TRACES DO NOT HEAD ISLANDS: WHAT CAN PF DELETION RESCUE?[1]

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In Bošković (2011) I established the generalization in (1), following the observation in (2) from Bošković (2005).

(1)   Traces do not head islands.   (Bošković 2011)

(2)   A phrase that is normally a barrier to movement ceases to be a barrier if headed by a trace.   (Bošković 2005)

In Bošković (2011) I also observed that the generalization can be deduced from the rescue-by-PF-deletion mechanism, unifying it with Ross's (1969) observation that island violations can be rescued by ellipsis.

(3)   a. ＊Ben will be mad if Abby talks to one of the teachers, but she couldn't remember [**which (of the teachers)**]$_i$ Ben will be mad [**if she talks to t$_i$**].

        b. Ben will be mad if Abby talks to one of the teachers, but she couldn't remember which$_i$ ~~Ben will be mad [if she talks to t$_i$].~~   (Merchant 2001)

In this paper I show that the way the generalizations in (1)/(2) are deduced in Bošković (2011) makes a surprising prediction that head movement should not be subject to traditional islands and demonstrate that this prediction is borne out. I then explore a question that turns out to be related to the way the generalizations in (1)/(2) are deduced in Bošković (2011), namely whether PIC/anti-locality violations can be rescued by PF deletion, which will also lead me to re-evaluate Merchant's (2001) claim that P-stranding violations (i.e. unacceptable cases of P-stranding) cannot be rescued by PF deletion; I will claim that they can be. Finally, I demonstrate that the

system developed in Bošković (2011) can be extended to deduce Baker's (1988) Government Transparency Corrolary (GTC). I will start by providing arguments for (1)/(2), most of which were not noted in Bošković (2005, 2011).
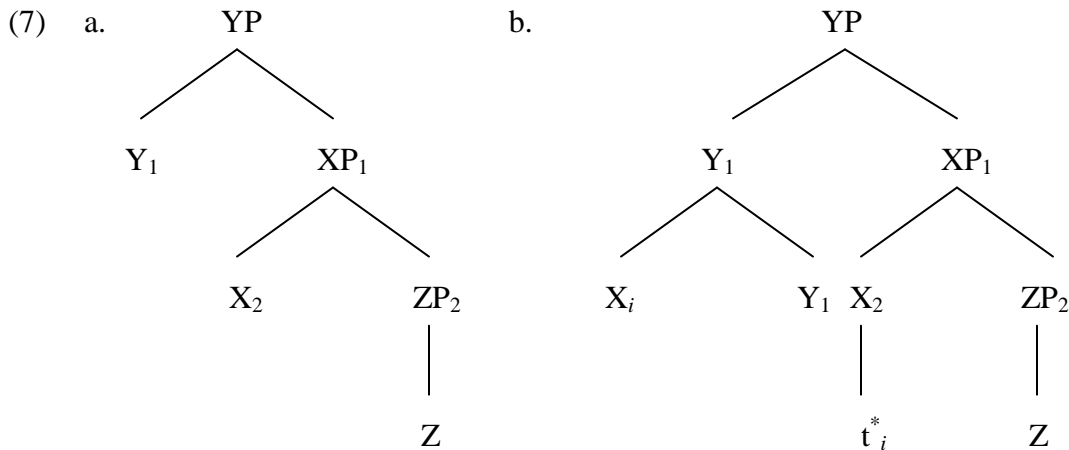
1.   Traces do not head islands

Several cases of Baker's (1988) GTC effects actually turn out to be instantiations of (1)/(2).[2] Thus, Baker (1988) claims that PPs are barriers in Chichewa based on the fact that P-stranding is not possible in Chichewa, as shown in (4b). However, he also observes that P-stranding is possible if the preposition incorporates into the verb, as in (4c). We then have the pattern in (5).

(4)   a.   Msangalatsi a-ku-yend-a   ndi   ndodo.
           entertainer   SP-PRES-walk-ASP   with   stick
           'The entertainer is walking with a stick.'

       b.   *Ndodo   i-ku-yend-edw-a   ndi.
            stick   SP-PRES-walk-PASS-ASP   with
            'The stick is being walked with.'

       c.   Ndodo   i-ku-yend-er-edw-a.
            stick   SP-PRES-walk-**with**-PASS-ASP
            'The stick is being walked with.'   (Baker 1988)

(5)   P-stranding is possible only if the P incorporates: NP_i [$_{PP}$ P t_i] requires P-incorporation

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For Baker, the above pattern illustrates a GTC effect, given in (6). Under GTC, if X but not Y governs ZP in (7a), Y governs ZP in (7b) after X incorporates into Y.

(6)   A lexical category which has an item incorporated into it governs everything which the incorporated item governed in its original structural position.

(7)   a.

$$YP$$

$$Y_1 \qquad XP_1$$

$$X_2 \qquad ZP_2$$

$$Z$$

b.

$$YP$$

$$Y_1 \qquad XP_1$$

$$X_i \qquad Y_1 \ X_2 \qquad ZP_2$$

$$t^*_i \qquad Z$$

Returning to (4), since the PP is a barrier the verb does not govern the trace of the P-complement in (4b). However, the verb does govern the trace in (4c), after P-to-V incorporation, given the GTC. Notice, however, that these data are actually illustrations of (1)/(2). Assuming that PPs in Chichewa are islands/barriers, they cease to be islands/barriers when they are headed by a trace.

A similar effect is provided by possessor extraction. Baker (1988) notes that a number of languages exhibit the pattern in (8), where possessor extraction is possible only if the possessed noun undergoes incorporation. Assuming that an NP with a possessor is an island/barrier for extraction, N-incorporation has as its result that the island/barrier is headed by a trace, which voids the islandhood/barrier effect, in accordance with (1)/(2). (Baker gives the case in question as another instance of a GTC effect. Note that I assume following Bošković 2008 and Baker 2003 that the languages in question do not have DP.)

(8)   Context: NP-possessor$_i$ [$_{NP}$ t$_i$ N-possessed] requires N-incorporation of the possessed N

(9)   Kvtsyu v-kuwa-nya't-o:'ase.

fish   FUT-3PS/3F-**throat**-cut

'They will slit the fish's throat.'   (Mohawk, Mithun 1984)

The strongest argument for (1)-(2) is provided by Galician D-incorporation. Uriagereka (1988) notes Galician definite articles appear in two forms, as in (10). The articles in (10b) necessarily cliticize onto another element. Furthermore, there is a phonological restriction on this: the element in question must end in /r/ or /s/. When the article cliticizes onto the verb, the /r/ or /s/ is truncated (see (11). Care will be taken below to ensure that the contexts examined meet the phonological requirements for D-incorporation.)

(10)   a.   Masculine   Feminine   b.   Masculine   Feminine

         Singular   o   a   Singular   lo   la

         Plural   os   as   Plural   los   las

(11)   como o caldo, *como-lo caldo, comes o caldo, come-lo caldo, comer o caldo,

         come-lo caldo

Galician D-incorporation represents a rather dramatic illustration of (1)/(2), as noted in Bošković (2011), following Uriagereka (1988, 1996). Consider the following data.

(12)   a.   *De quén$_j$ liches   os mellores poemas de amigo t_j ?

                of whom   read(you) the best   poems of friend

         b. (?)De quén$_j$ **liche-los$_i$**   [$_{DP}$ [$_{D'}$ t_i [mellores poemas de amigo t_j]]]

                of whom read(you)-the   best   poems of friend

'Who did you read the best poems of friendship by?'   (Uriagereka 1996)

(13) a.   e   de quén$_j$ **viche-lo$_i$** t_i retrato t_j

and of whom saw(you)-the   portrait

'so, who have you seen the portrait of?'

b.   *e de quén$_i$ viche   o retrato t_i

and of who saw(you) the portrait   (Uriagereka 1988)

(12a) shows that *wh*-movement from a DP headed by a definite article is disallowed in Galician—such DPs are barriers. Importantly, when the article head of the DP incorporates into the verb, as in (12b), *wh*-movement from the DP is possible. (13a-b) illustrate the same point. The object DP in the above examples thus ceases to be a barrier/island if it is headed by a trace, in accordance with (1)/(2).

Another relevant case is provided by extraction from SpecCP in Spanish. This case also confirms that the generalizations in (1)/(2) cover a variety of locality effects. Takahashi (1994) establishes the generalization that movement is disallowed out of moved elements. The generalization among other things covers the Subject Condition effect, given that movement out of subjects moved to SpecTP is impossible. Takahashi also demonstrates that the generalization extends to elements that have moved to SpecCP; extraction out of such elements is disallowed, as shown by Spanish (14b-d).

