

Weakest Island Effects: On the Properties of A'-Movement

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1. Introduction

Locality of movement has been a central concern in the history of generative grammar and has taken an important role in the development of the theories. Especially, island constraints, which A'-movement obeys, have been discussed in many places since Ross (1967) and others reported them.

In this paper, I am going to focus on so-called "Tense"-islands, discussed in Chomsky (1986), as exemplified in (1)-(2):

- (1) a. ??Which book did Tom ask Kate [when he should buy t_{which} t_{when}]?
b. Which book did Tom ask Kate [when to buy t_{which} t_{when}]?
(2) a. ??What did Tom ask Kate [when he should buy t_{what} t_{when}]?
b. What did Tom ask Kate [when to buy t_{what} t_{when}]?

In (1)-(2), wh-extraction out of a finite wh-clause is much worse than the one out of an infinitival wh-clause, despite the fact that wh-islands are involved in both cases. Wh-island effects in (1b)-(2b) seem to be much weaker than any other ones (i.e. "weakest" islands) in that the sentences are fully acceptable. The contrast in (1)-(2) implies that finiteness in a wh-clause has some influence on deciding whether or not movement is allowed, and for this reason, they have been understood as Tense-islands.

However, a close look at the data, which are supposed to involve Tense-island effects, tells us that finiteness is not the only factor in giving rise to the contrast in (1)-(2) as a matter of fact. For example, the contrast in (3) runs counter to the analysis based only on finiteness:¹

- (3) a. *Which book did Tom ask Kate [when to decide t_{when} [to buy t_{which}]]?
b. ?Which book did Tom decide [to ask Kate [when to buy t_{which} t_{when}]]?

In (3), the embedded clauses are all infinitival and "which book" is extracted out of the lowest clause. If Tense-island effects are imputed only to finiteness, these two sentences should have the same status. However, (3a) is much worse than (3b) for some reason. In this paper, I am going to throw new light on Tense-island effects, and I propose that finiteness sensitivity in wh-movement is observed only in A-to-A'-movement, not in A'-to-A'-movement (A/A'-asymmetries). That is, Tense-island effects actually involve A/A'-distinctions as well as finiteness.

2. Tense-Island Effects and A/A'-Asymmetries

As exemplified in (1)-(2), if a wh-phrase is extracted out of a wh-clause, the extraction out of a finite wh-clause is much more degraded than the one out of an infinitival wh-clause. At first sight,

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¹ The same type of data in (3a) is also presented in Richards (2002).

finiteness in the *wh*-clause seems to exercise some influence on its grammatical status. That is, either a finite *T* strengthens the island violation or an infinitival *T* weakens it. In order to capture this contrast, some approaches, which are discussed in section 2.3, have been proposed, and most of them take the former view: a [+finite]*T* creates an island. In this paper, the latter view is taken: an infinitival *T* ameliorates island violations. This point of view enables us to make an interesting observation and realize that Tense-island effects are due not only to finiteness but also to additional factors.

2.1 Puzzles: Adjunct Extractions and *Wh*-Islands in the Second Clause

Now, let us consider two types of data. The first case is adjunct extraction as follows:

- (4) a. *How did Tom wonder [where he should buy the book $t_{\text{where}} t_{\text{how}}$]?
 b. *How did Tom wonder [where to buy the book $t_{\text{where}} t_{\text{how}}$]?

In (4), an adjunct interrogative “how” is extracted out of a *wh*-clause, which is finite in (4a) and infinitival in (4b). The sentences are both unacceptable regardless of finiteness in the *wh*-clauses. If an infinitival *T* ameliorates island violations, (4) should show the same contrast observed in (1)-(2). But this is not the case. One obvious thing is that the contrast in (4) casts doubt on an explanation for Tense-islands referring only to finiteness. The only difference between (1)-(2) and (4) is that the extracted *wh*-phrase is an argument in the former and an adjunct in the latter. If an adjunct *wh*-phrase moves across a *wh*-island, finiteness has no effect on movement, at least in (4). In other words, Tense-island effects seem to show argument/adjunct-asymmetries. However, the next case may undermine the latter possibility.

The second case is the contrast exemplified in (3), repeated as (5):

- (5) a. *Which book did Tom ask Kate [when to decide t_{when} [to buy t_{which}]]?
 b. ?Which book did Tom decide [to ask Kate [when to buy $t_{\text{which}} t_{\text{when}}$]]?
 (6) *Which book did Tom ask Kate [when he should decide t_{when} [to buy t_{which}]]?

