Chapter 7

Island Repair by Ellipsis

1. Introduction

Like the previous chapter, the final chapter of this monograph is concerned with the initially surprising absence of CED-type effects in a certain domain. More specifially, I want to show that the approach to CED effects in chapter 4 offers a new perspective on an old problem: the lack of CED effects under ellipsis in sluicing constructions, where deletion takes place. The line of argumentation will be similar to the one given in chapter 6: Recall that according to the approach developed in chapter 4, a CED effect arises with movement form XP if the next higher phase head Y is not active anymore, i.e., if it does not bear an operation-inducing feature at the relevant stage of the derivation. In sluicing constructions, a *wh*-phrase undergoes movement to a $\text{SpecC}_{[\text{wh}]}$ position, which is accompanied by deletion of all material to the right of the *wh*-phrase; interestingly, island effects that normally show up with movement can be avoided in this construction type. This phenomenon ultimately remains a mystery under many existing accounts, and where it does not, it is usually taken to require specific assumptions, and a representational approach. In contrast, I will argue that the effect follows without further ado from an independently motivated approach to deletion, given the appraoch to CED effects in chapter 4: There are features on phase heads that trigger deletion in ellipsis contexts, and these features keep the head active at the relevant stage of the derivation, thereby making a circumvention of island effects possible. Thus, non-occurrence of CED effects with extraction from a verb-second complement in the presence of verb-second movement in the matrix clause (as it was discussed in chapter 6) and non-occurrence of CED effects in sluicing contexts (as it will be discussed below) exhibit a similar pattern: What unites the two contexts is the presence of an operation-inducing feature on a phase head *after* the phase head has discharged its final structure-building feature (which would normally be responsible for the CED effect): a Münchhausen probe feature that triggers verb-second by reprojection movement in the first case; and a feature that triggers deletion of complements of phase heads in ellipsis contexts. These features keep the head active at the

relevant stage of the derivation.[1]

2. The Problem

2.1 Data

Run-of-the-mill examples involving sluicing in English and German are given in (1-ab), respectively (see Ross (1969), Merchant (2001)).[2]

(1) a. John bought something, but I don't know what$_1$ ~~John bought t_1~~

b. Fritz hat irgendwas falsch gemacht, aber mir ist nicht klar, was$_1$ ~~Fritz t_1~~
Fritz has something wrong done but me$_{dat}$ is not clear what Fritz
~~falsch gemacht hat~~
wrong done has

A standard analysis of the phenomenon that I will presuppose in what follows is that sluicing is to be analyzed as TP deletion triggered by a (certain kind of) interrogative C, and subject to recoverability and a parallelism constraint (see, e.g., Lasnik (1999), Merchant (2001), and Heck & Müller (2003)).

There is one generalization that is important in the present context, and that is that slucing may repair (or, more neutrally, circumvent) island effects (see Ross (1969), Chomsky (1972), Chung et al. (1995), Merchant (2001), Fox & Lasnik (2003), Bošković (2011), among many others).[3] In what follows, this is shown for a number of island contexts, often with examples that go back to Ross (1969) and that are by now legendary. Thus, the example pair in (2) illustrates that sluicing in English can circumvent Sentential Subject Constraint effects (cf. (69) from chapter 1).

(2) a. That he'll hire someone is possible, but I won't divulge who$_1$ [$_{TP}$ [$_{CP}$ ~~that he'll hire t_1~~] ~~is possible~~]

b. *That he'll hire someone is possible, but I won't divulge who$_1$ [$_{TP}$ [$_{CP}$ that he'll hire t_1] is possible]

Next, Subject Condition effects with DPs (see (72) from chapter 1) are also absent in sluicing constructions; compare the German examples with and without sluicing in (3).[4]

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[1] Note that the argument is completely parallel to the one given in Assmann (2010) for the absence of certain island effects in parasitic gap constructions, which instantiates a third kind of a priori unexpected non-occurrence of CED effects.

[2] Here and in what follows, deletion is indicated by crossing out the relevant material.

[3] In this respect, sluicing differs from another syntactic deletion operation, viz., VP ellipsis, which cannot repair island effects.

[4] English examples showing the same pattern are given in (i) (from Merchant (2001).

(3) a. Es hat wohl ein Buch über irgendwen den Karl beeindruckt, aber
it has PRT a book$_{nom}$ about someone the Karl$_{acc}$ impressed but
ich weiß nicht, über wen$_1$ ~~wohl~~ [$_{DP}$ ~~ein Buch~~ ~~t$_1$~~] ~~den Karl~~
I know not about whom PRT a book$_{nom}$ the Karl$_{acc}$
~~beeindruckt~~ ~~hat~~
impressed has

b. *Es hat wohl ein Buch über irgendwen den Karl beeindruckt, aber
it has PRT a book$_{nom}$ about someone the Karl$_{acc}$ impressed but
ich weiß nicht, über wen$_1$ wohl [$_{DP}$ ein Buch t$_1$] den Karl
I know not about whom PRT a book$_{nom}$ the Karl$_{acc}$
beeindruckt hat
impressed has

The same pattern arises with the Adjunct Condition (see (94) from chapter 1): Regular movement as in (4-b) in English yields strong illformedness; but the example becomes acceptable if sluicing takes place, as in (4-a).

