

Phase Heads, Multiple Spell-Out, and a Typology of Islands*

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ABSTRACT

We assume that subjects and adjuncts absolutely forbid extraction. However, English adjuncts allow some extractions of Case-marked complements (e.g. Borgonovo and Neeleman 2000: 200). In that case, English subjects, objects and adjuncts each have different extraction possibilities: (a) nothing can be extracted from subjects, (b) case-marked complements can sometimes be extracted from adjuncts, (c) subjects, objects and adjuncts can all be extracted from complement clauses. I relate this to a modified notion of the *phase*. A phase could be defined at PF as the domain of application of cyclic Spell-out. Meanwhile, an LF-based definition of *phase* might be based on quantification sites (Butler 2004) or feature specification (Abels 2003). I propose that PF and LF definitions of *phase* are both necessary at the relevant interface. However, the phase determined by these two definitions are not identical, and so the phases of a given phrase marker at PF and LF are generally different. Specifiers and adjuncts are PF phases, while DP, CP and vP are among the LF phases. I argue that *strong* islands (subjects and adjuncts) are equivalent to PF phases. However, extraction of Case-marked complements is, in principle, possible from within strong islands. The impossibility of *any* extraction from within an English subject is related to the additional LF phasehood of subjects. The existence of three types of non-projecting constituent (specifiers, adjuncts, and complements), and their different extraction possibilities, are thereby predicted.

1. INTRODUCTION

Theories of locality have taken on many forms in the history of the generative enterprise. In the course of the evolution of that enterprise, the broad trend, as with many areas of syntactic theory, has consisted of a shift from specification of idiosyncratic and largely autonomous constraints to powerful general principles. In particular, the family of individual constraints enumerated in Ross (1967) and subsequent work has been replaced by a small set of more abstract structural principles, aiming to cover at least the same range of cases. Major steps along the path of abstraction from, and generalisation over, the patterns described by Ross were taken by

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Chomsky's (1973) Strict Cycle Condition,¹ and Huang's (1982) Condition on Extraction Domain.

- (1) No rule can apply to a domain dominated by a cyclic node *A* in such a way as to affect solely a proper subdomain of *A* dominated by a node *B* which is also a cyclic node (Chomsky 1973: 243)
- (2) A phrase *A* may be extracted out of a domain *B* only if *B* is properly governed (Huang 1982)

A question, to be decided empirically, is how far to take this programme of abstraction and generalisation. We are led to prefer a simpler formulation of the phenomena at issue, all else being equal, but if simplification in one part of the theory of grammar entails a reduction in descriptive adequacy not compensated for elsewhere, then it should be treated with caution.

A case in point concerns the Strict Cycle Condition and the CED. The two have a degree of conceptual similarity: they define domains limiting the application of certain operations. The former has the effect of enforcing successive cyclic movement, while the latter has the effect of blocking movement out of constituents other than complements of lexical heads. They also have a degree of formal similarity, capitalised upon by Chomsky in his (1986) *Barriers* theory, aiming to unify the effects of the two constraints, along with the Empty Category Principle.² The core locality conditions in the *Barriers* framework are as follows, with the assumption being that crossing one barrier results in the equivalent of a weak subjacency violation, while crossing two barriers (as is the case for CED violations) has the status of an ECP violation:

- (3) α L-marks β iff α is a lexical category that θ -governs β .
 γ is a BC [Blocking Category] for β iff γ is not L-marked and γ dominates β .
 γ is a barrier for β iff (a) or (b):
 - a. γ immediately dominates δ , δ a BC for β ;
 - b. γ is a BC for β , $\gamma \neq \text{IP}$.

(Chomsky 1986: 14-15)

This was perhaps the first theory which could seriously claim to offer a unified account of many of the constraints noticed by Ross, and the conceptual advantages which such unification offers remain attractive, as seen in the approach of, for example, Starke (2001), a theory which bears little formal resemblance to that in Chomsky (1986), but which has the similarity of claiming that all locality effects are derived from a single underlying principle, in that case Relativised Minimality (Rizzi 1990).

However, there appear to be non-trivial differences between the cases ruled out by subjacency and the CED. Subjacency violations can be only mildly ungrammatical, if at all, and in some cases are plausibly treated as pragmatically infelicitous, rather than

¹ The content of the Strict Cycle Condition was subsequently incorporated into the Subjacency Condition. I reproduce the simpler condition in (1) here, as its import is more easily grasped. *Cyclic nodes* are assumed in Chomsky (1973) to be S and NP, although S' was considered elsewhere as another possible cyclic node.

² The Empty Category Principle, or ECP, is a close formal relative of the CED, stating (in the formulation of Chomsky 1981) that traces must be properly governed, proper government corresponding to either government by a lexical category or antecedent-government.

strictly ungrammatical.³ On the other hand, CED violations are, at least in the general case, crashingly bad. Equally, subjacency violations reveal an argument-adjunct asymmetry, in that only the former can ever violate subjacency, while CED violations are generally ungrammatical, regardless of the argumental or adjunct status of the extracted constituent. These discrepancies may lead one to favour the division of the broad class of *islands*, that is, structural domains from which extraction possibilities are restricted, into *strong* and *weak* islands, corresponding roughly to violations of the CED and subjacency, respectively.