As already mentioned in the introduction, the embedded clauses in (5) are all infinitival and “which book” moves from the lowest clause across a *wh*-island. The judgment is relatively clear for almost all of my informants: (5a) is much worse than (5b). If an infinitival *T* displays amelioration effects of island violations, the infinitival (5a) should be better than its finite counterpart (6). Again, the judgments fail to support this prediction. These data also tell us that Tense-island effects do not purely come from finiteness. Furthermore, the view of argument/adjunct symmetries is also falsified by these data, because the extracted *wh*-phrase in (5) is an argument but an infinitival *T* does not rescue the island violation in (5a). The difference between (5a) and (5b) is where a *wh*-island is located: the second clause in (5a) and the lowest clause in (5b). That is, positional differences of *wh*-islands are the important factor.

The two types of data adduced above will be sufficient evidence to pursue another explanation: Tense-island effects could be attributed to some additional factors as well as finiteness. Some possibilities are given by the discussion here. (1)-(2) vs. (4) imply that argument/adjunct-asymmetries exist and (5) implies that there could be some interaction with where a *wh*-island is located. Let us keep these observations in mind and see the data from another point of view.

2.2 New Observations: A/A'-Asymmetries in Tense-Island Effects

In this section, we will provide another consideration for the data discussed in the previous sections. First, let us consider the argument extraction cases as in (5), and let me put aside the adjunct extraction case in (4) for the time being. If we put the data in (5) in the following context, an interesting contrast comes out. (5) and (6) are repeated as (8) and (7a) respectively.

- (7) finite-infinitival
 a. *Which book did Tom ask Kate [when he should decide t_{when} [to buy t_{which}]]?
 b. ?Which book did Tom decide [he should ask Kate [when to buy $t_{\text{which}} t_{\text{when}}$]]?

- (8) infinitival-infinitival
 a. *Which book did Tom ask Kate [when to decide t_{when} [to buy t_{which}]]?
 b. ?Which book did Tom decide [to ask Kate [when to buy t_{which} t_{when}]]?
- (9) infinitival-finite
 a. *Which book did Tom ask Kate [when to decide t_{when} [he should buy t_{which}]]?
 b. *Which book did Tom decide [to ask Kate [when he should buy t_{which} t_{when}]]?
- (10) finite-finite
 a. *Which book did Tom ask Kate [when he should decide t_{when} [he should buy t_{which}]]?
 b. *Which book did Tom decide [he should ask Kate [when he should buy t_{which} t_{when}]]?

Let us focus on the position of a wh-island in these sentences. In the (a) examples, a wh-island is located in the second clause, while in the (b) examples, it is in the lowest clause. (7b) and (8b) are acceptable, but all of the others are unacceptable.

First, consider the (b) sentences, where a wh-island is in the lowest clause. In these sentences, the lowest clause includes both a wh-island with “when” and the launching site of “which book”. Paying attention to movement of “which book”, the wh-island is crossed in the step from an A-position to an A'-position as shown in the following configuration:

- (11) [which book ... [CP <which book> ... [CP when ... <which book>]]]
-

Further, turning to finiteness in the wh-clauses, the clause is infinitival in (7b) and (8b). Meanwhile, the clause is finite in (9b) and (10b). In the former cases, the sentences are acceptable as a consequence of amelioration effects with an infinitival T. In the latter cases, the sentences are unacceptable because a finite T does not weaken island violations. Therefore, It can be concluded that amelioration effects with an infinitival T emerge in A-to-A'-movement across a wh-island.

Next, consider the (a) sentences, where a wh-island is in the second clause. Note that the launching site of “which book” is in a different clause from a wh-clause: the launching site is in the lowest clause while the wh-island is in the second clause. On the basis of the discussion above, let us see at which step of movement a wh-island is crossed:

- (12) [which book ... [CP when ... [CP <which book> ... <which book>]]]
-

As shown in the configuration in (12), “which book” moves across the wh-island in the step from an A'-position to an A'-position. Given that a wh-phrase moves in a successive-cyclical manner, “which book” has to stop at [Spec,CP] in the lowest clause on the way to the matrix clause unless [Spec,CP] is occupied by another wh-phrase. At the first step of movement, “which book” lands at an A'-position. And then, it crosses the wh-island at the second step of movement. In (7a) and (10a), the wh-clause is finite. In (8a) and (9a), the clause is infinitival. However, the sentences are all unacceptable regardless of finiteness, and this tells us that A'-to-A'-movement across a wh-island is not sensitive to finiteness. That is, it can be concluded that an infinitival T does not show amelioration effects in A'-to-A'-movement across a wh-island.²

Further, our observation is tolerable also in the adjunct extraction case.