(4) a. Ben left the party because one of the guests insulted him, but he wouldn't tell me [$_{DP_1}$ which guest] ~~he left the party because t$_1$ insulted him~~

b. *Ben left the party because one of the guests insulted him, but he wouldn't tell me [$_{DP_1}$ which guest] he left the party because t$_1$ insulted him

Island repair by deletion in sluicing constructions is shown for the relative clause part of the Complex NP Constraint (see (65) from chapter 1) on the basis of English data such as those in (5-a) and (5-b). The example pair in (5-b) is particularly instructive because it shows that a violation of the Left Branch Condition (according to which the leftmost item of a DP cannot be moved out of that DP; see Ross (1967)) is also possible with sluicing.

(5) a. (i) She kissed a man who bit one of my friends, but Tom doesn't realize [$_{DP_1}$ which one of my friends] ~~she kissed a man who bit t$_1$~~

(ii) *She kissed a man who bit one of my friends, but Tom doesn't realize [$_{DP_1}$ which one of my friends] she kissed a man who bit t$_1$

b. (i) They want to hire someone who speaks a Balkan language, but I don't remember which$_1$ ~~they want to hire someone who speaks~~ [$_{DP}$ ~~t$_1$ Balkan language~~]

(ii) *They want to hire someone who speaks a Balkan language, but I don't remember which$_1$ they want to hire someone who speaks [$_{DP}$ t$_1$ Balkan

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(i) a. *Which Marx brother$_1$ did she say that [$_{DP_2}$ a biographer of t$_1$] interviewed her ?

b. A biographer of one of the Marx brothers interviewed her, but I don't remember which ~~Marx brother$_1$ a biographer of t$_1$ interviewed her~~

language]

The same asymmetry arises with the noun complement part of the Complex NP Constraint; see (6-a) vs. (6-b).

(6) a. I believe the claim that he bit someone, but they don't know who$_1$ ~~I believe the claim that he bit t_1~~

b. *I believe the claim that he bit someone, but they don't know who$_1$ I believe the claim that he bit t_1

Freezing effects (cf. (36) in section 4 of chapter 4) also do not show up under sluicing; see the following pair of examples taken from Merchant (2001).

(7) a. *Which Marx brother$_1$ did she say that [$_{DP_2}$ a biography of t_1] she refused to read t_2 ?

b. A: [$_{DP_2}$ A biography of one of the Marx brothers] she refused to read t_2.
B: Which one$_1$ ~~(did)~~ [$_{DP_2}$ ~~a biography of t_1~~] ~~she refuse to read t_2~~ ?

Finally, consider the example pair in (8). (8-a) shows that *wh*-movement in English obeys the Coordinate Structure Constraint (according to which no conjunct may be moved in a coordinate structure, nor may any element contained in a conjunct be moved out of that conjunct; see Ross (1967)); and (8-b) shows that sluicing lifts the ban on moving an item out of a coordinate structure.

(8) a. Irv and someone were dancing together, but I don't know who$_1$ ~~Irv and t_1 were dancing together~~

b. *Irv and someone were dancing together, but I don't know who$_1$ Irv and t_1 were dancing together

As mentioned in footnote 3, VP ellipsis behaves differently from sluicing (i.e., TP ellipsis) in that it does not give rise to island repair of any kind. This is shown for Adjunct Condition effects by the lack of contrast in (9) (see Chung et al. (1995)).

(9) a. *What$_1$ did you leave [$_{CP}$ before they started playing t_1] ?
(We left before they started playing party games.)

b. *What$_1$ did you leave before they did [$_{VP}$ ~~start playing t_1~~] ?

2.2 A Standard Analysis

The classical approach to island repair by ellipsis in sluicing constructions is due to Chomsky (1972). In brief, the analysis works as follows. First, when movement crosses an island, a diacritic signalling ungrammaticality (like #) is assigned to the island. Second, an output filter blocks structures in which # shows up. And third, if deletion applies, # is removed together with the lexical material of the clause. This is why sluicing can circumvent island effects. Could such an approach be compati-

ble with the approach to islands and movement developed in this monograph? The answer would seem to be yes if one assumes that violations of the PIC do not necessarily lead to a breakdown of the derivation but may only result in the assignment of # to the phrase structure, which may then eventually be deleted in sluicing constructions.[5] Then again, such an approach would be inherently representational in that it would depend on inspecting full phrase structures at the end of the derivation in order to detect diacritics which are possibly very deeply embedded. Moreover, it would be stipulative because of the very presence of the diacritic # that is assigned after an island violation.[6] These are good reasons to investigate whether some other, derivational approach to island repair by ellipsis is available, one that fits into the overall system of assumptions developed in the preceding chapters of this monograph. The key to such an approach is the concept of cyclic, phase-based deletion, to which I will now turn.[7]

3. Deletion by Phase

As a starting point, I would like to point out that there are two widely held assumptions about spell-out and deletion that may easily be construed as mutually incompatible. These assumptions are given in (10).

