Topics in Ellipsis

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6 Variable island repair under ellipsis

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One of the most startling, and hence theoretically challenging, properties of *wh*-movement in Sluicing is that it can move *wh*-phrases out of islands, an important observation which goes back to Ross (1969). Equally challenging is the fact that similar *wh*-movement out of VP Ellipsis sites remains for the most part illicit. Briefly put, it seems that for a wide range of cases, deletion of an IP containing an island voids the effect of that island for *wh*-movement, while deletion of a VP containing an island does not. This chapter investigates one aspect of this puzzling dichotomy with respect to island repair, and attempts to show that an interesting and partly novel range of data follow if island deviancies come about due to illicit traces of intermediate movement, working in tandem with a constraint on ellipsis operative in structures that host *wh*-movement. I will argue that a wide range of islands are indeed active at PF, but not in the way that this claim has usually been understood thus far. Instead of the island node itself being responsible for the degradation in acceptability, I will show that the data support the idea that it is the traces of *wh*-movement outside the island itself which trigger a PF-crash.

I begin with some relevant Background on Sluicing, given in section 6.1, before taking up the Sluicing data in section 6.2 and the VP Ellipsis facts in section 6.3.

6.1 Background on Sluicing

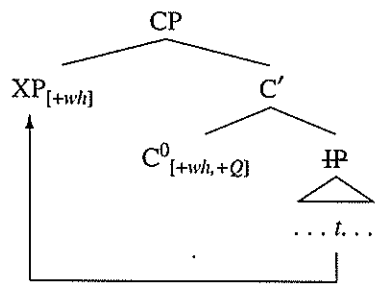
Sluicing is ellipsis of the sentential complement to an interrogative complementizer hosting a *wh*-phrase, as in (1):

(1) a. Jack bought something, but I don't know what.
b. A: Someone called. B: Really? Who?
c. Beth was there, but you'll never guess who else.
d. Jack called, but I don't know when/how/why/where from.

e. Sally's out hunting – guess what!
f. A car is parked on the lawn – find out whose.

These structures have been extensively investigated in the literature (the most detailed studies being Ross 1969; Levin 1982; Riemsdijk 1982; Chao 1987; Chung *et al.* 1995; Lobeck 1995; Romero 1998; Lasnik 2001; and Merchant 2001), and the most common approach to generating these structures is to assume that the *wh*-phrase has been moved to specCP out of the missing IP by the usual mechanisms of *wh*-movement in questions, and that the IP has undergone deletion (ellipsis). While neither of these two components has been universally accepted, I will follow most recent work in assuming that these are the two operations that generate the sentences in (1) (see Merchant 2001 for extensive justification). The relevant derivation is given schematically in (2).

(2)



Given this analysis, one question that immediately arises is the question of what licenses the ellipsis of IP (in the sense of licensing developed in Lobeck 1991). Lobeck (1995) claims that the null IP (a base-generated empty category in her approach) is licensed only by the null [+wh, –pred] C^0 of interrogatives (following Rizzi's 1990 typology). I will here recast her approach as a featural matching requirement in a head-head (or feature of a head) relation. Assume that PF deletion is triggered by the presence of a feature on a head. Let us call this triggering feature E. Ideally, E will have exactly those syntactic, phonological, and semantic effects that yield all the attested properties of the elliptical construction at hand, with nothing further needing to be said.

The syntax of E must encode the checking requirements, in order to capture Lobeck's licensing. In Frampton and Gutmann's (1999) notation, the syntactic featural makeup of E is [~[+wh], ~[+Q]], that is, an element which must be checked by a +wh, +Q head. Such checking heads are limited in languages like English at least to the complementizers that occur in constituent questions, as desired. (Whether E is freely available to be merged with any head, or whether it must be on C or on I is an independent

question: presumably locality considerations will rule out this featural combination on E from occurring anywhere where it cannot be checked by a +wh, +Q C^0. This restricts E to C or I. If E is on C, the effects follow directly. If it is on I, then we must posit head-to-head or feature-to-head movement to check E. For present purposes, the decision between these two options is immaterial.)

The phonology of E, in broad terms, should be such that E instructs PF not to parse its complement. Assuming E to be located on C at the relevant point in the derivation (when the syntactic structure is parsed by the mechanisms operative at PF), we can view E to be something like a suprasegmental, but with the unusual effect of parsing its complement IP into a prosodically unrealized category. In SPE terms, E has the effect of triggering a context sensitive rule of the following sort, however we may wish to conceptualize this in more recent phonological theories:

(3) $[\Phi/_{IP}] \rightarrow \emptyset/E\_\_$

PF-"deletion," in this view, is the result of a feature in the syntax, not of a freely operating "deletion transformation."

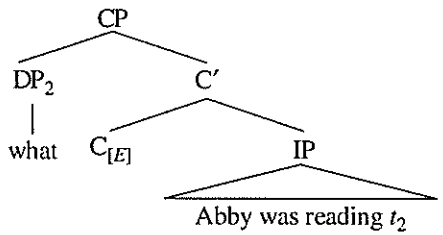
Finally, the semantics of E must capture the traditional identification of the ellipsis site, ideally encoding all and only those requirements that regulate under what conditions an XP can be deleted. Two general approaches to this question have been pursued: one, that the elided XP must be syntactically (LF-structurally, in current formulations) isomorphic to an antecedent, and two, that the elided XP must be semantically equivalent to an antecedent. Both views have weaknesses: generally, the syntactic isomorphism approach undergenerates, while the semantic identity approach overgenerates. I will follow here the approach advocated in Merchant (2001), where the semantic identity condition is defined as e-givenness: an XP α can be deleted only if α is e-given. Once we have defined such a predicate that applies to (the meanings of) XPs, we can use it to define a semantics for the E feature. (By a similar token, we could easily define a predicate over LF structures and impose a syntactic isomorphism condition in the same way, assuming presumably a structured meaning approach.) The semantics of E will therefore be a partial identity function on propositions, a semantic filter which allows the composition to proceed only if its argument is e-given. In the notation of Heim and Kratzer (1998), the semantics of E is the following:

(4) $[[E]] = \lambda p$: p is e-given. p

A sluice like (5), then, will have the structure in (6).

(5) Abby was reading, but I don't know what.