- (13) a. *How did Tom wonder [where he should buy the book t_{where} t_{how}]?
 b. *How did Tom wonder [where to buy the book t_{where} t_{how}]?

² Richards (2002:240) points out the following three sentences:

- [1] a. What are you wondering how to try to repair _?
 b. *What are you wondering how John tried to repair _?
 c. *What are you wondering how to persuade John to repair _?

According to Richards, [1a] is better than [1c] and [1c] is better than [1b]. Our generalization cannot predict the contrast between these three sentences. It wrongly predicts that they are all ungrammatical. This data set could tell us that Tense-island effects depend on additional factors other than A/A'-asymmetries and finiteness.

As we already know, if an adjunct wh-phrase is extracted out of a wh-clause, an infinitival T does not rescue wh-island violations as exemplified in (13b). Given the discussion so far, (13) falls into the case of the (a) sentences in (7)-(10). Note that an adjunct wh-phrase is in an A'-position from the beginning and every step of movement is from an A'-position to an A'-position. As already mentioned, an infinitival T does not weaken island violations in A'-to-A'-movement. Hence, (13b) has the same status as (13a).

Summarizing the analysis so far, the following generalization can be established: A-to-A'-movement across a wh-island is sensitive to finiteness. On the other hand, A'-to-A'-movement across a wh-island is not sensitive to finiteness. Thus, Tense-island effects are observed only in A-to-A'-movement, not in A'-to-A'-movement. In Section 2.1, the data we examined gave us a trigger to throw doubt on the idea that finiteness is the only factor involved in Tense-islands. In this section, we came to the conclusion that Tense-island effects are imputable to A/A'-distinctions as well as finiteness.

2.3 Chomsky (1986) and Manzini (1992)

In this section, some previous approaches to Tense-island effects are briefly summarized, and it is demonstrated that they are insufficient in dealing with the data we have considered. Chomsky (1986) and Manzini (1992) each proposed the following treatment for Tense-islands:

(14) Chomsky (1986:37)

Tensed IP is an inherent barrier (possibly weak) to wh-movement, this effect being restricted to the most deeply embedded tensed IP.

(15) Manzini (1992)

[+Tense] on T blocks an (Address-based) sequence between a wh-phrase and its trace, but [-Tense] on T does not block it.³

In Chomsky's system, the lowest tensed IP creates a barrier (and a blocking category) by itself. Also, a maximal projection which immediately dominates a blocking category also becomes a barrier by inheritance. Therefore, if a wh-phrase is extracted out of a tensed wh-clause, two barriers, IP and CP, are crossed at once as follows:

(16) ... [VP wh₁ ... [VP ... [CP wh₂ [IP ... [+tense] [VP wh₁ [VP ... wh₁]]]]]]]

If the lowest IP is an infinitival clause, on the other hand, it does not become a barrier by itself. It just becomes a blocking category, and the CP immediately dominating it becomes a barrier by inheritance. In this case, only one barrier is crossed in the step which is shown with a bold type in (16). That is, wh-movement out of an infinitival clause crosses fewer barriers than the one out of a finite clause. As a result, the contrast observed in (1)-(2) can be captured.

As we already discussed, however, the facts behind Tense-islands were more complicated. For example, the adjunct extraction case in (13) seems to be problematic in Chomsky's system. If an adjunct wh-phrase is extracted out of a wh-clause, the sentence becomes unacceptable regardless of finiteness. However, the same scenario for (1)-(2) applies also to the adjunct case, and the system wrongly predicts that finiteness sensitivity is observed in this case. Moreover, the contrast in (8) seems to act counter to Chomsky's analysis and to Manzini (1992). In (8), the embedded clauses are all infinitival and a wh-island is in the second clause in (8a) and in the lowest clause in (8b). Again both approaches wrongly predict that (8a) and (8b) have the same status, because they do not care where a wh-island is located. Therefore, these approaches need to be remedied for the data at issue.

