INNER ISLANDS: A MINIMALIST ACCOUNT

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This paper provides a syntactic account of inner island phenomena within the current framework of the Minimalist Program developed by Chomsky (2000, 2001, 2004, 2005). I will argue that inner islands reflect a certain property of a phase. Specifically, EPP-assignment to phase heads is crucial and this explains selectivity or D/non-D asymmetry in the relevant phenomena. In dealing with inner islands, I will propose that NegP/ΣP should be identified as a phase when its head has a valued feature ([+/-Neg]) before Spell-Out. Feature-valuation through agreement plays an important role for phase identification. Other weak islands will also be discussed in connection with the phase theory.*

Keywords: *inner islands, NegP, PIC, selectivity, EPP*

1. Introduction

Ross (1984) noticed that negation sometimes interferes with certain relations between two positions in syntactic structures. Such situations can be detected particularly in constructions which involve movement of adverbial operators. I give a relevant example below:

(1) *How_i didn't you find a solution *t_i*?

In (1), the negative operator *n't* (*not*) intervenes between the interrogative adverb *how* in the sentence-initial position and its trace/copy (*t*) in the base position. One could construe that the intervening negation creates a domain to which application of syntactic operations such as Move is limited. Ross called such a domain "inner island" and observed that adverbials cannot be extracted out of it. This holds true in the ungrammatical example in (1).

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Under a pre-Minimalist Principles-Parameters approach, Rizzi (1990, 1992) demonstrated that inner island effects can be reduced to the Empty Category Principle (ECP) through Relativized Minimality (RM). Rizzi postulates that a negative operator is placed in an A'-Spec and it constitutes an RM barrier against antecedent-government by a distant A'-operator. This way, negation defines a local domain for A'-dependencies (antecedent-government relations) and inner island phenomena receive an RM account. With the advent of the Minimalist Program (MP), RM has no independent support any more because the notion of government has been dismissed. RM is not considered as a principle but it is derived from something more primitive in the computational system, for example, the Closest Match Condition (or the Minimal Link Condition) which is part of the definition of the operation called "Agree":

(2) Closest Match Condition (CMC)

[Where] D(P) is the c-command domain of [a probe] P, a matching [goal] feature G is closest to P if there is no G' in D(P) matching P such that G is in D(G').

(Chomsky (2000: 122))

The CMC is schematized like (3), where G' but not G is closest to P without an intervener:

(3) [P [D(P) G' [D(G') G]]

There have also appeared semantic/pragmatic accounts which might displace syntactic accounts of weak island phenomena including inner islands (Cinque (1990), Szabolcsi and Zwarts (1993), Honcoop (1998), etc.).

In this paper, I will attempt to provide a syntactic explanation of inner island phenomena along the lines of the current MP developed by Chomsky (2000, 2001, 2004, 2005). To be specific, I will demonstrate that inner island effects can be accommodated quite well in the phase theory. While syntactic operations are expected to be strictly bounded by phase, inner islands (and other weak islands) are "selective" in that they do harm to movement of non-arguments/non-DPs but are harmless to movement of argument DPs. My claim is that the phrase which hosts sentence negation (and emphatic affirmation) may be sometimes identified as a phase. When identified as a phase, it can gain the ability to bring about selectivity. I want to suggest that weak island phenomena should be ultimately explained by phase.

The organization of this paper is as follows. In section 2, I will

review some basic syntactic operations proposed in the current MP (Chomsky (2000, 2001) *inter alia*) and examine whether we can deal with inner islands on a par with more typical island phenomena (wh-islands) which are well-discussed in the MP framework. As one might anticipate, for grasping inner island phenomena in syntactic terms, some technical modification has to be made. In section 3, I will propose that NegP should be identified as a phase from semantic and phonological facts. Section 4 will be devoted to a phase-theoretic account of inner island effects. The well-recognized selectivity in inner islands will be ascribed to the categorial feature D which satisfies the EPP feature assigned to phase heads. When the head of NegP is not occupied by a sentence-negation operator, feature-valuation through agreement will be crucial. In section 5, we will look at weak island phenomena other than inner islands employing the ideas advanced in section 4. In particular, I will apply them to pseudo-opacity phenomena investigated by Haïk (1982), Obenauer (1984), Rizzi (1990), etc. Section 6 is the conclusion.

2. The Minimalist Program and Inner Island Effects

To begin a discussion about inner islands, I would like to introduce the basic syntactic operations proposed by Chomsky (2000, 2001) with some changes made. I will then pose a question of whether inner islands and similar island phenomena such as wh-islands can be explained equally in the current MP.

Let us take a simple wh-question as an example:

(4) Who did Mary see?

The interrogative phrase (henceforth, wh) *who* in (4) moves from within VP to the sentence-initial position, i.e. [Spec, C]. For the purpose of reducing operative complexity, wh-movement is carried out successive-cyclically, not in one fell swoop, so the derivation of the sentence (4) proceeds as follows:

- (5) a. [_{VP} Mary v [_{VP} see who]]
 b. [_{VP} who_i Mary v [_{VP} see t_i]]
 c. [_{TP} Mary_j T [_{VP} who_i t_j v [_{VP} see t_i]]]
 d. [_{CP} who_i do-C [_{TP} Mary_j t_{do} [_{VP} t_i t_j v [_{VP} see t_i]]]]

In (5a), vP is completed with full argument structure in a bottom-up fashion. As soon as this occurs, the object wh *who* moves out of VP and merges with vP as in (5b). After TP has been constructed like

(5c), C merges with TP to form CP. In (5d), along with T-to-C movement, *who* moves from [Spec, ν] to [Spec, C]. This second movement of *who* is triggered by an uninterpretable feature [Q]. I assume [Q] is for wh-scope marking and optionally (rather than inherently) assigned to C to be checked with a wh.

In minimizing a search space for reducing operative complexity, Chomsky proposes a cyclicity condition on syntactic operations whose definition is provided in (6):

(6) Phase Impenetrability Condition (PIC)

For [$_{\text{ZP}}$ Z ... [$_{\text{HP}}$ α [H YP]]] with ZP the smallest strong phase, the domain of H is not accessible to operations at ZP; only H and its edge are accessible to such operations.

(Chomsky (2001: 14))

According to Chomsky (2000) and subsequent work, only CP and ν P are identified as phases (or strong phases).¹ In principle, application of all syntactic operations must be completed within a single phase. Thus the operation Agree cannot reach the inside of another phase nor can the operation Move merge elements beyond a single phase because they both are confined to a single phase. There is a loophole, however. Under the definition of the PIC, the head and the edge outside the (complement) domain are accessible to the head of the next phase. This provision allows the wh in (5) to move from the edge of the ν P phase to [Spec, C].

I should mention that there must be a trigger for wh-movement to the edge of ν P. In Chomsky (1995), the feature EPP is assumed to be a kind of D feature and only trigger movement of D(P).² I will retain this as a key assumption throughout the discussion of this paper. Given this assumption, wh-movement to the edge of ν P should not be due to EPP. In (7), for instance, what is moved to the sentence-initial position is a wh-adverb which is intended to modify the embedded

¹ Chomsky (2000) states that ν P is a phase only when the head is equipped with full argument structure, namely, when it is transitive or unergative. He uses the notation ν^* for such ν . On the other hand, passive and unaccusative verb phrases are not identified as phases. This is a matter of controversy. Legate (2003) argues that unaccusative and passive VPs are also phases. I will leave this question open and continue using the notation ν/ν P rather than ν^*/ν^* P.