(14) a.   [de qué autora]$_i$ no sabes   [$_{CP}$[qué traducciones t_i]$_j$ han   ganado premios

of what author   not know-you   what translations   have   won   awards

Internacionales?

international

'By what author don't you know what translations have won international awards'

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b. *[de qué autora]ᵢ no sabes   [CP [cuáles traducciones *t*ᵢ]ⱼ han   ganado

   of what author   not know-you   which translations   have   won

   premios   internacionales?

   award   international

   'By which author don't you know what translations have won international

   awards?'   (Uriagereka 1988)

c. *[CP De qué autorⱼ C no sabes [CP[en cuántas   novellas *t*ⱼ]ᵢ C el protagonist

   of what author   not know2.SG in how-many novels   the main-character

   mata a   una chica tᵢ]]

   kill3.SG a   girl

   'By which author don't you know in how many novels the main character kills a

   girl?'

d. *[CP De qué pilotoⱼ C no sabes   [CP [PP para qué coche *t*ⱼ]ᵢ C han   diseñado

   of what pilot   not know.2.SG   for what car   have.3.PL designed

   un nuevo motor *t*ᵢ]]

   a   new   engine

   'Which pilot don't you know for what car of they have designed a new engine?'

                                                                (Gallego 2007)

e. El autor   [CP del   queⱼ no sé   [CP [cuántos   libros *t*ⱼ]ᵢ habían revisado *t*ᵢ

   the author   of+the   who not know   how-many books   had   reviewed

   es Pedro

   is Peter

   'the author by whom I don't know how many books they had reviewed is Pedro'

Spanish, however, also provides some counterexamples to Takahashi's generalization. In particular, this holds for (14a,e), where extraction out of an element moved to SpecCP is allowed. Uriagereka (1988) provides an account of (14) which ends up subsuming these data under (1)/(2). Based on (15), Uriagereka argues that in Spanish wh-phrases move to SpecFP that is located below CP, hence the complementizer in front of the fronted wh-phrase in (15).

(15) pregunté que qué había hecho

      asked   that what had   done

      'I asked what he had done'   (Uriagereka 1988)

Regarding examples like (14a), Uriagereka argues that the head wh-phrase, *qué*, cliticizes to C. The wh-phrase in SpecFP is then headed by a trace, which voids its islandood effect, in accordance with (1)/(2). The analysis easily extends to (14e). (14c,d) can also be readily accounted for if only wh-phrases can incorporate into C (the incorporation here would violate the Head Movement Constraint, since it would have to cross another head). As for (14b), note that (14b) involves a D-linked wh-phrase. Several authors (e.g. Boeckx 2003, Rullmann and Beck 1998) have argued that D-linked wh-phrases are actually complements of a null definite article. This article then blocks wh-incorporation just like the prepositions do in (14c-d). (For another argument for (2) regarding successive cyclic wh-movement, see Stepanov 2012.)

Bošković (2011) also provides a deduction of (1)/(2) based on his deduction of Chomsky's (1995) generalization in (16). As an illustration of (16), Italian disallows movement across an experiencer, as in (17a). However, when the intervening experiencer undergoes movement, which turns the intervener into a trace, the intervention effect is voided, as in (17b).

(16) Traces do not count as interveners for relativized minimality (RM) effects.

(17) a. *Gianni$_i$ sembra a Maria [t_i essere stanco].

Gianni seems   to Maria   to be ill

b.   A Maria$_j$, Gianni$_i$ sembra t_j [t_i essere stanco].   (Boeckx 2009)

Bošković (2011) shows this effect is another instance of Ross's effect from (3). The current account of (3) follows Chomsky (1972), who proposed that a * is assigned to an island when movement crosses it. If the * remains in the final structure, a violation incurs. If a later operation like ellipsis (which is now assumed to take place in PF) deletes a category containing the *-marked element, the derivation is rescued. Then, when wh-movement crosses the adjunct island in (3), the island is *-marked in both (3a) and (3b). The presence of a * in the final PF representation yields a violation in (3a). The problem does not arise in (3b) since the *-marked island is deleted in PF, so that no * is present in the final PF representation.

Turning to the generalization in (16) and the data in (17), they represent a serious problem for the copy theory of movement, since under the copy theory the intervener is exactly the same in (17a) and (17b).

(18) A Maria, Gianni$_i$ sembra a Maria [t_i essere stanco].

While the intervener in (17a) and (18) looks exactly the same in the syntax, there is a difference between the two in PF. The intervening copy is deleted in (18) but not in (17a). In other words, while it is difficult to make the relevant difference between (17a) and (18) in the syntax, it is easy to make it in PF. To make PF relevant here Bošković (2011) appeals to the repair-by-PF-deletion mechanism.

Recall that movement crosses the island in both (3a) and (3b), as a result of which the trouble-maker (the island) is *-marked. The * survives in (3a), but not (3b). Bošković (2011)

proposes that this also happens in (17a) and (18). With adjuncts, what causes the problem is crossing the adjunct boundary, i.e. the trouble maker is the island, hence the island gets the *. With RM what causes the problem is crossing the intervener, i.e. the trouble maker is the intervener, hence the intervener gets the * in both (17a) and (18).[3]

(19) Gianni$_i$ sembra a Maria* [Gianni$_i$ essere stanco].

The *-marked intervener is deleted under copy deletion in (17b), but not (17a). (17) is then treated in the same way as (3). The unification was accomplished by the repair-by-PF-deletion mechanism. The analysis also deduces (16) in a way that is consistent with the copy theory of movement.

To sum up, when movement takes place out of an island/across an intervener, a * is placed on the trouble-maker. If the *-marked element survives into PF, we get a violation; if the *-marked element is deleted, there is no violation. Earlier work has argued that the *-marked element can be deleted by employing ellipsis; Bošković (2001) proposes that the *-marked element can also be deleted via copy-deletion.[4]

Turning to (1)/(2), like (16), (1)/(2) are actually instances of amelioration effects of traces on locality-of-movement violations. Bošković (2011) shows that (1)/(2) can in fact also be deduced from the rescue-by-PF-deletion mechanism once we allow the rescuing effect to arise not only via ellipsis deletion but also via copy deletion. All that needs to be done to treat (1)/(2) as another instance of rescue by PF deletion is to assume that in the case of movement across barriers, i.e. movement out of islands, the * is placed on the head of the phrase functioning as a barrier/island, not the whole island. The * is then placed on t_i in (12b) (not on DP). But t_i is a copy that is deleted in PF, as shown in (20). As a result, no * is present in the PF of (12b). The rescue-by-PF deletion mechanism thus accounts for the contrast in (12a-b).

(20) *De quén **liche-los**   [$_{DP}$ [$_{D'}$ ~~los*~~ [mellores poemas de amigo ~~de quén~~]]]

        of whom read(you)-the   best   poems of friend

As expected, D-incorporation does not void all locality effects; thus it does not improve intervention effects. In (21a), *de Juan* serves as an intervener for wh-movement (possesors and agents block extraction of themes), hence it gets a *. D-incorporation in (21b) does not affect this intervention effect.

(21) a. *e de quén$_i$ viche   o retrato t_i de Juan

        and of who saw(you) the portrait of Juan (possessor or agent)

    b. *e de quén$_j$ **viche-lo$_i$** t_i retrato t_j de Juan

       and of whom saw(you)-the   portrait   of Juan

       'so, who have you seen the portrait of by Juan?'

The rescue-by-PF-deletion mechanism thus deduces the generalizations in (1)/(2), unifying it with (16) and Ross's amelioration effect of island violations under ellipsis.

    An interesting question now arises that I did not address in Bošković (2011). How come the article can move out of an island? If the * is present only on the lower copy, which is in fact the case in the system developed in Bošković (2011) with all the examples discussed here (see also footnote 3), head movement is not expected to be sensitive to islands. Since when a head of an island moves out of the island the * is placed on the copy in the head of the island position, which is a copy that is deleted in PF, no * is present in the final PF representation resulting from such movement. Notice that the rescue effect holds only for movement of the head of the island; if a lower head moves, we will not get the rescue effect; furthermore, RM will be violated. (This e.g. makes Baker's 1988 unattested examples of incorporation like *John lake$_i$-ran along t_i* irrelevant to island-sensitivity of head movement.)

(22) X_i [$_{XP}$ [$_{X'}$ [$\overline{X_i}$*   (where XP is a (non-relativized minimality) island)

We thus have here a rather dramatic and surprising prediction given that head movement is normally much more local than phrasal movement. The prediction is that as long as RM (i.e. the head movement constraint) is obeyed, head movement should not be subject to traditional islandhood/barrierhood (see, however, below for one exceptional configuration).