Since the inception of the Minimalist Program in the early 1990s, much of the machinery deriving island effects, either as a unified or disjunctive class, has been subjected to critical re-evaluation. Yet, equivalents of many axiomatic components of earlier accounts have been derived from minimalist considerations. Locality effects related to Relativised Minimality were naturally reformulated in Chomsky (1995) in terms of the *Minimal Link Condition*, construed as a constraint on feature visibility for checking relations. Since Chomsky (2000, 2001), the introduction of the notion of *phase head* has sought to provide a principled modern equivalent of the cyclic nodes of Chomsky (1973). Finally, the structural approach to multiple Spell-Out first advocated in Uriagereka (1999) essentially replicates many effects of the CED.

However, this proliferation of “principled” notions with a bearing on locality has led to some degree of redundancy and a concomitant lack of clarity. Abels (2003), building on Starke (2001), finds a common core to Relativised Minimality and the notion of the phase head, based on a featural definition of the latter. And both Uriagereka (1999) and Chomsky (2000, 2001) employ the notion of multiple Spell-Out in distinct, and not obviously compatible, ways.

The aim of this paper is to clarify the content and function of these notions. At stake, primarily, is the correct characterisation of the *phase*, which has tended to be defined functionally and extensionally in work following from Chomsky (2000, 2001), in contrast to the clear formal statements of the nature and operation of Relativised Minimality and multiple Spell-Out. The approach taken here will be to investigate the cases where extraction from islands *is* possible. The distinct characteristics of such extractions from weak and strong islands will lead to a model which maintains Relativised Minimality, Chomskyan phases, and multiple Spell-Out, but which assimilates phase heads to A'-interveners, and dissociates the notion of the phase from that of Spell-Out. A consequence of this new division of labour is that strong and weak islands are dissociated and conceived of as related to Spell-Out and Relativised Minimality, respectively.

To reach this point, in sections 2 and 3 I will consider the properties of extractions from the two types of island independently. However, the dissociation of strong and weak islandhood leads to the prediction that certain constituents are not islands at all, and other constituents will have the characteristics of both strong and weak islands. This prediction will be discussed in section 4.

³ This is at least the thrust of Pesetsky's (1987) treatment of Superiority violations and the “presuppositional” interpretive effects of extraction from weak islands discussed at length in Starke (2001).

2. WEAK ISLANDS AND SUCCESSIVE CYCLIC MOVEMENT

It has long been assumed that apparently unbounded A'-dependencies formed across multiple cyclic nodes are in fact the result of a series of smaller movements. Broadly converging evidence to this effect comes from such diverse sources as complementiser agreement in Irish (McCloskey 2001), inversion in Spanish (Torrego 1984), and reconstruction sites (Fox 1999, Butler 2004). I present one such piece of evidence below, from Chamorro. Here, *wh*-agreement in a clause is taken to be indicative of a local *wh*-trace c-commanded by the head of that clause. In the standard case, then, as in (4) below, if a verb takes a clausal complement, *wh*-agreement is found within each clause, indicating the presence of an intermediate trace in embedded [Spec,C]:

- (4) Hafa na patti gi atumobit malago' -mu [t u -mafa'maolik t]?
 What? L part LOC car WH[OBL].want -AGR WH[NOM].AGR -be.fixed
 'Which part in the car do you want to be fixed?'
 (Chung 1994: 18)

The pattern of successive cyclic movement can be captured in many ways. The predominant approach within current minimalist theory relies on the *Phase Impenetrability Condition* (PIC) of Chomsky (2001), as given in (5):

- (5) 'The domain of H is not accessible to operations at ZP; only H and its edge are accessible to such operations.' (Chomsky 2001: 14)

Under this approach, failure of a phrase to move to the edge of a phase will result in the inaccessibility of that phrase to subsequent syntactic operations. If it is required to enter into an Agree relation at some later stage, the derivation will therefore crash. This imbues the intermediate steps in successive cyclic A'-movement with a teleological, countercyclic, flavour, which remains a mystery within the current theoretical framework: the intermediate landing sites of A'-movement generally cannot be final landing sites, as noted by Rizzi (2004). I have nothing to say about this. For concreteness, I will assume, following Rizzi among others, that the intermediate movements are motivated by purely formal counterparts of the interrogative C head – the feature checking relation between an embedded C and a *wh*-phrase “passing through” to a higher [Spec,C] position is identical to that which holds in an interrogative clause, but the intermediate CP is not valued as interrogative by this relation.