² Chomsky does not assume so in his subsequent work. Instead of EPP, Chomsky (2005) uses an all-purpose feature called "edge feature."

clause:

- (7) Why_i do you believe [John left the town *t_i*]?

On the way to the matrix [Spec, C], the wh-adverb must be moved to the matrix *v*P to fulfill the PIC:

- (8) [_{vP} believe [_{CP} why [_{TP} John left the town]]]
-

An EPP feature, if assigned to *v*, cannot trigger this wh-adverb movement because it should be satisfied by D. I postulate that wh-movement to the edge of *v*P is triggered by an uninterpretable feature on *v* which I call [QU(antificational)] (cf. Chomsky (1995: 377; 2000: 109)). [QU] is checked only against quantificational elements including whs and just like [Q] it is optionally assigned to *v*. I assume [QU] is closely related to inherent properties of *v*: for example *v* provides a local host for quantificational elements with some scope property (Williams (1977), May (1985), etc.). As discussed by Fox (2000) (cf. Heim and Kratzer (1998)), the semantic type mismatch between a quantificational element and its sister is repaired by quantifier raising (QR),³ which is supposed to be driven by [QU] under the present assumption. I must emphasize that EPP should be distinguished from [Q] and [QU] for only the latter are related to inherent properties of the phase heads C and *v* (cf. Chomsky (2000: 144, n. 50)). I will come back to a significant role played by the EPP feature later.

Before going on to inner islands, we shall cast a glance at wh-islands, typical RM phenomena. Take the example in (9):

- (9) *How_j did they ask you [_{CP} who_i *t_i* behaved *t_j*]?

The embedded CP with a wh (*who*) in the Spec constitutes a wh-island and withholds us from tracing the wh-adverb *how* back to the embedded *v*P. Let me present the structure of the matrix *v*P which immediately contains the wh-island:

- (10) [_{vP} they *v* [_{vP} ask you [_{CP} who_i [Q,+wh]C [_{TP} *t_i* T [_{vP} how ...]]]]]

For Move to apply, there must be a probe-goal agreement relation first. Between the two whs in (10), *who* (*t_i*) in [Spec, T] is closer to the probe [Q]C than *how* in the embedded *v*P under the CMC (see (2)).

³ Following Nissenbaum (2000), Chomsky (2004) posits that when Move precedes Spell-Out it is overt movement, and when Move succeeds Spell-Out it is covert movement. The movement of *why* in (8) falls under the former and QR the latter.

Thus, the lower *wh how* cannot enter into an agreement relation with [Q]C nor move to [Spec, C] disregarding the higher *wh who*.

It seems reasonable to say that *whs* get frozen in place when they encounter C with the feature [+wh]. [+wh] probably contributes to clausal typing and must be phonetically realized with a *wh*; otherwise, the outcome will end in gibberish. In (10), since *who* has been raised to the Spec of [+wh]C, it is frozen there and it will never move further. When the derivation has reached the matrix *vP*, nothing inside the complement domain of C (i.e. TP) can be within access of the matrix *v* according to the PIC. Hence, even if the CMC could be ignored, raising the lower *wh* from within the embedded *vP* is completely impossible. Wh-island phenomena are explained thus in terms of the phase theory.

Now we turn to inner island phenomena. We should notice that inner islands cannot simply be treated in parallel with *wh*-islands because unlike the latter, the former do not involve two or more competing *whs* for a single probe. In the inner island example (1), the manner *wh*-adverb *how* cannot be moved to [Spec, C]. By the definition of the PIC, no *wh* is allowed to move to [Spec, C] if it has not appeared at the edge of *vP*. Manner adverbs are commonly analyzed as being adjoined to *vP*, i.e. *vP*-adverbs. Adjoined-positions are outside of the complement domain, whether left-adjoined or right-adjoined, so we can deem *vP*-adverbs to be base-generated at the edge of *vP*. We may predict that (1) is grammatical and expect that there should be no difference in grammaticality between (1) and (11):

(11) *How_i did you find a solution t_i?*

Manzini (1998) actually points out that when [Q] on C searches for a *wh*, a negative operator cannot interfere with agreement between them. This is not surprising because a negative operator itself is not a *wh* nor does it share any features with *whs*. In other words, the CMC is not effective in dealing with inner islands. I also assume that a negative operator is not assigned [Q] nor [QU] (at least in English) because [Q] is related to inherent properties of C and [QU] with those of *v*. The supposition that [QU] is not assigned to a negative operator can be borne out by the following example:

(12) Someone does not love everyone. (∃ > ∀, ∀ ≠ ∃)

Aoun and Li (1993: 168) observe that (12) is not ambiguous about the scope relations between the two quantificational elements. That is, *someone* (∃) has wider scope than *everyone* (∀) but not vice versa.

Compare (12) with (13):

- (13) Someone loves everyone. ($\exists > \forall$, $\forall > \exists$)

In (13), either *someone* or *everyone* can take wider scope than the other. [QU] on *v* drives QR. Once *everyone* has been QRed to the edge of vP , it can interact with *someone* with no intervening negative operator and give rise to the scope ambiguity. Due to an intervener (*not*), the two quantificational elements $\exists$ and $\forall$ in (12) cannot get close enough to interact with each other. In Akahane (2004), I argue that since a negative operator is not assigned [QU], it does not provide a landing site for QR and ends up blocking scope interaction.

Under these assumptions, a negative operator does not care about probe-goal agreement between [Q]C and a *wh* at the edge of vP . Why is *wh*-movement in (1) blocked? Within a pre-Minimalist framework, Rizzi (1990) analyzed a negative operator as occupying an A'-Spec, [Spec, Neg]. He suggests that it should be a potential antecedent-governor for non-argument A'-traces. In accordance with RM, operators in intervening A'-positions block antecedent-government across them. Thus, when a *wh*-adverb moves across a negative operator, antecedent-government does not hold:

- (14) $*[_{CP} \text{ how}_i \dots [_{NegP} \text{ not } \dots [_{vP} t_i \dots]]]$
|-----||-----|

Although RM is, so to speak, a coarse-grained version of the CMC, Rizzi's analysis is untenable in the MP framework since the notion of government is no longer available.

Cinque (1990) includes both *wh*-islands and inner islands among weak islands for they selectively prevent non-arguments/(non-DPs) from being extracted from within them. On the other hand, we have seen that *wh*-islands can be seized by the PIC while inner islands cannot as long as we keep to the original version of the phase theory proposed by Chomsky (2000, 2001). If various weak islands have anything in common, should it be semantic (or pragmatic) rather than syntactic? Hornstein (1995: 116) rephrases Szabolcsi and Zwarts's (1993) semantic view in the following way:

- (15) Island Condition

A WH-operator outside a given island can licitly bind a trace within that island iff the trace is interpreted as a variable ranging over individuals.