2.   Islandhood of head movement

I will first test the prediction regarding the insensitivity of head movement to islandhood with Galician D-incorporation. Baker (1988) gives a number of cases which he claims illustrate the sensitivity of head movement to islandhood. One such case concerns incorporation out of subjects of transitive verbs, which Baker attributes to an islandhood effect. Significantly, D-incorporation out of subjects of transitive verbs is possible in Galician, which shows that such movement should not be in principle ruled out.

(23) Merda fixested-los$_i$ [$_{DP}$ t_i [$_{NP}$ fachas]]

        shit   did-the   fascists

        'You fascists did nothing!'   (Uriagereka 1988:243)

The literature does give many unacceptable examples of such movement (see Baker 1988). However, there are a number of interfering factors here that have nothing to do with the issue in question. Potential interfering factors when looking for counterparts of (23) with traditional N-incorporation (i.e. the reason why N-incorporation is not very informative in the relevant respect) are the following: V has to raise outside vP, the subject has to stay in situ in SpecvP (if either of these fails to occur the incorporation will involve lowering, which I assume is ruled out

independently of islandhood), and thematic restrictions on incorporation have to be satisfied. Regarding the latter, there are languages that allow noun incorporation only with patients, and there are languages that allow it only with objects, not even ergative subjects (e.g. Greenlandic Eskimo). Another quirk: Southern Tiwa has an animateness restriction only for incorporation of subjects. This kind of restrictions on incorporation can rule out incorporation out of transitive subjects quite independently of the issue of islandhood. None of these interfering factors arise with Galician D-incorporation, where we have seen incorporation out of transitive subjects is indeed possible.

I turn now to another island configuration, namely adjuncts. While adjuncts block phrasal movement, D-incorporation out of adjuncts is possible in Galician, as shown by (24), which involve D-incorporation out of time and manner adjuncts. This provides a rather strong confirmation of the above prediction that head movement is island-insensitive.

(24) a. **chegaremo-lo** primeiro Venres de Xaneiro
          will-arrive-the   first   Friday of January
          'we will arrive the first Friday of January'

      b. os feixistas sempre vos   **xuntade-lo** máis animal có   máis besta
          the fascists always yourselves gather-the   most animal with-the most beast
          'you fascists always gather in such way that the greatest animal gets together
          with the greatest beast'   (Uriagereka 1988)

Recall also that under the analysis presented above, incorporation out of an adjunct should open the adjunct gate: once the D moves out of an adjunct, everything else should be able to move out of the adjunct. This prediction is also borne out.

(25) **chegamo-la** semana pasada

     arrived-the   last   week

     'We arrived last week.'

(26) ?de que semana **chegastede-lo** Luns

     'Of which week did you guys arrive the Monday'

There are in fact also examples of traditional N/P incorporation out of various adjuncts that confirm that incorporation out of adjuncts is not in principle impossible. Below I give instances of incorporation out of manner adverbials in Kinyarwanda (27), reason adverbials in Chichewa (28), and passive *by*-phrase adjuncts in Southern Tiwa (29) (the last case is in fact found in many languages, see Baker 1988).

(27) a.   Umugabo a-ra-som-a   ibaruwa **n'**-iibyiishiio.

          man   SP-PRES-read-ASP   letter   **with**-joy

     b.   Umugabo a-ra-som-**an**-a   ibaruwa iibyiishiio.

          man   SP-PRES-read-**with**-ASP   letter   joy

          'The man is reading a letter with joy.'   (Kimenyi 1980)

(28) Nsima   iyi ndi-ku-dy-**er**-a   njala.

     cornmush this 1sS-PRES-eat-**APPL**-ASP hunger

     'I am eating this cornmush because of hunger.   (Baker 1988)

(29) a.   Khwien-ide Ø-ẽdeure-ban   **kan**-ide-ba.

          dog-SUF   A-kick/PASS-PAST   **horse**-SUF-INSTR

     b.   Khwien-ide Ø-**kan**-ẽdeure-ban.

          dog-SUF   A-**horse**-kick/PASS-PAST

          Both examples: 'The dog was kicked by the horse.'

(Active: *Kan-ide Ø-kwien-ẽdeure-ban* 'The horse kicked the dog.') (Baker 1988)

I therefore conclude that the surprising prediction made by Bošković's (2011) analysis of the amelioration effect of head movement on islandhood that head movement is island-insensitive is borne out. The reason why island-insensitivity of head movement has not been obvious and the reason why head movement appears to be extremely local is the RM effect, i.e. the head movement constraint.

It is worth noting in this respect that RM effects for head movement can also be rescued under PF deletion. The analysis of Dutch V-clustering from Bošković (1997) can serve as an illustration of this. In that work I discuss the pattern $X^0...Y^0...Z^0$, where the linear order indicates asymmetric c-command. I show Y optionally undergoes head movement to X. However, if Z head-moves to X, Y, which otherwise does not have to move to X, must move to X. This shows (16) holds for head movement: movement of Z to X across Y yields a locality violation due to an intervention effect. Movement of the intervener voids the violation since the movement turns the intervener into a copy that is deleted in PF (i.e. a trace).

Regarding the current claim that head movement is not subject to traditional islandhood/ barrierhood as long as RM is observed, it should be pointed that, as noted by an anonymous referee, there is actually one exception: head movement out of a coordinate structure. In the configuration in (30a), head movement from the first conjunct results in a locality violation: in particular, we are dealing here with a traditional island, not an RM effect (given that the first conjunct is located in Spec&P). Crucially, what is *-marked is not t_i but the head of the island, $\&^0$. Since $\&^0$ (*and*) remains in the final representation, the prediction is then that, in contrast to other islands, head-movement should be sensitive to the CSC. (30b) shows that the prediction is borne out (only the relevant copy is shown; note that what is *-marked is not *should* but *and*).

This confirms that head-movement is island-insensitive only when the offending copy is deleted (and RM is not operative).

(30) a. X^0_i [$_{\&P}$ [$_{XP}$ ... t_i ...] $\&^0$ [$_{YP}$ ... Y^0 ...]]

   b. *(When) should$_i$ [$_{\&P}$ [$_{IP}$ John t_i arrive] and* [$_{IP}$ Mary must leave]]

3.   Anti-locality

   A number of authors have argued that movement not only cannot be too long, but also cannot be too short. The ban on movement that is too short, referred to as anti-locality by Grohmann (2003), has strong empirical motivation from a variety of phenomena; see e.g. Bošković (1994, 1997, 2005, in press a), Saito and Murasugi (1999), Ishii (1999), Abels (2003), Grohmann (2003), Ticio (2003), Boeckx (2005). In this section I will address the question of whether anti-locality violations can also be rescued by PF deletion. For the purpose of the discussion below, I will adopt Bošković's (2005, in press a,b) definition of anti-locality, which requires movement to cross at least one full phrase (not merely a segment of a phrase).

   It turns out it is rather difficult to address this issue without also addressing the issue of whether PF deletion can ameliorate PIC effects. Consider, e.g., Abels's (2003) generalization that complements of phasal heads cannot undergo movement. Abels argues the ban is due to anti-locality. The complement of phase head X must move to SpecXP given the PIC. This movement however violates anti-locality since it is too short. Would showing that violations of Abels's generalization can be repaired under PF deletion then mean that anti-locality violations can be rescued by PF deletion? Not necessarily. There are actually two derivations involved in the deduction of Abels's generalization. There is the derivation in (31), where Y moves to

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SpecXP in violation of anti-locality. However, there is also the derivation in (32), where Y does not move to SpecXP, which violates only the PIC. The problem is that we do not know what PF deletion would be rescuing here, the anti-locality violation (31), the PIC violation (32), or both.[5]

(31) Anti-locality violation $[_{XP}$ Y_i $[_{X'}$ X t_i XP is a phase

(32) PIC violation Y_i $[_{XP}$ $[_{X'}$ X t_i XP is a phase

I will show below that the answer to this question does not really matter. However, attempting to answer it will enable us to draw certain conclusions regarding the *-marking mechanism.

I will first investigate whether anti-locality/PIC violations can be repaired under PF deletion with respect to a case that does not instantiate Abels's generalization, and then turn to two cases of Abels's generalization, namely P-complement movement and IP movement.

3.1.   PPs

In this section I will examine a type of left-branch extraction (LBE). In addition to LBE of adjectives out of NPs (33), Serbo-Croatian (SC) allows LBE out of PPs that appears to involve non-constituent movement. The phenomenon, referred to as extraordinary LBE by Bošković (2005), is illustrated in (34).