(10) a. Sluicing is TP deletion.
b. Spell-out is cyclic and proceeds phase-by-phase.

The first assumption has already been introduced above (cf. Lasnik (1999), Merchant (2001), Heck & Müller (2003)). On this view, there is only one deletion operation in sluicing contexts: A TP that is the complement of an interrogative C is deleted, and with it all the material that it contains. Note that this deletion operation must be syntactically visible because it interacts with syntactic operations like multiple *wh*-movement in multiple sluicing constructions in German (see Heck & Müller (2003)

[5] This option is of course not available if the PIC is associated with (ultimately, reduced to) a non-metaphorical concept of cyclic spell-out of complements of phase heads; recall footnote 5 in chapter 2, and see below.

[6] Also compare the use of the feature [$\pm\gamma$] for the purposes of the ECP; see the discussion of (5) in chapter 1; and see Merchant (2004) on the similarity of the two concepts. In addition, see Kitahara (1999) for an attempt to get rid of these kinds of features that only serve the purpose of flagging earlier events for later reference (led by considerations related to the Inclusiveness Condition).

[7] Needless to say, many other approaches to island repair by ellipsis have been developed since Chomsky's (1972) original analysis. I cannot possibly list all proposals here, let alone go through them one by one. Let me just mention Merchant's (2001) influential idea that for at least some types of island effects, the non-occurrence of the island effect in sluicing (i.e., PF deletion) constructions may be explained by the hypothesis that the island effect in question is *itself* a PF phenomenon.

and references cited there). Thus, consider the two examples in (11), which instantiate a legitimate and an illegitimate case of multiple wh-movement in German sluicing constructions, respectively.

(11) a. Irgend jemand hat irgend etwas geerbt aber der Fritz weiß nicht
someone has something inherited but ART Fritz knows not
mehr [$_{CP}$ wer$_1$ was$_2$ [$_{TP}$ ~~t_1 t_2 geerbt~~ ~~hat~~]]
more who what inherited has

b. *Irgend jemand hat behauptet dass die Maria irgend etwas geerbt hat
someone has claimed that ART Maria something inherited has
aber der Fritz weiß nicht mehr [$_{CP}$ wer$_1$ was$_2$ [$_{TP}$ ~~t_1~~ ~~behauptet~~ ~~hat~~ [$_{CP}$
but ART Fritz knows not more who what claimed has
~~dass~~ [$_{TP}$ ~~die~~ ~~Maria~~ ~~t_2~~ ~~geerbt~~ ~~hat~~]]]]
that ART Maria inherited has

As argued in Heck & Müller (2003), both *wh*-phrases in (11-a) have indeed undergone overt *wh*-movement to an embedded SpecC position. Such multiple *wh*-movement is exceptionally possible in German (which otherwise only tolerates one *wh*-phrase per SpecC position) because it is the only way to fulfill the general recoverability requirement in (11-a) – if the second *wh*-phrase (whichever one that is; cf. chapter 3) stays in situ, important information will fatally be lost, leading to ungrammaticality (or uninterpretability). However, as shown by the illformedness of (11-b), multiple *wh*-movement in sluicing constructions in German is not always possible; if one of the *wh*-phrases has to undergo long-distance movement from a CP that is further embedded, ungrammaticality arises. Independently of which analysis of this phenomenon is ultimately adopted, the contrast in (11) shows that TP deletion in sluicing constructions must be syntactically visible – it clearly interacts with syntactic movement.[8]

Now let us turn to the second assumption in (10), according to which spell-out applies cyclically; see Uriagereka (1999) for the original idea, and Chomsky (2001b; 2008) and Epstein & Seely (2002) for two further developments of this assumption.[9] Chomsky's phase-based approach to cyclic spell-out is arguably the most widely adopted approach among those that incorporate the general concept. Here it is as-

[8] On the analysis in Heck & Müller (2003), (11-b) qualifies as an instance of *counter-feeding* (see Chomsky (1975), Kiparsky (1973)): The ultimate representation is opaque; viewed representationally, it looks as though multiple *wh*-movement should be able to apply to make the multiple question reading possible under sluicing (in analogy to (11-a), which shows that recoverability can in principle force multiple *wh*-movement in German). However, the trigger for multiple *wh*-movement (viz., sluicing, i.e., deletion of TP, and the recoverability problem it creates) comes too late in the derivation; when it is there, the chance for multiple sluicing to apply has passed (because the in-situ *wh*-phrase is now too deeply embedded).