(6) but I don't know



At the relevant point in the computation, E will take IP as its argument, as in (7). This expression will return a value (namely *Abby was reading* x_2) only if Abby was reading x_2 is e-given, otherwise it returns no value. Computation up the tree therefore proceeds only if E's IP complement is e-given, as desired.

(7) $[[E]]([[IP]]) = \lambda p$: p is e-given. p(Abby was reading x_2)

The greatest advantage of using E, encoded as a partial identity function, to impose the identity requirement is that it localizes ellipsis identification, and allows us to dispense with the more usual formulations of the requirement on ellipsis which essentially postulate a separate "ellipsis module" in the grammar (i.e. a global, late, well-formedness condition imposed just on the structures containing ellipsis) parallel to the Binding Theory module (cf. Giannakidou's 1998; 2001 elimination of a "polarity" module by encoding polarity requirements as local, lexical semantic well-formedness conditions, using type-combinatorics).

A second important advantage is that the licensing (the local featural requirements of E) and identification (the semantic condition E imposes on its complement) requirements on ellipsis can be directly linked. Most theories posit no direct link between these requirements at all.

In sum, I will assume that a unified theory of PF-deletion based on semantic identity is possible (indeed, desirable), and that Sluicing instantiates PF-deletion of an IP out of which *wh*-movement has occurred.

6.2 Sluicing and *wh*-extraction out of islands

Assuming that *wh*-movement of the usual kind occurs in Sluicing brings us directly to the puzzle that has inspired much of the work on the topic since Ross (1969) first discovered it: the *wh*-movement found in Sluicing (at least with certain kinds of correlates) is insensitive to syntactic islands (see Baker and Brame 1972; Chomsky 1972a; Lakoff 1972; Chung *et al.* 1995; Lasnik 2001; Merchant 2001).[1] Examples for the major kinds of

syntactic islands are given (occasionally with nonelliptical controls) in (8)–(16).[2]

(8) Relative Clause island:
  a. They want to hire someone who speaks a Balkan language, but I don't remember which.
  b. *I don't remember which *(Balkan language) they want to hire someone [who speaks__]*.

(9) Left-branch (attributive adjective case):
  a. She bought a big car, but I don't know how big.
  b. *I don't know how big *she bought [a __car]*.

(10) Derived position islands (subjects, topicalizations):
  a. A biography of one of the Marx brothers is going to be published this year __ guess which!
  b. *Guess which *(Marx brother) [a biography of __] is going to be published this year*.

(11) COMP-trace effects: (Chung *et al.* 1995 (90), (91a); Perlmutter 1971: 112))
  a. It appears that someone will resign, but it's not yet clear who.
  b. Sally asked if somebody was going to fail Syntax One, but I can't remember who.

(12) Coordinate Structure Constraint:
  a. They persuaded Kennedy and some other Senator to jointly sponsor the legislation, but I can't remember which one. (Chung *et al.* 1995: (88b))
  b. Bob ate dinner and saw a movie that night, but he didn't say which.

(13) Adjuncts:
  a. Ben will be mad if Abby talks to one of the teachers, but she couldn't remember which.
  b. *Ben will be mad if Abby talks to one of the teachers, but she couldn't remember which *(of the teachers) Ben will be mad [if she talks to __]*.
  c. Ben left the party because one of the guests insulted him, but he wouldn't tell me which.

(14) Complement to nouns: (Chung *et al.* 1995: (84c))
The administration has issued a statement that it is willing to meet with one of the student groups, but I'm not sure which one.

(15) Sentential subject: (Chung *et al.* 1995: (84b))
That certain countries would vote against the resolution has been widely reported, but I'm not sure which ones.

(16) Embedded question: (Chung *et al.* 1995: (84a))
Sandy was trying to work out which students would be able to solve a certain problem, but she wouldn't tell us which one.

In (8a), for example, the *wh*-phrase *which* has moved out of the relative clause, interpretationally parallel to its unelided but ungrammatical counterpart in (8b). Similar remarks apply to the remaining islands.

One possibility for accounting for the fact that deletion of the island rescues the sluice from ungrammaticality is to posit that the PF interface cannot parse crossed island nodes. One way of formalizing this, following in essence Chomsky (1972b), is to assume that crossed island nodes are marked with some PF-uninterpretable feature, call it *. This general approach, "* as a feature of island nodes," has been pursued in one form or another by Ross (1969), Lasnik (2001), and Kennedy and Merchant (2000) (the latter for the Left Branch Condition only).

For the example in (8a), repeated in (17a) on the facing page with the structure in (17b), the account works as follows. *Wh*-movement (cyclic or otherwise – I suppress here for simplicity possible intermediate traces) extracts the DP *which* from its base position (marked by t_1), moving it to the highest specCP. In doing so, the relative clause island is crossed. As such, it is marked with a *. In (17b), the island node is assumed to be the CP adjoined to the NP, and this CP is marked with *. In nonelliptical cases, when this *CP reaches PF, it will cause a PF-crash, since * is by hypothesis PF uninterpretable.

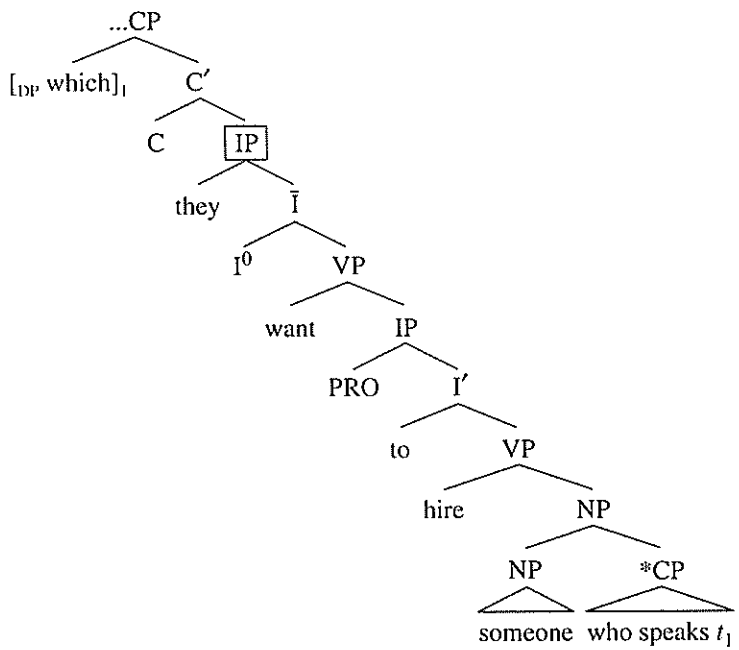
Under this formulation, ellipsis will have the desired effect: deletion of the boxed IP in (17b) eliminates the *CP as well, preventing the * from triggering a PF-crash. The structure is therefore saved, and surfaces as the grammatical sluice in (17a). This general solution applies *mutatis mutandis* to the other islands in (9)–(16) as well.