Now, a key question for phase theory as understood in this way is how to account for the fact that long *wh*-movement *is* apparently possible, given an appropriate interpretation. This fact came to light in Cinque (1990), although the details are still a matter of some debate. Alongside examples such as (4), then, whenever the *wh*-phrase is *referential*, to use Cinque's term, sentences such as (6) are acceptable in Chamorro, where the lack of *wh*-agreement in the matrix clause is taken to correspond to the absence of an intermediate trace.

- (6) Hafa na patti gu atumobit malägu' hao [u -mafa'maolik t]?
 What? L part LOC car AGR.want you WH[NOM].AGR -be.fixed
 'Which part in the car do you want to be fixed?'
 (Chung 1994: 18)

This is unexpected under the PIC as presented in (5), although it is not fatal, as Chomsky provides independent reasons for introducing a one-phase lag in the application of the PIC, such that the domain of a phase head H_1 becomes opaque only at the next strong phase level (after Merge of the next phase head H_2). An element in the domain of H_1 (for our purposes, a phrase which has not undergone an intermediate movement step to [Spec, H_1]) can still, then, conceivably enter into an Agree relation with H_2 .

Whether or not this is a viable explanation of the phenomenon of long *wh*-movement, as in (6), depends, then, on whether or not a one-phase lag is sufficient to account for patterns of long *wh*-movement, or whether such movement is genuinely unbounded, crossing an arbitrary number of intervening phases. In fact, there is evidence that the latter description is more accurate.

The evidence comes from weak island violations. Weak islands may be assumed to be created by a class of A'-operators (such as *wh*, Neg or Focus), A'-movement across which is barred in the unmarked case. This is the canonical Relativised Minimality (RM) configuration, as formulated in Rizzi (1990):

- (7) X x-governs Y only if there is no Z such that
 (i) Z is a typical potential x-governor for Y;
 (ii) Z c-commands Y and Z does not c-command X.
 (Rizzi 1990: 7)

Starke (2001) shows that such islands are, in fact, violable, but that extraction from them depends on a particular interpretation, whereby, roughly, the utterance carries a presupposition that the addressee has a specific answer in mind to the question. On this story, sentences like (8a) are degraded in the null context as the presuppositions associated with extraction from a weak island are not satisfied, while, given a context such as (8b), the utterance is grammatical.

- (8a) # What do you wonder whether Belgamore discovered?
- (8b) It's getting late for your little Joey, so you decide to bring him to bed and read a story to him. Part of the story involves the following:
 Belgamore and Belfedore lost their dog, and have been unsuccessfully looking for it for 3 days. On the fourth day, Belgamore decides to go out again and continue looking for any clue. Belfedore, tired and despaired, gives up and stays at home. In the evening, Belgamore comes back very excited and...
 Joey interrupts you [and] says: 'I wonder what Belga found! Could it be...?' and stops in the middle of the sentence, looking at you starry-eyed. [...] You stop reading and ask: [...] 'So? What do you wonder whether Belgamore discovered?'
 (Starke 2001: 11-13)

Starke accounts for this interpretive effect by assuming that elements extracted from a weak island must bear an additional feature to that which drives standard A'-movement. The interpretive correlate of this formal feature is the additional presupposition which accompanies extraction from weak islands. If we conceive of Relativised Minimality as a constraint on feature visibility for Agree relations, the additional feature suffices to render a phrase visible, despite any intervening A' heads. This predicts that, so long as this presupposition is satisfied, extraction over arbitrarily many intervening A' heads should be possible. Indeed, this appears to be the case. While it is very hard to construct a context in which (9) is felicitous, it is clear that any difference between (9) and (8) is

entirely due to contextual factors. From a narrow syntactic perspective, both are equally admissible, despite the increased length of the movement in (9).

- (9) So? What do you wonder whether I wonder whether Belfedore wonders whether Belgamore discovered?

Within any model attempting to account for examples such as (6) by postulating a limited delay between the introduction of a phase head and its domain becoming inaccessible, the evidence in (9) that this delay can cover an arbitrarily large amount of structure is a serious problem, not least given the arguments in Chomsky (2001) and Chesi (2004) that the PIC may be motivated functionally by limitations on tolerable computational complexity. Yet it comes for free on an approach which assimilates weak islands to RM, which makes this a highly attractive option.

Note that this approach, if successful, would mean that extraction from weak islands provides no evidence for Chomsky's programme of relating phase heads to domains of application of Spell-Out. The PIC reduces to a constraint on feature visibility: in the general case, though not in the special case where extraction from weak islands is possible; a phase head is an intervener for elements in its domain, but not in its edge; and it is uniquely in this sense that movement to an edge position is, in the general case, a prerequisite for further movement. This intuition was captured by Abels' (2003) proposal that phase heads are universal feature bearers, and the combination of this intuition with Starke's feature-geometric approach to RM, whereby a constituent can remain visible past a potential intervener by bearing "daughter" features of the feature borne by the potential intervener, means that there is a highly plausible line of inquiry which may account for weak island effects without reference to multiple Spell-Out operations.⁴ In that case, two key properties of successive cyclic movement are that, although the movement is, by definition, to an edge position, it is not driven by an operation of Spell-Out. I turn my attention to the nature and effects of such an operation in the following section.