In this section, we have given close considerations to Tense-island effects in light of A/A'-distinctions. Ultimately, we reached the conclusion that finiteness sensitivity in wh-movement is observed only in A-to-A'-movement, not in A'-to-A'-movement. That is, it displays A/A'-asymmetries. Also, we have considered that two previous approaches, which care only about finiteness, fail to capture the data discussed here.

³ The address is defined as follows: α has an address if there is a head β that Case-marks α (Manzini 1992:38).

3. Consequences

3.1 Tough-Constructions: The Null Operator Movement Analysis

In this section, we will turn to some consequences obtained from the discussion so far. First, our view of finiteness sensitivity in wh-movement is also tenable in another type of A'-movement, null operator movement in *tough*-constructions (TC).

As discussed in Chomsky (1977), Browning (1982) and others, it is widely known that TC shows some sort of A'-movement properties. For example, it obeys the island constraints. This fact has been interpreted as suggesting that TC involves null operator movement. Also, one of the interesting properties in TC is sensitivity to finiteness as follows:

- (17) a. John is easy (for us) to please . (John_i is easy [Op_i to please t_i])
 b. *John is easy that we please . (John_i is easy [Op_i that we please t_i])

In (17), the null operator co-indexed with “John” can move within an infinitival clause, not within a tensed clause for some reason. Under the null operator movement analysis, we can understand this property as implying that null operator movement shows finiteness sensitivity. In addition, note that the movement executed in (17) is from an A-position to an A'-position ([Spec,CP]). That is, our observation in the previous sections seems to be maintainable. Further, if we put two more embedded clauses into sentences like (17), the same contrast as the one observed in Tense-island effects is obtained, although subtle judgment is required:

- (18) a. John is easy (for us) to convince Bill to arrange for Mary to meet .
 b. ?John is easy (for us) to convince Bill to tell Mary that Tom should meet .
 (Chomsky 1977: 103-104)
 c. John is easy (for us) to convince Bill that he should arrange for Mary to meet .

The clause which includes the extraction site is infinitival in (18a) and finite in (18b). The other embedded clauses are all infinitival. In (18b), a null operator crosses a finite T in A-to-A'-movement and the sentence is more degraded than (18a) in a consequence of sensitivity to finiteness. In (18c), on the other hand, the clause from which a null operator is extracted is infinitival and the second clause is finite. In this sentence, a null operator moves as follows:

- (19) John is easy [_{CP3} Op [(for us) to convince Bill [CP2 t_{Op} that [he should arrange [_{CP1} t_{Op}]]] for Mary to meet t_{Op}]]]]].

In the step from [Spec,CP1] to [Spec,CP2] (i.e. A'-to-A'-movement), a null operator crosses a [+finite]T. As we already know, A'-to-A' movement does not show finiteness sensitivity, and the same thing seems to be maintainable in (19), because the sentence is better than (18b), where an operator crosses a [+finite]T in A-to-A' movement. Accordingly, our generalization based on Tense-island effects will be supported by TC.

3.2 An Implication for Successive Cyclic Wh-movement

The second consequence concerns the cycle of movement. Our view of Tense-island effects brings us an interesting implication for the potential landing site of successive cyclic wh-movement.

According to Chomsky (2000, 2001a,b), wh-phrases have to go through every [Spec,CP] and [Spec,VP] on the way to the edge of [+Q]C under the Phase Impenetrability Condition, and every phase head (v, C) has the EPP feature to attract elements to the edge positions.⁴ Therefore, [Spec,CP] and [Spec,VP] are potential landing sites of wh-movement.

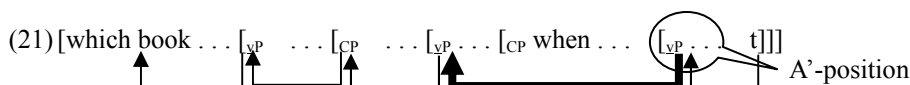
On the other hand, our discussion on Tense-island effects implies that the potential landing site of wh-movement is only [Spec,CP], not [Spec,VP]. Let us recall the configuration in which a wh-phrase

⁴ Phase Impenetrability Condition (Chomsky 2000:108): In phase α with head H, the domain of H is not accessible to operations outside α , only H and its edge are accessible to such operations.

crosses a wh-island in the step from an A-position to an A'-position:



As illustrated in the configuration above, “which book” crosses the wh-island in the step from the launching site to [Spec,CP]. If the lowest clause is infinitival, amelioration effects of island violations are observed. If it is finite, on the other hand, no amelioration effects are gained. This is the scenario we have discussed so far. If “which book” stops at [Spec,yP] as suggested in Chomsky’s work, however, the step of movement crossing a wh-island is no longer A-to-A'-movement, but A'-to-A'-movement as shown in (21):⁵



Our discussion reached the conclusion that A'-to-A'-movement does not show finiteness sensitivity. That is, under the derivation exemplified in (21), A/A'-asymmetries observed in Tense-islands are not appropriately captured. As far as our view is on the right track, it can be concluded that only [Spec,CP], not [Spec,yP], should be available as a potential landing site of wh-movement. Putting this conclusion to more recent terms, only CP, not yP, seems to be a phase.⁶ In addition, Du Plessis (1977), McCloskey (2000) and others show that tracks of wh-movement are visible in some languages and they are observed only at [Spec,CP]. These data are compatible with the consequence obtained from our discussion. Hence, our view can be supported empirically also in this point.

3.3 A-to-A'-Movement: Interactions with A-Movement

Finally, let us consider relations between A-movement and A'-movement in light of finiteness sensitivity.

- (22) a. John seems to _ be intelligent.
 b. It seems that John is intelligent.
 c. *John seems that _ is intelligent.
- (23) Who do you think _ is intelligent?

As is well known, A-movement shows strong sensitivity to finiteness. As exemplified in (22), “John” is not allowed to move out of a finite clause, but it can be extracted out of an infinitival clause. Since A-movement is basically Case-driven movement and a finite T is a Case-assigner, a DP need not to move anymore once Case is assigned by T. Therefore, finiteness sensitivity in A-movement is extremely strong. By contrast, A'-movement basically allows an element to move across any number of finite clauses on the way to the final landing site. But only in certain configurations, say wh-islands, finiteness sensitivity is observed in a part of the A'-movement. In terms of finiteness sensitivity, relations between A-movement and A'-movement can be described as follows:

- (24) finiteness sensitivity:
 A-movement: strong A-to-A'-movement: weak A'-to-A'-movement: none

If finiteness sensitivity in movement is characteristic of A-movement, we can understand that A-to-A'-movement has an A-movement property despite the fact that it is A'-movement. On the other hand, A'-to-A'-movement shows no finiteness sensitivity. Therefore, it does not share A-movement properties. In this sense, we can regard A'-to-A'-movement as a genuine A'-movement. In contrast, it seems that A-to-A'-movement is an A'-movement sharing properties with A-movement.

⁵ I am assuming that CP has only one specifier, not multiple specifiers, in English.

⁶ Simpson and Wu (2002) also reach the same conclusion.

4. A/A'-Asymmetries: Timing of Feature Deletion

In this section, an alternative approach to Tense-island effects is discussed. As we already know, we need to take into account A/A'-asymmetries as well as finiteness to deal with Tense-islands. I propose that the A/A'-asymmetry follows from Case-features and their lifespan in the derivational procedure.

First of all, let us focus on some properties of A'-movement. What distinguishes A-movement and A'-movement is that the landing site decides which type of movement is taking place: if a moved element lands at an A-position, the movement is A-movement. If at an A'-position, the movement is A'-movement. On the other hand, the starting points of A'-movement have varieties: A'-movement can start either from an A-position or from an A'-position. That is, A'-movement has two kinds of starting point. In the case of successive cyclic A'-movement, once a moved element lands at an A'-position (i.e. [Spec,CP]), it is not allowed to go to an A-position because of improper movement. As a consequence of that, A-to-A'-movement is allowed only in the first step of A'-movement, not in the other steps. In other words, only the chain formed by the first step of movement holds information on the launching site of a moved element in that all of the other chains are formed by movement from intermediate landing sites ([Spec,CP]). In this sense, it seems that the first step of movement has a special status.