6.3 VP Ellipsis and *wh*-extraction out of islands

As appealing as the solution sketched above is, it faces a serious problem when we turn our attention to parallel extractions out of elided VPs. In the same environments, with the same correlates and the same islands, extraction out of a VP Ellipsis site is no more grammatical than in nonelliptical cases. The relevant data from VP Ellipsis, contrasting with the sluices in (8)–(16) above, are given in (18)–(25).

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

b. IP-Deletion eliminates *CP



(18) Relative Clause island:
*They want to hire someone who speaks a Balkan language, but I don't remember which they do.

(19) Left-branch (attributive adjective case):
*She bought a big car, but I don't know how big she did.

(20) Derived position islands (subjects, topicalizations):
*He said that a biography of one of the Marx brothers is going to be published this year – guess which he did!

(21) COMP-trace effects:
a. *It appears that someone will resign; it's just not clear how it does.
b. *Sally asked if somebody was going to fail Syntax One, but I can't remember who she did.

(22) Coordinate Structure Constraint:
a. *They persuaded Kennedy and some other Senator to jointly sponsor the legislation, but I can't remember which one they did.
b. *Bob ate dinner and saw a movie that night, but he didn't say which he did.

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

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

(25) Embedded question:
*Sandy was trying to work out which students would be able to solve a certain problem, but she wouldn't tell us which one she was.

In fact, the problem of *wh*-extracting out of VP Ellipsis sites is even more severe, as highlighted in Lasnik (2001), where the data in (26)–(28) are given. Movement of a *wh*-phrase whose correlate is an indefinite out of an elided VP is degraded even when no island is involved.

(26) They said they heard about a Balkan language, but I don't know
a. which they said they heard about. No Ellipsis
b. which. Sluicing
c. *which they did. VP Ellipsis

(27) They attended a lecture on a Balkan language, but I don't know
a. which they attended a lecture about. No Ellipsis
b. which. Sluicing
c. *which they did. VP Ellipsis

(28) They studied a Balkan language, but I don't know
a. which they studied. No Ellipsis
b. which. Sluicing
c. ??which they did. VP Ellipsis

One possibility for accounting for this range of data, including the data in (18)–(25), would be to claim simply that there is a general ban on *wh*-extraction out of VP Ellipsis sites, à la Sag (1976) and Williams (1977). Unfortunately, such a claim is too strong, as the following examples demonstrate.

(29) a. I know what I LIKE and what I DON'T.
b. I know which books she READ, and which she DIDN'T.
c. What VP Ellipsis CAN do, and what it CAN'T.
(Johnson 2001)

(30) a. GREEK, you should take; DUTCH, you shouldn't.
b. I know which books ABBY read, and which ones BEN did.

(31) a. I think YOU should ride the TALLEST camel, but I don't know which one PHIL should.
(Schuyler 2001: (48))
b. I think you SHOULD adopt one of these puppies, but I can't predict which one you actually WILL.
(Schuyler 2001: (49))
c. ABBY took GREEK, but I don't know what language BEN did.
d. We know that Abby DOES speak [Greek, Albanian, and Serbian]$_F$ – we need to find out which languages she DOESN'T <speak t>!
(Merchant 2001: 115 fn. 5 (ii))
e. (I know) ABBY wants to take GREEK, but I don't know what language BEN does <want to take>.
f. ABBY$_1$ said she$_1$ took GREEK, but I don't remember what language BETH$_2$ did <say she$_2$ took>.[3]
g. ABBY attended a lecture on KEATS, but I don't know what poet BEN did.

What distinguishes the examples in (29)–(31) from (18)–(25), (26c), (27c), and (28c) is the presence in the former of an element in the elliptical clause which contrasts with some element in the antecedent clause. The observation is simple: it appears that some kind of contrast is required in the cases where VP Ellipsis is licit (see Schuyler 2001 for one formulation). When such contrast is absent, as in (18)–(28), VP Ellipsis is disallowed.

Perhaps, as Merchant (2001) and Lasnik (2001) suggest, there is a ban on eliding less than possible under *wh*-extraction (whose ultimate source

remains obscure). For the present, let us capture this ban in the form of an inviolable constraint, MaxElide (this constraint may be in part derivable from economy, since putting the E feature higher in a given structure allows for less pronunciation). Roughly put, it states that if ellipsis applies in a structure with a *wh*-trace, ellipsis should target the largest constituent possible. More accurately, it requires that if ellipsis targets an XP containing an A′-trace, XP must not be properly contained in any YP that is a possible target for deletion.

(32) MaxElide [Definition]
Let XP be an elided constituent containing an A′-trace. Let YP be a possible target for deletion. YP must not properly contain XP ($XP \not\subset YP$).

The VP Ellipsis in the (c) examples of (26)–(28) violates MaxElide; in (26c), for example, the VP <say they heard about t> contains a *wh*-trace and the VP is properly contained in the IP <they did say they heard about t>, which, as (26b) shows, is itself a possible target for deletion. The possibility for deleting the containing IP, then, blocks deletion of any contained VP (likewise for the more deeply embedded VP: *They said they heard about a Balkan language, but I don't know which they said they did.).

Parallel reasoning applies to the examples in (18)–(25), in which the deleted VP happens to contain an island: in each case no contrasting material is present, and the IP containing the deleted VP is a possible target for deletion (as witnessed by the Sluicing counterparts in (8)–(16)).