⁴ Severing the PIC from cyclic Spell-Out raises the interesting question of the status of the relationship between phase heads, defined in terms of their featural composition, and other phase-based phenomena. Chomsky attempts to account for his choice of C and v^* as (strong) phases by virtue of their special properties at both interfaces: they define reconstruction sites, and have a degree of phonetic independence. Furthermore, the claim is that selection of subarrays of lexical items from the numeration takes place in a phase-by-phase manner, and that this, together with the assumption that Merge pre-empts Move for reasons of local economy, can account for expletive-associate patterns in English. With regard to the first two properties, reconstruction and phonetic independence, it appears that the correspondence is only partial. Butler (2004) discovers many more potential reconstruction sites within the clause than the C and v^* phases that Chomsky assumes, while Abels (2003) demonstrates that, rather than phases being distinguished by their phonetic independence, the more accurate characterisation is that the *complements* of phase heads are uniquely inert to processes such as movement and ellipsis. In that case, the PF and LF properties which should coincide at the phase level, lending plausibility to the notion that phases define Spell-Out domains, actually apply to distinct, if overlapping, sets of nodes.

As for the phase-based account of expletive-associate patterns, it must be noted that this account relies crucially on the principle that local economy considerations prevent Move from applying whenever Merge is possible. It must, then, be noted that doubt has been cast on this principle. There are currently claims in the literature that, in fact, Move pre-empts Merge, that neither operation pre-empts the other, or that the local economy condition simply cannot be formulated as Move and Merge are formally too distinct. If Chomsky's account of expletive-associate relations does hold, the fact each selected lexical subarray apparently contains at most one phase head is an intriguing result, which surely merits further investigation. This is not a topic for this paper, however.

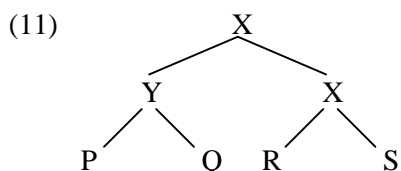
3. MULTIPLE SPELL-OUT AND STRONG ISLANDS

Successive cyclic movement is associated with attraction of phrases by heads of certain categories. When, for some reason, attraction to an intermediate landing site does not occur, or is blocked, the special interpretive effects associated with extraction from weak islands arise.

There is, an addition to this, a further class of island, apparently defined not by the Agree relations holding between a phase head and a displaced element, but rather by a specific structural configuration. The definition I will assume here is as follows (based on Uriagereka 1999, Johnson 2002 and Sabel 2002, among others):

- (10) A *strong island* is the non-projecting phrasal sister of a phrasal constituent.⁵

This means that the *Y* node in (11) is a strong island:



A common claim in the literature is that the islandhood of such a constituent is related to its having undergone Spell-Out prior to Merge with its sister. Various motivations have been proposed for this. For Uriagereka, Spell-Out is triggered by a condition, with its theoretical roots in Kayne's (1994) Linear Correspondence Axiom, which requires a total ordering of terminal nodes in a tree with respect to asymmetric c-command, which translates at PF into linear precedence. For Johnson, on the other hand, the motivation comes from his definition of Merge as an operation which removes an item from the numeration and joins it to the syntactic object in the current workspace. In cases where both sisters are syntactically complex, this means that they will both have been derived already, independently, in their own workspaces, from items removed from the lexicon. For one structurally complex constituent to be available to be merged with the other, then, it must be *renumerated*, that is, returned to the numeration so as to be available for selection by a head in a different workspace. In the process, its form at PF is fixed, rendering its subconstituents inert to movement. This operation clearly has a significant amount in common with standard conceptions of Spell-Out.

Once again, this paper will not attempt to choose between these options, which arrive at broadly similar conclusions for different reasons. The notion that strong islands are Spell-Out domains is a plausible one, given the rarity of cases of extraction from these domains, and it is adopted here.

The possibility of extraction from a weak island is well known. Strong islands, however, are frequently taken to be absolute. For Johnson (2002), nothing may extract from a strong island, while for Nunes and Uriagereka (2000), extraction is only possible in parasitic gap constructions, through sideward movement into a separate derivational workspace. Although it is absolutely clear that extraction from strong islands is the

⁵ It is not clear that it is necessary to specify that the non-projecting sister is *phrasal*. If the non-projecting sister is a head, then, at least in the standard case, subextraction is independently taken to be impossible. Nothing hinges on this for the purposes of this paper, however, so I adopt the more conservative formulation.

exception rather than the rule, there are certain cases where such extractions are possible. I will not attempt a unified characterisation of such cases here. However, I will provide evidence for their existence from two constructions, namely extraction of accusative-marked objects from English adjuncts, and possessor extraction from Russian subjects.

3.1. Extraction from English Adjuncts

The standard assumption, motivated by cases such as (12), is that English adjuncts do not allow subextraction:

(12) * What did John talk to Mary [while most people were watching t]?

