version of (112i) out.

(113) (i) *Narrow scope (amount):
  $[_{CP}$ how many people $\lambda X[_{IP} \ldots$ wonder $[_{CP}$ X $\lambda X[_{IP} \ldots$ should $[_{VP}$ X $\lambda x[_{VP} \ldots x \ldots]]]]]$
  (ii) Wide scope (individual):
  $[_{CP}$ how many people $\lambda X[_{IP}$ X $\lambda x[_{IP} \ldots$ wonder $[_{CP}$ x $\lambda x[_{IP} \ldots$ should $[_{VP} \ldots x \ldots]]]]]$

Cresti (1995) proposes a novel analysis of scope-reconstruction facts related to *how many*-phrases and extends it to a new domain: functional readings. But she does not develop a new theory of WIs: she simply stipulates that only a variable of type e may be adjoined to a CP that constitutes a *wh*-island. The question as

to why this is so and how this proposal might extend to WIs other than *wh*-islands is not addressed by Cresti.

5.5 Functional readings and event-related readings (A5)

Cresti (1995) adds a set of novel data to the inventory of WI-sensitive expressions: *wh*-phrases on the functional reading, which obtains in a quantificational context, illustrated in (114i).

(114) Which book did no student read?
  (i) 'Which f, f a function from people to books, no student x read f(x)?'
  Answer: No student$_i$ read her$_i$ mother's book.
  (ii) 'Which y, y a book, no student read y?'
  Answer: No student read *War and Peace*.

When the *wh*-phrase contains a reflexive, only the functional reading is possible:

(115) Which book about herself did no politician read?
  (i) Answer: No politician$_i$ read the book her$_i$ aide wrote.
  (ii) Answer: *No politician read this book.

The functional reading (116i) is sensitive to *wh*-islands, whereas the non-functional reading of the same *wh*-phrase (116ii) is not:

(116) I know which book you wonder whether no/any student read.
  (i) *I know that you wonder whether no/any student$_i$ read her$_i$ mother's book.
  (ii) I know that you wonder whether no/any student read *War and Peace*.

This would be impossible to explain on the earlier, syntactic or pragmatic, theories. Cresti argues that on the functional reading, the trace of *which book* (*about herself*) must be of a higher order, functional type, as opposed to the individual type. Functional readings neatly fall under the individual vs. higher order generalization.

Another set of new data that might be accounted for along these lines involves event-related readings (Krifka 1990). Notice that on reading (117ii), each ship counts as many as the number of times it passes through the lock:

(117) Four thousand ships passed through the lock last year.
  (i) Object-related: 'there are 4,000 distinct ships that passed through the lock'.
  (ii) Event-related: 'there were 4,000 lock traversals by ships'.

Doetjes and Honcoop (1997) observe that the event-related reading is sensitive to WIs, negative islands among them:

(118) How many ships <___ didn't pass through the lock>?
(i) Object-related: okay.
(ii) Event-related: ungrammatical.

The authors analyze event-related readings as quantification over <event, object> pairs. The WI-sensitivity of such pairs might be explained with reference to the fact that they are not of type e – although Doetjes and Honcoop themselves offer a different explanation, namely, one in terms of an algebraic notion of individuals.

5.6 Individuals: is it being of type e that matters? (A6)

The contrasts above can indeed be accounted for by defining the critical property in terms of logical type: type e (the type of individuals) versus higher types (the types of determiners, generalized quantifiers, functions from sets to sets, event-object pairs, etc.). The following data, however, are not easily amenable to this account.

Szabolcsi and Zwarts (1993) observe that arguments and adjuncts of non-iterable ('one-time-only') predicates must denote collectives. The absence of the distributive interpretation is indicated by the unacceptability of distributing the preposition or *did* over the members of the conjunction:

(119) Which relatives did you hear this rumor from?
From my aunt and from my uncle.

(120) Which relatives did you get this present from?
From my aunt and (*from) my uncle.

(121) Which soldiers visited this house?
Jones and Smith did./Jones did and Smith did.

(122) Which soldiers destroyed this house?
Jones and Smith did./*Jones did and Smith did.

Surprisingly, these collectives are sensitive to weak islands. Example (124), which involves extraction from a factive island, is acceptable only if we are willing to give up the natural 'one-time-only' interpretation of the predicate and assume that the same present (token) was given to you several times by different relatives. Likewise, (126) is acceptable only if we assume that the same house can be destroyed more than once:

(123) Which relative(s) do you <regret that you heard this rumor from ___>?

(124) ??Which relative(s) do you <regret that you got this present from ___>?

(125) Which soldier(s) <didn't visit this house ___>?

(126) ??Which soldier(s) <didn't destroy this house ___>?

These contrasts are problematic for all the accounts reviewed above. *Which N(s)* in the non-iterative context is clearly an argument, not an adjunct. It is an event-participant. It is in all probability D-linked. Finally, it ranges over things of the same logical type as it does in the iterative context.

There are two standard approaches to collectives. According to Link (1983), collectives are plural individuals. They are entities of the same type e as singular individuals, but they have an internal part-whole structure. According to Scha (1981), collectives are sets of individuals (type <e,t>) – but singular individuals like John are also treated as sets, namely, singletons. In other words, logical type does not discriminate between WI-sensitive and WI-immune *which N(s)*. Either both are type e or both are type <e,t> (or fancier reincarnations thereof). Thus, a different definition of the pertinent notion of individualhood is needed; one that singles out almost, but not exactly, the same things as the type theoretic one. This need is underscored by the fact that the relevance of being type e is merely stipulated, but not explained, in Cresti's work. An alternative proposal in terms of algebraic structure is made by Szabolcsi and Zwarts (1993) (see section 7.5.1).

5.7 Split constructions (A7)

Obenauer (1984/1985) demonstrated that one kind of split construction, *combien*-extraction, is sensitive to WIs. The same holds for Dutch *wat voor-* and *wat aan*-split and their German counterparts, in the judgment of Beermann (1997), Corver (1990), and Honcoop (1998). (M. den Dikken (p.c.) informs me that minor additions may improve the examples, e.g., *wat . . . voor een soort boek*.)

(127) Wat voor een boek heeft Jan gelezen ___?
what for a book has John read

(128) Wat heeft Jan ___ voor een boek gelezen?
what has John for a book read

(129) ??Wat voor een boek vroeg jij je af <of je ___ moest lezen>?
'What kind of book did you wonder whether you should read?'

(130) *Wat vroeg jij je af <of je ___ voor en boek moest lezen>?
'What kind of book did you wonder whether you should read?'

(131) a. Wat heb jij ___ aan boeken gelezen?
what have you on books read
b. Alles wat jij ___ aan boeken hebt gelezen past op één klein plankje.
everything what you on books have read fits on one small shelf

(132) *Wat vroeg jij je af <of Jan ___ aan boeken heeft gelezen>?
what wondered you if John on books has read
'What books did you wonder whether John has read?'

Because *combien*-extraction inescapably yields an amount as opposed to an individual interpretation, this datum falls under the proposed generalizations earlier. The same may hold of the WI-sensitivity of *wat voor*-split, on the assumption that kinds are not individuals. But *wat aan*-phrases have an individual reading. Thus, *wat aan*-split suggests that split constructions are WI-sensitive, over and beyond whether they range over individuals or not. See also chapter 66.

5.8 Negative polarity (NPI) licensing (A8)

It has been known since Linebarger (1987) that the licensing relation between negative polarity items and their triggers is blocked by a variety of interveners. Honcoop (1998) argues that it is blocked by the same interveners that create WIs.

(133) John didn't give the beggar a red cent.
trigger: *not*; NPI: *a red cent*

(134) *Mary didn't ask <whether John gave the beggar a red cent>.

(135) *Mary didn't regret <that John gave the beggar a red cent>.

The *wh*-island and factive island tests give the desired result but, as Honcoop points out, the results may be irrelevant. To make sure that the NPI is not licensed by the intervener itself, a 'sensitive' NPI like *a red cent* needs to be used; but *a red cent* may require a clause-mate trigger, and these contexts block Neg-raising (Neg-lowering) as well. Thus, the conclusive demonstration of the WI-sensitivity of NPIs comes from a less-known set of WIs: scope islands. Scope islands will be detailed in (B6).

(136) *John didn't give <every beggar a red cent>.

(137) *John didn't give <at most three beggars a red cent>.

(138) *John didn't give <exactly three beggars a red cent>.

Honcoop's proposal that the blocking of NPI-licensing is a WI-phenomenon is very interesting for two reasons. One, this is the very first systematic explanation of the NPI-blocking facts. Two, the WI data base is now extended in a substantial and exciting manner. (P. Postal (p.c.) points out to me that Ross (1986, originally a 1967 dissertation) characterized NPIs as island-sensitive.)

5.9 Cross-sentential anaphora (A9)

Honcoop (1998) also observes an uncanny similarity between the expressions that create WIs and those that block cross-sentential anaphora when they take scope over the indefinite, e.g.:

(139) I saw a man$_i$ in the park. He$_i$ was tall.

(140) *I didn't see a man$_i$ in the park. He$_i$ was tall.