The problem we need to tackle next is how to derive the special status of the first step of movement. In order to do it, let us assume the timing of feature deletion proposed in Pesetsky and Torrego (2004:15) (henceforth, P&T): “at the end of the CP phase, uninterpretable features are deleted if they are valued”.⁷ Given that, let us see why the first step is special.⁸

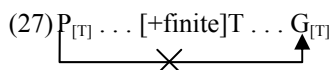
- (25) a. What do you think John bought _?
 b. What₃ do you think <what₂> John bought <what₁>?
- (26) a. what₁: [~~uT~~] [uQ]
 b. what₂: [---] [uQ] (before the merger of the matrix [+Q])
 c. what₂: [---] [~~uQ~~] (after Agree with the matrix [+Q])
 d. what₃: [---] [---]

In order to derive the sentence in (25), the following derivation takes place. First, “what” is merged into the object position of “bought”, and [uT] as a Case-feature on “what” is valued. And then, “what” moves to the edge of CP under the Phase Impenetrability Condition (PIC). This is the end of the first CP phase. Before the computation for the next CP phase starts, an uninterpretable feature which is already valued has to be deleted in accordance with P&T’s assumption, as illustrated in (26b). Note that [uQ] on “what” is not valued yet because the embedded C is marked with [-Q] and [uQ] on “what” needs to wait for the merger of [+Q]C. Therefore, “what” loses only [uT] at the end of the first CP phase and keeps carrying [uQ]. In the matrix CP phase, [+Q]C is introduced to the derivation. [uQ] on “what” is valued by the matrix [+Q] as in (26c), and finally, it is deleted as illustrated in (26d). The derivation converges. Going back to the derivation at the end of the first CP phase, a Case-feature on a wh-phrase is valued and deleted in this cycle following P&T’s assumption. That is, a wh-phrase can hold a Case-feature only in the first step of movement, not in the other steps. To rephrase it in light of a T-feature as a Case-feature, a wh-phrase is a “T-related” element only in the first step. In other steps, it is a “non-T-related” element. As a result of this unique property in the first step, we can say that the first step of movement has a special status in the derivation.

In the above discussion, we have seen that A-to-A'-movement is allowed only in the first step of movement and that the timing of feature deletion enables us to capture the special status of the first step. That is, the proposed system can capture the difference between A-to-A'-movement and A'-to-A'-movement. Finally, we need to consider how to derive finiteness sensitivity in A-to-A'-movement (i.e. movement of a T-related element). Let us assume that Agree is blocked in the following configuration:

⁷ However, P&T (2001) argue that the feature lifespan is determined on the basis of availability of the EPP property. In this paper, I will adopt P&T’s (2004) version of feature deletion.

⁸ I will take the Case system proposed in P&T (2001,2002,2004): “structural case on DP is an uninterpretable instance of T-feature (uT) (P&T, 2002:501)”. In their system, C also has a Case-feature, and this assumption enables them to capture availability of the subject-auxiliary inversion and *that*-omission asymmetries.



If a probe and a goal are both T-related elements as shown in (27), a finite T blocks the Agree relation between them.⁹ If either of them is not a T-related element or the clause is infinitival, on the other hand, the Agree relation can be established. Note that an adjunct does not have a Case-feature from the beginning, so it is not a T-related element throughout the derivation. Therefore, Agree involving an adjunct does not show finiteness sensitivity. On the other hand, an argument wh-phrase is a T-related element in a certain step of movement. The Agree relation between C and an argument wh-phrase is blocked as long as a Case-feature on the wh-phrase is maintained (i.e. in A'-to-A'-movement). Once it is deleted, (27) is not a concern anymore. Thus, A'-to-A'-movement is not sensitive to finiteness. Now, let us see how the derivation is carried out. For space limitations, only the derivation for the crucial data is illustrated. The contrast in (28) is the one which is problematic in the previous approaches and tells us an infinitival T does not ameliorate island violations in A'-to-A'-movement.

(28) a. *Which book did Tom ask Kate $[_{CP2}$ when to decide t_{when} $[_{CP1}$ to buy t_{which}]]?

b. ?Which book did Tom decide $[_{CP2}$ to ask Kate $[_{CP1}$ when to buy t_{which} t_{when}]]?

(29) The derivation for (28b)

Step1: $[_{CP1}$ $C_{[EPP][iQ][\#\#\#]}$ PRO to buy when $_{[uQ]}$ which $_{[uQ][\#\#\#]}$]

Step2: $[_{CP1}$ which $_{[-][uQ]}$ when $_{[-]}$ to buy _ _]

Step3: $[_{CP2}$ $C_{[EPP][-Q][\#\#\#]}$ T[-finite] $[_{CP}$ which $_{[uQ][-]} \dots$]]

Step4: $[_{CP}$ did $(C_{[EPP][iQ][\#\#\#]})$ T[+finite] $[_{CP2}$ which $_{[uQ][-]} \dots$]]