However, this statement requires qualification. It has long been recognised that *wh*-movement can strand prepositions in English, regardless of whether the PP in question is a complement, as in (13a), or an adjunct, as in (13b).

(13a) Who was John talking [to t]?

(13b) What time did John go to work [at t]?

This is not the only case of extraction from an English adjunct, however. Borognovo and Neeleman (2000) demonstrate that, if certain conditions on the matrix and adjoined predicates are satisfied, extraction of an accusative-marked complement from within a depictive secondary predicate is equally possible:

(14a) What did John arrive [whistling t]?

(14b) What did John come back [addicted to t]?

(Borognovo and Neeleman 2000: 200)

On the basis of the data in (14), we could conclude, with Borognovo and Neeleman, that there is a structural condition on extraction from an adjunct, such that, roughly, the adjunct must be a sister of V. Extraction would then be less surprising, as, regardless of the adjunct status of the secondary predicate, it occupies a position like that of a complement of V, and so, depending on the exact structural definition of strong islands, subextraction may be expected not to violate the CED or its successors. However, there is a further possibility of extraction from a secondary predicate modifying a telic transitive matrix predicate, where such an analysis is less plausible, on account of the large amount of intervening structure between V and the depictive secondary predicate:

(15a) What did John hurt himself [whistling t]?

(15b) What did John drive Mary crazy [whistling t]?

Regardless of the correct conditions on extraction from English secondary predicates, then, it appears that examples such as (15) must represent genuine cases of extraction from adjuncts.

Note that there is no clear evidence in English that an edge position is always associated with a strong island.⁶ Furthermore, there is a conceptual advantage in assuming that extraction from a PP adjunct, at least, does not proceed via an intermediate landing site in [Spec,P]. This would involve movement from the complement position of P to the specifier position of the same head. Abels (2003) argues that such a movement is illegitimate, as a head and its complement are already in the closest conceivable structural configuration, that of mutual total c-command. No new structural relation can be established by this movement, and so it cannot take place. This is, then, an *antilocality* effect: the complement of the head is simply too close to be attracted to the specifier position of that head. This has the effect of barring extraction of the complement of P, unless we can assume that [Spec,P] in English is not an edge position.

3.2. Possessor Extraction from Russian Subjects

There is some evidence that it is possible to form a dependency in Russian by A'-movement of a possessor across a canonical strong island boundary (the subject maximal projection). In showing this, I will restrict the discussion to extraction of DP subjects bearing external argument roles, as there is evidence from Starke (2001), Sauerland and Elbourne (2002), and Chomsky (2004) that similar dependencies are cross-linguistically more common, and predicted to occur by current theories, from subjects bearing internal argument roles.⁷ Here, we find extraction of a possessor from within the embedded subject DP, as in (16):⁸

- (16) Ch' -ja ty дума -esh [IP[DP_t собака] по- кус -а -ла Мари -ju]?
 Whose -FEM you think -AGR dog PERF- bite -PAST -FEM Mary -ACC
 'Whose dog do you think bit Mary?'

This is found along (17), in which the possessum is pied-piped, indicating that possessor and possessum are merged as a single constituent:

⁶ Ian Roberts (p.c.) suggests that such evidence may come from words such as *whereupon* and *herein*. One potential analysis of such cases is that these words are formed in the syntax, with the preposition in phrase-final position, and the remainder of the word in specifier position. Also, Alec Marantz (p.c.) raises the issue of the apparent DP-P word order in sluicing constructions such as *He called me, but I don't know what for*. Although both of these may suggest that an edge position exists, I believe that alternative analyses may also prove viable in each case.

⁷ Starke presents data showing PP- and *combien*-extraction from French, while Chomsky demonstrates PP-extraction from English subjects bearing internal argument roles, and Sauerland and Elbourne show that extraction of DPs from internal subjects is possible, provided certain conditions on scope reconstruction are met. Possessor extraction is possible from only internal subjects in Tzotzil (Aissen 1996) and Chamorro (Chung 1991). Extraction patterns superficially similar to the Russian case, but with less clear diagnostics of movement, are found in Hungarian (É. Kiss 1987, Szabolcsi 1994, Kriszta Szendrői, p.c.) and Greek (Eirini Sanoudaki and Nina Topintzi, p.c.), among others. In all cases, care is necessary to ensure that the dependency is really formed by movement, as opposed to by a null resumptive pronoun or parenthetical insertion, for example.

⁸ One Russian informant rejected this sentence, although four accepted it. It appears that the construction, although acceptable in everyday speech, is proscribed against in standard literary Russian. Also, there may be an information-structural distinction between the stranding construction in (16) and the pied-piping (17). The correct analysis of this requires further research.

- (17) Ch'ja sobaka ty dumaesh t pokusala Mariju?
 Whose dog you think bit Mary
 'Whose dog do you think bit Mary?'