The pertinent data will be surveyed in section 7.5.2. We might list them here, along with the data in (A8), as new WI facts, but because Honcoop's proposal is to reduce the explanation of WI effects to that of the anaphora facts, it is expedient to discuss them along with his theory.

5.10 Elements of anti-pronominal contexts (A10)

The anti-pronominal contexts discussed in Postal (1993, 1994, 1997a, 1998), reviewed in section 3.4.3, in effect involve a set of WI-sensitive expressions. Some of these expressions clearly do not have individual reference. If this is correct, then their WI-sensitivity can be accounted for along the lines reviewed above, and if pronouns need to refer to individuals in the sense outlined above, the pronominal correlation might be predicted. To what extent one can make good on these suggestions remains to be investigated.

6 What contexts constitute weak islands? (B)

As was mentioned earlier, *wh*-islands are the classical WIs. Relativized Minimality revolutionized the study of WIs by bringing a host of further WIs within the scope of the theory. These include negative and factive islands, affective (downward entailing) operators, extraposition islands, etc. But this was only the beginning.

It is important to ask whether WI-sensitive extractions and WI-inducers are uniform in the sense that if a particular extraction is blocked by some weak island, it is blocked by all weak islands. The answer is generally assumed to be yes, as long as the relevant constructions can be checked at all. Therefore, in demonstrating what contexts constitute WIs, I will not check the effect against the full range of WI-sensitive extractions reviewed above. I will always pick one case that seems convincing enough. I assume that the choice is by and large arbitrary.

6.1 Wh-*islands (B1)*

As was mentioned in section 3.1, infinitival, modal, or subjunctive, *whether*-complements are the weakest islands, as illustrated by English below. Tensed constituent *wh*-questions are often strong islands. The cross-linguistic and cross-dialectal variation is poorly understood.

(141) a. Which man are you wondering <whether to invite ___>?
b. *How are you wondering <whether to behave ___>?

6.2 Negatives and other affective operators (B2)

That negatives block extraction was observed as early as in Williams (1974), together with the fact that only unstressed negatives do (the latter remains unaccounted for in the literature):

(142) *I asked how John <didn't behave ___>.

(143) I asked how John did NOT behave ___.

The island-inducing effect of negatives was analyzed systematically in Ross (1984), who called them Inner Islands:

(144) What did <no imitation pearls touch ___>?

(145) *What did <no imitation pearls cost ___>?

Rizzi (1990b) observes that the generalization extends to all items that are affective operators (i.e., NPI triggers) in the sense of Klima (1964).

(146) *How did <few men think that you behaved ___>?

(147) *How did <only John think that you behaved ___>?

(148) *How did <you deny that you behaved ___>?

In terms of Ladusaw (1980), affective operators are downward entailing (on the whole, or have such a component, as is the case with *only*). Compare:

(149) No one/Few men/Only John had ever been here.

(150) I deny that you have ever been here.

How does double negation behave in this context? Does it cancel out? Szabolcsi and Zwarts (1993) observe that in at least one case it does, but generally not. (The island-sensitivity of *as*-extraction comes from Rizzi 1990b.) See also Kuno and Takami (1997):

(151) John is our hero, as no one denies ___.

(152) *How did <no one deny that you behaved ___>?

Rullmann (1994, 1995) proposes a semantic explanation of the blocking effect of downward entailing operators. Because this theory is not intended to extend to other WIs (Rullmann regards those a matter of syntax), it is reviewed here, rather than in the theory section.

The proposal is essentially a generalization of Rullmann's account of maximality and intervention effects in comparatives. To see that comparatives give rise to maximality effects, consider (153), which means that John swam faster than the maximal speed at which Bill can run.

(153) a. John swam faster than Bill could run.
b. John swam faster than MAX({d: Bill could run d-fast})

where MAX is defined as the least upper bound of the set it operates on (i.e., MAX({1,2,3,4,5}) = 5, etc.). This account of the semantics of comparatives almost immediately explains the following contrast:

(154) a. John weighs more than Bill weighs.
b. John weighs more than everybody else weighs.
c. John weighs more than most people weigh.
d. John weighs more than many people weigh.
e. John weighs more than at least five people weigh.
f. John weighs more than Bill always/often weighs.

(155) a. *John weighs more than Bill doesn't weigh.
b. *John weighs more than nobody weighs.
c. *John weighs more than few people weigh.
d. *John weighs more than fewer than five people weigh.
e. *John weighs more than at most five people weigh.
f. *John weighs more than Bill never/seldom weighs.

The account essentially runs as follows. In both (156a) and (157a) the sets of degrees are finite and contain a maximum. However, their complements in (156b) and (157b) are infinite, and therefore do not contain a maximum. The set denoted by (157b), for example, contains all the degrees of weight d such that nobody weighs (exactly or at least) d-much. This set obviously does not have a maximum member.

(156) a. {d: at least five people weigh d-much}
b. {d: fewer than five people weigh d-much}

(157) a. {d: somebody weighs d-much}
b. {d: nobody weighs d-much}

Rullmann then argues that *wh*-questions in general give rise to maximality/exhaustivity effects as well. For example, a question that asks us to specify the maximal speed at which John can run is informally represented as follows:

(158) a. How fast can John run?
b. which d [d = MAX({d': John can run d'-fast})]

If so, then the ill-formedness of the following, for example, can be explained along the same lines as the ill-formedness of the examples above.

(159) *How fast can't John run?

What explains then that *wh*-adjuncts such as *how* and *why* are also sensitive to WIs? Consider first the examples in (160), which show that *who*, contrary to *how* and *why*, is not sensitive to WIs. Given maximality/exhaustivity, (160a) asks for the maximal plural individual that attended the party (i.e., the sum of all the people who attended the party). Question (160b) then asks for the sum of all people who were not at the party. To exclude irrelevant individuals such as Aristotle and Yeltsin from consideration, *who* must be D-linked.

(160) a. Who was at the party yesterday?
b. Who was not at the party yesterday?

The fact that *how* and *why* cannot be extracted across negation and quantificational expressions follows from the fact that *how* and *why* cannot be D-linked.

6.3 Response stance and non-stance in contrast to volunteered stance predicates (B3)

That factive contexts are WIs is well known from Cinque (1990). This is just a special case, though, as Hegarty (1992b) points out. The full picture is presented in Cattell (1978). Cattell distinguishes response stance, non-stance, and volunteered stance predicates. Reponse stance includes, alongside *deny*, items like *accept*, *confirm*, *verify*, *admit*, and others. Non-stance includes a big class of factives: *realize*, *know*, *regret*, *remember*, *surprise*, *notice*, etc. Finally, volunteered stance includes *think*, *believe*, *suspect*, *allege*, *assume*, *claim*, etc. Cattell's generalization is that the first two classes generally block adjunct extraction:

(161) *How did you accept that he behaved ___?
also: deny, confirm, verify, admit, . . .

(162) *How did you realize that he behaved ___?
also: know, regret, remember, surprise, notice, . . .

(163) How did you think that he behaved ___?
also: believe, suspect, allege, assume, claim, . . .

6.4 Extraposition islands (B4)

Again, this is one of the cases discussed in Cinque (1990). Whether extraposition islands constitute a separate case is not immediately evident, since they are overwhelmingly also factive islands, e.g.:

(164) *How <is it a scandal that he behaved ___>?

But here is at least one extraposition island quoted by Cinque that is not factive:

(165) *How <is it time to behave ___>?

On the other hand, the following extrapositions involve non-factive, non-negative predicates and do not appear to create islands (P. Postal, p.c.).

(166) How much wine is it possible/legal/fun/dangerous to drink ___ at a party?

This seems to indicate that extraposition per se is not the culprit. It is unclear to me exactly what makes *it is time to . . .* an island. Further relevant examples can be drawn from Heavy NP Shift.

6.5 VP-adverbs (B5)

Obenauer (1984/85) examines the following pattern:

(167) J'ai beaucoup conduit [___ de camions].
I have a lot driven of trucks.
'I drove many trucks.'

Although the phrase *beaucoup de camions* would be grammatical, Obenauer argues in careful detail that VP-initial *beaucoup* is not an extracted determiner but a VP-adverb. The quantified interpretation 'many trucks' is obtained through quantification of V in terms of 'many times'. He calls this phenomenon QAD (quantification at a distance). The presence of the adverb nevertheless blocks *combien*-extraction:

(168) *Combien as-tu <beaucoup consulté [___ de livres]>?

The analysis according to which a VP-initial quantifier renders split constructions ungrammatical without being derivationally related to the empty determiner slot of the DP is corroborated by the fact that iterative adverbs also block *wat voor* split (De Swart 1992):

(169) *Wat heb je <twee keer [___ voor boeken] gelezen>?
what have you two times for books read

It may be interesting to point out that these adverbs block *how*-extraction as well:

(170) *How did you <behave a lot ___>?
*How did you <behave twice ___>?

6.6 Scope islands (B6)

At least one important subset of the islands above, namely, *wh*-islands, negative (affective) islands, and adverbial islands, can easily be described as intervention islands: the WI is induced by the intervention of a certain element between the final locus of the extracted phrase and its extraction site. The intervention of other operators seems harmless, e.g., *every boy* may intervene between *how* and its extraction site, without making the sentence ungrammatical.