(33) Velike on voli planine.

      big   he likes mountains

(34) U veliku on uđe   sobu.

      in big   he entered room

'He entered the big room.'

Franks and Progovac (1994) (see also Abels 2003) propose that (34) involves remnant PP fronting, i.e. movement of the NP out of the PP, followed by fronting of the PP.

(35) [$_{PP}$ U veliku t_i] on uđe sobu$_i$.

There is, however, strong evidence against this analysis (see Bošković 2005). Thus, movement out of PP that feeds remnant PP fronting often involves extraction out of adjuncts, hence should be disallowed. This is quite clear in (36a), which under the remnant PP movement analysis involves movement of *studenata* out of an adjunct.[6] Movement out of the adjunct in question is otherwise quite severely degraded (36b).

(36) a. Zbog   čijih   je došao   studenata?

because-of whose is arrived students

'He arrived because of whose students?'

b. * Čime$_i$ je on pobegao   [zbog   [pretnje t_i]]?

what.INSTR   is he run-away   because-of   threat

'He ran away because of the threat of what?'

Another argument concerns examples where the preposition is modified by another element, as in (37). If extraordinary LBE involved remnant PP fronting, we would expect the P-modifier to be carried along with the rest of the PP when the movement in question takes place. However, this does not happen (38).

(37) On uđe   pravo   u veliku sobu.

he entered straight in big   room

(38) *Pravo u veliku on uđe sobu.

Another problem is raised by the fact that constructions where N in P+A+N sequences clearly undergoes movement, as in (39), are unacceptable, which indicates that the noun is immobile in the context in question.

(39) *Sobu on uđe u veliku.

Borsley and Jaworska (1988), Corver (1992), and Bošković (2005) propose an analysis where extraordinary LBE involves ordinary LBE: under this analysis the preposition adjoins to the adjective. As a result, it is affected by the LBE of the AP; extraordinary LBE is then really an ordinary LBE. As discussed in Bošković (2005), there are two implementations of this analysis: P lowers to the AP, or the AP moves to a position c-commanding the P, e.g. SpecPP, after which P moves to it. As noted in Bošković (2005), there is quite a bit of independent evidence for this analysis. Thus, when the adjective is modified by an adverb, extraordinary LBE must affect the adverb together with the adjective, as expected if extraordinary LBE indeed involves ordinary LBE of APs (see (40)-(41); see Bošković 2005 for more discussion). Recall that extraordinary LBE cannot affect a modifier of the preposition (cf. (38)), in contrast to a modifier of the adjective. This also suggests extraordinary LBE involves AP rather than PP movement.

(40) U izuzetno veliku on uđe sobu
        in extremely big   he entered room

(41) *U veliku on uđe izuzetno sobu.

Extraordinary LBE also patterns with ordinary LBE regarding a number of properties, which confirms the two involve the same phenomenon. Thus, AP LBE from a complement of N is impossible, as (42b) shows (see Bošković in press a for an analysis of such constructions).

Significantly, extraordinary LBE patterns with AP LBE in this respect (43a). Notice also the improvement in (43b), which is on a par with (42c).[7]

(42) a. Čiju$_i$ je on vidio t_i majku?

whose.ACC is he seen   mother.ACC

'Whose mother did he see?'

b. *Čije$_i$ je on vidio [$_{NP}$ prijatelja [$_{NP}$ t_i majke]]?

whose.GEN is he seen   friend.ACC   mother.GEN

'Whose mother did he see a friend of?'

c.(?)?Čije$_i$ je on [$_{NP}$ t_i majke]$_j$ vidio [$_{NP}$ prijatelja t_j]?

(43) a. *O   kakvim$_i$ je Jovan pročitao [članak [t_i studentima]]?

about what-kind-of is Jovan read   article   students

'About what kind of students did Jovan read an article?'

b.(?)?O kakvim$_i$ je Jovan [t_i studentima]$_j$ pročitao [članak t_j]?

In light of the above discussion I will adopt the ordinary LBE analysis of extraordinary LBE. Now, what is important for our purposes is that extraordinary LBE is obligatory in the right context (P+A+N); ordinary LBE is not possible in such a context, as shown by (44).

(44) *Veliku on uđe   u sobu.

    big   he entered in room

Why is (44) unacceptable and why does it improve when the preposition also moves, as in (34)? Bošković (in press a) provides an answer to the first question and Bošković (2005) suggests that the second question is related to the ban on preposition stranding in SC, which turns out to have important consequences for the issue under consideration, namely whether anti-locality/PIC

violations can be improved under PF deletion. Consider first Bošković's (in press a) analysis of (44). The analysis is rather straightforward: the unacceptability of (44) is accounted for in terms of the anti-locality/PIC conspiracy. Bošković (in press a,b) argues that PPs quite generally function as phases (see also Abels 2003 for SC). Given that the PP here is a phase, the AP, which I argue is NP-adjoined, must move to SpecPP, given the PIC. This movement, however, violates anti-locality, since it does not cross a full phrase. If, on the other hand, the AP does not stop in SpecPP, anti-locality is satisfied, but the PIC is violated.[8]

    (45) a. *$[_{PP}$ AP$_i$ $[_{P'}$ P $[_{NP}$ t_i $[_{NP}$....   b. *AP$_i$ $[_{PP}$ $[_{P'}$ P $[_{NP}$ t_i $[_{NP}$....

Consider now the improvement that occurs in (34) with extraordinary LBE. The obvious difference between (44) and (34) is that the preposition also moves out of the PP in (34). This suggests an account along the lines of the one given for (12). Recall that AP movement out of the PP leads to a locality violation: a PIC violation if the movement crosses the PP, or an anti-locality violation if the AP first moves to PP. Either way, the PP is involved in the violation. Since PP is the trouble-marker, in line with the above discussion, it should be *-marked. Recall, however, that the * is not placed on the phrase but on its head. This means AP movement causes *-marking of the head of the PP. However, since the head of the PP is turned into a copy that is deleted in PF due to the movement of the P itself, the * is removed from the final representation, hence the grammaticality of the example.[9] The contrast in (34)/(44) thus receives a principled account. What is important here is the overtness of the head of the phrase that is responsible for the (anti-)locality violation, which can be easily captured under rescue by PF deletion. In fact, although the two superficially look quite different, the contrast in (34)/(44) is captured in essentially the same way as the contrasts in (12)/(13). While the Galician constructions involve traditional islands, the SC constructions involve contexts from which movement is in principle possible; however, it turned out that in this particular case, it was impossible for movement to

occur out of the phrase in question without violating PIC or anti-locality. The above discussion indicates that any locality/anti-locality violation that is caused by a phase X should lead to *-marking of the phase and the * should be placed on the head of the phase, just as in the case of *-marking of traditional islands. Movement out of non-island phases should then be treated in the same way as movement out of traditional islands when it comes to *-marking; a violation that such movement causes can be repaired under PF deletion in both cases. The parallelism can be taken to indicate that traditional islandhood should also be treated in terms of phases, with islands representing phases that perhaps lack an escape hatch. This could be implemented in either of the following two ways: traditional islands, like adjuncts, lack a Spec position through which movement can pass, hence movement out of them inevitably violates the PIC. Or movement out of such islands is forced to take an intermediate step of adjunction to the complement of the island head. Traditional islands would then be treated in terms of the PIC/anti-locality conspiracy, just like the SC construction under consideration.

Notice, finally that islandhood is actually relevant to SC extraordinary LBE. Some such cases in fact involve movement out of clear islands, as in the case of (36a), repeated here.

(46) Zbog   čijih   je došao   [$_{PP}$[$_{P'}$ t [studenata]]]?
      because-of whose is arrived   students

Here, the PP head receives a * both because of a PIC/anti-locality violation, and because of a traditional islandhood violation. All of this is repaired under copy deletion of the *-marked head of the PP.

Under the above discussion, given the unification of all the constructions discussed in this section with Ross's sluicing amelioration effect, we would expect that sluicing can also improve PIC/anti-locality violations like (44). (47)-(48) show that this is indeed the case; (48) can also be

taken to justify the rescue-by-PF-deletion account of the contrast between (34) and (44), given that (48) shows that the relevant violation from (44) can be quite clearly repaired under PF deletion, i.e. ellipsis, just like Ross's original cases.

(47) *On je ušao   u   neku sobu, ali ne   znam kakvu$_i$ je on ušao [$_{PP}$ u [$_{NP}$ t_i [$_{NP}$ sobu]]]

   he is entered in some room but neg know what-kind is he entered in   room

   'He entered some room, but I don't know what kind of a room.'

(48) On je ušao u neku sobu, ali ne znam kakvu.