[9] Also recall from chapter 2 that Uriagereka's analysis is radically incompatible with the phase-based approach proposed by Chomsky.

sumed that when a phase head has carried out all the operations that it can trigger and the phase is completed, its complement is sent to PF and thereby rendered inaccessible for any further operations in the derivation.

The dilemma that arises if both these assumptions are taken seriously is the following: If cyclic spell-out proceeds phase-by-phase and sluicing is a deletion operation applying to syntactic structures, the latter operation will only be able to affect that part of the structure created by the derivation so far which has not yet undergone spell-out. In other words: If some part of a structure has already been affected by regular (cyclic) spell-out, and thus been sent off to PF, subsequent deletion of the whole structure will only be able to affect what is left. More specifically, if a subpart of a TP that is to be deleted in a sluicing construction has already been sent off to PF via cyclic spell-out of phase head complements, subsequent TP deletion cannot affect all material that was originally present in TP. This will give rise to selective (and sometimes non-constituent) deletion effects which do, however, not seem to be attested in sluicing constructions. Based on the standard assumption that vP and CP are phases (which I have abandoned in the present work), combining cyclic spell-out and sluicing as TP deletion would give rise to sentences like those in (12). In (12-a), we should expect only the subject pronoun to be successfully deleted by sluicing since *ein Buch bringt* is the complement of the next-lowever phase head (v), and already PF-realized when TP deletion applies. In (12-b), the non-constituent sequence *Karls*-D would undergo deletion, but the rest of the the embedded clause (i.e., *Katze*, *von uns mag*) would be immune to deletion because it has already been spelled out as the complement of a phase head (v again), and is thus PF-realized when TP deletion applies.[10]

(12) a. *Sie bringt irgendwem ein Buch, aber ich weiß nicht, wem$_1$ [$_{TP}$ [$_{vP}$
she brings someone a book but I know not whom$_{acc}$
~~sie~~ [$_{v'}$ [$_{VP}$ t$_1$ ein Buch [$_V$ bringt]] v]]]
she$_{nom}$ a book$_{acc}$ brings

b. *Karls Katze mag einen von uns, aber ich sage nicht, wen$_1$ [$_{TP}$ [$_{vP}$ [$_{DP}$
Karl's cat likes one of us but I say not whom
~~Karls~~ ~~D~~ [$_{NP}$ Katze]] [$_{v'}$ [$_{VP}$ [$_{DP}$ t$_1$ von uns] mag] v]]]]
Karl's cat of us likes

It is clear that these problems can only get worse (especially in other deletion constructions) if every phrase is a phase, as assumed throughout this monograph. The solution that I would like to suggest in view of this state of affairs is the following:

[10] I assume here that the main verb V stays in situ. If it undergoes movement to v (notwithstanding what has been said in chapter 6), it will also be affected by phase-based deletion, producing non-constituent deletion throughout.

Deletion must be successive-cyclic, proceeding phase by phase.[11] As a matter of fact, this looks like null hypothesis from a conceptual perspective: On this view, deletion is just a special form of PF realization, and there is no reason to assume that it proceeds differently from ('regular') instances of PF realization. So, if regular PF relization applies phase-by-phase, deletion should do so, too.[12]

Here is a proposal that implements this assumption. Suppose that deletion, as a special kind of cyclic spell-out, is brought about by a designated operation-inducing feature [†]. A feature [†] on a phase head triggers a certain kind of spell-out of the complement, viz., zero realization. In sluicing (and other deletion) contexts, there must then be an uninterrupted sequence of [†] features on all heads dominated by the ultimate deletion site TP (except for those heads that do not take complements, i.e., that qualify as phrases), ending with the interrogative C that takes TP as a complement. (The sequence of [†]s must not be interrupted because every phrase is a phase.) Of course, such a spreading of [†] features must be effected in some way. For the moment, I will abstract away from this issue, but I will come back to it at the end of the chapter. Let us for now just take the presence of [†] features on all phase heads within a TP deletion site for granted, and see what this predicts for the occurrence of CED effects.