(171) How did every boy behave ___?

As we shall see, Rizzi's (1990b) generalization is that bad interveners are A-bar specifiers. Expressions in A-specifier or adjoined position do not matter. Universals are adjoined to some projection by QR, hence they cannot matter. But it turns out that the grammaticality of (171) type extractions is misleading. *Every boy* is an operator that may scope either below or above a *wh*-phrase; it may even be scopally independent from it. Let us illustrate the three possibilities with an example where the *wh*-phrase is immune to WIs:

(172) Which book did every boy read ___?
- (i) every > wh
  'For every boy, which book did he read?'
- (ii) wh > every
  'Which book is such that every boy read it?'
- (iii) independent scope (uniformity presupposition)
  'Taking for granted that every boy read the same book, what was this book?'

Reading (i) is often called a pair-list reading: it is answered by a list of pairs: 'Bill read *Magic Mountain*, Jim read *The Russia House*, . . .'. Readings (ii) and (iii) both ask for a single book that was read by every boy, but differ as to the possibility of what else each boy may have read. For instance, if Bill read *Jurassic Park* and *Tom Jones*, Jim read *Jurassic Park* and *Airframe*, and so on, reading (ii) is felicitous and the answer is '*Jurassic Park*'. Reading (iii) is not felicitous in the same situation: it presupposes that each boy read just one book, moreover, the same one, and merely asks to identify the book. The question is, are these three readings equally possible when *every boy* interacts with a WI-sensitive expression, rather than a *which*-phrase.

De Swart (1992) and Kiss (1993) make the fundamental observation that universals are harmless only when they (i) scope above or (iii) independently of the sensitive *wh*-phrase. When they scope below it (ii), they induce a WI. Kiss states the generalization for non-specific extractees, De Swart for split constructions:

(173) How did every boy behave ___?
- (i) every > *wh*
  'For every boy, how did he behave?'

(ii) *wh* > every
*'What was the common element in the boys' non-uniform behavior?'
(iii) independent
'Taking for granted that every boy behaved the same way, what was it like?'

(174) Combien ont-ils tous lu ___ de livres?
(i) *'For each of them, how many books did he read.'
(ii) *'For what n, they all read n or more books.'
(iii) 'They all read the same number of books; what (which) number was it?'

Because (174) contains a floated quantifier, it lacks an every > *wh* reading (i). It does have an independent reading (iii), especially if there is a contextually salient list of numbers. But crucially, it lacks reading (ii) where the universal would be scoping under *wh*. (I thank D. Sportiche and M. Starke for discussion regarding (174).) In sum, the fundamental observation is that it is not so much the nature of the syntactic position (A-bar specifier vs. other) but the scope of the intervener that matters: an operator that scopes between the WI-sensitive extractee and its extraction site blocks the extraction.

Why does the mere presence of the previously reviewed operators induce a WI? Because, for reasons of their own, they are unable to scope above (or independently of) the extracted phrase. For instance, *no one* or *twice* never induce pair-list questions at all:

(175) a. Which book did no one read?
*'For no one, tell me which book he/she read.'
b. Which book did you read twice?
*'For two occasions, tell me which book you read then.'

Following Kiss's and De Swart's insight, this point is demonstrated systematically in Szabolcsi and Zwarts (1993). Some further descriptive caution is in order, however. Based on a detailed investigation of pair-list readings, Szabolcsi (1997a) shows that the same quantifier may or may not induce a WI, depending on the syntactic context. *Fewer/more than five boys* blocks *how*-extraction in a matrix question and in a complement of *wonder* or *ask*, but not in a complement of *find out*. The presence of *only* in (178) enhances the felicity of this reading.

(176) *How did fewer than five boys behave ___?

(177) *I wonder how fewer than five boys behaved ___.

(178) I only found out how fewer than five boys behaved ___.
'I only found out about fewer than five boys how each behaved'

(179) ??How did more than five boys behave ___?

(180) ??I wonder how more than five boys behaved ___.

(181) I found out how more than five boys behaved ___.
'I found out about more than five boys how each behaved.'

These data correlate with the fact that these quantifiers are only capable of inducing a pair-list reading in *find out*-complements (irrespective of WIs):

(182) Which book did more than five boys read?
*'For more than five boys, tell me which book each read.'

(183) I wonder which book more than five boys read.
*'For more than five boys, tell me which book each read.'

(184) I found out which book more than five boys read.
'I found out about more than five boys which book each read.'

If inducing a pair-list reading can be described as the quantifier scoping above the *wh*-phrase, the WI data fall out. *More/fewer than five boys* can scope above the *wh*-phrase in *find out*-complements, hence it does not induce a WI. It cannot scope above the *wh*-phrase in the matrix or in *wonder*-complements, thus it causes a WI.

In what follows, the designation scope island will be used to refer specifically to the above data, although Szabolcsi and Zwarts (1993) argue that the scope generalization can be extended to most of the other island-inducers as well.

Finally, I note that quantifier intervention data discussed in Beck (1996b) and Kennedy (1997b) are, plausibly, special cases of weak islands, although the authors do not relate them to the weak island phenomenology. One reason may be that they are not aware of the exact range of interveners that create weak islands.

7 Theories

7.1 ECP and Subjacency for (A1)–(B1)

The historical starting point is the assumption, made in Huang (1982a), Lasnik and Saito (1984, 1992), Chomsky (1986a), that the paradigmatic (if not the only) case of weak (selective) islands is *wh*-islands (A1), and the expressions whose extraction is sensitive to WIs are adjuncts, as opposed to arguments (B1).

(185) Which problem are you wondering how to [t' [phrase t]]?

(186) ?Which student did he wonder whether to [t' [consider [t intelligent]]?

(187) How have you [t‴ [decided [t″ to [t′ [phrase the problem t]]]]]?

(188) *How are you [t″ wondering [which problem to t′ [phrase t]]]?
'what is the manner such that you are wondering which problem to phrase in that manner'

In all four examples, the lowest trace t is properly governed by t′, an intermediate trace adjoined to the closest VP. The distinction between arguments and adjuncts is drawn in the following way. An empty category that is in argument position is indelibly marked as to whether it is properly governed at S-structure. Thus in (185–186), t is marked as properly governed. Trace t′ itself is not properly governed when it is separated from its antecedent by a *wh*-island (since government requires 0-subjacency). However, intermediate traces can delete before Logical Form, because they are not needed for interpretation. Thus in (185–186), the only trace that must appear at LF is t, which is legitimate. On the other hand, non-argumental (adjunct) empty categories are marked for proper government as late as at LF, therefore intermediate traces need to be re- tained. In (187), the antecedent government chain <how, t‴, t″, t′, t> is unbroken by any subjacency violation. But in (188), t″ does not govern t′, since they are separated by a *wh*-island. Trace t′ cannot be deleted as t would then not be governed. Thus, on the whole, the extraction of an adjunct out of a *wh*-island inescapably involves an empty category that is not properly governed. As Cinque (1990) puts it, this theory forces adjuncts to move strictly successive cyclically, whereas arguments may, in effect, undergo long movement.

We see that this theory of weak islands is purely syntactic. The extraction of a phrase is sensitive to *wh*-islands simply because it originates in a non-argument position. Likewise, a moved *wh*-phrase creates an island purely with its bulk – by occupying the specifier position of CP and thus preventing the non-argument extraction from proceeding through that position.

7.2 Relativized Minimality for (A2, A3)–(B1, B2, B3%, B4, B5%)

The fact that a fronted *wh*-phrase blocks certain extractions can be attributed to the fact that, by occupying an escape hatch, it gives rise to a subjacency violation. But this explanation does not extend to negation or VP-adverbs, for instance: they do not occupy any escape hatch whatsoever. Relativized Minimality (Rizzi 1990b, Cinque 1990) is a particularly exciting theory because it pulls together a host of new islands and seeks to provide a unified account. Specifically, it seeks to account, besides *wh*-islands (B1), also for negative and affective islands (B2), factive islands, a subset of those discussed in (B3), extraposition islands (B4), and the islands created by VP-adverbs (B5). The expressions that are sensitive to WIs are defined as non-referential, as in (A2), which includes split constructions, as in (A3).

Rizzi (1990b) builds primarily on the theoretical analysis of QAD in Obenauer (1984/1985). Obenauer's insight is that a local relation between an operator and its variable is blocked by the intervention of any third party that may be derivationally totally unrelated to them but is sufficiently similar to the operator. In the same spirit, Relativized Minimality is a representational theory of 'like' intervention. This is the basic intuition as to what expressions create WIs. (For recent versions of Relativized Minimality, see the Minimal Link Condition in Chomsky 1995c and its revision in Manzini 1998.)

The assumption that WI-sensitive operators need to be connected to their variable by a series of local relations, while WI-immune operators may be linked to their variable long-distance is retained and is recast in the following way. Rizzi assumes that there are two (non-exclusive) ways to connect an operator and its variable:

(i) binding;
(ii) a chain of government relations.