In Bošković (2005) I related the contrast between (44) and (34), or to be more precise, the unacceptability of (44), to the ban on P-stranding in SC (see (49)). I stated the ban as in (50), as a result of which the ban was at work in (44) and (49), but not in (34). The above account can be taken as a step toward a better understanding of why being headed by a lexical element matters in the constructions under consideration.

(49) a. *Njoj$_i$ on hoda prema t_i b. On hoda prema njoj.

      her   he walks toward

(50) Movement out of a PP is possible only if the PP is not headed by a lexical element.

Let us however consider the ban on P-stranding in SC in more detail. The ban is actually an instantiation of Abels's generalization: PP is a phase. P-complement must move to SpecPP given the PIC. This movement, however, violates anti-locality because it is too short. Given the above discussion, we would expect the ban on P-stranding to be lifted under PF deletion. In fact, this analysis can be applied to the Chichewa data/generalization in (4)-(5): assuming that the PP here is a phase, movement out of the PP leads to *-marking of the PP head, which is deleted

under copy deletion in (4c).[10] The effect should be quite generally at work with PF deletion processes. Merchant (2001), however, argues that the P-stranding ban cannot be repaired under sluicing, putting forward (51), which is rather surprising in light of the above discussion.

(51) A language *L* will allow P-stranding under sluicing iff *L* allows P-stranding under *wh*-movement.

The status of (51) is, however, unclear. Thus, while French disallows P-stranding under both wh-movement and sluicing, Brazilian Portuguese allows it under sluicing but not wh-movement ((52); see Almeida and Yoshida 2007), which means sluicing does repair P-stranding violations in this language, in violation of (51) (see also Turkish (59) below). SC, a non-P-stranding language, also allows P-stranding in a number of sluicing cases (53), though Stjepanović (2008) gives an account of such cases that might make them irrelevant to (51).[11] Repairing P-stranding effects under right-node-raising is also quite common, though it is not quite clear how right node raising should be analyzed in the first place. There are also cases where P-stranding under wh-movement is disallowed in English which improve under sluicing, but they may involve extraction from islands. ((54b) is taken from Lasnik 2005; see also Abels 2003.)

(52) a. *Quem que a   Maria dançou com?
          who   that the Maria danced with

     b. A   Maria dançou com alguém   mas eu não lembro   quem
        the Maria danced with someone but I   neg remember who

                                                        (Almeida and Yoshida 2007)

(53) a. *Čega je Petar glasao protiv?
          what is Petar voted against

     b. Petar je glasao protiv nečega,   ali ne znam   (protiv) čega.

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Petar is voted   against something   but not I.know against what

'Petar voted against something, but I don't know what.'   (Stjepanović 2008)

(54) a. *What circumstances will the moon implode under?   (Ross 1969)

b. The moon will implode under certain circumstances, but I'm not sure exactly what circumstances.

There is another case where P-stranding violations can be repaired in English. In Bošković (in press b) I argue that P-stranding and non-P-stranding languages differ in the amount of structure in the traditional PP, with PP being a phase crosslinguistically (this differs from Abels 2003, where PP phasehood is parameterized so that PP is not a phase in English).[12] As noted above, non-P-stranding languages like SC have a bare PP structure; P-complement movement in (49) is then ruled out via anti-locality/PIC. As for P-stranding languages like English, in line with the general approach to phases adopted in that work, where the highest phrase in the extended domain of every lexical category works as a phase, I argued that English PPs have a richer structure (referred to as XP below for expository reasons) than SC PPs. Under the highest-phrase-is-a-phase approach XP rather than PP then works as a phase in English. As a result, the NP has to move to SpecXP, not SpecPP, to satisfy the PIC, which does not violate anti-locality.

(55) What$_i$ are you looking [$_{XP}$ t_i [$_{PP}$ at t_i]]?

Evidence for this analysis is provided by Turkish, which has both stranding and non-stranding Ps; in other words, both the SC pattern and the English pattern are at work in Turkish. Significantly, P-stranding is allowed only where there is overt evidence for rich internal PP structure. Thus, Şener (2006) notes that P-stranding is disallowed in (56), involving a simple preposition, but allowed in (57), which involves a complex preposition that contains an agreement morpheme.

(56) *Biz [NP Pelin-in   arkadaş-ı]i   dün   [PP ti **için**] para   topla-dı-k.

      we   Pelin-GEN friend-POSS yesterday for   money collect-PAST-1PL

      'Yesterday, we collected money for Pelin's friend.'

(57) Ben   araba-nıni   dün [PP   ti **önün-de**]   dur-du-m.

      I   car-GEN   yesterday in.front.of-3SG.POSS.LOC stand-PAST-1SG

      'Yesterday, I stood in front of the car (not behind it).'

The anti-locality analysis of SC readily extends to (56): PP being a phase, P-complement must move to SpecPP, which violates anti-locality (58a). The problem does not arise in (57) since PP has a richer structure here, as indicated by its morphological make-up (Şener 2006 posits three projections in this PP (58b), though one extra projection suffices). Given that the highest phrase within the extended PP domain counts as a phase, movement of the P-complement then does not induce an anti-locality violation (see (58b)).

(58) a. [PP NPi [P' ti]]   b. [CplocP NPi [AgrP [PP ti]]]

Turkish thus gives us a clue regarding what is behind the crosslinguistic variation with respect to the availability of P-stranding: it's the richness of PP structure. Notice also that Turkish (56) improves under sluicing, which also argues against the spirit of Merchant's (2001) claim that P-stranding under sluicing is allowed iff it is allowed under wh-movement (though the movement in (56) is not wh-movement).

(59)?(?)Biz dün   [PP Pelin-in   bir arkadaş-ı   için] para   topla-dı-k

      we yesterday   Pelin-GEN a friend-POSS for   money collect-PAST-1PL

      ama Pelin-in   hangi arkadaş-ı   hatırla-m-ıyor-um.

      but   Pelin-GEN which friend-POSS remember-NEG-PRES-1SG

'Yesterday, we collected money for a friend of Pelin's, but I don't remember which friend of Pelin's ~~we collected money for~~.'

In Bošković (in press b) I show that the above analysis also explains why PP complements of P cannot move in English.

(60)   They took a shot at him from behind that car.

(61) *[Behind which car]$_i$ did they take a shot at him from t_i (Cinque 1990)

If the additional PP structure is case/agreement related, as suggested by Şener (2006), it should not be present when a P takes a PP complement. (61) is then ruled out by the PIC/anti-locality conspiracy: the higher PP functions as a phase in (60)-(61), as a result of which movement of the PP complement of the higher P inevitably violates either the PIC or anti-locality (see (62)).

(62) [$_{PP1}$ [Behind which car]$_i$ [$_{P1'}$ from t_i]]

Importantly, the PP in (60) is not an island. If it were, no extraction out of it should be possible. However, *which car did they take a shot at him from behind* is acceptable. This is expected (see (63)): XP is present above PP2 since the head of PP2 takes an NP complement. XP rather than PP2 then functions as a phase here. NP can move to SpecXP without violating anti-locality. Given the PIC, the NP then must move to the Spec of the higher PP, which is a phase. This movement is also legitimate with respect to anti-locality.

(63) [$_{PP1}$ [$_{NP}$ Which car]$_i$ [$_{P1'}$ from [$_{XP}$ t_i [$_{PP2}$ [$_{P2'}$ behind t_i]]]]]]

What is important for us is that (61) is an instance of a PIC/anti-locality violation with P-stranding in English. Significantly, such violations can be repaired under sluicing: (64) (with the

meaning ... *I don't know behind which car they took a shot at him from*) is better than (61).

(64) ?They took a shot at him from behind one of these cars, but I don't know behind which car.

I conclude therefore that P-stranding violations can be repaired under sluicing, as expected given the above discussion. However, additional factors seem to be involved that make such repairs not as frequent as one might expect them to be.

3.2. IPs

Consider now another instantiation of Abels's ban on movement of phrasal complements, namely the impossibility of movement of an IP complement of C (see (66)), which follows from anti-locality/PIC: IP movement to SpecCP violates anti-locality and movement that does not proceed via SpecCP violates the PIC.

(65) Everyone$_i$ believes that his$_i$ brother likes Mary

(66) *[$_{IP}$ His$_i$ brother likes Mary] everyone$_i$ believes [$_{CP}$ that t]

There actually is another factor in (66): we may be dealing here with a *that*-trace effect. If local subject movement across *that* leads to a locality violation, it does not seem implausible that even more local movement of IP across *that* would also lead to a violation. This factor, however, can be controlled for.

In Bošković (2011) I gave a rescue-by-PF-deletion account of the *that*-trace effect (see also An 2007).