In what follows, I would like to offer a syntactic explanation of inner island effects. I will argue that the selectivity shared by inner islands

and other weak islands should be attributed to a certain property of phase heads.

3. NegP as a Phase

The structural status of NegP should be clarified. As is often assumed in Minimalist literature, NegP is placed between TP and ν P.⁴ Contra Rizzi (1990), Pollock (1989) and other authors suggest that *not/n't* should be the head of NegP. When *not/n't* heads NegP in a finite indicative clause and no auxiliary occupies T, the dummy auxiliary *do* must be inserted, namely *do*-support:⁵

- (16) a. *The writers not believed the boy.
- b. The writers did not believe the boy.
- cf. The writers could not believe the boy.

I assume with Pollock that the negative operator *not/n't* heads NegP. The negative operator *not/n't* is assigned [+Neg] in its own right. I propose that even if no negative operator is involved, NegP should be invariably selected by T and it should be headed by Neg with [Neg] unvalued (see Frampton (1991), Hegarty (1992), etc. for similar proposals). This might sound uneconomical in Martinet's sense. However it is not necessarily superfluous on Chomsky's Economy/Full Interpretation Principle if Neg (which I will relabel " Σ " in section 5 following Laka (1990)) always participates in representing the polarity of a clause. In

⁴ I omit phrases such as AspectP and VoiceP which might intervene between NegP and ν P.

⁵ Similarly, the emphatic affirmative operator *so* occurs between T and ν , and this also triggers *do*-support:

- (i) a. The writers could so believe the boy.
- b. *The writers so believed the boy.
- c. The writers did so believe the boy. (Klima (1964: 257))

In sentences such as (ii), the covert emphatic affirmative operator EMP is involved and it appears as focal stress on the dummy auxiliary *do* (*did*):

- (ii) The writers DID believe the boy.

Klima (1964) formulates a rule to capture the complementary distribution of negative and emphatic affirmative operators. Laka (1990) analyzes both as occupying the head of the same phrase labeled Σ P, another name of NegP. I will return to this in section 5.

such a respect, Neg with [Neg] can be compared with an empty declarative head C. In derivation, the unvalued feature on Neg may be valued, which I will discuss later. Otherwise, it will undergo default valuation by some sort of redundancy rule and get [-Neg] (i.e. affirmative) at the Conceptual-Intentional (C-I) interface.⁶

The question which I want to raise is what part NegP plays within the current MP framework. On the meaning side, it is no doubt that Neg is a substantial element which represents sentence negation. Under Chomsky's hypothesis, phases semantically correspond to propositions. Since ν P basically represents the core of a proposition, we can understand that ν P is a good candidate for phase. We are assuming that ν P is contained by NegP. If ν P corresponds to a proposition p , it is not unlikely that the composite [Neg([+Neg]) + ν P] corresponds to $\sim p$. From the viewpoint of logic, if p is a proposition, then $\sim p$ is also a proposition. I therefore claim that NegP is a propositional unit and it should be naturally qualified as a phase at least when its head is occupied by a negative operator with [+Neg].

On the phonology side, identifying NegP as a phase seems to be motivated by an analysis of ellipsis given by Takahashi (2002). Takahashi argues that ellipsis can apply only if the elided site is the complement domain of a phase head. In (17), an example originally cited in Ross (1969), the complement domain of C (i.e. TP) can be elided:

- (17) [CP C [TP he is writing something]], but

 you can't imagine [CP why C [~~TP he is writing something~~]]
 → He is writing something, but you can't imagine why.

By the time Spell-Out applies to a phase, the complement domain of the phase head has already finished with computations. Takahashi's proposal is that such a completed complement domain should be recyclable in another phase (e.g. TP in (17)). Once recycled, the comple-

⁶ In this connection, we could say that the emphatic affirmative operator *so* and the covert counterpart EMP are intrinsically assigned [-Neg]. I will return to this in section 5.

ment domain is phonologically reduced.⁷

Similar to TP ellipsis, a *vP* complement to Neg can be elided when it is recycled. Observe the example in (18):

- (18) My car Past [_{NegP} [_{vP} pass the smog test]] but

↓

Henry's did [_{NegP} not ~~[_{vP} pass the smog test]]~~

→ My car passed the smog test but Henry's did not.

Actually, Lobeck (1995) and Potsdam (1996) analyze the head of NegP (*not*) as a licenser of an empty VP(*vP*) or VP(*vP*) ellipsis. Setting recycling itself aside, I would like to suggest that phase heads should be able to license phonological reduction of their complement domains (under certain conditions concerning morphological realization, Spec-head agreement, etc.). If so, we can strengthen the view that NegP is a phase. In addition, ellipsis facts seem to favor a syntactic approach to inner island phenomena over a semantic/pragmatic one.⁸

4. Inner Islands Revisited

4.1. A Phase-Theoretic Account

The possibility of the NegP phase seems to suggest a Minimalist solution to inner island effects exemplified in (1). Let us examine the contrast again:

- (19) a. How_i did you repair the car *t_i*?
b. *How_i didn't you repair the car *t_i*?

⁷ Takahashi (2002) also tries to demonstrate that DP is a phase through analysis of ellipsis. As argued by Saito and Murasugi (1990) and Lobeck (1995), an NP complement to D undergoes ellipsis:

- (i) [_{DP} John's [_{NP} story about Mary]] was boring, but

↓

[_{DP} Bill's ~~[_{NP} story about Mary]]~~ was interesting.

→ John's story about Mary was boring, but Bill's was interesting.

In the parallel structures in (i), the NP in the subject DP is taken to be recycled and phonologically reduced.

⁸ Chomsky (2000, 2001) positions affix-hopping in phonology rather than in narrow syntax. Since affix-hopping and *do*-support are two sides of the same coin, *do*-support in negative sentences such as (16b) would also advocate the view that NegP is a phase for morpho-phonological operations. This might somewhat contradict what we will discuss in section 4.3, though.

Before wh-movement is carried out, (19a) and (19b) have the structures (20a) and (20b), respectively (in each case, the complement domain of the ν P phase which has been spelled out already is shaded):

- (20) a. [_{CP} C you T [_{NegP} [_{ν P} *how* ν [_{VP} repair the car]]]]
 b. [_{CP} C you T [_{NegP} n't [_{ν P} *how* ν [_{VP} repair the car]]]]

As we have seen, the adverb *how* is base-generated at the edge of ν P. What if NegP is always a phase? In such a situation, a wh can move to [Spec, C] only when it is at the edge of NegP. This is because the PIC requires a wh to be in the minimal search space of [Q] on C. If *how* can be raised to the edge of NegP in (20a, b), there should be no disparity in grammaticality between the affirmative example (19a) and the negative counterpart (19b).