Binding is an arbitrarily long-distance relation that requires the identity of referential indices; consequently, only operators that are referential can use it. Non-referential operators need to rely on a government chain. Rizzi makes intervention relevant specifically for government. Consequently, 'like' interveners block the government relation between a non-referential operator and its variable. This is the basic intuition as to what expressions are sensitive to WIs. Rizzi (1990b) defines referential operators as those that bear an event–participant thematic role like Agent, Patient, etc. Cinque (1990) adds the requirement that the operator must also be Discourse-linked. Non-referential *wh*-phrases are those that bear a role like Reason, Manner, Measure, etc. or are not D-linked.

The role of intervention is technically explicated as follows. *Barriers* incorporates a notion of minimality: a governor cannot govern into the domain of another, closer governor. Minimality is defined rigidly: only an intervening head governor counts, and it blocks both head and antecedent government. Rizzi proposes to relativize minimality to the kind of relation that obtains between governor and governee:

(189) **Relativized Minimality:**
X α-governs Y only if there is no Z such that
(i) Z is a typical potential α-governor for Y, and
(ii) Z c-commands Y and does not c-command X.

Rizzi finds it useful to distinguish four kinds of value for α: head government, antecedent government in an A-chain, antecedent government in an A-bar chain, and antecedent government in a head-chain. Since we are concerned with chains headed by a *wh*-phrase in A-bar specifier position, all and only A-bar specifiers are relevant interveners.

Rizzi analyzes *whether*, *who*, *beaucoup*, *not*, *no one*, *only John*, and *deny* as A-bar specifiers, at S-structure or at LF. In contrast, he points out that *everyone* and *two men* acquire their scope by adjunction, according to May (1985), so they are predicted not to block non-referential extraction. Extraposition islands and factive islands (and the other islands noted by Cattell, not mentioned by Rizzi or Cinque) are not covered by these considerations. To account for these, Cinque adds that the clause from which extraction occurs must be a sister of a theta-marking [+V] head.

While the general idea is very insightful, there are some analytical problems with this execution. One is the movement of *deny*, a head, to an A-bar specifier position at LF, and the assumption that the complement of *regret* is not a sister to the verb. These have an alternative solution within Relativized Minimality, however: the adoption of Progovac's (1988) and Melvold's (1991) proposals to place empty operators in the [Spec, CP] of the complements of *deny* and *regret*, which then serve as standard interveners.

More important perhaps is the problem posed by the cross-linguistic variation in the syntax of negation, attributed to the fact that the negative particle may be a head, a specifier, or an adjunct. This would suggest that the island-creating effect of negation varies accordingly, but it does not: we are not aware of any language in which negation does not create a weak island. Rizzi (1992) proposes to solve this problem by assuming an empty A-bar specifier when NEG is a head, and an empty head when NEG is a specifier. This proposal may well be correct, but it makes the original distinction of Relativized Minimality vacuous: how do we tell the effects of a head from a specifier? But there is a more important problem. The class of WI-inducers cannot be identified as intervening A-bar specifiers. This is highlighted by briefly considering another proposal that is closely related to Relativized Minimality. We turn to this proposal in section 7.3.

7.3 *Monotonicity for (A3, A4)–(B1, B2, B3%, B5%)*

Szabolcsi and Zwarts (1990) propose to recast Relativized Minimality in semantic terms. They argue against the pragmatic notion of referentiality in the analysis of WI-sensitivity. They propose that WI-sensitive expressions denote in a partially ordered domain, whereas WI-immune expressions range over discrete individuals (A3, A4).

As regards WI-inducers, the main proposal is that the interveners that create WIs share a semantic property: they are not upward monotonic but downward monotonic or non-monotonic. Specifically, *wh*-expressions (B1), negative and other affective expressions (B2), factive and negative predicates (a subset of those in (B3)), and certain VP-adverbs (a subset of those in (B5)) fit this semantic generalization; in other words, pretty much all the data discussed by Rizzi and Cinque, save for extraposition islands of the *it is time to . . .* type (B4).

The connection between the definitions of WI-sensitive expressions and WI-inducers is this. For a function to be upward monotonic means, precisely, that the partial ordering in the argument is preserved in the function value. In contrast,

a downward monotonic operator reverses, and a non-monotonic operator obliterates, partial ordering.

(190) Let ≤ be a partial ordering (e.g. the subset relation), and let A ≤ B.
If the function f is upward monotonic, then f(A) ≤ f(B).
If the function f is downward monotonic, then f(B) ≤ f(A).
If f is non-monotonic, neither entailment holds.

Extractees that denote in partially ordered domains require, for some reason, the preservation of this ordering, hence their WI sensitivity. On the other hand, discrete individuals cannot possibly be interested in the preservation of partial ordering, hence their immunity to WIs. The claim that it is the individual versus non-individual distinction that characterizes WI-immune vs. WI-sensitive extractees seems like a step in the right direction. But, as Szabolcsi and Zwarts (1993) explain in detail, the characterization of WI-inducers in monotonicity terms is seriously flawed. The main problem is that it seeks to provide a semantic definition of the class of interveners that Relativized Minimality finds relevant, and that is not the right class.

7.4 From Relativized Minimality to a scope theory

7.4.1 A major problem with Relativized Minimality

Recall a crucial background assumption of Relativized Minimality. The theory of LF that it relies on is that of May (1985). According to this theory, structure (usually) does not disambiguate scope. Example (191), for instance, is assigned a single structure in which *how* is higher than *everyone*, but they govern each other, so they can be interpreted in either scope order or even independently. The adoption of this theory for the purposes of Relativized Minimality results in the assumption that it does not matter which reading of the sentence we are considering; all we have to know is that *everyone* is in an adjoined position, so its intervention between *how* and its trace must be harmless. The question (192) is also assigned a single structure, but *no one* occupies an A-bar specifier position in it, whence it must block *how*-extraction.

(191) How did everyone behave?

(192) *How did no one behave?

Szabolcsi and Zwarts (1990) followed Relativized Minimality in this respect. The claim that certain interveners harm extraction because, being A-bar specifiers, they break a government chain was replaced by the claim that they harm because non-upward monotonic paths do not preserve partial order – but the assumption that upward monotonic interveners qua interveners are harmless became part and parcel of the theory.

As seen in section 6.6, results by Kiss (1993) and De Swart (1992) indicate that this assumption is wrong. For instance, sentences like (193) are ungrammatical on the reading where the universal takes narrower scope than the *wh*-phrase.

(193) Combien ont-ils tous lu de livres?
how many have-they all read of books
*'For what number n, they all read n or more books.'

7.4.2 Scopal intervention

Kiss (1993) and De Swart (1992) propose that any operator that scopes between the sensitive expression and its trace blocks the relation. Kiss identifies the class of sensitive expressions as non-specifics in the sense of Enç (1991), including nominals and adverbials. (See also Frampton 1991.) De Swart identifies sensitive expressions as those whose operator part is split off from the restrictive clause:

The Scope Generalization:

(194) Specificity Filter: if Op_i is an operator which has scope over Op_j and binds a variable in the scope of Op_j, then Op_i must be specific. (Kiss)

(195) A quantifier Q_1 can only separate a quantifier Q_2 from its restrictive clause if Q_1 has wide scope over Q_2 (or is scopally independent from Q_2). (De Swart)

These generalizations put the WI phenomenon in an entirely new light. Just as Relativized Minimality was based on the observation that the range of WI-inducers is much wider than Subjacency can account for, the Scope Generalization expresses the observation that both the range and the nature of WI-inducers is different from what Relativized Minimality (in its original form or in its monotonicity reincarnation) can take care of. We come back to the possible theoretical explanation of the generalization in section 7.5.

What is the coverage of these proposals? As regards island-sensitive expressions, Kiss's proposal that non-specific operators are island-sensitive essentially covers the classical data (A3, A4, A7) and event-related readings (A5), but it is not easy to see how functional *wh*-phrases (A5) and collectives (A6) can be said to be generally non-specific, since their determiner may be *which*; also, why the trigger – NPI relation (A8) might fall under the generalization is not obvious. De Swart's generalization is stated with reference to splitting: here the question is what data, beyond the classical ones (A7) might be analyzed as involving splitting. Many pieces of data involving anti-pronominal contexts (A10) fall outside both proposals.

As regards WI-inducers, it is easy to see that, with the obvious exception of purely syntactic WI-inducers like *it is time to* . . . extraposition and some of the constructions discussed by Postal, the known WI-inducers are scope-bearing operators and thus fall under the Kiss/De Swart proposal. The problem may be, rather, that there are expressions that some well-established theory or other

classifies as scope-bearing operators which nevertheless do not induce WIs. Examples are indefinite DPs and intensional verbs like *want*:

(196) How did a boy behave ___?

(197) How do you want me to behave ___?

Clearly, there are two ways out. One is to adopt analyses according to which indefinites and intensional operators are not scopal. Another is to draw some principled demarcation line between scopal expressions, predicting some of them to be innocuous.