(67)   a. *Who do you think that *t* left Mary?   b. Who do you think C *t* left Mary?

The perennial problem under purely syntactic treatments of (67) has been that it is extremely hard to find a principled syntactic difference between (67a) and (67b) (i.e the two Cs). But it is quite easy to do that in PF. What is relevant here is Chomsky and Lasnik's (1977) *that* deletion analysis of (69a). Updating slightly their analysis, they argue that (69a) and (68) look exactly the same in the syntax: complementizer *that* is present in both constructions. However, the complementizer undergoes PF deletion in (69a), as in (69b).

(68)   Mary thinks that John left.

(69)   a.   Mary thinks John left.   b.   Mary thinks ~~that~~ John left.

Under this analysis, (67a) and (67b) are exactly the same in the syntax. Following the standard assumption that local subject movement across *that* induces a locality violation, however this violation is to be implemented, the complementizer is then *-marked in the syntactic derivation of both (67a) and (67b).

(70)   Who do you think that* *t* left Mary?

Under the *that*-deletion analysis of *that*-less clauses, the *-marked complementizer is deleted in the PF of (67b) (see (71)), hence only (67a) contains a *-marked element in the final representation (see Villa-García 2012 for an extension of this analysis to Spanish recomplementation). An appealing feature of this analysis is that there is no need to posit a syntactic difference between (67a) and (67b), they look the same in the syntax; yet, the analysis provides a principled way of making the overtness of the complementizer matter here. (Bošković 2011 shows that the analysis also accounts for the adverb amelioration effect.)[13]

(71) Who do you think ~~that*~~ *t* left Mary?

Returning to (66), notice that (66) remains unacceptable even if *that* is dropped.

(72) *[$_{IP}$ His$_i$ brother likes Mary] everyone believes [$_{CP}$ ~~that*~~ *t*

Recall that both the PIC/anti-locality violation and the *that*-trace effect violation caused by the movement of the IP complement in (66) should lead to *-marking of *that*. If (66) is an anti-locality/PIC violation (depending on whether the IP moves through SpecCP or not), or an instance of the *that*-trace effect, a question arises why it does not improve under PF deletion of *that* (i.e. when *that* is dropped), as in (72)?

However, it turns out that there is more than just (anti)-locality and the *that*-trace effect to IP movement. Thus, Abels (2003) shows even IPs not dominated by CP cannot move to SpecCP.

(73) *[$_{IP}$ morgen   zu reparieren] hat ihn der Hans beschlossen.
       tomorrow to repair   has it   the Hans decided
     'Hans decided to repair it tomorrow.'

(74) cf. weil   ihn der Hans [$_{IP}$ morgen   zu reparieren] beschlossen hat.
       because it   the Hans   tomorrow to repair   decided   has
     'because Hans decided to repair it tomorrow.'   (German, Abels 2003)

Following Wurmbrand's (2001) diagnostics, Abels shows that the infinitive in (73) is a bare IP (briefly, the presence of the adverb indicates the presence of IP and the pronominalization ensures the lack of CP since this movement is disallowed from CP infinitives). Anti-locality, PIC, and the *that*-trace effect are all irrelevant to (73); still (73) is unacceptable. Assuming that raising infinitives are TPs, Abels gives *To be a riot there is likely* as another relevant case.

Can the issue be more general, with IPs not undergoing high movement, above SpecIP, or even to SpecIP, as indicated by the lack of improvement with dropping the complementizer in (75), which involves IP movement to SpecIP (*that* would be deleted in the PF of (75b)), as in (76b) (see Bošković 1995 for evidence that clausal subjects are located in SpecIP)?

(75) a. *[Peter likes Mary] is widely believed that.

     b. *[Peter likes Mary] is widely believed.

(76) a. *[IP Peter likes Mary] is widely believed [CP that* *t*]

     b. *[IP Peter likes Mary] is widely believed [CP ~~that*~~ *t*]

What makes the issue even more interesting is that IPs are not completely immobile. (I thank K. Abels for help in constructing (77)-(78).) Thus, the IP infinitive from (73) is allowed to undergo low movement below the surface subject position (SpecIP), as shown by (77a-b), where the infinitival complement crosses another element, an adverb in (77a) and the subject in its base position in (77b). Note that *glücklicherweise* modifies the higher verb, as indicated by the contrast in (77c-d), which means the pronoun has fronted in (77b). (Abels 2003 also gives one relevant case, *How likely is there to be a riot,* which he claims involves low rightward movement of a TP infinitive.) However, while the infinitive can undergo low mittelfeld scrambling, it cannot undergo high, IP-adjunction scrambling, as shown by the fact that it cannot precede a subject in SpecTP, as in (78), where *ja doch* indicates that the subject has moved.

(77) a. weil   ihn der Hans [IP morgen   zu reparieren] gestern   beschlossen hat
          because it   the Hans   tomorrow to repair   yesterday decided   has
          'because Hans decided yesterday to repair it tomorrow'

     b. weil   ihn glücklicherweise [IP morgen zu reparieren] nur ein verrückter
          because it   luckily   tomorrow to repair   only a   crazy

Mechaniker beschlossen hat

mechanic   decided   has

'because only a crazy mechanic luckily decided to repair it tomorrow'

   c.   weil glücklicherweise nur ein verrückter Mechaniker beschlossen hat ihn

morgen   zu reparieren

   d.?*weil nur ein verrückter Mechaniker beschlossen hat ihn glücklicherweise

morgen zu reparieren

(78)??/?*weil   ihn glücklicherweise[$_{IP}$ morgen   zu reparieren] der Mechaniker ja doch

because it   luckily   tomorrow to repair   the mechanic   indeed

beschlossen hat

decided   has

IPs that are not C-complements are thus not fully immobile. However, they can only undergo low movement; they cannot move to SpecIP or higher. Whatever is responsible for this cannot be repaired by PF deletion, otherwise (72) and (75b)/(76b) would be acceptable. Given that PF deletion does repair locality violations, the conclusion is then that the culprit for this peculiar restriction on IP movement is not locality (see Abels 2003 for some discussion which is however relevant only to movement to SpecCP).

4.   Agree and rescue by PF deletion

We have seen that GTC effects for movement can be subsumed under the current approach to rescue by PF deletion. In this section I show that the same holds for GTC effects for Agree. What is important here is Otaki's (2009) proposal that Bošković's (2011) claim that intervention

effects with Move can be repaired by PF deletion of the intervener should be extended to Agree. His main argument concerns Japanese honorification, illustrated by (79) and analyzed as in (80) (see Niinuma 2003), with *v* undergoing Agree with the DO.

(79) Taroo-wa *sanbanme-no otooto-o   / **Tanaka-sensee-o** o-tasuke-sita.

   Taroo-TOP third-GEN   yonger.brother-ACC Prof. Tanaka-ACC help-OH-PAST

   'Taro helped his third oldest younger brother/Prof. Tanaka.'   (Nakamura 2009)

(80)   [*v*P Subject [*v'* *v* [VP   DO]]]
                                    Agree
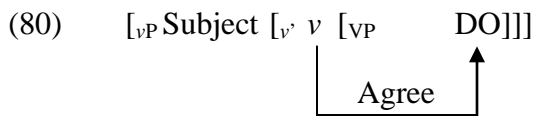
In double object constructions, honorification agreement is possible only with the IO, a result of an intervention effect. Being closer to v, the IO prevents v from agreeing with the DO.

(81) a.*Taroo-ga   sanbanme-no otooto-ni   **Tanaka-sensee-o** go-syookai-sita.

      Taroo-Nom third-Gen younger.brother-Dat Prof.Tanaka-Acc introduce-OH-PAST

      'Taroo introduced his third oldest younger brother to Prof. Tanaka.'(Nakamura 2009)

   b. Taroo-ga **Tanaka-sennsee-ni** sanbanme-no otooto-o   go-syookai-sita.

      Taroo-Nom Prof. Tanaka-Dat   third-Gen younger.brother-Acc introduce-OH-PAST

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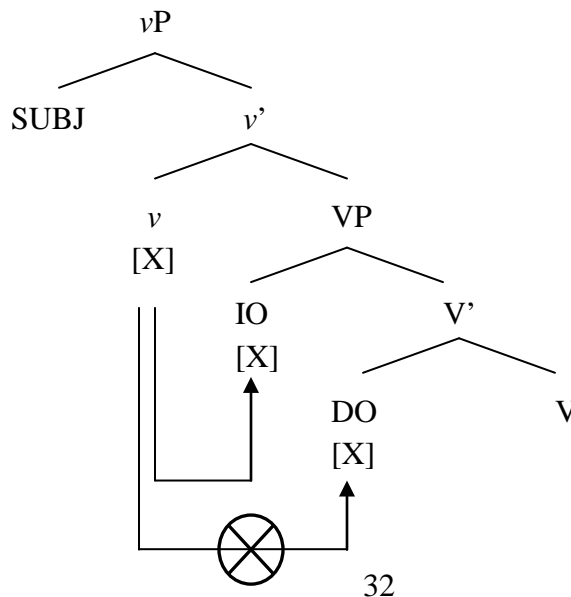
What is important here is that movement of the intervening IO voids the intervention effect for Agree. As noted by Nakamura (2009), although not fully acceptable, (82b) is clearly better than (82a).