I have hinted in the previous section that NegP should not always be a phase. I would rather argue that NegP should be regarded as a phase only when the head is assigned [+Neg]. Otherwise, it is not a phase. One might wonder whether this is feasible. There exists a precedent. Chomsky (2001) stipulates that all verb phrases are headed by a light verb ν but unaccusative and passive ν Ps are not counted as phases. According to Chomsky, only active transitive and unergative ν Ps with full argument structure are phases (see footnote 1). We can see that (20a) will lead straightforwardly to a convergent sentence because there is no intervening phase which prevents [Q] on C from probing the edge of ν P for *how*. The ungrammaticality of (19b) will also result if *how* cannot be raised to [Spec, Neg].

The same holds in long-distance wh-movement examples. Let us look at the following pair:

- (21) a. How strongly do you believe that inflation will rebound?
 b. (*)How strongly do you not believe that inflation will rebound?

(Rizzi (1990: 16))

(21a) is an ambiguous sentence: the wh-adverb phrase (wh-AdvP) *how strongly* is interpreted either as modifying the matrix verb *believe* or as modifying the embedded verb *rebound*. Contrastively, in (21b), the embedded reading of the wh-AdvP disappears. This is indicated by the asterisk in parentheses. (21b) is only possible with the interpretation in which the AdvP modifies the matrix negative predicate *not-believe* (not the verb alone). In the latter case, I conjecture that the wh-AdvP is base-generated at the edge of the matrix NegP or higher, perhaps,

directly inserted in the matrix [Spec, C]. For the purpose of the present discussion, only the embedded reading is relevant.

Let us suppose that in each of (21a, b), the *wh*-AdvP starts from the edge of the embedded *v*P. When C is merged with TP in the matrix clause, the structures of (21a, b) are (22a, b), respectively:

- (22) a. [_{CP} C you T [_{NegP} [_{vP} *how strongly*_i believe [_{CP} *t_i* that inflation will [_{NegP} [_{vP} *t_i* rebound]]]]]]]
 b. [_{CP} C you T [_{NegP} not [_{vP} *how strongly*_i believe [_{CP} *t_i* that inflation will [_{NegP} [_{vP} *t_i* rebound]]]]]]]

Both (22a) and (22b) are considered to go through the same derivation until the matrix *v*P phase. The embedded NegP is not a phase in each case since the head is not assigned [+Neg]. The embedded C is assigned [Q] and the matrix *v* [QU] so that *how strongly* is enabled to reach the edge of the matrix *v*P without violating the PIC. The derivation in (22b) diverges from that in (22a) at the matrix NegP. In (22a), the matrix NegP does not become a phase but in (22b) it does due to [+Neg] of the negative operator *not*. Hence, only in (22a) can the matrix C pick the *wh*-AdvP out of the matrix *v*P without being interfered with by the NegP phase. We see that the difference in grammaticality between (21a) and (21b) can be explained in terms of the PIC. For convenience of exposition, I hereafter display NegP in the structure only when it counts as a phase with [+Neg] on the head.

4.2. EPP as a D-Feature

Next we will turn to the question of selectivity in inner islands. We have observed that non-arguments such as *how* and *how strongly* cannot move across negation. This contrasts with the fact that negation does not interfere with the movement of argument DPs. Why is there such asymmetry between argument DPs and non-arguments?

To consider this selectivity, let us take the minimal pair in (23):

- (23) a. What did you repair?
 b. What didn't you repair?

(23a) and (23b) have the structures (24a) and (24b) respectively, where intermediate copies are omitted:

- (24) a. [_{CP} *what_i* C you T [_{vP} *v* [_{VP} repair *t_i*]]]
 b. [_{CP} *what_i* C you T [_{NegP} n't [_{vP} *v* [_{VP} repair *t_i*]]]]]

Under the PIC, *whs* cannot be raised to [Spec, C] unless they are at the edge of the phase immediately contained by CP. In (24a, b), the object DP *what* should be able to move to [Spec, *v*] unproblematically to sat-

isfy [QU] assigned to v . As for (24a), the *wh* can proceed to move to [Spec, C] because it is at the edge of the phase which is immediately contained by CP and it is already within the minimal search space of [Q] on C. As for (24b), the NegP phase intervenes between C and v P. Wh-movement to [Spec, C] should therefore be blocked, contrary to fact.

Chomsky (2000: 109) proposes that (25) should apply optionally:

(25) The head H of phase Ph may be assigned an EPP feature.

“EPP” originally stemmed from the *Extended Projection Principle* espoused in the pre-Minimalist Principles-Parameters framework. It was recast in the MP as the property of the non- θ -related head T which requires a subject DP to occupy [Spec, T]. Chomsky (2000, 2001) further extends the notion of the EPP as in (25). He employs the EPP feature for A'-movement to phase edges as well as for A-movement to [Spec, T]. I would like to assume with Chomsky that phase heads (i.e. C, v , Neg) can be optionally assigned an EPP feature. As for T, it is always assigned an EPP feature by virtue of the phase head C (cf. Chomsky (2005)). I adopt from Chomsky (1995) the idea that only D(P) can satisfy the EPP. Hence no other categories such as Adv(P), P(P), N(P), A(P), etc. can be moved for the EPP.

It is generally true that A-movement is not affected by an inner island. Let us think about the example below:

(26) John didn't repair the car.

(26) involves A-movement as illustrated in (27):

(27) [_{CP} C [_{TP} John_i T [_{NegP} t_i Neg [_{v P} t_i v [_{v P} repair the car]]]]]

Although NegP is regarded as a phase, the subject DP can undergo A-movement from [Spec, v] to [Spec, T]. This can be carried out by assigning an EPP feature to the head of NegP. The EPP feature brings the subject DP to the edge of NegP and thence the DP can move to [Spec, T] successfully. It appears that [Spec, Neg] has both A- and A'-properties, as recognized by Hornstein (1995: 243, n. 44).

Let us return to (24a, b) and consider how they are derived. The object DP *what* has been raised to the edge of v P. After the computations in the v P phase, Neg is merged with v P and forms NegP. Remember that NegP is counted as a phase in (24b) but not in (24a). In (24a), [Q] on C can easily access the *wh* at the edge of v P without an intervening phase. In (24b), the intervening NegP phase confronts the probe [Q]C. Applying EPP-assignment to the head of NegP in (24b), we can move the *wh*-DP *what* to [Spec, Neg] and subsequently

to [Spec, C]. Thus the grammaticality of (23a, b) follows. Let us examine whether EPP-assignment salvages the derivation in the inner island examples (1), (19b), and (21b). In these cases, the *wh*-adjuncts *how* and *how strongly* cannot be raised to [Spec, C] from the edge of ν P for the existence of the intervening NegP phase. Even if an EPP feature is assigned to Neg just as in (24b), it would not be helpful because *wh*-AdvPs are categorically distinct from D(P), which the EPP feature concerns.

In Rizzi (1990), argument/adjunct asymmetry in the ECP context was eventually captured by the notion of referentiality. Referential arguments can enter into long-distance binding whereas non-referential adjuncts cannot. The latter instead need to appeal to antecedent-government which is sensitive to RM. Referentiality is the very property of D. AdvPs which commonly behave as adjuncts are not headed by D, so they are potentially non-referential and the RM requirement is imposed. In the present analysis, they cannot be extracted out of NegP since an EPP feature assigned to Neg does not see labels other than D nor raise a non-D(P) to [Spec, Neg]. AdvPs are consequently inaccessible to [Q] on C and the inner island effects obtain.