7.4.3 Prospects for a revision of Relativized Minimality

We have seen that in order to capture the Scope Generalization, LF ought to disambiguate scope. But according to May (1985) it does not. Although this feature played a major role in diverting attention from some critical data, it is not very difficult to fix. It is not too difficult to imagine a scope theory which produces disambiguated LFs.

A second, more serious, aspect of the problem is that, if the spirit of Relativized Minimality is to be maintained, QR cannot be an adjunction rule. In Rizzi's proposal, movement to an A-bar specifier position is hindered only by an intervening A-bar specifier. QR should move the quantifier into an A-bar specifier position. This in turn requires that quantifiers all have designated landing sites. This requires a much more radical departure from May (1985). A theory that at least partially fulfils this expectation has been proposed recently, namely, by Beghelli and Stowell (1997). According to this theory, quantifier scope is a by-product of feature checking. Definites and specific indefinites check features in positions called RefP and ShareP; distributive universals check features in DistP. But Beghelli and Stowell argue, with equal force, that modified numeral (counting) QPs do not have comparable features and never move beyond their Case position. This accounts for the fact that they only marginally take inverse scope. This is a major stumbling block in the way of a revision of Relativized Minimality, because, as we saw above, *more/fewer than five boys* is as much of a WI-inducer as narrow scope *every boy*. But then it is difficult to see how the positions of, say, universals and modified numerals can be brought under a single heading. Likewise, if one goes beyond quantifiers, it is not obvious how all of Cattell's WI-creating predicates (B.3) can be placed in a position (or can be associated with an operator in a position) that falls under the same generalization. In other words, the Scope Generalization implies a radical widening of the set of WI-inducers, and it is not at all clear how all these might fit a single syntactic recipe.

The syntactic recipe does not necessarily have to make reference to A-bar specifier. But the beauty of Relativized Minimality was that it established a very tight connection between the properties that make extractees WI-sensitive and the properties that make interveners WI-inducers. The revision should recapture this explanatory connection. In fact, it is also not obvious how all WI-sensitive

expressions will fit a single syntactic recipe. Note that, alongside non-individual *wh*-phrases, WI-sensitive expressions include the amount and the event-related readings of numerical QPs, functionally interpreted *which*-phrases, definite dependents of one-time-only predicates, and negative polarity items. A somewhat different version of Relativized Minimality is to be found in Rizzi (2000a).

7.5 The Scope Theory

Kiss's and De Swart's generalizations suggest that the explanation of WI-phenomena should, at least to a great extent, be semantic. They themselves do not propose such explanations: as we saw above, the proposals are presented in terms of filters.

There have been two different lines of research that attempted to explain the Scope Generalization in formal semantic terms. Szabolcsi and Zwarts (1993) can be viewed, to some extent, as an attempt to provide a formal semantic explanation of Kiss's generalization. Honcoop (1998), on the other hand, can be viewed as an attempt to provide an extension and a formal semantic explanation of de Swart's generalization.

Szabolcsi and Zwarts (1993) was reprinted, with the addition of a handful of useful notes, as Szabolcsi and Zwarts (1997). In the discussion below, the latter, slightly expanded, version is assumed.

7.5.1 An algebraic approach to scopal intervention, for (A3, A4, A5, A6, A7%)–(B1, B2, B3, B5, B6)

The main contribution of Szabolcsi and Zwarts (1993, 1997) is an explanation of why certain expressions (the WI-sensitive ones) are unable to scope above certain others (the WI-inducers). They argue that scope assignment can go wrong in a directly semantic way, namely, it may produce a result that is strictly incoherent. They assimilate the ungrammaticality of *How much milk didn't you drink?* to the combination of a numeral with a mass noun, as in *six airs*. In both cases, interpreting the construction requires us to perform an operation, counting, or complement formation on a denotation which does not lend itself to that operation.

The article explicates a denotational semantic limitation on scope interaction using some simple notions of lattice theory. The nature of the argument can be best illustrated by way of an example. Overt *wh*-extraction creates a syntactic configuration with an extraction domain D containing a gap α. Let D contain another scopal element β, which the filler of the gap is supposed to scope over.

(198) [which books$_i$ [$_D$ did [$_\beta$ n't] you read [$_\alpha$ –$_i$]]]

(199) [how much milk$_i$ [$_D$ did [$_\beta$ n't] you drink [$_\alpha$ –$_i$]]]

To calculate the denotation of the whole sentence, the denotation of D needs to be calculated. The question is whether this is possible, in view of what α and β are.

The kind of denotation D has is determined to a large extent by what kind of gap it contains. *You read* [gap *of which books*] denotes a set of individuals, i.e., books. But *you drink* [gap *of how much milk*] arguably does not denote a set of amounts; Szabolcsi and Zwarts argue it denotes an amount. The reason why they find this distinction to be relevant is as follows. The claim is that the narrow-scope element β is interpreted by cashing out its contribution in terms of some operation(s) over the denotation of D minus β. For instance, *n't* in the examples above requires us to take the complement of that denotation. Sets of individuals form Boolean algebras. A Boolean algebra is a structure on whose elements the three well-known set-theoretic operations union, intersection, and complement – are defined. Therefore, if D minus β denotes an element of a Boolean algebra, the complement of this denotation is well-defined and is readily calculated. The segment *n't you read* [gap *of which books*] is coherent and denotes the complement of the set of things you read. Amounts, on the other hand, form structures in which complements, and probably also intersection, are not defined (these are called lattices and join semi-lattices, respectively). Now, interpreting *n't you drink* [gap *of how much milk*] should denote the complement of the amount (of milk) you drank. But the complement of an amount is not defined. The requisite denotation cannot be calculated, the string is incoherent.

How does this work with quantifiers as WI-inducers? Take, for example, universals. In Boolean terms, universal quantification is cashed out as performing intersections. Suppose there are altogether three girls, Kati, Mari, and Juli. In the course of interpreting *Which book did every girl read?* we need to intersect the set of books that Kati read with the set of books that Mari read and the set of books that Juli read. Precisely because *girl* A *read* [*gap of* which books] denotes a set of books, and intersection is defined for sets, the denotation of *every girl read* [gap *of which books*] can be calculated. But what happens when we try to interpret the following? Take (200) and (201):

(200) [how much milk$_i$ [$_D$ did [$_\beta$ every girl] drink [$_\alpha$ –$_i$]]]

(201) [how$_i$ [$_D$ did [$_\beta$ every girl] behave [$_\alpha$ –$_i$]]]

What girl *A* drank and how girl *A* behaved are not a set of amounts or a set of manners: D minus β denotes an amount and a manner, respectively. As noted above, amounts and manners arguably form join semi-lattices on whose elements not only the complement but also intersection is not defined. If so, the denotations of *every girl drink* [gap *of how much milk*] and *every girl behave* [gap *of how*] cannot be calculated. Thus, the essence of the proposal is this. An expression E can scope above an operator O if all the operations necessary to calculate the semantic effect of O can be performed in E's denotation domain. An expression E cannot scope above O and thus cannot escape the weak island induced by O if at least one operation necessary to calculate the semantic effect of O cannot be performed in E's denotation domain. It is further proposed that the relevant operations are the Boolean ones: complement, intersection, and union.

Recall the claim (A3, A4) that expressions that escape WIs are individuals, and those sensitive to WIs are non-individuals. Szabolcsi and Zwarts argue that the relevant notion of individuals is algebraic: individuals are discrete entities that can be collected into sets that form Boolean algebras. Non-individuals, in turn, are expressions that cannot be collected into such sets, either because they are non-referential, like expletives and idiom chunks, or because they denote entities that form operationally poorer structures: lattices (with union and intersection), join semi-lattices (with union), or simply partially ordered sets not closed under any of these operations.

Szabolcsi and Zwarts argue, often on the basis of independent proposals in the literature, that the whole gamut of WI-sensitive expressions that Relativized Minimality brought to light (reasons, manners, amounts, non-referential expressions, (A3, A4)) are non-individuals in this sense. Likewise, the collective arguments of one-time-only predicates discussed in (A6) are non-individuals: according to one standard analysis, collectives form join semi-lattices. Recall that the WI-sensitivity of these expressions was problematic for all other theories: they have referential theta-roles, can be definite and D-linked, and are of type e. Going beyond those data, Doetjes and Honcoop (1997) argue that the <event, object> pairs relevant in event-related readings (A5) form join semi-lattices: events are standardly thought to form such structures (there is no empty event that would turn semi-lattice into a Boolean algebra), and the pairs inherit this structure from the event component. A similar reasoning is applied to functional readings in Honcoop (2000).

Turning to WI-inducers, Szabolcsi and Zwarts argue that the calculation of the semantic effect of all the relevant WI-inducers involves, possibly in combination with union and other non-Boolean operations, the formation of complements and/or intersections. Specifically, the calculation of the semantic effect of *wh*-expressions, response stance and non-stance predicates, universal and numerical quantifiers (whether DPs or adverbs) involves at least intersections, and that of negative and other affective operators involves at least complements. This covers the data of B1, B2, B3, B5, and B6. In other words, it is argued that all these islands are scope islands (this means that the label used for (B6) is in fact too narrow).