The examples in (29)–(31) differ in precisely this regard. Consider (29a): the deleted VP is <like t>, which is properly contained in the IP <I don't like t>. But this containing IP is not a possible target for deletion: there is no antecedent which would license deletion of the sentential negation (technically, in the theory assumed here, the IP is not e-given). Hence the containing IP is irrelevant to the deletion of the VP, MaxElide doesn't apply, and VP Ellipsis is not blocked in this case. In other words, if the material outside the VP Ellipsis site contrasts in some way with the antecedent clause, the contrasting material cannot be deleted (since it is not e-given), and hence no larger constituent will be a possible target for deletion. This contrasting material can be in the auxiliary domain (negation as in (29), (30a), or modals as in (31b)), or the subject (as in (30b), (31a, c–f)), or elsewhere external to the VP but internal to the IP (see Schuyler 2001 for further examples and discussion).

MaxElide seems also to be responsible for the unexpected oddity of examples like (33b,d) (from Merchant 2001: 58). While VP Ellipsis targeting the highest VP is fine, as in (33a), and while ellipsis is not required, as in

(33c), ellipsis targeting either the most deeply embedded IP (33b) or VP (33d) is distinctly degraded. Both these latter examples are in violation of MaxElide: taking XP in (33b) to be the matrix VP whose subject is Charlie, MaxElide is violated by the ellipsis of the embedded IP, properly contained in the matrix VP. Likewise in (33d): MaxElide prohibits deletion of the embedded VP <invited t> since the matrix VP <know who she invited t> is a possible target of deletion itself.

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

Similar reasoning applies to the example in (34), from Williams (1986), where the possible deletion of the higher IP blocks deletion of the lower one:

(34) John knows how to do something, but I don't know what (*he knows how).

It is crucial to note that MaxElide applies only to XPs that contain a *wh*-trace, since no similar blocking effect is found in the absence of *wh*-movement:

(35) a. Ben knows that she invited Klaus, but her father doesn't.
b. Ben knows that she invited Klaus, but her father doesn't know that she did.

The contrast between XPs containing *wh*-movement and those that do not appears in the data in (36) as well, from Merchant (2001: 58 note 9):

(36) a. Abby knew that he had quit, but Beth didn't know that he had.
b. Abby asked if he had quit, but Beth didn't ask if he had.
c. ?? Abby knew when he had quit, but Beth didn't know when he had.
d. ?? Abby asked when he had quit, but Beth didn't ask when he had.

The fact that MaxElide applies only to XPs containing A′-traces also allows us to set aside the possible objection raised in Lasnik (2001) on the basis of an example with subject extraction: as he points out, the possibility for Sluicing in (37a) does not preclude the VP Ellipsis variant in (37b).

(37) a. Someone solved the problem.
b. i. Who?
ii. Who did?

The reason that Sluicing doesn't block VP Ellipsis here follows from the definition of MaxElide. In particular, in (37b) MaxElide has no provenance, since the elided VP does not contain a *wh*-trace, assuming the structure in (38) with the type of the two traces of the subject notated as superscripts.

(38) $[_{CP}$ who $[_{IP}\ t^{A'}\ [_{VP}\ t^{A}$ solved the problem]]]

Constraints similar to MaxElide are discussed in Hirschbühler (1978) and Tancredi (1992: 123) for a related set of data; nevertheless, at this point, a satisfying theoretical reduction of MaxElide remains elusive. For present purposes, I will be concerned only with the obvious effects it has.

At this point, we have constructed a coherent account of some surprising differences between Sluicing and VP Ellipsis, and it might appear that the ungrammaticality of the examples in (18)–(25) with which this section began do not, after all, pose a difficulty for the *-as-a-feature-of-island-nodes view that accounted so elegantly for the lack of island effects in Sluicing in section 6.2. Unfortunately, this view makes the following prediction: if the island node is internal to a deleted VP and if MaxElide is satisfied (by the presence of contrasting material external to the VP and internal to the IP), then we should find that ellipsis has the same island-ameliorating effect that we find in Sluicing. This prediction is incorrect, as the following examples show (see also the examples and discussion in Merchant (2001: 114–115).

(39) Relative Clause island:
*Abby DOES want to hire someone who speaks GREEK/a certain Balkan language, but I don't remember what kind of language she DOESN'T.

(40) Left-branch (attributive adjective case):
*ABBY bought a big car, but I don't know how big BEN did.

(41) Derived Position islands (subjects, topicalizations)
*Abby DID say that a biography of HARPO is going to be published this year – guess which Marx brother she DIDN'T.

(42) COMP-trace effects:
a. *It appears to ME that SEN. HATCH will resign, but I don't know which senator it does to YOU.
b. *ABBY asked if I was going to fail Syntax One, but I can't remember who BEN did.

(43) Coordinate Structure Constraint:
a. *They got the president and thirty-seven Democratic Senators to agree to revise the budget, but I can't remember how many Republican ones they DIDN'T.
b. BOB ate dinner and saw five movies that night, but he didn't say how many ABBY did.

(44) Adjuncts:
a. *BEN will be mad if Abby talks to Mr. Ryberg, and guess who CHUCK will.
(Merchant 2001: 115 (15))
b. *BEN left the party because Charlene/some guest insulted him, but God only knows which guest ABBY did.

(45) Complement to nouns:
*The dean's office has issued a statement that it is willing to meet with Students for a Democratic Society/a certain student group, but I'm not sure which student group the provost's office has.

(46) Embedded question:
*Sandy was trying to work out how many students would be able to solve problem #4/a certain problem, but she wouldn't tell us which problem she wasn't.

To see how the account fails on these examples, consider (39). The presence of negation in the IP beneath the *wh*-phrase means that MaxElide is satisfied (vacuously). The island node, as in (17b) above, is the *CP of the relative clause internal to the deleted VP <want to hire someone who speaks t>. Hence the deletion of the VP prevents the *CP from reaching the PF-interface, and this example should have the same status as its Sluicing counterpart in (17a), contrary to fact.

Instead of thinking of * as a feature of island-nodes, I suggest we think of * as a feature of traces. In particular, let intermediate traces of island-escaping XPs be marked with the * feature. One way of implementing this is to say that each link in a chain of *wh*-movement must be licensed either by locality or by being in a spec-head relation with a C (or perhaps simply by being pronounced). As each new copy of an XP is generated (via "re-merge," i.e. Move), the relevant locality restrictions are checked (subjacency, etc.) and if locality is not respected (e.g. if an island node is crossed), the new copy is given the feature * (compare the γ-marking of Lasnik and Saito 1984; 1992 and Chomsky and Lasnik's 1993 *-marking; see Kitahara 1999 for an alternative viewpoint). All later copies of this *XP will themselves also be *-marked. Finally, I assume that the *-feature can be erased

(checked) in the final spec-head relation that a +wh XP comes to be in with a +wh C (perhaps * should in fact be thought of as feature of [wh], in some conceptions); in other words, the [+wh, +Q] C^0 that licenses the movement of a *wh*-XP to its specifier also checks the *-feature on that copy, eliminating the * from the PF-representation of the highest copy. (Perhaps even the E feature itself checks the *-feature.)