4. A PIC-Based Approach

4.1 Analysis

Spell-out of a complement is the very last operation that takes place in a phase; after this operation, the derivation moves into the next phase cycle, merging a further phase head with the current phase. Given the proposal made in the previous section, there are two kinds of complement spell-out. On the one hand, there is regular spell-out that leads to a phonological realization of the lexical material contained in the structure that is sent off to PF; on the other hand, there is deletion. The latter operation is triggered by a feature on a phase head: [†]. Crucially, as long as a phase head is equipped with an operation-inducing feature [†] for complement deletion, it is active. Technically, this implies that the Edge Feature Condition (see (11) in chapter 6) must be enriched as in (13) (as before, to simplify matters I leave out the additional requirement that the edge feature can only be inserted if this is the only way to produce a balanced phase; see chapter 3); it now recognizes three kinds of operation-inducing features which are

[11] A qualification is in order here: I have nothing to say about other deletion operations like gapping and pseudo-gapping, which may require a very different analysis.

[12] There may be alternatives to this conclusion. For instance, one might assume that TP deletion may affect all pieces of structure that have so far undergone regular cyclic spell-out after all, by *reversing*, in the phonological component, earlier decisions concerning the type of spell-out as they result from regular cyclic spell-out. However, this looks like a clear deviation from the null hypothesis.

located on three separate feature stacks.

(13) *Edge Feature Condition* (EFC):
An edge feature [•X•] can be assigned to the head γ of a phase only if (a) and (b) hold:
   a. γ has not yet discharged all its structure-building (•), probe ($*$) or deletion (†) features.
   b. [•X•] ends up on top of γ's list of structure-building features.

Since a [†] feature on a phase head is necessarily discharged as the final operation in the phase, it keeps the phase head active *after* a last-merged specifier (or complement) has been introduced into the structure. Therefore, a phase head that is part of a deletion structure permits edge feature insertion for some item in the edge domain of a last-merged phrase, and this item is thus accessible on the next cycle without violating the PIC. This, in a nutshell, accounts for the lack of CED effects in sluicing constructions. Thus, [†] plays a role that is completely analogous to the roles played by expletives in pseudo-melting (chapter 4), and by Münchhausen probe features on matrix verbs in extraction from verb-second clauses (chapter 6).

As a case study of how CED effects can be circumvented with the help of [†] features in sluicing constructions, consider Subject Condition effects and their a priori unexpected absence in sluicing constructions (see (2), (3); and (i) of footnote 4). Focussing on the German examples in (3), two cases can be distinguished: In the first case, there is movement from a DP that is last-merged in vP, and there is no deletion of v's complement VP. In the second case, there is movement from a DP that is last-merged in vP, but this time deletion of v's complement VP must take place (as part of a sluicing construction). I address these two cases in turn.

4.2 Extraction from Specv without VP Deletion

The ill-formed example in (3-a) is repeated here as (14).

(14) *Es hat wohl ein Buch über irgendwen den Karl beeindruckt, aber ich
it has PRT a book$_{nom}$ about someone the Karl$_{acc}$ impressed but I
weiß nicht, über wen$_1$ wohl [$_{\text{DP}}$ ein Buch t$_1$] den Karl beeindruckt hat
know not about whom PRT a book$_{nom}$ the Karl$_{acc}$ impressed has

This is just a regular CED effect as it has been extensively discussion in chapter 4. The subject DP that is last-merged in vP is a barrier because, at the point where DP has been merged in vP, no operation-inducing feature can be left on v. This is so because (i) v has discharged its last structure-building feature by definition; (ii) v cannot retain any probe features (e.g., case and ϕ-features, but the same conclusion can be drawn for any other kind of potential probe feature on v, including perhaps features encoding status-government, as envisaged on page 182 in chapter 4) after the subject DP has

been merged because these features could then not be discharged anymore, due to a conspiracy of the Strict Cycle Condition (which precludes Agree with an item in the complement VP) and the c-command requirement on Agree (which blocks Agree with the subject DP itself); and (iii) there is no feature triggering deletion present on v that might keep v active. The changes in feature composition on the phase head v at the crucial stages of the derivation are shown in (15).

(15) *Specifiers of v as barriers, no* [†] *on v*:

	v: [•V•] ≻ [•D•]	
	[∗acc∗], [∗ϕ∗]	
→	v: [•D•]	
	[∗acc∗], [∗ϕ∗]	⇝ [•X•] insertion impossible
→	v: [•D•]	
	[∗ϕ∗]	
→	v: [•D•]	
	v: —	

Since v is therefore inactive at the stage of the derivation when its DP specifier has come into being, no edge feature can be inserted on v that would permit extraction of some item from the subject DP; consequently, the PIC will have to be violated once the derivation moves beyond the vP domain and tries to attract the *wh*-PP_1 to a higher position (i.e., SpecT).

4.3 Extraction from Specv in Sluicing Constructions

Now consider the well-formed example involving extraction from a subject DP in a sluicing construction given in (3-b); the example is repeated here as (16).