On the other hand, plain indefinites like *a man* rely only on union, the operation that even join semi-lattices have, and is thus predicted not to cause trouble although it may well be analyzed as scopal. Intensional operators like *want* and *should* are also scopal, but their contribution is not in Boolean terms so they do not matter either. In other words, because this theory does not take the notion scopal to be an unanalyzed primitive, it is capable of distinguishing between scopal elements that are WI-inducers and ones that are not.

7.5.2 *A Dynamic Semantic approach to scopal intervention (A4, A5, A7, A8, A9)–(B1, B2, B3, B5, B6)*

Honcoop (1998) proposes an alternative account of the Scope Generalization. This account is based on a novel empirical observation. The observation is that

almost the same scopal interveners that create WIs also make an indefinite within their scope inaccessible to non-c-commanded pronominal anaphora. To see what inaccessibility is, compare (202) and (203). In (202), the non-c-commanded pronoun can refer back to the indefinite. In (203), where the indefinite is crucially within the scope of negation, the pronoun cannot refer back to it:

(202) I have a new coat$_i$. It$_i$ is blue.

(203) *I don't have a new coat$_i$. It$_i$ is blue.

Note that modal subordination improves the examples, e.g.,

(204) I don't have a new coat$_i$ yet. But I know that it$_i$ will be blue.

This, however, is an independent phenomenon that should be abstracted away from when constructing the basic data.

Now consider the following sets of examples.

The indefinite is within the scope of a *wh*-phrase, cf. (B1):

(205) *Who has a new coat$_i$? It$_i$ is blue.

(206) *Do you have a new coat$_i$? It$_i$ is blue.

The indefinite is within the scope of negation or some other affective operator, cf. (B2):

(207) *I don't have a new coat$_i$. It$_i$ is blue.

(208) *Nobody has a new coat$_i$. It$_i$ is blue.

(209) *Less than two people have a new coat$_i$. It$_i$ is blue.

(210) *I deny that I have a new coat$_i$. It$_i$ is blue.

(211) Only John has a new coat$_i$. It$_i$ is blue.

The indefinite is within the scope of a VP-adverbs, cf. (B5):

(212) *I twice had a Norwegian boyfriend$_i$. He$_i$ was tall.

The indefinite is within the scope of a quantifier (which does not fall under the above), cf. (B6):

(213) *Every kid has a new coat$_i$. It$_i$ is blue.

(214) *Most kids have a new coat$_i$. It$_i$ is blue.

(215) *More than one kid has a new coat$_i$. It$_i$ is blue.

(216) *Exactly five kids have a new coat$_i$. It$_i$ is blue.

(217) Exactly one kid has a new coat$_i$. It$_i$ is blue.

Only John and *exactly one kid* appear to go against the rule but it can be argued that in these cases, anaphora is based on an inference facilitated by unicity, not on the same mechanism that accounts for (202).

The domain within which there are indeed great differences is that of intensional operators and (non-affective) response-stance, non-stance, and volunteered-stance predicates (B3). Here, operators that do not induce WIs may create an inaccessible domain for anaphora, and vice versa. For example:

(218) *I regret that I have a new coat$_i$. It$_i$ is blue.

(219) I confirmed that he had a new coat$_i$. It$_i$ was blue. (*confirm* induces a WI)

(220) I remember that he had a new coat$_i$. It$_i$ was blue. (*remember* induces a WI)

(221) I know that he had a new coat$_i$. It$_i$ was blue. (*know* induces a WI)

(222) *I believe that he had a new coat$_i$. It$_i$ was blue. (*believe* induces no WI)

(223) *I imagined that he had a new coat$_i$. It$_i$ was blue. (*imagine* induces no WI)

(224) *I want to have a new coat$_i$. It$_i$ is blue. (*want* induces no WI)

Honcoop argues that the striking similarity between the two sets of troublemakers calls for a unified theory. (Naturally, the last set needs an explanation.) Inspired by De Swart (1992), Honcoop takes split constructions to be the paradigmatic WI-sensitive expressions and proposes an analysis for them that relies on particular assumptions of Dynamic Semantics (Groenendijk and Stokhof 1990; Dekker 1993; Chierchia 1995b). In what follows, the basic idea is presented without the formalism.

Just like Discourse Representation Theory (DRT: Kamp 1981a; Kamp and Reyle 1993), Dynamic Semantics seeks to account for the ability of indefinites to antecede non-c-commanded pronouns. But while DRT does so by interpreting indefinites as variables that pronouns may corefer with, Dynamic Semantics maintains that indefinites are existentially quantified noun phrases and bind the pronoun, although in a logically novel (dynamic) fashion. How this works does not concern us here. Relevant to us is the problem posed by pairs like those in (225).

(225) a. Usually, a new coat is expensive.
b. Most new coats are expensive.

The (a) sentence can be interpreted as the (b) sentence, which shows that an indefinite can apparently act as a variable bound by an adverb of quantification. This is not a problem for DRT but it is for Dynamic Semantics. If indefinites are existentially quantified, such binding is possible only if the existential quantifier can be removed. What is needed is an operation that removes the existential quantifier and turns *a new coat* into an expression denoting the property of being a new coat; a property that *usually* can take as its restriction much like *most* does. The operation that performs the trick is called Existential Disclosure (ED). How ED works is important to us. Roughly, it maps (226a) to (226b), the set of x's such that each x is identical to some new coat or other. In turn, (226b) is equivalent to (226c), the set of new coats:

(226) Existential Disclosure (ED):
a. there exists a new coat $\Rightarrow_{ED}$
b. {x: there exists a new coat_i and it_i is identical to x}
c. {x: x is a new coat}

It is crucial in the mapping from (a) to (b) that the proposition *it is identical to x* is added and *a new coat* binds *it*. Clearly, *a new coat* does not c-command *it*. Therefore, this binding and, consequently, the applicability of ED can only be well-formed in contexts that allow cross-sentential anaphora. If the indefinite is inside an inaccessible domain and the pronoun is outside, binding, and ED, are not possible:

(227) *{x: . . . OP [. . . indefinite_i . . .] and it_i is identical to x}

where OP creates an inaccessible domain for anaphora.

Honcoop's insight can now be summarized as follows. The operator in split constructions is related to the indefinite in the same way as an adverb of quantification is related to the indefinite it binds. In other words, *voor een boek* needs to be turned into a property that serves as the restriction of *wat*, to yield the interpretation 'what kind of book':

(228) Usually, *a new coat* is expensive.

(229) Wat denk jij dat Peter *voor een boek* heeft gelezen?
what think you that Peter for a book has read
'What kind of book do you think Peter read?'

But then ED is needed in both cases. Furthermore, in both cases ED is blocked if an expression that creates an inaccessible domain for pronominal anaphora intervenes scopally between the operator and the indefinite.

To summarize, given the reasonable assumption that the operator in split constructions uses the indefinite as its restriction, Dynamic Semantics augmented with Existential Disclosure automatically predicts that interveners that create inaccessible domains make splitting ungrammatical. Therefore, if the differences between the sets of WI-inducers and inaccessible domain inducers can be explained away, the Scope Generalization for classical split constructions falls out. Furthermore, any other construction that can be assimilated to splitting in the relevant respect is predicted to be subject to the same constraint.

Honcoop's work goes beyond De Swart's in two important respects: (i) the fatal effect of scopal intervention between the operator and its restriction is explained, not just stipulated, and (ii) it is argued that the same explanation carries over to various constructions that are not trivially split: at least to partial *wh*-movement, event-related readings, and NPI licensing.

To demonstrate the applicability of his proposal, Honcoop (1998) offers a series of innovative semantic analyses that would be difficult to do justice to here. Only the gist of some analyses is given and the reader is referred to the book for further details. Event-related readings (A5) involve quantification over event–object pairs. But both event arguments and indefinites come with their own existential quantifiers. These need to be removed in order for the pair to be formed. Removal is by ED. NPI licensing (A8) cannot be directly assimilated to splitting: although NPIs themselves may be treated as indefinites, not all licensors can be analyzed as unselectively binding them. However, all NPIs are associated with a scalar implicature. This requires computing entailment relations between alternative propositions, and the formation of these alternatives requires an application of ED.

The discrepancy between the inducers of WIs and inaccessible domains, surveyed in (218–224), is resolved by (i) providing an intensionalized version of ED; (ii) assuming that volunteered stance predicates introduce the meaning of their complement as a 'discourse referent'; and (iii) offering an E-type analysis of the anaphoric pronouns whose antecedent is in a response stance or non-stance context.

Pesetsky (2000) points out a further intriguing connection, arguing that *wh*-in-situ can be linked to a [+wh] complementizer in two distinct ways: by covert movement and by feature movement. He observes that the cases that he classifies as feature movement are vulnerable to intervention effects of the sort described in Beck (1996b). Pesetsky construes feature movement as an instance of an operator getting separated from its restriction, and refers to Honcoop (1998) as a theory that predicts that such a constellation will be sensitive to intervention. Since in Honcoop's theory, split constructions are sensitive to weak islands irrespective of whether they receive non-individual interpretations, if Pesetsky is correct, his book adds a whole new set of data to support this feature of Honcoop's theory.