Under this conception, a standard island effect will come about whenever intermediate *-traces survive until PF. I assume, following Chomsky (1986a), Fox (2000), and López and Winkler (2003) (see also Koster 1978 for a precursor), that *wh*-movement proceeds by adjunction to intervening maximal projections (VPs and IPs at the least; other intermediate landing sites will not be crucial here). I illustrate the workings of this system with the schematic derivation of (47) in (48), giving only the steps of interest here:

(47) *What language do they want to hire someone who speaks?

(48) 1. Merge wh-DP [what language]:
speaks [what language]
2. Move DP out of relative clause, marking it with *:
[*what language] [CP who speaks [what language]]
3. Move DP to intermediate landing site, adjoined to matrix VP:
[*what language] [VP want to hire someone [*what language] [CP who speaks [what language]]].
4. Move DP to intermediate landing site, adjoined to matrix IP:
[*what language] [IP they [*what language] [VP want to hire someone [*what language] [CP who speaks [what language]]]].
5. Move DP to specCP, erasing * on final (namely, the highest) copy of DP:
[CP [what language] [IP [*what language] [IP they [*what language] [VP want to hire someone [*what language] [who speaks [what language]]]]]].

In the final representation, all the intermediate traces between the CP island node and the final landing site are *-marked. Since the *-feature is by hypothesis PF-uninterpretable, the final structure will cause a PF-crash, yielding the ungrammaticality of (47) as desired.

Conceiving of the *-feature as a feature of traces, however, allows us to make the necessary distinction between IP and VP Ellipsis. In a Sluicing example like (49a), deletion of the highest IP eliminates all *-traces from the PF-representation, yielding the attested amelioration of island effects under Sluicing. In VP Ellipsis, on the other hand, the elided VP does not

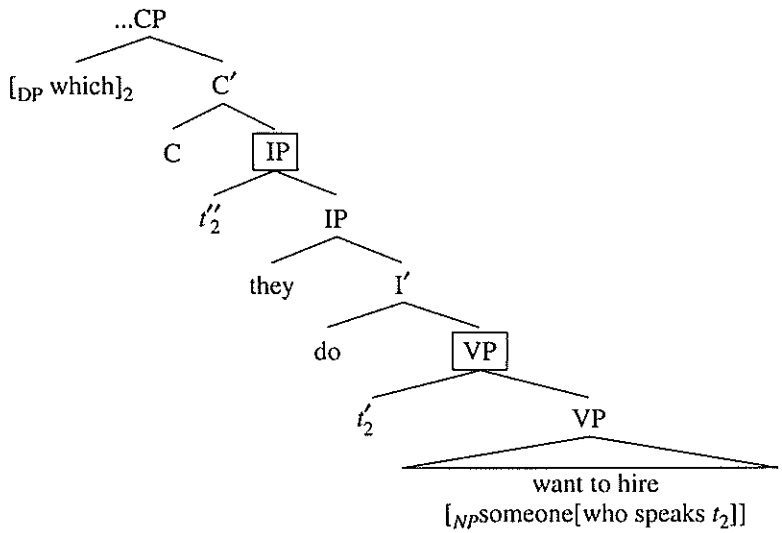
Table 6.1. *Overview of the data with respect to* MaxElide *and* *t

	Examples	MaxElide	*t	
Sluicing	(8)–(16)	√	√	Island-containing
	(26b), (27b), (28b)	√	√	Non-island-containing
VP Ellipsis	*(18)–(25)	*	*	Island-containing
	*(26c), (27c), (28c)	*	√	Non-island-containing
	(29)–(31)	√	√	Non-island-containing
	*(39)–(46)	√	*	Island-containing

contain all the offending traces: in particular, the trace of adjunction to the highest IP (*t''_2 in (49b)) remains in the PF-representation, causing a crash just as in (47).

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

b.



The proposed system, consisting of MaxElide and of * as a feature of traces, captures a wide range of data, both in Sluicing and VP Ellipsis, and both in structures containing islands and those without. All the relevant data presented here is tabulated by example number in table 6.1. The top two rows include all the Sluicing data examined. These examples satisfy MaxElide and no *-traces survive to PF (indicated by check marks in the columns labeled

MaxElide and *t respectively). The VP Ellipsis examples fall into four groups, given in the final four rows of table 6.1. The only grammatical examples are those in (29)–(31), which satisfy both MaxElide and do not present any *-traces. All other kinds of examples fail on one or both counts, as indicated by the * in the respective column. Interestingly, the kinds of examples which have been taken as most indicative of the inability of VP Ellipsis to repair islands, namely (18)–(25), are doubly bad: not only do their island-violations survive the deletion, but they also violate MaxElide.

Notice that this account locates the deviancy of the island-containing VP Ellipsis examples in the clause that hosts the *wh*-movement. An intermediate *-trace of the successive cyclic *wh*-movement survives VP Ellipsis, but not IP Ellipsis. *Wh*-movement in the elliptical clause in both cases is successive cyclic. In this regard, the account thus differs from Fox and Lasnik (2003), who account for the difference between Sluicing and VP Ellipsis with respect to island repair by assuming that successive cyclic *wh*-movement occurs only in the VP Ellipsis case, but not in the Sluicing case; they trace the different status of the examples to this posited difference, and its effects on the resulting structures for satisfying an LF-isomorphism constraint (in the cases they examine, the correlates are all indefinites, which Fox and Lasnik assume are interpreted as choice functions and do not move).