(16) Es hat wohl ein Buch über irgendwen den Karl beeindruckt, aber ich
it has PRT a book$_{nom}$ about someone the Karl$_{acc}$ impressed but I
weiß nicht, über wen$_1$ ~~wohl~~ [$_{DP}$ ~~ein~~ ~~Buch~~ ~~t_1~~] ~~den~~ ~~Karl~~ ~~beeindruckt~~
know not about whom PRT a book$_{nom}$ the Karl$_{acc}$ impressed
~~hat~~
has

There is one minimal difference to (14); this time, v bears a [†] feature because it will eventually be part of a bigger TP deletion structure. This feature keeps the phase head active after the subject DP has been merged. Consequently, an edge feature can be instantiated on v at this point, and movement can take place out of the subject to a further (higher) Specv position. This way, a PIC violation can be avoided when the derivation moves beyond the vP domain. (17) shows how the stacks of operation-inducing features on v change in the relevant part of the derivation; in particular, it is shown here that an edge feature can be inserted even though both structure-building

and probe features are absent when this needs to be done.

(17) *Specifiers of v as non-barriers,* [†] *on v*:

	v: [•V•] ≻ [•D•] [∗acc∗], [∗ϕ∗] [†]
→	v: [•D•] [∗acc∗], [∗ϕ∗] [†]
→	v: [•D•] [∗ϕ∗] [†]
→	v: [•D•] [†]
→	v: [†]
→	v: [•X•] [†]
→	v: [†]
→	v: —

$\rightsquigarrow$ violates nothing

4.4 [†] Discharge and the Strict Cycle Condition

At this point, a question needs to be addressed that arises for derivations incorporating (17) with respect to the Strict Cycle Condition; this constraint is repeated once more in (18) (= (14) in chapter 6).

(18) *Strict Cycle Condition* (SCC):
Within the current domain ζ, a binary syntactic operation may not exclusively apply to positions ϵ, τ if ϵ and τ are both included within another domain π that is dominated by ζ.

Discharge of [†] seems to violate the SCC: The derivation has reached the vP level, but [†] discharge applies only to v (which bears the feature) and VP (which is the target of the operation, thus clearly making [†] discharge a *binary* operation in the sense of (18)). However, v and vP are included in v′, which in turn is dominated by vP; so the operation would seem to be counter-cyclic. Thus, if this option is available with [†] features, there is a fundamental difference to probe features: Recall that the option of counter-cyclic feature-discharge must not be available with probe features; otherwise the barrier status of (last-merged) specifiers could not be derived.

Still, there is good evidence that such an asymmetry between probe features and [†] features triggering deletion is not an artefact of the theory. Complement spell-out violates strict cyclicity virtually by definition: The complement of a phase head X

is spelled out within the local domain X′ *after* the more inclusive XP has been completed; and [†]-driven complement deletion is just complement spell-out of a certain type. Thus, we may conclude that SCC violations are unavoidable under a cyclic spell-out approach, and therefore unproblematic for [†]-feature discharge.[13]

5. Some Further Issues

The account of the absence of island effects just given raises a number of further questions. I will confine myself to briefly discussing three of them, concerning (i) the generality of the phenomenon, (ii) the consequences for VP ellipsis, and (iii) the spreading of [†] features through syntactic structures.

5.1 Island Types

First, notwithstanding Merchant's (2001) arguments that absence of islands effects with sluicing should not be treated as a homogeneous phenomenon (with clausal islands differing from non-clausal ones, and only the latter motivating the hypothesis that islands can be a PF phenonomenon), I assume that a homogeneous approach to the non-occurrence of island effects with sluicing should ideally be given. The approach developed here works for all legitimate island violations with sluicing where the island can be traced back to a CED (or barrier) effect derivable from the PIC, like the Sentential Subject Constraint, the Subject Condition, the Adjunct Condition, the Complex Noun Phrase Constraint (with both the relative clause and complement clause subcases), and the Freezing Generalization. At present, I take it to be an open question whether the approach can be generalized to other legitimate island violations, like the lack of Coordinate Structure Constraint and Left Branch Condition effects with sluicing. The simplest approach would seem to suggest PIC-based approaches to these phenomena, too; but I will not make any attempt at deriving Coordinate Structure Constraint and Left Branch Condition effects from the PIC (or at least from the inactivity of a phase head at the relevant stage of the derivation) in this monograph.[14]

5.2 VP Ellipsis

Second, the question arises of why VP ellipsis, unlike TP ellipsis, cannot circumvent islands; see (9), repeated here in (19).

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[13] Strictly speaking, this means that either the Strict Cycle Condition in (18) would have to be altered so as to reflect this, or that cyclic spell-out (including [†]-feature discharge) would have to be classified as not purely a "binary syntactic operation". But since both options are straightworward, I refrain from doing so here.

[14] As far as I can see, such an attempt would not have to be classified as futile from the start, but it would need to involve highly complex reasoning, and abstract structures.