(82) a.*Taroo-ga   sanbanme-no otooto-ni   **Tanaka-sensee-o** go-syookai-sita.

Taroo-Nom third-Gen younger.brother-Dat Prof.Tanaka-Acc   introduce-OH-PAST

b.??Sanbanme-no otooto-ni Taroo-ga *t* **Tanaka-sensee-o** go-syookai-sita.

Otaki extends to this case Bošković's (2011) rescue-by-PF-deletion account of intervention effects with Move. Under this analysis, v undergoes Agree with the DO, as a result of which the intervener, the IO, gets a *. After the IO undergoes movement, the intervening *-ed copy is deleted under copy deletion, as a result of which (82b) does not contain a *-marked element in the final representation, in contrast to (82a).

(83) a.   Agree: $v > \text{IO}^* > \text{DO}$ b.   Copy & Deletion: $\text{IO} > v > \cancel{\text{IO}^*} > \text{DO}$

Note now that in Bošković's (2011) system intervention effects for X-type RM effects for Move can be repaired only if the intervener does not undergo X-type movement; thus, intervention for A-type RM effects can be repaired if the intervener undergoes A'-movement, as in (17b), but not when it undergoes A-movement (see Bošković 2011 for one such case involving *wager*-class verbs where intervention does not get repaired; I also show Superiority violations cannot be repaired because of this). Honorification patterns with movement in this respect. *v*-induced Agree should obviously be counted as an A-type relation, intervention effects for such agreement should then be counted as A-intervention effects. Interestingly, the intervention effect in question cannot be repaired if the intervener undergoes A-movement, as in (84), where the intervener must undergo A-movement to bind the anaphor (the intervener then must be undergoing A'-

movement in (82b)). Agree thus again patterns here with Move, which confirms that a unified analysis of the amelioriation effect with movement of the intervener for Agree and the amelioriation effect with movement of the intervener for Move is in order.

(84) *[Taroo-to Hanako-ni]ᵢ   otagai-no   koohai-ga t_i Tanaka-sensee-o
  Taro-and Hanako-Dat   each.other-Gen juniors-Nom   Prof.Tanaka-Acc
  go-syoo-kai-sita
  introduce-OH-PAST

  'lit. Each other's juniors introduced Prof. Tanaka to Taro and Hanako.'

Interestingly, Namakura (2009) notes that wh-in-situ also improves constructions like (82a).
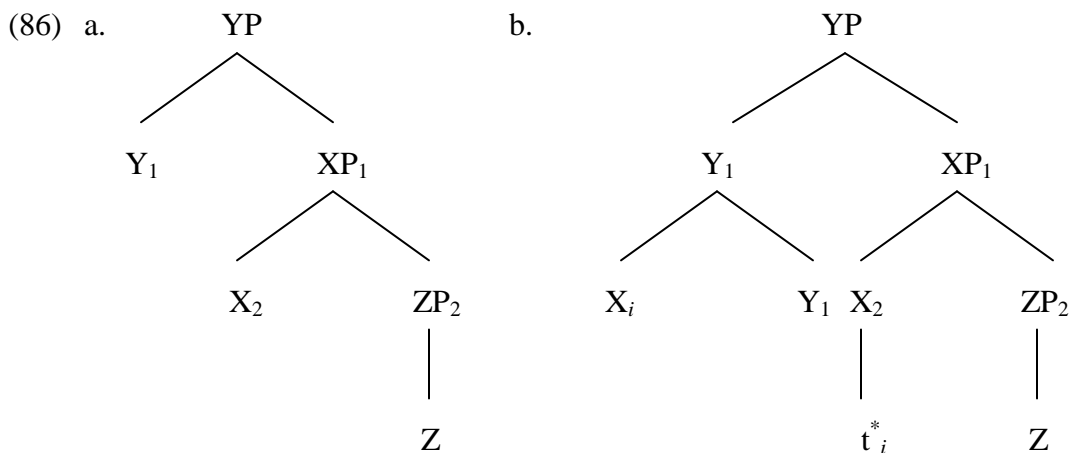
(85) ??Taroo-wa   nanbanme-no   otooto-ni   **Tanaka-sensee-o**
  Taro-Top   what.number-Gen   younger.brother-Dat Prof.Tanaka-Acc
  go-syookai-sita-no?
  introduce-OH-PAST-Q
  'To which younger brother did Taro introduce Prof. Tanaka?'

This rules out several analyses of Japanese wh-in-situ. Since overt movement is required to implement the amelioration effect, this rules out Agree, unselective binding, and LF movement as the proper analyses of Japanese in-situ. The same holds for overt movement+pronunciation of a lower copy analysis, since under that analysis the *-marked copy is not deleted. The only option that is left seems to be Watanabe's (1992) null operator movement analysis (also the Move F analysis, which is actually very close to the null Op analysis, see Bošković 2000), where the null operator in the IO would count as the intervener (not the rest of the IO), its movement then turns the intervener into a *-marked copy that is deleted in PF.

We are now ready to return to GTC effects. The relevant definition is given in (6) and the configuration is repeated in (86): by incorporating into Y in (86b) X basically passes on its government properties to Y, so that Y governs Z in (86b) even if only X (not Y) governed Z in the pre-movement structure in (86a). We have seen in section 1 that GTC effects for movement can be deduced from the rescue-by-PF-deletion mechanism. The same in fact holds for GTC effects for agreement. Two relevant cases include V-agreement with possessors (87) and P-complements (88). Such agreement is generally not possible unless the possessed noun and the preposition incorporate into the verb, which Baker (1988) analyzes in terms of GTC effects (with the noun and the preposition "passing on" their government properties to the verb).

(86) a.

$$YP$$

$$Y_1 \qquad XP_1$$

$$X_2 \qquad ZP_2$$

$$Z$$

b.

$$YP$$

$$Y_1 \qquad XP_1$$

$$X_i \qquad Y_1 \; X_2 \qquad ZP_2$$

$$t^*_i \qquad Z$$

(87) a. **Ka**-rakv ne [sawatis hrao-**nuhs**-aʔ].

   3N-white DET John   3M-**house**-SUF

   'John's house is white.'

b. **Hrao-nuhs_i**-rakv ne [**sawatis** t_i].

   3M-house-white DET **John**

   'John's house is white.'

                    (Mohawk, Postal 1962)

(88) Na-mege **daboldabolk** bandi-**marne**-ganj-ginje-ng.

I-that   old.people   3PS/**3PO-BEN**-meat-cook-PAST/PERF

'They cooked meat for the old people.'   (Mayali, Evans 1991)

Consider the P-incorporation case. Under the current analysis, V (more precisely, v) agrees with the NP in (89) across the P/PP, as a result of which the head of the PP gets a *. P-incorporation then results in elimination of the offending *-marked copy under copy deletion.

(89) a.   Agree, P gets *: V $[_{PP}$ P*$[_{NP}$ N]]

      b.   P-incorporation, * is deleted: P-V $[_{PP}$ ~~P*~~ $[_{NP}$ N]

The analysis can be easily extended to the possessor case, where the NP projected by the possessed noun is the intervener (see section 1). Since the * is placed on the head of the phrase, not the phrase itself, the head noun gets the *, which is then eliminated through copy deletion after N-incorporation.

I conclude then that with the extension to Agree of the rescue-by-PF-deletion account of the amelioration effect of movement on intervention effects, we can fully subsume GTC effects under the rescue-by-PF deletion mechanism, further unifying all these cases with Ross's sluicing examples like (3).

4.2   Two more cases of Agree and rescue by PF deletion

In this section I briefly note two additional cases of PF deletion ameliorating intervention effects with Agree. Consider first incorporation in double object constructions (whose relevance

for current concerns was noted by Yoshiyuki Shibata (p.c.)). In a number of languages, e.g. Southern Tiwa, the verb cannot agree with the goal across an intervening theme. Such agreement is, however, possible if the theme incorporates into the verb. This effect can now be easily captured: Agreement across the theme results in *-marking of the theme. As a result of theme incorporation, the intervener is then deleted under PF copy deletion.