Similar patterns exist with other *wh*-words, and also with other types of A'-movement, such as focus:

- (18a) Kakaja ty dumaesh [t sobaka] pokusala Mariju?
 'Which you think dog bit Mary?'
- (18b) Skol'ko ty dumaesh [t sobak] pokusalo Mariju?
 'How.many you think dogs bit Mary?'
- (18c) DININA ja dumaju [t sobaka] ukusila Anju (ne Mishina)
 DINA-GEN I think dog bit Anna-ACC (not Michael's)
 'I think DINA's dog bit Anna, not Michael's.'
- (18d) ZLAJA ja dumaju [t sobaka] ukusila Anju (ne dobraja)
 ANGRY I think dog bit Anna-ACC (not kind)
 'I think the ANGRY dog bit Anna, not the kind one.'

However, in the case of the *wh*-possessor, the possessor and possessum have a significant degree of independence with respect to movement. Both can remain *in situ* in the embedded clause, or the possessum can even marginally front, stranding the possessor:

- (19a) Ty dumaesh ch'ja sobaka pokusala Mariju?
 (19b) ?? Sobaka ty dumaesh ch'ja pokusala Mariju?

Now, crucially, the Case of the *wh*-possessor covaries with the Case of the possessum. In all of the above cases, possessors and possessums bear nominative Case. (20), however, shows a parallel example with possessor extraction from a direct object:

- (20) Ch' -ju ty duma-esh t sobaku po- kus -al -a Mari -ja?
 Whose -FEM.ACC you think -AGR dog-ACC PERF- bite -PAST -FEM Mary -NOM
 'Whose dog do you think Mary bit?'

The fronted *wh*-possessor bears a distinct accusative suffix, as it modifies an accusative-marked noun. This would be unexpected under an analysis where, for example, the possessor was represented in the embedded clause by *pro* coindexed with *ch'ju/ch'ja*. If, as a *pro* analysis would suggest, the *wh*-possessor were base-generated in the matrix clause and formed a non-movement-based dependency with *pro* in the embedded clause, the Case of the possessor would be unexpected to vary according to the Case relations in the embedded clause.

A reviewer raises the possibility that *ty dumaesh* in examples such as (16) is a parenthetical. This seems to be a matter of some variation among speakers. Certainly, parentheticals are generally admitted in this position, as shown by the following:

- (21) Ch'-ja, skazhi mne tchesno, sobaka pokusala Mariju?
 Whose, tell me truthfully, dog bit Mary

And *ty dumaesh* is possible with the characteristic parenthetical prosody (with a following pause, for example). However, for at least some speakers, the parenthetical prosody on *ty dumaesh* is optional. This suggests that *ty dumaesh* in (16) is not parenthetical in the conventional sense. Such a conclusion is reinforced by the grammaticality of other intervening elements, less readily classed as parenthetical, as in (22):

- (22) Ch'ja ty skazal t sobaka pokusala Mariju?
 Whose you said dog bit Mary
 'Whose dog did you say bit Mary?'

Furthermore, the reviewer notes that insertion of *chto* 'that' in (16), forcing a non-parenthetical interpretation of *ty dumaesh*, is ungrammatical. This appears, however, to be a general fact about embedded *chto* in interrogatives, as shown in (23). This is possibly related to its other interpretation as 'what', illustrated in (24).⁹ There is, then, at least some evidence that some cases such as (16) represent genuine extraction, not parenthetical insertion.

- (23a) *Ch'ja ty dumaesh chto sobaka pokusala Mariju?
 Whose you think that dog bit Mary

- (23b) *Kto ty dumaesh chto pokusala Mariju?
 Who you think that bit Mary

- (24) Kto chto kupil?
 Who what bought
 'Who bought what?'

A further piece of evidence that the possessor does move to the matrix clause is that the movement displays weak island sensitivity. The following examples show the ungrammaticality of possessor extraction across a negative island:

- (25) *Ch'ja ty ne dumaesh sobaka pokusala Mariju?
 Whose you not think dog bit Mary
 'Whose dog don't you think bit Mary?'

This may be contrasted with the behaviour of *pro* in Italian, for example, where weak islands do not generally impair potential coreference:

- (26) *pro* Ho chiesto a Gianni chi *pro* devo interrogare.
 Have.1SG asked to John who must.1SG question
 'I asked John who I must question.'

The combination of Case spreading between possessor and possessum, and island-sensitivity of a type not displayed by other instances of *pro*, suggests that the

⁹ Vera Griбанov (p.c.) notes that extraction from an embedded clause in Russian requires subjunctive mood, and consequently a distinct subjunctive complementiser *chtoby*. This alone is sufficient to rule out extraction across *chto*, as in (23). The fact that *dumat'* 'to think' does not take a subjunctive complement clause is a strong reason to suspect that the extractions in (16-22) are suspiciously non-standard, however, particularly as possessor extraction across *chtoby* is sharply ungrammatical, as shown by **Chju ty xotel chtoby ja prigrasila podругu na vecherinku* 'Whose you wanted COMP I invited [t friend] to party'.

dependency between an external possessor and a possessum in Russian is indeed formed by movement, and this movement is possible across subject island boundaries.