In examples such as (28), however, *wh*-movement is possible though the *wh* involved is not a DP but a PP:

(28) To whom_i didn't you speak *t*_i?

We can compare (28) with locative inversion examples such as (29):

(29) Down the hill rolled John.

cf. John rolled down the hill.

When analyzing locative inversion, Collins (1997) argues that a PP is raised to [Spec, T] to satisfy an EPP feature on T. He offers two possible solutions to the question of how this is workable. One solution is that the D(P) complement to P can enter into a checking relation with the EPP feature. The other is that any category can satisfy the EPP feature. The view that the EPP feature (on T) should be satisfied solely by D(P) is supported by Mikkelsen (2005) on the basis of predicate nominal facts. Supposing this is the case, Collins' first solution would be chosen. To implement this, I tentatively conjecture that P can optionally inherit the categorial feature D from its complement through feature-percolation. This solution could also be applied to pied-piping

examples such as (28).⁹ In (28), an EPP feature assigned to Neg can probe for D in the PP *to whom* which has been raised to [Spec, v].

The account just presented allows us to extract from the NegP phase not merely argument PPs but non-argument PPs containing D. Szabolcsi and Zwarts (1993) mention that examples such as (30) may be acceptable if the manner domain is turned into an unordered set by the brute force of D(iscourse)-linking in Pesetsky's (1987) sense, i.e. by providing an explicit list of manners to check and to report on in the answer:

(30) (*) In what way didn't you solve the problem at 2:00?

Needless to say, PP pied-piping is not always acceptable, especially in A-movement. One anonymous *EL* reviewer brought to my attention the possibility that there are two different types of EPP feature: EPP on T which only triggers DP-movement and optional EPP on phase heads which searches only for D but can trigger movement of categories whose labels contain D, inherited or not (i.e. PPs and DPs). In fact they might be essentially different features. Some authors such as Bošković (2002) argue that EPP effects concerning A-movement follow from the Case theory. While retaining optional EPP on phase heads, we could preclude PP pied-piping to [Spec, T] by the Case theory which covers morphological Case-realization: the nominative Case feature checked against T can be morphologically realized on a bare DP but not on a DP which is contained in a PP, a kind of minimality effect. If so, the locative PP in (29) should not occupy [Spec, T] but another position (see Rochemont and Culicover (1990), etc). For limited space, I would like to take up this problem on another occasion.¹⁰

⁹ As one possibility, P might be a transparent label and never block an EPP feature from searching its complement for D (if true, P should not head a phase). This would miss the adjunct condition which rules (ia) in and (ib) out unless we assume that adjuncts are not in the search space of the probe (see Chomsky (2004, 2005)):

- (i) a. What_i did John talk about t_i?
- b. *Which meal_i did John speak to Bill after t_i?

As an alternative, we could utilize pair-merger instead of set-merger. A particle-like P may be pair-merged with a negative D(P) and the resultant object is a D(P) (more precisely, {D, <P, D>}). This alternative might also be employed in negative PP preposing which we will discuss in section 4.3.

¹⁰ Szabolcsi and Zwarts (1993) point out that examples such as (i) are not acceptable in contrast with those like (ii):

- (i) *From whom didn't you get this letter_{token}?

The EPP account just presented can be also applied to the contrast in (31):

- (31) a. What do you believe he weighed (last week)?
 — Potatoes. / 200 pounds.
 b. What do you not believe he weighed (last week)?
 — Potatoes. / *200 pounds.

(31a) has two possible readings. In one reading, *what* is interpreted as a referential argument and in the other as a non-referential measure phrase. In (31b), on the other hand, only the referential argument reading is available. Since measure phrases denote properties rather than referential entities, we can construe them as predicates: *what* (= 200 pounds) in (31a) is predicated of the subject *he*. Stowell (1989) and Longobardi (1994) analyze nominal expressions which function as predicates as NPs rather than as DPs. This is confirmed by sentences such as (32) in which a post-copular nominal phrase denoting properties is not accompanied by a determiner:

- (32) John Smith is chairman (of the department).

In (31b), the non-referential measure phrase *what* cannot be raised to [Spec, Neg] simply because it is an NP and the EPP feature on Neg does not see it.

When *what* is counted as a referential DP, it can be raised to [Spec, Neg] to satisfy the EPP feature. The pseudo-cleft examples given in the syllogism below serve to indicate the same point:

- (33) a. What I don't like about John is his tie.
 b. John's tie is red.
 c. *Therefore, what I don't like about John is red.

(Higgins (1979: 79))

In (33a), *what* corresponds to a referential DP (*his tie*) and so is entitled to use [Spec, Neg] as an escape hatch and causes no inner island effect. In (33c), *what* corresponds to a non-referential predicate (*red*) and the negative operator blocks the *wh* from skipping the NegP phase. With no negation involved in the subject clause, *what* corresponding to

- (ii) To whom didn't you show this letter_{token}?

They note that such a contrast does not reflect different θ -roles and it does not seem to be accounted for by the notion of D-linking or specificity. I have nothing interesting to say about their examples even though they are problematic to the solution in the text.

a non-referential predicate can successfully undergo movement to [Spec, C] as in (34c):

- (34) a. What John loves most of all is his tie.
 b. John's tie is red.
 c. Therefore, what John loves most of all is red.

(Higgins (1979: 79))

Furthermore, *what* which corresponds to a propositional CP cannot be as referential as a DP. The contrast in (35) seems to support the claim that only referential DPs can escape from inner islands satisfying the EPP:¹¹

- (35) a. What I think is that the train doesn't arrive until 10:00.
 b. *What I don't think is that the train has arrived.

(ibid.: 44)

4.3. Feature-Valuation and Negative Inversion

So far, we have considered inner island examples in which a negative operator *not/n't* occurs in Neg and movement of non-DPs which crosses NegP is excluded by the PIC. Inner island effects come out even when *not/n't* does not occur in Neg:

- (36) a. *How long did few concerts last? (Ross (1984: 259))
 b. *The longest Sheldon seldom had to wait was two decades. (ibid.: 264)

By assumption, NegP is always involved in sentence structures whether or not *not/n't* occurs in Neg. I have posited that NegP becomes a phase when Neg has [+Neg] (this positively valued feature is inherent to *not/n't*). In (36a, b), Neg has [Neg] unvalued without *not/n't*.

¹¹ Examples such as (i) appear to counter the present analysis:

(i) What didn't you think this is *t*? (Hornstein and Uriagereka (2002: 113))
 We would predict that (i) is bad because *what* is the predicate of the embedded clause and it cannot be extracted out of the NegP phase, contrary to fact. I conjecture that though *what* in (i) is a predicate, it is construed as identifying or specifying the subject rather than as denoting properties of the subject (see Mikkelsen (2005) among recent studies for the types of predicate nominals). Then *what* in (i) should be counted as referential with the label D, whereby it can traverse the matrix NegP. I however have to admit that it is very difficult to see whether the predicate *wh* is certainly referential in (i). In fact it seems possible for some speakers to interpret it as non-referential. One of the native speakers who I consulted notes that there may be some prosodic difference between the two readings, and I think it is worth looking into.