(90)   v   [Theme* Goal]
            └───── Agree   ↑

(91) a. *'U'-u-de   ka-wia-ban   b. Ka-'u'u-wia-ban

         baby-SG   1sS:2sO/A-give-PAST   1sS:2sO/A-**baby**-give-PAST

         'I gave you the baby.'   'I gave you the baby.'

                                                      (Southern Tiwa, Allen et al 1984)

 Finally, consider the agreement pattern of *there* constructions, noted by Boeckx (2009).

(92)   John seems to Mary to be the best.

(93)   There seems to Mary to be a man in the room.

(94) *?There seem to Mary to be men in the room.

(95)   There seems to Mary to be men in the room.

(96) *?There seems to be men in the room.

(97)   a. To Mary, there seem/*?seems to be men in the room.

        b. John wonders to whom there seem/*?seems to be men in the room.

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Boeckx notes a Move/Agree contrast with experiencers. Move across an experiencer is allowed (see (92)), but experiencers induce intervention effects for Agree: plural agreement across a singular experiencer is impossible, as shown by (94), which contrasts with (93) and (95) (singular morphology in the latter is disallowed without the experiencer, see (96)). Most importantly, the intervention effect is voided by A'-movement of the intervener, as in (97). The effect can be analyzed in the same way as the other examples above, confirming that intervention effects for Agree can also be rescued by PF deletion. The intervener for Agree in all the examples in (94) and (97) is *-marked. Since the intervening experiencer undergoes movement only in (97), only (97) can then be repaired by copy deletion of the intervener, hence the contrast between (94) and (97).

4.3.   Second Cycle Agree

The current system also goes a long way toward eliminating the need for Second Cycle Agree, argued for in Bejar (2003) and Rezac (2004).[14] In the relevant cases, Y in (98) is a defective intervener for Agree between X and Z, blocking this Agree relation. If Y moves, X and Z can Agree. Under Second Cycle Agree such cases are analyzed as follows: 1. Agree between X and Z fails, 2. Y moves, 3. X probes again (Second Cycle Agree). The analysis raises several questions: Shouldn't the copy of Y still intervene? (Appealing to the inertness of traces to intervention effects would lead us to the current analysis, further undermining the need for Second Cycle Agree). Furthermore, in several relevant cases Y intervenes between X and Z even after movement, but the intervention effect is still voided (see e.g. the clitic cases from Bošković 2011 and Boeckx 2009). Under the current analysis there is no need for the second Agree operation here: X agrees with Z across Y, which is *-marked. Movement of Y (regardless

of where it places Y) results in deletion of the offending copy, eliminating the * from the final representation).

(98)   X   Y   Z

5.   Conclusion

I have provided additional evidence for the generalization that traces do not head islands and shown that the way this geneneralization is deduced in Bošković (2011) correctly predicts that head movement is not subject to traditional islands. I have shown that Bošković's (2011) analysis deduces the Government Transparency Corollary and eliminates the need for Second Cycle Agree in many cases. I have also discussed several cases where rescue by PF deletion holds for Agree and argued that PIC/anti-locality violations, including P-stranding violations (i.e. unacceptable cases of P-stranding), can be rescued by PF deletion. Finally, I have discussed a peculiar restriction on IP movement (based on German infinitives) that is independent of locality.

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FOOTNOTES

[1] For helpful comments on this paper I thank an anonymous reviewer and audiences at SinFonIJA 3 (University of Novi Sad), Minimalism and Interfaces (Universidade de São Paulo), GLOW 34 (Vienna), Linguistic Summer School in the Indian Mountains 5 (Kangra), 14th Seoul International Conference on Generative Grammar (Dongguk University), and the participants of my seminars at the University of Connecticut.

[2] There are alternative accounts of several constructions discussed below. I will adopt here Baker's (1988) analysis since on Baker's analysis the GTC is crucially involved in these constructions and one of the main goals of this paper is to show that GTC effects are deducible from other mechanisms, which means that the GTC can be eliminated from the grammar.

[3] Although in some cases the * is copied under movement this does not happen in any of the cases considered in this paper. I refer the reader to Bošković (2011) for discussion of when the * is copied to the head of the chain.

[4] Bošković (2011) extends the rescue-by-PF-deletion analysis to a number of cases, including the *that*-trace effect (see below), a licensing condition on certain null objects, and Japanese *ga-no* conversion, unifying all of them with Ross's ellipsis cases in (3). Regarding *ga-no* conversion, Bošković (2011) gave a rescue-by-PF deletion account of the well-known fact that accusative but not null objects block *ga-no* conversion, where the former function as locality interveners, with the latter case involving PF deletion (i.e. argument ellipsis) of the offending intervener.

    (i)   Taroo-no   *(~~hon-o~~)/*hon-o*   kat-ta   mise

            Taroo-Gen   *book-Acc* buy-past shop

            'the shop where Taroo bought a book yesterday'

[5] See, however, Riqueros (in preparation) for a case that involves only an anti-locality violation, which Riqueros shows can be repaired by PF deletion.

[6] Note that, as discussed in Bošković (2011), extraction out of an island cannot be rescued by a follow-up movement of the whole island; see Bošković (2011) for the precise *-marking mechanism that accomplishes this without affecting the amelioration effect found in other constructions discussed in this paper.

[7] For additional evidence for this analysis of extraordinary LBE, see Talić (2013). Talić also shows that the preposition movement assumed in this analysis has a prosodic reflex; in particular, it is a prerequisite for accent shift to the preposition (only prepositions that undergo this movement can participate in accent shift).

[8] The account parallels Bošković's (in press a) account of the impossibility of simple LBE in English. Because DP is a phase, the AP in (i) must stop in SpecDP, which violates anti-locality. Not stopping in SpecDP yields a PIC violations (these problems do not arise in SC because, as argued in Bošković in press a, the DP layer is missing in SC, a language which lacks articles).

(i)   a. *[$_{DP}$ AP$_i$ [$_{D'}$ D [$_{NP}$ t_i [$_{NP}$....   b. *AP$_i$ [$_{DP}$ [$_{D'}$ D [$_{NP}$ t_i [$_{NP}$....

[9] In fact, movement of the preposition to the adjective may also lead to a violation. Recall that there are two ways of implementing such movement (see Talić 2013 for a way of teasing apart the two analyses): (a) preposition undergoes lowering, which should violate the ban on lowering though in this case it is not completely clear whether this would result in an actual violation given that the preposition ends up moving above its original position due to AP LBE; (b): preposition undergoes raising to the AP located in SpecPP, which violates anti-locality. At any rate, if there is a violation here, it should lead to *-marking of the original copy of the P, which, as discussed in the text, is repaired in PF in this case.

For an extension of the above analysis of extraordinary LBE to another case, see Talić (2013). Talić shows that in addition to extraordinary LBE, SC allows extraordinary complement extraction; i.e. what appears to be PP movement can actually involve movement of the P-complement that carries along the P in the same way AP carries along the P in extraordinary LBE.

[10] Panará may give us an interesting test case here. Panará also has optional P-incorporation. However, in Panará it is possible to pronounce the preposition both in the incorporated position and in the original position (the latter being optional), which Dourado (2002) analyzes in terms of multiple copy pronunciation. If a PP of this type causes a locality violation similar to the one from Chichewa we would expect that the violation will be voided only in the case where the incorporated P is not pronounced in the original position, otherwise we would have a *-marked copy present in PF. Additionally, P-incorporation out of a clear island PP should itself be blocked when the original copy is pronounced. Unfortunately, I do not know the relevant Panará facts.

[11] SC examples Merchant (2001) gave in support of his generalization turn out to be irrelevant, see Stjepanović (2008). Stjepanović argues that there is an interfering factor with (53) which concerns the possibility of non-stranding P-drop with PP coordinations. Since such drop is not possible with coordinated PPs of the kind illustrated in (48), it is not relevant to such examples.

[12] If (at least some) P-stranding cases in English involve P-incorporation (see Stepanov 2012), there is actually no need for extra structure above PP (in those cases): the PIC/anti-locality violation would lead to *-marking of a P-trace (see the above discussion of Chichewa.)

[13] The current analysis may also extend to the lack of the Comp-trace effect with Hebrew *še*. Shlonsky (1988) argues that the procliticization of the complementizer *še* voids the Comp-trace effect. This can be captured by combining the current accounts of the *that*-trace effect and

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extraordinary LBE: movement across *še* leads to the *-marking of *še*, with the *-marked copy deleted after *še* undergoes procliticization.

[14] The following does not, however, apply to all relevant cases; see also the case discussed in Bošković (2009).