At Step1, [+Q]C agrees with a wh-phrase, but the clause has two wh-phrases. In terms of the closest c-command, “when” should be chosen as a goal. Paying attention to the feature distributions, however, a probe C matches “which” better than “when” in that C and “which” both have [Q] and [uT] but “when” only has [Q]. Suppose that both wh-phrases can become goals in this case with slight modifications of Chomsky’s probe goal system (see Obata (to appear) for more details). Although both wh-phrases become goals, C has a single [+Q]. Therefore, let us say that either of the wh-phrases is valued, but the EPP feature can attract both wh-phrases as shown in Step2.¹⁰ The derivation goes on to the next clause. At Step3, the merged C is marked with [-Q] and [uQ] on “which” is not valued. The EPP feature attracts “which” to the edge position. [uQ] on “which” still remains undeleted. At Step4, the matrix C is marked with [+Q], and it agrees with [uQ] on “which”. Note that [uT] on “which” is already deleted and is not a T-related element. Therefore, the Agree relation is not blocked by a finite T. The matrix EPP feature attracts “which” to the edge position. Finally, the derivation converges.

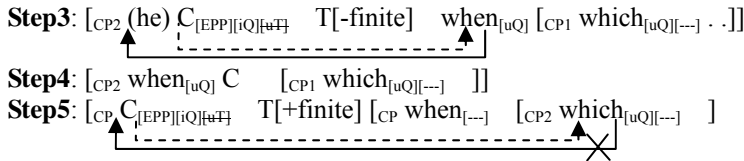
(30) The derivation for (28a)

Step1: $[_{CP1}$ $C_{[-Q][EPP][\#\#\#]}$ T[-finite] which $_{[uQ][\#\#\#]}$]

Step2: $[_{CP1}$ which $_{[uQ][-]} \dots$]

⁹ (27) wrongly rules out sentences like “what did you buy?” or “I wonder what John bought.”, because [+Q]C agrees with a T-related wh-phrase across a finite T. Under P&T’s analysis, C also has a Case-feature. That is, a probe and a goal both are T-related elements. One possible way to avoid this problem is that we assume that (27) is a weak constraint. It is not strong enough to make a sentence fully unacceptable. In other words, in order to make a sentence fully unacceptable, another independent reason is required, say violation of PIC as shown in (30). Therefore, (27) seems to be weak enough to create a sentence like “what did you buy?”.

¹⁰ This assumption also predicts that “which” can be pronounced at the lowest [Spec,CP] and “when” moves to the matrix clause. Thus, the superiority effect discussed in Chomsky (1973) disappears. Interestingly, the following sentences are both acceptable: “I am wondering where you bought what.” and “I am wondering what you bought where.” Our version of the probe-goal system makes a desirable prediction on this kind of data and gives an interesting implication for hierarchical relations between a VP-adjunct and an object as discussed in Jackendoff (1977), Larson (1988) among others (See Obata in prep).



At Step1, the lowest CP is introduced to the derivation. Since C is marked with [-Q], it does not agree with a wh-phrase. The EPP feature attracts “which” to the edge position as in Step2. [uQ] on “which” is not valued yet but [uT] is deleted at the end of the CP phase. At Step3, the next CP includes another wh-phrase “when” and C is marked with [+Q]. C agrees with “when”, not with “which”, based on the closest c-command, because [uT] on “which” is already deleted and the feature matching makes no distinction between two wh-phrases. And then, “when” is attracted to the edge of CP. [uQ] on “which” still remains undeleted. At Step5, the matrix CP is introduced. Since C is marked with [+Q], it agrees with [uQ] on “which”. Note that “which” is not a T-related element and Agree does not care about finiteness. However, the EPP feature cannot attract “which” because of PIC. It causes the crash of the derivation. Our system successfully derives the contrast in (28).

5. Conclusions

In this paper, we have discussed finiteness sensitivity in wh-movement, focusing on some properties of Tense-island effects. We obtained the generalization as follows: A-to-A' movement is sensitive to finiteness, while A'-to-A' movement is not sensitive to finiteness. Moreover, it is showed that some previous approaches to Tense-islands did not straightforwardly capture these properties. In section 4, we suggested an alternative account to capture A/A'-asymmetries observed in Tense-islands. By means of some devices suggested in P&T (2001, 2002, 2004), we could derive the data presented here. Also, the proposed view brings us some interesting consequences as we discussed in section 3.

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