Note that the evidence in (25) above is particularly striking from the point of view of this paper, as it demonstrates a case where an element may be extracted from a *strong* island, but is nonetheless sensitive to a *weak* island. This is unexpected under approaches where a unified characterisation of all island phenomena is adopted, or where strong islands are distinguished from weak islands by having “something more”, as in the analysis of Chomsky (1986) presented in (3). Such approaches predict that any dependency displaying weak island sensitivity will also display strong island sensitivity. The fact that Russian possessor extraction does not follow this prediction suggests instead that a dissociation of the theoretical bases of weak and strong island effects is empirically motivated.

Such a dissociation, however, predicts that we should be able to find constituents which are neither strong nor weak islands, and constituents which are both strong and weak islands. These predictions will be addressed in the following section.

4. IS THERE A DOUBLE DISSOCIATION OF PHASE HEADS AND MULTIPLE SPELL-OUT?

Finding examples of constituents which are not phases and do not trigger Spell-Out is simple. I will briefly suggest in section 4.1 that the prediction that such constituents do not hinder extraction or enforce successive cyclic movement is accurate. In section 4.2, I discuss constituents which are predicted to be both domains of application of Spell-Out, and maximal projections headed by phase heads.

4.1. Neither a Phase nor a Spell-Out Domain

On an extensional definition of the set of *phase heads*, the prototypical members of the set are C and v^* . To this list, there may well be reason to add D, and Butler (2004) also finds evidence for the existence of phase heads dominating aspectual or auxiliary projections.¹⁰

However, it is generally assumed that many other projections are *not* phases. This applies most clearly, for our purposes, to T, V and N (although I will disregard the case of N here). What is more, each of these phrases, if embedded, is generally the complement of a higher functional head, rather than a specifier or adjunct. In that case, we do not expect them to trigger Spell-Out either. Insofar as such a claim is testable, or even meaningful, it appears to be accurate. This is seen clearly by the possibility of questioning any phrasal constituent originating within a given CP: the presence of T or V appears not to hinder extraction in any way.

The same claim can be made for any other projection of a non-phase head: the presence of V^0 , V' , T^0 or T' does not have any discernible effect on A'-movement possibilities. I will assume, therefore, as seems intuitively reasonable, that this

¹⁰ This is a simplification of Butler's theory, whereby a *phase* is defined by the presence of sites for reconstruction, quantification and A'-operators, arranged cartographically in the spirit of Rizzi's (1997) work on the structure of the left periphery. For Butler, then, a phase is defined not by the presence of a single phase head, but by the presence of such a multi-phrasal left peripheral operator/quantifier structure.

“backbone” of projections of non-phase heads defines membership of the class of constituents that are neither phases, nor Spell-Out domains.

4.2. Both a Phase and a Spell-Out Domain

There is no reason why a constituent should not be in the structural position of Y in (11), and so defined as being in the domain of application of Spell-Out, and also be headed by a phase head. The theory sketched here would predict that the constraints on extraction from such a constituent should be, if anything, more stringent than the constraints on movement imposed by phase heads and RM, or Spell-Out, alone. Exactly which constituents are in such a configuration depends on membership of the class of phase heads,¹¹ but one case which is clearly predicted to be both a phase and a Spell-Out domain is the English DP subject. Subjects, as prototypical specifiers, are clearly expected to undergo Spell-Out. In addition, there is evidence from a variety of languages that DP contains an edge position, similar to [Spec,C] and [Spec,v*].¹² Evidence for such a position has come from *wh*-movement in Tzotzil (Aissen 1996) and Greek (Horrocks and Stavrou 1987), as well as possessor extraction in Hungarian (Szabolcsi 1994), for example.

It is not clear that D in English has particularly similar properties to those of D in the languages just mentioned. Particularly, [Spec,D] in English is often considered to be an A-position, for the checking of genitive Case. [Spec,D] in Tzotzil and Greek is likely to be an A'-position, as it is not restricted to nominals and appears to be uniquely occupied by elements with A'-style interpretations, such as *wh* and focus.¹³ This may be interpreted as suggesting that English lacks a layer of functional structure present in these other languages, or, alternatively, that English D simply has a different featural specification to these other languages. In either case, it is clear that no extraction of accusative-marked objects from English subjects is possible, in contrast to those cases of extraction from adjuncts discussed in section 3.1 above:

(27) * Who did [a picture of t] make you cry?

While I will not attempt to sketch a full analysis of these constructions, it could appear plausible to claim that the strong ungrammaticality of such examples is due to a combination of, on the one hand, the conflict between the necessity of an intermediate trace position in the edge of the DP phase and the A-position status of [Spec,D], and, on the other hand, the strong islandhood of the subject. This is in contrast with extraction from identical positions within adjuncts, which are strong, but not weak, islands.