According to Chomsky (2000, 2001), unvalued features can be valued through agreement. Adopting feature-valuation in syntactic computations, I assume that the unvalued feature [Neg] may be valued through agreement with a negative element (DP, AdvP, etc.) at the edge of vP or it should get the default value ([–Neg]) at the C-I interface. The feature-agreement involved in (36a, b) is illustrated in (37):

- (37) [NegP Neg [_{VP} few concerts/seldom v [_{VP} ...]]]
 | |
 [Neg] [+Neg]

Once the feature is valued, NegP becomes a phase and prevents non-DPs from escaping from it. To rule out ungrammatical examples such as (36a, b), Rizzi (1990) suggests that negative elements should move covertly to [Spec, C] or [Spec, Neg] and block antecedent government. Our approach does not need to invoke such covert movement to exclude them.

Inner island examples including (36a, b) must involve sentence negation. In passing, it is well-known that only sentence negation is compatible with negative inversion:

- (38) a. Lewis could win no race.
b. No race could Lewis win.
- (39) a. I seldom see him nowadays.
b. Seldom do I see him nowadays.

Haegeman (2000) argues that negative elements which trigger negative inversion (e.g. *no race* in (38b) and *seldom* in (39b)) are focus operators and they move to [Spec, Foc] under Rizzi's (1997) split CP hypothesis (I continue assuming that in the CP domain, only the outermost layer is regarded as a phase):

- (40) [ForceP <Spec> Force(=that) [TopP <Spec> Top [FocP <Spec>
Foc [FinP <Spec> Fin [TP ...]]]]]

However, sentence-initial negative elements do not always trigger negative inversion as in (41):

- (41) With no job, Mary would be happy.

Compare (41) with a negative inversion example (42):

- (42) With no job would Mary be happy.

As the sentence-initial negative PP does not trigger negative inversion, (41) is not an instance of sentence negation but it is rather an instance of constituent negation. Haegeman takes negative elements as in (41) to be topicalized constituents, which move to [Spec, Top] in the structure (40).

(43) How did you say that on no account would they travel to France? (Haegeman (2000: 37))

(44) ?How did you say that not long ago they used to travel to
France? (ibid.)

(45) *No book_i would I expect its_i author to praise *t*_i publicly.
(Koizumi (1995: 143))

(46) [NegP Neg [_{VP} [on no account] *how* *v* [_{VP} ...]]]
 | |
 [Neg].....[+Neg]

Through feature-valuation the embedded NegP can be identified as a phase and it will block the *wh*-adverb from moving out of it. This does not happen in (44). The negative element *not long ago* is a topic and base-generated in [Spec, Top] far above NegP. The probe Neg does not c-command the goal *not long ago*, so neither Agree nor feature-valuation can take place. As a consequence, the embedded NegP

does not become a phase and it will not prevent extraction of the *wh*-adverb.¹²

We just saw that negative PPs do not always trigger negative inversion. In the following examples, negative inversion somehow fails to take place:

- (47) a. For no reason, he suddenly punched someone.
- b. *For no reason did he punch someone/anyone.
- (48) a. In no time, we were approaching Toledo.
- b. *In no time were we approaching Toledo.

(McCawley (1988: 558))

McCawley (1988) conjectures that the PPs in question can be analyzed as involving a reduced form of a sentence that can be taken to be in the scope of the negation (e.g. analyzing *for no reason* as 'for something that is not a reason,' with 'x is a reason' the scope of the negation). This does not seem promising if we accept the Inclusiveness Condition (Chomsky (1995)) or the No Tampering Condition (Chomsky (2005)). For the present, I would say that the PPs in (47) and (48) are idiomatically base-generated in [Spec, C] (or [Spec, Top]). There is no operator movement or no operator-variable structure involved in these examples. With no focus operator in [Spec, C] (or [Spec, Foc]), negative inversion does not happen.

In preceding paragraphs, I suggested base-generation of topicalized PPs in [Spec, Top]. I have to mention that there exists another possi-

¹² As noticed by an anonymous *EL* reviewer, we seem to have trouble with (39b). (39b) is a sentence negation example so the negative adverb *seldom* is counted as a focus operator. The present analysis expects that *seldom* moves from its base position to [Spec, Foc] and on the way it values the feature on Neg. As a result, the sentence negation reading obtains. The problem is that if the negative adverb at issue is base-generated below Neg (e.g. [Spec, v]) as in (i), it should not be able to escape from NegP once NegP has been identified as a phase:

(i) [_{NegP} Neg [_{VP} *seldom* ...]]

One possible solution I instantly hit upon is that the negative adverb is base-generated at the edge of NegP:

(ii) [_{NegP} *seldom* Neg [_{VP} ...]]

In (ii), the feature on Neg is valued by the negative adverb through a sort of Spec(Goal)-head(Probe) agreement. If the structure in (ii) is plausible, the negative adverb can move from within NegP to [Spec, Foc] observing the PIC. Chomsky (2004, 2005) asserts that there can be no general Spec-head relation at all but this seems too strong. I cannot see how expletive-insertion can take place with no Spec-head relation.

bility: that is, that focalized PPs, but not topicalized PPs, inevitably inherit [+Neg] from the negative DP complements. The latter alternative should be scrutinized seriously if movement (rather than base-generation) is involved in topicalization. Since Ross (1967), topicalization has been considered to be susceptible to islands:

- (49) a. This hat I believe that he was wearing.
 b. *This hat I believe the claim that he was wearing.
 c. *This hat I know the boy who was wearing.
 d. *This hat the gloves and were on the table.
 e. *This hat that he was wearing is certain.

(Ross (1967: 215))

From these island facts, it seems necessary that the base-generation analysis should be retracted. If both focalization and topicalization involve movement, we should rather assume the feature-inheritance analysis. In that case, we probably need to say that negative DPs should be specified for [+/-Focus] or [-/+Topic]. PPs can inherit [+Neg] from negative DPs with [+Focus] (or [-Topic]) but not from those without it.¹³

5. Affirmative Inner Islands

In previous sections, we concentrated on inner island effects caused by sentence negation. Similar weak island effects can be detected in examples without negative elements. In this section, I will criticize Hornstein and Uriagereka's (2002) analysis of such phenomena and discuss how to deal with them. The reader, however, should be warned that the discussion in this section is more or less speculative and the topic is still awaiting closer investigation.

Szabolcsi and Zwarts (1993) cite examples such as (50) and remark that they are as bad as inner island examples:

¹³ Negative DPs cannot be topicalized but they can be focalized:

- (i) a. *No job, John would be happy with. (cf. (41))
 b. No job would John be happy with. (cf. (42))

(Haegeman (2000: 26))

Judging from (41) and (i), either [+Topic] or [-Focus] might force PP pied-piping. If so, the base-generation analysis mentioned above could not be sustained, which ever feature plays a decisive role.

- (50) a. How did **exactly five people** think that you behaved?
 b. How did **at most five people** think that you behaved?