Up to this point, the correlate to the moved *wh*-phrase has played no role. In Sluicing, we have seen mostly examples where the correlate was an indefinite, though it is known that other kinds of correlates are possible. Both names and quantifiers can be correlates in Sluicing (see Chung *et al.* 1995 and Romero 1998 for relevant discussion):

(50) a. Abby speaks GREEK, but I don't remember what OTHER languages.

b. She met RINGO, but I don't know who else.

c. He said he talked to ABBY, but I don't know who else ~~he said he talked to~~.

d. John met most applicants, but I can't remember exactly which ones.

The same holds for VP Ellipsis, as the examples in (31) above demonstrated, three of which are repeated here in (51a–c):

(51) a. ABBY took GREEK, but I don't know what language BEN did.

b. We know that Abby DOES speak [Greek, Albanian, and Serbian]$_F$ – we need to find out which languages she DOESN'T! ~~speak~~! (Merchant 2001:115 fn. 5 (ii))

c. (I know) ABBY wants to take GREEK, but I don't know what language BEN does ~~want to take~~.

d. ABBY interviewed two-thirds of the applicants, but I don't remember exactly how many of them BEN did ~~interview~~.

This state of affairs is expected under the present account, since the *wh*-movement in the elliptical clause violates no islands, and the semantic identity condition based on e-givenness is satisfied (since e-givenness is defined using F-closure, the focused correlates will be replaced by variables; see Merchant 2001: 35–37). The data can also be accommodated on Fox and Lasnik's account, assuming that the focused correlates scope at LF. For them, the antecedent clause in e.g. (50a) and (51a) must have at least the following structure (assuming scoping to IP, and an intermediate landing site at VP): GREEK $\lambda x[_{IP}$ Abby $[_{VP}$ x $\lambda x'$ [speaks x']]]. This structure will license, via their posited LF-identity requirement, deletion of the IP or VP as needed, assuming that the *wh*-movement in the elliptical clauses is likewise successive cyclic.

Now we are in a position to appreciate the puzzle that arises with the examples in (52). In these cases, the focus correlate occurs inside an island, and the resulting sluice is ungrammatical. We have already seen that this holds for VP Ellipsis in some of the sentences in (39)–(46) above, two of which are repeated here in (53).

(52) a. *Abby wants to hire someone who speaks GREEK, but I don't remember what OTHER languages ~~she wants to hire someone who speaks~~.

b. *The radio played a song that RINGO wrote, but I don't know who else.

(53) a. *Abby DOES want to hire someone who speaks GREEK, but I don't remember what kind of language she DOESN'T.

b. *BEN will be mad if Abby talks to Mr. RYBERG, and guess who CHUCK will.

(Merchant 2001:115 (15))

In short, Sluicing with indefinite correlates repairs islands, but Sluicing with focused correlates does not. Given the account presented so far, this contrast is puzzling. We cannot assimilate the deviance of the sluices in (52) to that of the VP Ellipsis cases in (53), since only in the latter does the *-trace remain after ellipsis has applied. Nor does the Fox and Lasnik (2003) account fare any better: their account, like the present one, is based on the idea that *XPs (intermediate VPs and IPs, for example) are PF-uninterpretable (which is why PF-deletion repairs the islands). In their

presentation, "avoiding an intermediate landing site ... yield[s] an island violation ... [unless] the island is deleted" (p. 12); I take this to be a member of the *-as-a-feature-of-island-nodes family of analyses. Consider now (52a): the correlate must scope out of the island in one fell swoop: GREEK λx[Abby wants to hire someone who speaks x]. This structure licenses the deletion of the IP beneath *what OTHER languages*, which has similarly undergone non-successive-cyclic *wh*-movement, by hypothesis. Under their account, therefore, we again expect the sluices in (52) to be grammatical. These sluices' ungrammaticality cannot be assimilated to that of the VP Ellipsis examples in (53) on Fox and Lasnik's account either (long-distance *wh*-movement in the latter is ruled out by virtue of the surviving *IP in the elliptical clause). Alternatively, Fox and Lasnik could assume that the focus movement must be successive-cyclic, while the movement in the Sluicing cases is not; in this case, the Sluicing examples would be ruled out (as violations of LF-parallelism), but the VP Ellipsis cases should then be grammatical.

One possibility that would rescue both the present account and Fox and Lasnik's is that focus movement is island-sensitive for other reasons. If so, then the movement needed to generate the LF structures (on Fox and Lasnik's account) or to provide the semantic antecedent (on the e-givenness account) would be illicit in any case. If this were so, the examples in (52) and (53) would be ruled out because ellipsis parallelism could not be satisfied (and the examples in (53) redundantly also because of the *t in the elliptical clause).

The problem with this idea is the usual assumption that focus is not, in fact, island respecting (Chomsky 1972b; Rooth 1985; Kratzer 1991), whether this is accomplished by island-insensitive scopal movement or in situ. Kratzer (1991a) in particular provides examples involving VP Ellipsis which seem to indicate that a focused item can be 'scoped out' of an antecedent VP for purposes of ellipsis as well.

(54) I only talked to the woman who chaired the ZONING BOARD because you did.

As Kratzer points out, (54) has a reading as follows: *the only x such that I talked to the woman that chaired x because you talked to the woman who chaired x is the zoning board.* This reading necessitates island-violating scoping of the focused element *zoning board* in order to allow the bound reading in the elided VP. The example in (54) suffers from a slight defect, however: since the pitch accent falls on the final DP in the relative clause, it is difficult for some speakers to distinguish this from focus on the entire DP *the woman who chaired the zoning board* (cf. Drubig 1994 and Winkler 1996). Kratzer's claim can be seen perhaps more clearly in the following

example, where no focus percolation from within the relative clause to the containing DP is possible:

(55) I only played a song that RINGO wrote because you did.

This example, parallel to (54), has a reading that can be paraphrased as follows: *the only x such that I played a song that x wrote because you played a song that x wrote is Ringo.*

These latter facts are unsurprising under the view of islands that emerges from the study of Sluicing especially: islands are essentially PF phenomena, so the movement necessary for the focus in (54) and (55), since it has no PF consequences, is not expected to result in island violations (see Rooth, 1996). Likewise for *wh*-in-situ inside islands, if these require long-distance movement (see Simpson 2000 for a recent overview).