¹¹ See Abels (2003) for the claim that there may be a degree of parametrisation in this respect, particularly with respect to P.

¹² It would be natural here to consider extraction from clausal subjects. However, it appears that extraction from such subjects is impossible for independent reasons. Koster (1978) shows that clausal subjects are not structurally similar to DP subjects, behaving instead like “satellites” of the main clause. As such, they are inseparable from utterance-initial position, and this plausibly blocks any subextraction through leftward movement.

¹³ Hungarian may be a mixed case, as the edge position in Hungarian DPs is associated (for example in É. Kiss 1987) with dative Case assignment, as well as successive-cyclic movement. On the other hand, Szabolcsi (1994) notes that there is evidence that the apparently dative suffix has other non-Case-related functions, and so Hungarian [Spec,D] may also be a purely A'-position.

Extraction from adjuncts, while severely degraded, may be more readily interpretable than (27):

- (28) ?? Who did John fall asleep [after seeing [a picture of t]]?

The strong ungrammaticality of extraction from DP subjects, such as (27), could perhaps, then, be analysed as stemming from the requirement that extraction proceed successive-cyclically via the [Spec,D] edge position (which, as an A-position, is an unsuitable landing site for *wh*-movement), in addition to the usual strict constraints on extraction from a strong island.

This also raises the question of the proper analysis of parasitic gap constructions, such as the following:

- (29) Who did [a picture of e] embarrass t?

It may be possible to adopt the *sideward movement* theory of Nunes and Uriagereka (2000), whereby the *wh*-phrase is copied from the subject workspace into the matrix clause workspace, and subsequently copied into [Spec,C]. Conceivably, the existence of a derivation whereby extraction can circumnavigate [Spec,D] in this way is behind the grammaticality of these examples.

It is important to be clear about one major potential drawback of this approach. The dissociation of phase heads from Spell-Out domains correctly predicts that possibilities of extraction from subjects and adjuncts are different. However, it would appear to predict that the cases of grammatical extraction from subjects should be a subset of the cases of grammatical extraction from adjuncts, which are strong, but not weak, islands. This correctly predicts that extraction from an English subject bearing an external argument role is, if anything, even more ungrammatical than extraction from adjuncts headed by non-phase heads, but the correlation between subjecthood and extra restrictions on extraction is not always observed, as the cases of Russian possessor extraction show. While possessor extraction from subjects is acceptable, Russian speakers uniformly reject examples of possessor extraction from adjuncts. Whether this significant problem can be overcome remains a matter for future research.

5. CONCLUSION

The above discussion has motivated a relatively conservative theory of locality. The evaluation metric of explanatory adequacy, coupled with Chomsky's discussion of the problem of poverty of the stimulus, leads researchers working within the Principles and Parameters framework, correctly, to investigate ever more abstract and general concepts in the theory of the structure of language. In claiming that island effects derive from two distinct sources, namely application of Spell-Out and the role of phase heads as interveners for Relativised Minimality, I am shying away from the stronger claim, made explicitly or implicitly in Chomsky (1986) and Starke (2001), that there is a single underlying source of all such locality effects.

However, this conceptual price appears to have empirical advantages, in that it allows a more precise description of the cases in which extraction from islands *is* possible. We saw in section 2 that failure to move successive-cyclically is accompanied

by specific interpretive effects, and that, so long as these effects are felicitous, such extraction is sometimes quite grammatical. In section 3, on the other hand, we saw that the structural possibilities for extraction from strong islands are highly constrained, but that, when such extractions are possible, they do not generally come with a particular interpretive effect. This dissociation leads us to expect a 2x2 classification of constituents with respect to locality, to a first approximation as follows:

(30)

		SPELL-OUT DOMAIN?	
		YES	NO
EDGE Position?	YES	DP Subjects	DP and CP Complements
	NO	PP Adjuncts	Projections of T, V and N

In this way, although the correlations are far from absolute, this approach also hints at the existence of exactly three classes of non-projecting element, namely subjects, complements and adjuncts.

A further benefit of this approach is that, in severing the notion of the *phase* from that of multiple Spell-Out, used by Uriagereka (1999) to describe a quite separate set of phenomena, and aligning it instead with issues of Relativised Minimality and feature composition of heads, a certain conceptual clarity is achieved, by removing one of the three distinct locality constraints considered (RM, the PIC and multiple Spell-Out). Furthermore, as RM has been successfully reformulated in Chomsky (1995) as a narrow syntactic condition on feature visibility, while definition of strong islands in Uriagereka (1999) and Johnson (2002) focused instead on the mapping to PF, we may speculate that the two different locality constraints coexist because they are located in separate areas of the grammar: RM is operative in the narrow syntactic mapping to LF, while Spell-Out regulates the syntax→PF mapping procedure.

Although this paper has offered little more than a programmatic sketch of such an approach to locality, and although there remains the serious problem of the treatment of constituents which are predicted to be subject to both sets of locality conditions, it appears, then, that there are potential advantages to this slightly less unified theory.

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