7.5.3 How do the two scope theories compare?

In the cases where they are applicable at all, both the algebraic approach and the Dynamic Semantic (ED) approach get the weak island effects for free. This is

because they both reduce the effect to independent semantic facts. Providing that the proposals are internally logically correct, the semantic facts they point out will constrain the range of expressible meanings, irrespective of whether their consequences overlap with those of other syntactic or semantic considerations. It is thus possible for both theories to be correct at the same time, and their correctness is also compatible with the correctness of some other, say syntactic, explanation of some of the data.

With this important methodological comment in mind, let us ask how the two theories compare in coverage. There are data that both theories can account for, and there are data that only one or the other can. Let us start with WI-sensitive expressions. The algebraic approach can explain the WI-sensitivity of *how* (and probably, of *why* and other comparable expressions), while there seems to be no reason to assimilate them to split constructions under the ED-approach. There are expressions that denote amounts but are – at least overtly – not split: for instance (105) *Combien de cercles as-tu* (**beaucoup*) *dessiné?* and (110) *How much pain did*(**n't*) *you suffer?* These fall naturally under the algebraic approach, and also under the ED-approach if the latter assumes that they involve covert split into 'for what number n/degree d' and 'n many/d much NP'. The ED-approach is clearly good at accounting for their overtly split counterparts; the algebraic one is burdened with a need to explain why splitting forces an amount reading even on otherwise potentially ambiguous phrases.

Honcoop argues that *wat voor een boek* and *wat . . . voor een boek* have exactly the same readings, but that the non-split version is never WI-sensitive. These data fall only under the ED-theory, and so do the *wat aan*-facts, because this construction has only an individual reading. Of the more exotic data, event-related readings can be equally well accounted for in both approaches (both analyses are due to Honcoop). The WI-sensitivity of collective arguments and adjuncts of one-time-only predicates is predicted only by the algebraic approach. The fact that WI-inducers block NPI-licensing is accounted for by the ED-theory alone.

Turning to WI-inducers, islands caused by a +wh XP can, in principle, be accounted for by both theories but, as Honcoop points out, the tentative analysis in Szabolcsi and Zwarts (1997) does not extend to *whether*-islands. Both proposals account for the fact that response stance and non-stance, but not volunteered stance predicates induce WIs, but Szabolcsi and Zwarts offer only suggestions regarding the analysis. The observation that a set of quantifiers and other operators induce WIs is at the heart of both theories: naturally, both account for it equally well. The more interesting question is a deeper one: why is it that precisely those expressions whose algebraic semantic definition involves intersection and/or complement-formation create inaccessible domains for cross-sentential anaphora? Honcoop addresses this question and proposes, although in a preliminary fashion, that the algebraic properties can be used to explain the relevant Dynamic Semantic properties. If this line of reasoning is correct, the two theories may be viewed, to some extent, as two sides of the same coin.

8 Conclusion

There are two points that I would like to highlight in conclusion. The first point is that *wh*-islands are the classical example of weak islands, and adjuncts are the classical example of expressions that cannot escape from weak islands. The initial account of the facts was purely syntactic. But it has been demonstrated, first by Relativized Minimality and then by the Scope Theory, that huge sets of further data pattern along the same lines, calling for a unified explanation. Although we still do not have a fully unified theory at our disposal, it seems true beyond reasonable doubt that a substantial portion of this large phenomenon is genuinely semantic in nature.

The second point is that there is some syntactic residue: at least some extraposition islands and some of the anti-pronominal context data do not fall under the Scope Theory. Moreover, as was pointed out in section 3, in retrospect it does not seem entirely clear whether the presupposed demarcation line between weak and strong islands is as solid as one might want it to be.

It is to be hoped that further research will resolve the relation between these sets of data. One proposal that attempts to unify weak and strong islands is Starke (2001).

NOTE

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REFERENCES

Aoun, Joseph (1986). *Generalized Binding: The Syntax and Logical Form of* Wh-*Interrogatives*. Dordrecht: Foris.

Authier, Jean-Marc (1991). V-Governed Pro, Case Theory and the Projection Principle. *Linguistic Inquiry* 22: 721–740.

Bayer, Josef (1984). COMP in Bavarian. *Linguistic Review* 3: 209–274.

Bayer, Josef (1996). *Directionality and Logical Form: On the Scope of Focussing Particles and* Wh-*in-Situ*. Dordrecht: Kluwer.

Beck, Sigrid (1996b). Quantified Structures as Barriers for LF-Movement. *Natural Language Semantics* 4: 1–56.

Beermann, Dorothee (1997). Syntactic Discontinuity and Predicate Formation. PhD dissertation, Tilburg University.

Beghelli, Filippo and Tim Stowell (1997). Distributivity and Negation: The Syntax of *Each* and *Every*. In: *Ways of Scope Taking*. Anna Szabolcsi (ed.), 71–107. Dordrecht: Kluwer.

Bouma, Gosse (1987). A Unification-Based Analysis of Unbounded Dependencies in Categorial Grammar. In: *Proceedings of the Sixth Amsterdam Colloquium*. Jeroen Groenendijk, Martin Stokhof, and Frank Veltman (eds.), 1–21.

Cattell, Ray (1978). On the Source of Interrogative Adverbs. *Language* 54: 61–77.

Chierchia, Gennaro (1995b). Individual-Level Predicates as Inherent Generics. In: *The Generic Book*. Gregory N. Carlson and Francis J. Pelletier (eds.), 176–223. Chicago: University of Chicago Press.

Chomsky, Noam (1973). Conditions on Transformations. In: *A Festschrift for Morris Halle*. Stephen Anderson and Paul Kiparsky (eds.), 232–286. New York: Holt, Rinehart, and Winston.

Chomsky, Noam (1977b). On *Wh*-Movement. In: *Formal Syntax*. Peter Culicover, Thomas Wasow, and Adrian Akmajian (eds.), 71–132. New York: Academic Press.

Chomsky, Noam (1982). *Some Concepts and Consequences of the Theory of Government and Binding*. Cambridge: MIT Press.

Chomsky, Noam (1986a). *Barriers*. Cambridge: MIT Press.

Chomsky, Noam (1995c). *The Minimalist Program*. Cambridge: MIT Press.

Cinque, Guglielmo (1990c). *Types of A'-Dependencies*. Cambridge: MIT Press.

Comorovski, Ileana (1989). Discourse and the Syntax of Multiple Constituent Questions. PhD dissertation, Cornell University.

Corver, Norbert (1990). The Syntax of Left Branch Extractions. PhD dissertation, Tilburg University.

Cresti, Diana (1995). Extraction and Reconstruction. *Natural Language Semantics* 3: 79–122.

Dayal, Veneeta (1994). Scope Marking as Indirect *Wh*-Dependency. *Natural Language Semantics* 2: 137–170.

Dekker, Paul (1993). Existential Disclosure. *Linguistics and Philosophy* 16: 561–587.

Dobrovie-Sorin, Carmen (1994c). What Does QR Raise? In: *The Syntax of Romanian: Comparative Studies in Romance*. Carmen Dobrovie-Sorin (ed.), 242–274. Berlin: Walter de Gruyter.

Doetjes, Jenny and Martin Honcoop (1997). The Semantics of Event-Related Readings: A Case for Pair-Quantification. In: *Ways of Scope Taking*. Anna Szabolcsi (ed.), 263–310. Dordrecht: Kluwer.

Enç, Mürvet (1991). The Semantics of Specificity. *Linguistic Inquiry* 22: 1–25.

Engdahl, Elisabet (1983). Parasitic Gaps. *Linguistics and Philosophy* 6: 5–34.

Engdahl, Elisabet and Eva Ejerhed (eds.) (1982). *Readings on Unbounded Dependencies in Scandinavian Languages*. Stockholm: Almqvist and Wiksell.

Fiengo, Robert and James Higginbotham (1981). Opacity in NP. *Linguistic Analysis* 7: 395–421.

Frampton, John (1990). Parasitic Gaps and the Theory of *Wh*-Chains. *Linguistic Inquiry* 21: 49–77.

Frampton, John (1991). Review of Relativized Minimality. *Linguistic Review* 8: 1–46.

Groenendijk, Jeroen and Martin Stokhof (1990). Dynamic Montague Grammar. In: *Papers from the Second Symposium on Logic and Language*. László Kálmán and László Pólos (eds.), 3–48. Budapest: Akadémiai Kaidó.

Hegarty, Michael (1992a). Adjunct Extraction Without Traces. In: *Proceedings of the Tenth West Coast Conference on Formal Linguistics*. Dawn Bates (ed.), 209–222. Stanford: CSLI Publications.

Honcoop, Martin (2000). Connectivity at the Interface: Scope, Binding and Weak Islands. In: *Interface Strategies*. Hans Bennis and Martin Everaert (eds.). Dordrecht: Kluwer.