We seem to have reached an impasse: the evidence from 'contrast' sluices in (52) indicates that focus movement is island-sensitive, while the data in (54) and (55) seems to indicate that it is not. But this is, luckily, not the only difference between (52) and (54)–(55): in the former, but not the latter, we also have an instance of *wh*-movement out of the ellipsis site. This *wh*-movement has scopal properties of its own, and I would suggest we can capitalize on these properties to rule out (52) while allowing (54)–(55). *Wh*-movement out of an ellipsis site forces its correlate to take scope over the entire antecedent clause, just as the *wh*-phrase itself does in its own clause (see Chung *et al.* 1995 and Romero 1998 for extensive analysis of this fact; see Fox 2000 for general discussion of scopal parallelism in ellipsis). All the data examined so far indicate that when focus movement extracts a focused XP out of an island, the focus movement can no longer target the highest clause node, but is limited to the VP. Metaphorically speaking, it is as though escaping from an island cripples or hobbles further focus movement; it can only limp along up to VP, not to IP. I thus suggest that the differences seen above be traced to these differing possibilities for satisfying the identity condition on ellipsis.

In the non-island cases, focus movement of the correlate in the antecedent can scope the focused XP to IP, as we saw above (yielding an LF-parallel structure or a structure which satisfies e-givenness, assuming that the existential binder is inserted at the locus of the moved focused XP). For these cases, the antecedent after focus movement will be the following (for (50a); *mutatis mutandis* for (51a)):

(56) $\text{GREEK}_F\ \lambda x$[Abby [x $\lambda x'$ [speaks x']]]

This structure has the correlate in a parallel position (clause-external) to the moved *wh*-phrase in the elliptical clause, satisfying parallelism:

(57) what OTHER languages λx[$_{IP}$ Abby [$_{VP}$ x $\lambda x'$ [speaks x']]]

Consider now the example in (55). Here, focus movement must scope RINGO to the highest VP (above the VP-adjoined adjunct *because* clause), satisfying the parallelism requirement for the deletion of the VP in the *because* clause:

(58) I only $*\text{RINGO}_F\ \lambda x$[$_{VP}$ [$_{VP}$ played a song that x wrote] because you did] ~~play a song that x wrote~~]

The movement in (58), though island-violating, targets the matrix VP, not IP.

Finally, in the puzzling cases of (52) and (53), the stipulation that island-escaping focus movement cannot target the highest IP will prevent the correlate from attaining the necessary scopal parallelism with the *wh*-phrase (clause-external), and hence these clauses can never satisfy the identity requirement needed to license deletion. The highest the focus movement can go is VP, yielding the following as the antecedent clause, by hypothesis (intermediate traces suppressed):

(59) [$_{IP}$ Abby [$_{VP}$ $*\text{GREEK}_F\ \lambda x$ [VP wants to hire someone who speaks x]]]

A structure like (59), unlike (56), does not have a scopal element in a position parallel to the moved *wh*-phrase, and hence will license neither deletion of IP nor of VP.

These considerations will not apply in cases where the correlate is an indefinite, since indefinites are known to be able to freely take wide scope, even out of islands (see Farkas 1981). Hence such indefinites will always be able to provide scopally parallel antecedents for *wh*-phrases moved out of ellipsis sites, as Chung *et al.* (1995) discuss (whether or not these indefinites are interpreted as choice functions or not). So scopal parallelism is satisfied in the Sluicing cases we began with in (8)–(16) as well as in the VP Ellipsis cases in (8)–(25) and those with indefinites in (39)–(46). The latter, therefore, still necessitate the theory of islands developed above, since the focus-based restriction that rules out (53) will not apply to those cases with indefinite correlates.

A related point comes from correlates that are interpreted as generalized quantifiers, forcing them to scope via QR, known to be even more local than merely island-respecting (though not quite, as often assumed, clause-bound: see Farkas and Giannakidou 1995). These provide possible antecedents for Sluicing and VP Ellipsis, as in (50d) and (51d) above (repeated here as (60a,b) respectively).

(60) a. Abby met most applicants, but I can't remember exactly which ones.

b. ABBY interviewed exactly two thirds of the applicants, but I don't remember how many of them BEN did.

The grammaticality of these examples is expected, since movement of the correlates via QR will provide appropriate antecedents for the elliptical clauses. This holds both for an e-givenness-based account and an LF-isomorphism account of Fox and Lasnik (2003). The fact that such correlates are island-bound is also expected, given the local nature of QR:

(61) a. *If most senators resign, Abby will stop her hunger strike, but I can't remember exactly which ones.

b. *If exactly two thirds of the senators resign, ABBY will stop protesting, but I can't remember how many of them BEN will.

But notice again that something more must be said to rule out examples like (62), which differs from (60b) only in not having a contrasting element in the clause hosting the VP Ellipsis.

(62) ?? Abby met most applicants, but I can't remember exactly which ones she did.

Recall that Fox and Lasnik rule out examples similar to this one in which however the correlate is an indefinite – such as (28c) above – by positing that the indefinite, unlike the *wh*-phrase, does not move, and hence the elliptical clause does not satisfy LF-parallelism (since it, unlike the antecedent clause, contains traces of successive cyclic movement, by hypothesis). But as we have just seen, when the correlate is a quantified or focused DP, not an indefinite, successive cyclic movement must be posited, in order to rule in (60b) and (51a–c). The current account, employing MaxElide, rules out (62) and (28c) on a par, while one based on the postulated presence vs. absence of successive cyclic movement apparently must be supplemented by MaxElide in any case.

6.4 Conclusions

This chapter has investigated a number of surprising asymmetries in island repair between Sluicing (IP Ellipsis) and VP Ellipsis, and has argued that these fall out from taking certain island effects to be due to ill-formed intermediate traces at the PF interface. The conclusion, then, is that a number of deviancies that have been ascribed to other parts of the grammar (derivational constraints, LF output constraints) may best be located at the PF interface (at least part of the effects of island-violating extraction). *Prima facie* paradoxically, it seems that the nature of PF and the constraints that operate there can be illuminated by investigating structures that have no PF exponence.