(Szabolcsi and Zwarts (1993))

In (50a, b), just like inner island examples, we cannot associate the wh-adverb *how* with the embedded predicates. Hornstein and Uriagereka (2002) also touch on the same point quoting similar examples (focal stress in upper-case):

- (51) a. *Why did **exactly ten people** say that this was easy?
 b. *Why did **TEN people** say that this was easy?

(Hornstein and Uriagereka (2002))

Since negation is not involved in (50) and (51), we do not expect inner island effects to manifest themselves. In these cases, the subject DPs with quantifiers are thought to be critical. When they are paraphrased or semantically decomposed, negative meaning could be recognized. Thus, *exactly ten people* and *TEN people* in (51a, b) could be decomposed into “no more than, and no less than, ten.” This decomposition is likely to reveal that negation (“no”) is implied but as noted by Hornstein and Uriagereka, such semantic decomposition seems too radical from a cross-linguistic perspective.

Hornstein and Uriagereka (2002) take another approach which comprehends not only (50)–(51) but also (52):

- (52) *Why **DID** some people say that this was easy?

In (52), the wh-adverb *why* cannot be interpreted as modifying the embedded clause. The semantic decomposition approach will encounter difficulties in this example because nothing implies negation. As capitalized, (52) involves an abstract emphatic operator which is embodied by a dummy auxiliary *DO(DID)*. Likewise, the subject DPs in (50) and (51) are more or less emphasized. Hornstein and Uriagereka adopt Laka’s (1990) Σ P analysis and provide an account which covers these examples as well as inner island examples. Under Laka’s analysis, sentence negation and emphatic affirmation occupy the head of Σ P in a complementary way. Such an analysis can explain similarities between constructions with sentence negation and emphatic affirmation (see (16) and (i) in footnote 5 for example). Hornstein and Uriagereka further propose an LF mechanism called “reprojection,” which is roughly illustrated below:

In (53), the complement (XP) to Σ ends up part of the Spec of the reprojected category (YP). Hornstein and Uriagereka argue that extraction from the complement domain of Σ can be excluded by means of reprojection. To be brief, reprojection brings about effects which are parallel to those of the Condition on Extraction Domains (Huang (1982)).

There remain many questions about reprojection. Hornstein and Uriagereka extend the idea of reprojection to the analysis of Σ from the analysis of binary quantifiers which take a pair of “ordered” arguments, i.e. a restriction and a scope. Σ is not really a binary quantifier, however. Even binary quantifiers do not always induce island effects. We do not actually find such effects in (54) where no emphasis is intended to be placed on the subject:

(54) How did everyone/two men think that I behaved?

(Szabolcsi and Zwarts (1993))

Moreover, Hornstein and Uriagereka admit a set of technical issues in their endnote:

There are many questions we leave for future research. Technically, we would like to see how reprojection affects reconstruction, and what its precise nature is, whether transformational or not. Empirically, we are concerned with an example pointed out to us by David Pesetsky:

(i) *Why* do there seem to **most readers** [to be several wrinkles left]?

Cf. *Why* do there seem to many readers [to be several wrinkles left]?

Superficially, Pesetsky’s example is like all others in this paper, *why* not being able to modify into the embedded clause, across *most readers* (modification being possible across *many readers*). Importantly, however, we want *several wrinkles* to relate to the pleonastic *there*. How can it, if *most readers* induces an island at LF? (Hornstein and Uriagereka (2002: 130–131, n. 19))

Without innovating a new mechanism such as reprojection, we can

‘How many books did he consulted a lot?’ (ibid.: 12)

Obenauer (1984) points out that the categorial status of *wh* holds a key to the selective pseudo-opacity effects. To be more specific, it is only a local adverbial quantifier that can A'-bind an adverbial trace.¹⁴ This naturally conforms to Rizzi's RM. In our terms, if Σ P is identified as a phase, the PIC disallows C to access a *wh*-adverb (*comment/combien*) at the edge of ν P. The latter cannot move to the edge of Σ P because of its categorial status. There is a question of how Σ P can become a phase. I suggest that preverbal non-negative quantifiers should be assigned [-Neg], and [Neg] on Σ is valued just the same way as (56). This makes Σ P a phase.

If preverbal quantifiers in pseudo-opacity examples are assigned [-Neg], they should, by hypothesis, count as emphasized (or focalized) elements. Obenauer (1984) notes that it is difficult to pinpoint the semantic difference between sentences with preverbal quantifiers such as (59a) and those without them such as (59b):

- (59) a. Max a beaucoup vendu de livres.
 Max has a.lot sold of books
 'Max sold many books.' (Obenauer (1984: 156))
 b. Max a vendu beaucoup de livres.
 Max has sold a.lot of books
 (= (59a)) (ibid.: 155)

Haïk (1982) on the other hand observes that in minimal pairs such as (60), only the (b) example is ambiguous:

- (60) a. Un homme aura beaucoup lu de livres.
 a man will.have a.lot read of books
 'for a man x, there exist many books y such that x will have read y' (Haïk (1982: 79))
 b. Un homme lira beaucoup de livres.
 a man will.read a.lot of books
 'for a man x, there exist many books y such that x will read y'
 'for many books y, there exists a man x such that x will read y' (ibid.)

According to Haïk, (60b) may have the reading where *beaucoup de livres* has scope over *un homme* but this reading (wide/distributive read-

¹⁴ I adopt the term "adverbial quantifier" from Haïk (1982). Among the relevant adverbial quantifiers are *beaucoup*, *peu* 'few,' *trop* 'too,' etc.

ing) is not available in (60a). Hence (60a) can only have the narrow/set reading in which *un homme* has scope over *beaucoup*. Haik further argues that adverbial quantifiers such as *beaucoup* cannot imply quantification over the elements which have the property denoted by NP. Therefore, they are not subject to QR.

From the facts in (60), we could say that adverbial quantifiers must be base-generated in the preverbal position rather than in the object-internal position when the non-quantificational interpretation is emphasized. Thence the narrow/set reading results. I would like to relate the placement of the non-quantificational adverbial quantifier in (60a) with [-Neg]. I assume that assignment of [-Neg] to adverbial quantifiers also holds in (57a, b), (58) and (59a) while it does not in (59b), (60b) and (61):

(61) Comment_i a-t-il résolu [beaucoup de problèmes] _{t_i}?

how has-he solved a.lot of problems

'How did he solve many problems?' (Rizzi (1990: 13))

Further investigation is needed.¹⁵

6. Conclusion

We started our discussion with inner islands and moved on to similar weak island phenomena. The problem I handled in the present paper was the selectivity (former argument/non-argument asymmetry) in weak island phenomena to which the current MP seems to have no definite answer. Reinterpreting argument/non-argument asymmetry as D/non-D asymmetry, I proposed that the selectivity in question can be accounted for in terms of the phase theory. Specifically, we paid attention to the property shared by phase heads. Namely, they are optionally assigned an EPP feature. Since EPP is satisfied only by D, DPs are able to move via phase edges without being confined within weak islands. Non-DPs are not privileged to escape from weak islands for their cat-

¹⁵ The marginality of examples such as (i) might indicate that assignment of [-Neg] is not limited to preverbal quantifiers but is applicable to preverbal adverbs in general:

(i) ??Combien la nouvelle a-t-elle fortement inquiété d'experts?

how.many the news has-she strongly worried of experts

'How many experts did the news strongly worry?' (Obenauer (1984: 169))

egorical status. As for inner islands, I proposed that ΣP should be identified as a phase when and only when Σ has [Neg] valued.