Honcoop, Martin (1998). Dynamic Excursions on Weak Islands. PhD dissertation, Leiden University.
Huang, C.-T. James (1982a). Logical Relations in Chinese and the Theory of Grammar. PhD dissertation, MIT.
Jacobson, Pauline (1996). Coordination, Binding, and Extraction. Unpublished manuscript, Prague, ESSLI.
Kamp, Hans (1981a). A Theory of Truth and Semantic Representation. In: *Formal Methods in the Study of Language*. Jeroen Groenendijk, Theo Janssen, and Martin Stokhof (eds.), 277–322. Amsterdam: Mathematisch Centrum.
Kamp, Hans and Uwe Reyle (1993). *From Discourse to Logic*. Dordrecht: Kluwer.
Kayne, Richard (1983). Connectedness and Binary Branching. *Linguistic Inquiry* 14: 223–249.
Kennedy, Christopher (1997b). Projecting the Adjective: The Syntax and Semantics of Gradability and Comparison. PhD dissertation, University of California.
Kiss, Katalin É. (1993). *Wh*-Movement and Specificity. *Natural Language and Linguistic Theory* 11: 85–120.
Klima, Edward (1964). Negation in English. In: *The Structure of Language*. Jerry Fodor and Jerrold J. Katz (eds.), 246–323. Englewood Cliffs, NJ: Prentice-Hall.
Krifka, Manfred (1990). Four Thousand Ships Passed Through the Lock. *Linguistics and Philosophy* 13: 487–520.
Kroch, Anthony (1989a). Amount Quantification, Referentiality and Long *Wh*-Movement. Unpublished manuscript, University of Pennsylvania.
Kuno, Susumu and Ken-ichi Takami (1997). Remarks on Negative Islands. *Linguistic Inquiry* 28: 553–576.
Ladusaw, William (1980). *Polarity Sensitivity as Inherent Scope Relations*. New York: Garland.
Lasnik, Howard and Mamoru Saito (1984). On the Nature of Proper Government. *Linguistic Inquiry* 15: 235–289.
Lasnik, Howard and Mamoru Saito (1992). *Move α: Conditions on its Application and Output*. Cambridge: MIT Press.
Linebarger, Marcia (1987). Negative Polarity and Grammatical Representation. *Linguistics and Philosophy* 10: 325–387.
Link, Godehard (1983). The Logical Analysis of Plurals and Mass Terms: A Lattice-Theoretical Approach. In: *Meaning, Use, and Interpretation of Language*. Rainer Bäuerle, Christoph Schwarze, and Arnim von Stechow (eds.), 302–323. Berlin: de Gruyter.
Longobardi, Giuseppe (1987). Extraction from NP and the Proper Notion of Head Government. In: *The Syntax of Noun Phrases*. Alessandra Giorgi and Guiseppe Longobardi (eds.), 57–112. Cambridge: Cambridge University Press.
Manzini, Maria Rita (1992a). *Locality: A Theory and Some of its Empirical Consequences*. Cambridge: MIT Press.
Manzini, Maria Rita (1998). A Minimalist Theory of Weak Islands. In: *The Limits of Syntax*. Peter Culicover and Louise McNally (eds.), 185–209. New York: Academic Press.
May, Robert (1985). *Logical Form: Its Structure and Derivation*. Cambridge: MIT Press.
Melvold, Janis (1991). Factivity and Definiteness. *MIT Working Papers in Linguistics* 15: 97–117.
Nanni, Debbie and Justine Stillings (1978). Three Remarks on Pied Piping. *Linguistic Inquiry* 9: 310–318.
Obenauer, Hans-Georg (1984/1985). On the Identification of Empty Categories. *Linguistic Review* 4: 153–202.

Obenauer, Hans-Georg (1992). L'Interprétation des Structures *Wh* et l'Accord du Participe Passé. In: *Structure de la Phrase et Théorie du Liage*. Hans-Georg Obenauer and Anne Zibri-Hertz (eds.), 169–193. Paris: Presses Universitaires de Vincennes.

Perlmutter, David (1972). Evidence for Shadow Pronouns in French Relativization. In: *The Chicago Which Hunt: Papers from the Relative Clause Festival*. Paul Peranteau, Judith N. Levi, and Gloria C. Phares (eds.), 73–105. Chicago: Chicago Linguistic Society.

Pesetsky, David (1982). Paths and Categories. PhD dissertation, Cambridge, MIT.

Pesetsky, David (1987a). *Wh*-in-Situ: Movement and Unselective Binding. In: *The Representation of (In)definiteness*. Eric Reuland and Alice ter Meulen (eds.), 98–129. Cambridge: MIT Press.

Pesetsky, David (2000). *Phrasal Movement and Its Kin*. Cambridge: MIT Press.

Pollard, Carl and Ivan Sag (1994). *Head-Driven Phrase Structure Grammar*. Stanford/Chicago: CSLI Publications/University of Chicago Press.

Postal, Paul M. (1993). Parasitic Gaps and the Across-the-Board Phenomenon. *Linguistic Inquiry* 24: 735–754.

Postal, Paul M. (1994). Parasitic and Pseudo-Parasitic Gaps. *Linguistic Inquiry* 25: 63–117.

Postal, Paul M. (1997a). Islands. Unpublished manuscript, New York University.

Postal, Paul M. (1998). *Three Investigations of Extraction*. Cambridge: MIT Press.

Progovac, Ljiljana (1988). A Binding Approach to Polarity Sensitivity. PhD dissertation, University of Southern California.

Rizzi, Luigi (1982b). Violations of the *Wh*-Island Constraint in Italian and the Subjacency Condition. In: *Issues in Italian Syntax*. Luigi Rizzi (ed.), 49–76. Dordrecht: Foris.

Rizzi, Luigi (1990b). *Relativized Minimality*. Cambridge: MIT Press.

Rizzi, Luigi (1992). Argument/Adjunct Asymmetries. In: *Proceedings of the North Eastern Linguistic Society 22*. Kimberley Broderick (ed.), 365–381. Amherst: Graduate Linguistics Student Association.

Rizzi, Luigi (2000a). Reconstruction, Weak Island Sensitivity and Agreement. Unpublished manuscript, University of Siena.

Roberts, Ian (1997a). *Comparative Syntax*. London: Edward Arnolds.

Ross, John Robert (1984). Inner Islands. In: *Proceedings of the Tenth Annual Meeting of the Berkeley Linguistics Society*. Claudia Brugman and Monica Macaulay (eds.), 258–265. Berkeley: Berkeley Linguistics Society.

Rothstein, Susan (1988). Subjacency, the ECP and the Formation of Chains. *GLOW Newsletter* 20: 60–61.

Rullmann, Hotze (1993). Scope Ambiguities in *How Many*-Questions. Unpublished manuscript, University of Massachusetts.

Rullmann, Hotze (1994). Negative Islands Aren't Islands. Paper presented at the Sixty-eighth Annual Meeting of the Linguistic Society of America.

Rullmann, Hotze (1995b). Maximality in the Semantics of *Wh*-Constructions. PhD dissertation, Amherst, University of Massachusetts.

Scha, Remco (1981). Distributive, Collective and Cumulative Quantification. In: *Formal Methods in the Study of Language*. Jeroen Groenendijk, Theo Janssen, and Martin Stokhof (eds.), 483–512. Amsterdam: Mathematisch Centrum.

Starke, Michal (2001). Move Dissolves into Merge: A Theory of Locality. PhD dissertation, University of Geneva.

Swart, Henriëtte de (1992). Intervention Effects, Monotonicity and Scope. In: *Proceedings of SALT II*. Chris Baker and David Dowty (eds.), 387–406. Columbus, OH: Ohio State University Press.

Szabolcsi, Anna (1997a). Quantifiers in Pair-List Readings. In: *Ways of Scope Taking*. Anna Szabolcsi (ed.), 311–347. Dordrecht: Kluwer.

Szabolcsi, Anna and Frans Zwarts (1990). Semantic Properties of Composed Functions and the Distribution of W*h*-Phrases. In: *Proceedings of the Seventh Amsterdam Colloquium*. Martin Stokhof and Leen Torenvliet (eds.), 529–555. Amsterdam: Institute for Language, Logic and Information.

Szabolcsi, Anna and Frans Zwarts (1993). Weak Islands and an Algebraic Semantics of Scope Taking. *Natural Language Semantics* 1: 235–284.

Szabolcsi, Anna and Frans Zwarts (1997). Weak Islands and an Algebraic Semantics for Scope Taking. In: *Ways of Scope Taking*. Anna Szabolcsi (ed.), 217–262. Dordrecht: Kluwer.

Williams, Edwin (1974). Rule Ordering in Syntax. PhD dissertation, Cambridge, MIT.

65 Stylistic Fronting

ANDERS HOLMBERG

1 Introduction[1]

Stylistic Fronting is a phenomenon, known mainly from Icelandic, Faroese, and Old Scandinavian, where a category is moved to what looks like the subject position in finite sentences with a subject gap; that is, subject relatives, embedded subject questions, other embedded sentences with the subject extracted, and various types of impersonal sentences. The examples in this chapter are all Icelandic, except where indicated otherwise.[2]

(1) Þetta er versta bók sem **skrifuð** hefur verið. (J)
this is worst book that written has been
'This is the worst book that has ever been written.'