(19) a. *What$_1$ did you leave [$_{CP}$ before they started playing t$_1$] ?
(We left before they started playing party games.)
b. *What$_1$ did you leave before they did [$_{VP}$ ~~start playing t$_1$~~] ?

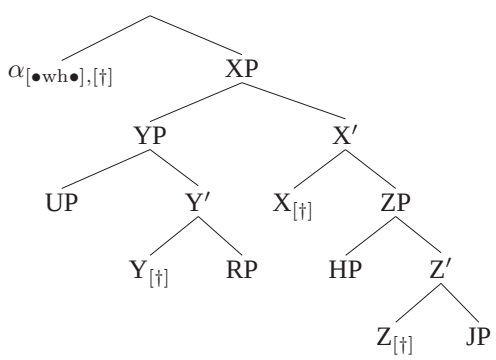
A simple analysis that covers the examples of sluicing and VP ellipsis mentioned so far on the basis of the standard approach is discussed in Merchant (2001) and Fox & Lasnik (2003): In (19-b), the island that is crossed by movement, and consequently assigned the diacritic #, shows up outside of the deletion site; therefore, repair is impossible. In contrast, in all the sluicing examples involving island repair discussed so far, the island is within the deletion site; therefore, a # that shows up here disappears once deletion takes place. The very same consequence would in fact also directly follow under present assumptions: The head *before* of the adjunct CP in (19-b) does not bear a [†] feature. Therefore, a CED effect that is reducible to the PIC cannot be avoided: Deletion in lower parts of the structure is irrelevant. However, Merchant (2001) and Fox & Lasnik (2003) show that this kind of analysis can ultimately not be the whole story because it turns out that there are cases where VP ellipsis fails to circumvent an island even though the island is within the deletion site. The two accounts given by Merchant (2001) and Fox & Lasnik (2003) in view of this are not compatible with the present approach. (For instance, Fox and Pesetsky's analysis necessitates the assumption that one-step long-distance movement is in principle an option.) At the moment, I cannot offer a full-fledged solution to this problem. An assumption that might work from a purely technical point of view (even though it is not substantiated by independent syntactic evidence) might be that different kinds of deletion-inducing features may be involved in the two kinds of constructions; this then may or may not be related to the fact that different syntactic licensing requirements (concerning, e.g., lexicalization requirements for the head adjacent to the deletion site) are clearly imposed on the two deletion operations (in English at least). Assuming that there are two types of deletion features, one might simply stipulate that one type is in effect too weak to keep the head active at the decisive stage of the derivation, thereby making a circumvention of island effects impossible in the case of VP ellipsis even if the island itself also undergoes deletion.

5.3 Spreading of [†]

Third and finally, something must be said about the required spreading of [†] features through all head positions (except for those that are non-complex phrases) up to the ultimate TP deletion site in sluicing constructions. There are various standard techniques of passing on non-local information locally in a bottom-up fashion that have been suggested in strictly derivational approaches that strive to do without look-ahead (involving, i.a., feature movement to head or specifier positions, or checking or selection mechanisms, as they have been proposed for binding (see Fischer (2006)), or for

agreement (as in the concept of cyclic Agree, see Legate (2005), Frank (2006), Lahne (2008)). However, these kinds of mechanisms do not seem applicable in the case at hand. They can propagate features along a projection line, thereby creating a path, but they cannot easily capture the intended top-down effect of spreading from the sister of the ultimate deletion source (i.e., the $C_{[wh]}$ head that is eventually the trigger of sluicing) to (nearly) all the embedded phase heads (again, except for heads that are trivial phrases) of the whole subtree under the deleted TP. There are two reasons for this failure: First, the intended relation is not one-to-one (as with standard Agree or movement operations) but one-to-many. And second, as noted, at least at first sight it looks as though the spreading could best be described by a top-down algorithm. To see this, consider the abstract representation in (20). In the cyclic, phase-by-phase approach to deletion via repeated complement spell-out as zero, [†] features must show up on the phase heads Z, X, and Y (but not on J, H, R, and U, assuming that these phase heads are trivial XPs – JP, HP, RP, and UP).

(20)



In view of this situation, it seems to me that the best way to proceed is not to try to assimilate [†]-induced operations to well-established syntactic operations (e.g., by adopting a less restrictive approach to Agree operations that might permit multiple Agree (see Hiraiwa (2005)) or feature sharing (see Pesetsky & Torrego (2007), Bhatt (2005), Heck & Cuartero (2011), among many others)); rather, I take it that one should dispense with the idea that cyclic deletion works exactly like other syntactic operations (driven by probe or structure-building features).[15] For concreteness, I would like to suggest the following approach to [†] feature spreading (but I hasten to add that alternative approaches are also conceivable, and readily available). Suppose that [†] can

[15] This reinforces the conclusions reached earlier, based on the inherently counter-cyclic nature of phase-based spell-out and the assignment of [†] features to a third stack.

optionally be inserted on any lexical item in the numeration.[16] Spreading of this feature in syntactic structures is then brought about by (21), which acts as a constraint on external Merge operations.[17]

(21) *Spreading of* [†]:
Suppose that α externally merges with β as a consequence of [$\bullet\beta\bullet$] on the head of α. Then, the head of α bears [†] iff the head of β bears [†], unless the head of β is $C_{[wh]}$.