There remain many unaddressed questions. For example, I did not undertake to discover the identity of EPP, a nontrivial and hard question which cannot be solved in a short paper. I spent no space on discussing semantic approaches to weak islands. Szabolcsi and Zwarts (1993) aptly state that the semantic claim which they made is truly not a rival of syntactic accounts and many of the semantic constraints are expected to have syntactic correlates. This should be true to a great extent if syntactic computations must be motivated by the external C-I systems.

Appendix: Inner Islands and Beyond

I would like to offer some speculations on weak island phenomena other than (negative and affirmative) inner islands employing the ideas advanced above. I have proposed that when Σ has [+Neg] or [-Neg], it heads a phase and causes inner island effects. Inner islands are regarded as instances of PIC violation. In the same way, we might be able to treat other weak islands as violations of the same condition. Although I will leave extensive discussion for another occasion, I would like to think about them briefly here.

First, let us (re-)examine an example of wh-island violation:

(62) ??Which problem do you wonder how John could solve?

(62), where a wh-DP is extracted out of an embedded interrogative clause, is marginally acceptable. In section 2, we already saw another wh-island example which involves extraction of a wh-adverb from an embedded interrogative clause (see (9)). Such examples are completely ungrammatical because they violate the PIC. The contrast between (62) and (9) was formerly recognized as argument/non-argument asymmetry in the context of the ECP. Under the present analysis, phase heads may be optionally assigned an EPP feature (see (25)) and we can reinterpret the relevant asymmetry as D/non-D asymmetry.

Why is (62) not completely bad? In the derivation of the embedded clause of (62), the wh-DP has been raised to the edge of νP . The wh-adverb *how* is also base-generated at the edge of νP :

(63) [_{CP} C [_{TP} John_i could [_{νP} which problem_j how t_i [_{νP} solve t_j]]]]

The two whs seem equally accessible to the embedded C in accordance with the PIC. Since the embedded CP is a wh-interrogative clause, its

head is assigned both [Q] and [+wh]. In addition to these, suppose that an EPP feature is also assigned to C. To satisfy [Q], *how* is raised to [Spec, C]. Simultaneously, *which problem* is also raised to [Spec, C] to satisfy the EPP feature.¹⁶ The EPP feature cannot be satisfied by a wh-adverb because it only seeks D(P). I contend that the D/non-D asymmetry in wh-island examples is caused by EPP-assignment to the phase head C. I hypothesized that a wh is frozen in place if it has satisfied [Q] on C with [+wh]. For satisfying [Q], a single wh will suffice. In (63), then, the wh-adverb is checked against [Q] and will remain there while the wh-DP satisfies the EPP feature and can move on to the next phase. Thus, the wh-DP is (marginally) extractable from the wh-island as in (62).

What if the wh-DP is checked against [Q] on C in (63)? When this happens, the wh-DP gets frozen there for [+wh] on C and never moves out of the embedded clause. As is familiar to us already, the wh-adverb *how* cannot move for the EPP because it is not a D(P). Hence the EPP feature assigned to C must be also satisfied by the wh-DP. Since both the features ([Q] and EPP) on C are satisfied by the wh-DP, the wh-adverb need not move from the base position in the embedded *v*P. The PIC does not allow the matrix C to search the embedded *v*P for a movable wh, so it is impossible to extract the wh-adverb out of the wh-island at all. The contrast between (62) and (9) thus follows. Needless to say, as we have seen in section 4.1, wh-adverbs can reach the matrix [Spec, C] if no obstacle exists (e.g. [+/-Neg]Neg, [+wh]C). One may well wonder what renders (62) marginal. Perhaps it might be due to the Maximization Principle:

(64) Maximization Principle

Maximize matching effects. (Chomsky (2001: 15))

In accordance with (64), partial elimination of probe features under Match is not an option.¹⁷

¹⁶ We might have to stipulate that the EPP feature on T should be thoroughly erased as soon as it is checked and never cause defective intervention effects (see Chomsky (2000: 123ff.)); otherwise, the subject DP would be an intervener.

¹⁷ Or it might be due to a strategy which employs an empty resumptive pro (see Obenauer (1984), Cinque (1990), etc.). As a DP operator binds a pro, we could obtain the D/non-D asymmetry pertinent here. In English the resumptive pro strategy is exceptional, though.

Next we will turn to factive islands. As seen in (65), we can find D/non-D asymmetry again:

- (65) a. Which man_i did you regret [_{CP} that you invited *t_i*]?
 b. *How_i did you regret [_{CP} that you behaved *t_i*]?

On the surface, no intervening operators are involved in these examples. By analogy with inner and wh- islands, one might suppose in (65b), an empty operator is involved and interferes with movement of the wh-adverb. Melvold (1991) and Watanabe (1993) attempt such analyses. In factive clauses, they insert a factive operator in [_{Spec}, C]. In the grammatical sentence (65a), the factive operator should not block wh-movement to the matrix [_{Spec}, C]. Under the PIC, on the other hand, whs are obliged to stop by [_{Spec}, C]. Thus, a factive operator does not seem helpful to us.

While factive predicates such as *regret* presuppose the truth of their complements, non-factive predicates such as *believe* and *wonder* do not. According to Pesetsky (1991), factive predicates do not s-select propositional complements but rather factive complements. I conjecture that factive C should be incompatible with [Q]-assignment because it cannot tolerate operators involving indeterminate elements. Despite this, CPs potentially become propositions. I therefore consider CPs to be always identified as phases. In (65a, b), the embedded clauses are phases though they are factive CPs. Without [Q] on C, whs are not expected to move to [_{Spec}, C]. But phase heads can be optionally assigned an EPP feature, so EPP-assignment to C enables the wh-DP to move to [_{Spec}, C] in (65a). The D/non-D asymmetry in (65) thus obtains.

Finally, consider extraposition islands:

- (66) a. Which man_i was it nice [_{CP} that Peter invited *t_i*]?
 b. *How_i was it nice [_{CP} that Peter behaved *t_i*]?

It is pointed out by Honcoop (1998) that the truth of extraposed clauses is usually presupposed just as the truth of factive complement clauses. I assume with Honcoop that both factive islands and extraposition islands are presupposition islands. I also regard the “extraposed” CPs in (66a, b) as the complement CPs to *nice*. Let us refer to both factive complement CPs and “extraposed” complement CPs as factive CPs. We can capture the D/non-D asymmetry in (66) by the solution given above. Factive C can be assigned an EPP feature but not [Q]. The EPP feature is satisfied only by D, so the wh-DP in (66a) can be raised to the embedded [_{Spec}, C] and move to the matrix [_{Spec}, C] whereas the wh-adverb in (66b) just stays in the base position. Under the PIC,

we can never raise whs within the embedded vP to the matrix clause. As a result, we can rule (66a) in and (66b) out.

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