Certain elements of the analysis presented here remain at present theoretically unsatisfying, in that the effects encoded in the various constraints (especially MaxElide and the restriction on island-escaping focus movement) have yet to be reduced in an insightful way to the theoretical primitives they presumably derive from. This project is ongoing, and I mention here a number of other areas in which repair effects of ellipsis seem to be indicated:

1. lack of complementizer agreement in Bavarian Sluicing
2. lack of Wackernagel clitics in S. Slavic Sluicing
3. multiple Sluicing in Germanic, Greek, and Turkish (and perhaps in Bulgarian, Japanese, Russian, and Serbo-Croatian as well)
4. remnant movements in Gapping (Johnson 2003, Richards 1998)
5. remnant movements in Pseudogapping (Johnson 2001)
6. lack of verb movement in Pseudogapping (Lasnik 1995, 2001)
7. swiping in English, Norwegian, Danish (Merchant 2002)
8. "vehicle change" effects in anti-pronominal contexts (Potts 1999)
9. long-distance reflexives in English (Kennedy and Lidz 2001)
10. *wh*-movement in *wh*-in-situ languages
11. lack of I-to-C movement in matrix sluices in Germanic (Lasnik 1999b and Merchant 2001)
12. lack of the otherwise obligatory complementizer in Irish sluices (Merchant 2001).

This potpourri of effects has emerged mostly recently from investigating elliptical structures from the perspective of repair, and it is not surprising that they have yet to be made to follow from primitives of any theory. It appears that we have just begun to uncover a new domain that may help us shed light on phenomena that have been traditionally investigated only with respect to their pronounced manifestations.

15. Alternatively, we could define two types of antecedents: one with respect to linking (coreference) configurations; one with respect to binding configurations, and retain Higginbotham's definition of dependence. The end result would be the same, but would not reflect as clearly as refining the notion of dependence does the fact that we are really making a distinction between binding and coreference.
16. By allowing outer indices to appear on every maximal projection in the extended projection of N, i.e., on both DP and NP (see Grimshaw 1991), we can assume that both DP and NP are potential binders, modulo the c-command constraint on binding.
17. Note that a structure in which the higher NP is the binder of an element inside YP is ruled out for the same reason that DP cannot be a binder – the bound element in YP would be b-dependent on itself.
18. The basic idea behind Higginbotham's analysis is that in the translation of a structure like (62) into a logical representation, the relative clause is mapped into the restriction of the determiner *every*, while the VP is mapped into its nuclear scope (see Heim 1982; Diesing 1992b). Empty categories bound by the DP in the matrix sentence and those bound by the relative operator in the relative clause are interpreted as cobound, i.e. bound by the determiner *every*. A more intuitive, semantic representation of (62), where the variable x has been substituted for the index 2, is given in (vi).

    (vi) $\forall x[\text{man}(x) \wedge \text{clean}(x, x\text{'s Dart})][\text{happy}(x)]$

19. For clarity, I will only show indexing on the relevant DPs (the ones involved in the argument containment configuration). Although the subjects of the matrix VPs will necessarily bear the same outer indices (because the matrix VP is what is copied), this index does not play a role in the b-dependence relation involved in the ungrammatical sentences.
20. The analysis proposed in this chapter has no account of the ungrammaticality of (76) in terms of ill-formed indexing configurations (and would, in fact, predict it to be grammatical). Given the grammaticality of examples like the ones in (77), I will assume that an explanation of (76) will be found outside of conditions on indexing configurations, and will leave a resolution of this issue for future work.

CHAPTER 6: VARIABLE ISLAND REPAIR UNDER ELLIPSIS

1. The Sluicing correlates that will interest us for the moment are all indefinites; see Chung *et al.* (1995) for discussion. Other correlates are possible (the "contrast" sluices of Merchant 2001, for example), but these show strong locality effects (stronger, in fact, than mere sensitivity to islands: closer to the kinds of locality found in Gapping and multiple Sluicing). The picture is further complicated by the fact that certain Sluicing-like structures in some languages appear to retain island-sensitivity, as reported in Hoji and Fukaya (1999).
2. For Sluicing and selective ("weak") islands, see Albert (1993), Sauerland (1996), Romero (1998), Merchant (2000).

3. This example shows that such contrast-licensed *wh*-extraction from VP Ellipsis can cross tensed clause boundaries; nevertheless, such examples are highly sensitive to the nature of the intervening material: if the embedded subject is not bound by the matrix subject, the matrix reading for the elided VP becomes extremely difficult to get (cf. identical bound subject restrictions in cross-clausal Gapping and multiple Sluicing as discussed in Nishigauchi 1998; Johnson 2001; and Merchant 2001).

CHAPTER 7: ON BINDING SCOPE AND ELLIPSIS SCOPE

1. See Fiengo and May (1994), Larson and May (1990), Sag (1980), among others.
2. The two dichotomies, wide vs. narrow scope, and *de dicto* vs. *de re*, are well known to match only partially (wide scope implies *de re*, but narrow scope is compatible with both *de dicto* and *de re*). This inaccuracy does not affect the exposition in the text, though, as the diagnostics to be used do not test for referential transparency.
3. See, e.g., Hankamer (1973b) and Pinkham (1982). In what follows, *than* will – for expository convenience – be bracketed as a coordinator in a ternary structure. For discussion of coordinate properties of comparatives and the structure of comparative coordination see Lechner (2004) and references therein.
4. Wide scope in (8) cannot be attributed to a non-scoping mechanism (choice functions or non-local binding of world variables for *de re* readings; see section 7.2.2), as these devices do not evacuate the relative clause from the c-command domain of the antecedent. Moreover, on the standard assumption that VPE may only elide a single node, and not e.g. multiple terminals, reading (8b) leads to regress, as the antecedent still contains the ellipsis site.
5. Similar ambiguities have been discussed in McCawley (1998: 688) and Pinkham (1982: 130). McCawley assumes that the two readings in examples similar to (11) are not derivationally related, but arise from different deep structures. Pinkham considers (i), and concludes that reading (ia) is the product of a construction specific deletion process, while (ib) represents a base-generated PC which does not include any elliptical structure. As will be seen shortly, both views differ from the one advanced here, according to which all PCs derive from a clausal source (potentially a small clause, as in (ib)).

    (i) John seems taller than Bill Δ.
    a. Δ = seems d-tall
    b. Δ = is d-tall

6. In the narrow reading (=(11a)), the verb is also underspecified for tense. Note incidentally that atemporal readings are subject to the additional, curious restriction that the correlate has to be structurally higher than the comparative NPs (see Lechner 2004 for a partial analysis):

    (ii) John will subject more students to this year's exam than Δ to last year's exam.
    Δ = John will subject/*subjected d-many students