The first thing to note here is that discharge of [†] by complement spell-out (as zero) must not imply that the feature is not available on the phase head aynmore that has triggered the operation. The feature persists on a phase head in some form, and is visible for further selection.[18] From (21), it then follows that a TP deletion operation in a sluicing construction can only be successfully carried out on the basis of a given numeration if (i) a [†] feature has initially been instantiated on all lexical items that will eventually end up in the c-command domain of the licensing $C_{[wh]}$ head;[19] and (ii) a [†] feature has not been instantiated on any lexical item that will end up outside of $C_{[wh]}$'s c-command domain. The only way to stop spreading of [†] at some point is to introduce $C_{[wh]}$ into the structure. $C_{[wh]}$ must then also bear [†], but when some other head (typically V) is subsequently merged with the CP headed by $C_{[wh]}$, this head does not have to bear [†], and [†] propagation (hence, deletion) is stopped. Nothing in (21) *precludes* the placement of [†] on, say, a matrix V selecting CP with a $C_{[wh],[\dagger]}$ head; if [†] is inserted on such a V, spreading will continue, eventually yielding a syntactically legitimate sentence without PF-realization, which will (presumably) be uninterpretable because of recoverability.

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[16] Thus, [†] can never be added in the course of the derivation, which avoids problems related to the Inclusiveness Condition and (more importantly, given the Inclusiveness Condition's minimal violability in favour of edge feature insertion) the Strict Cycle Condition.

[17] "Head of some category" is to be understood reflexively, such that the head of XP, X′, and X is X.

[18] Thus, the last two steps in (17) might actually look as in (i).

(i) *Specifiers of v as non-barriers,* [†] *on v, last two steps*
→ v: [†]°
→ v: [†]—

On this view, [†]° would be the basic, active feature, and [†] would be the form that the feature takes when it has been discharged and becomes inactive.

[19] Note that lexical items that are trivial phrases now also have [†] features even though there is no complement spell-out to trigger. However, this consequence is harmless: Either [†] can be discharged vacuously, or it need not be discharged at all if there is no spell-out operation. Alternatively, if this consequence were to be avoided, an additional clause that ensures this could easily be added in (21).

How can moved items (in particular, moved *wh*-phrases in sluicing constructions) avoid being assigned [†]? The answer to this is twofold. First, (21) is a constraint on external Merge; so internal Merge does not require the presence of [†] on the moved item even if the head that attracts it ($C_{[\mathrm{wh}],[\dagger]}$, in the case at hand) bears this feature. Second, how can the moved item avoid bearing [†] in situ where it has undergone *external* Merge with some other item? Here the answer may be based on an assumption that I have extensively motivated in the preceding chapters: Movement must be successive-cyclic (given the PIC), and assuming that all phrases qualify as phrases, it must take place via all phrase edges intervening between its base position and the ultimate target position. For a *wh*-phrase externally merged as a complement of, say, V, this means that is has to undergo extremely local movement to SpecV first before moving on to SpecC. Assuming that (21) is not a derivational constraint but a (mildly) *representational* constraint checked at the phase level (see the discussion in chapter 1, and note that (21) may be viewed as a requirement imposed by the PF interface), extremely local movement of β to a specifier of a phase head α can satisfy (21) even if α bears [†] and β does not. For a *wh*-phrase externally merged as a specifier of V or v, things are slightly more complicated. Here the most straightforward assumption might be that externally merged specifiers are in fact not part of the edge domain of a phase head; only internally merged specifiers are; see the pertinent discussion in section 5 of chapter 4 (page 209); thus, string-vacuous movement would be required here, and this would exempt a moved *wh*-phrase (or another item, for that matter), from obligatory deletion.

Such an approach to [†] spreading answers the basic questions that it was supposed to answer, but, needless to say, it also raises new ones. For instance, how can the analysis be conservatively extended to VP ellipsis? How can the apparantly construction-specific assumption concerning $C_{[\mathrm{wh}]}$ be avoided in (21)? And finally, is there a way to make numerations "smarter" (in the sense made precise in chapter 3) so as to avoid the consequence that given general optionality of [†] feature insertion, the vast majority of derivations will now be doomed to crash from the start, even though they may be filtered out fairly late in syntactic derivations. I firmly believe that the enterprise of providing reasonably principled answers to these (and other) questions is far from hopeless. However, since these questions do not affect the main point of the current chapter, I will, for now, leave it at that.

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