**Locality/Anti-locality and Weak Crossover Effects**

**Background & Issue:** In English, Weak Crossover (WCO) effects are observed when an object undergoes a wh-movement across a subject. In Japanese/German, on the other hand, WCO effects are not observed when an object undergoes a movement across a subject within a clause.

(1) *Who_{21} does his_{1} mother like t_{1}?
(2) Dare_{2} o_{1} [soitu_{1}-no hahaoya]-ga t_{1} aisiteiru no?
   - Who-Acc the.person-Gen mother-Nom love Q
   - 'Who_{21} does his_{1} mother loves t_{1}?'
(3) Wen_{1} liebt [seine_{1} Mutter] t_{1} ?
   - who-Acc loves [his mother]-Nom
   - 'Who_{21} does his_{1} mother love t_{1}?'

The grammatical difference between (1) and (2) has been generally explained with an A/A'-distinction. That is, the position that who occupies in the English example (1) must be an A'-position, from which it cannot license a bound variable, whereas the position that dare "who" occupies in the Japanese example (2) can be an A-position, from which it can license a bound variable. Thus, an availability of a bound variable reading can be explained by resorting to an A/A'-distinction.

Note, however, that there are some theoretical problems in such an approach. Firstly, although A-position is explicitly defined before the Predicate-Internal Subject Hypothesis, it is unclear what is the exact definition of A/A'-position under the current theory of the minimalist program. Secondly, even given a distinction of A/A'-position, it is still unclear how a position of an element is related to anaphoric interpretation; i.e., why an element in an A-position can license a bound variable while one in an A'-position cannot. Empirically, a question arises as how a difference between English and German can be explained; because both languages are (single-)wh-movement language, the wh-phrase in (1) and (3) should occupy a CP-Spec, which is a typical A'-position. Then, what is a parametric difference that determines absence of WCO effects in (1) and (3).

In this paper, I propose a new approach to a license of anaphoric elements, especially a bound variable, without resorting to A/A'-distinction. Given this approach, it is possible to capture cross-linguistic variations in WCO effects. Moreover, the analysis makes it possible to derive a difference in binding effects between long-distance scrambling and clause-internal scrambling in Japanese.

**Analysis:** In this paper, I adopt the following hypotheses, each of which is independently motivated.

(4) a. **Locality Condition on Pied-Piping** (Ura 2001)
   Formal feature cannot be pied-piped as a free rider (contrary to Generalized Pied-Piping: Chomsky 1995) if there is an intervening matching feature.

   Movement within a minimal domain (Chomsky 1995) is disallowed.

Given the Locality Condition on Pied-Piping (4a), an argument α cannot retain a γ-feature at the landing site if it moves across an intervening γ-feature of β, as illustrated in (5a). Note that since an XP-adjointed position (XP-Adjunct) and an XP-Spec are in the same minimal domain and therefore equidistant (Chomsky 1995), α can retain its γ-feature at the landing site if it adjoins to a maximal projection whose Spec/Adjunct is occupied by an element with a γ-feature, as illustrated in (5b). Thus, adjunction enables an element to pied-pipe its formal features even if there are intervening matching features on the way to a final landing site. Note, however, that such an adjunction is limited given the Anti-locality Condition on Movement (4b). As illustrated in (5c), movement from an XP-Adjunct to Spec/Adjunct of the next higher maximal projection is disallowed by the anti-locality condition.

(5) a. \[ Z \alpha \ldots [Y \beta \gamma \ldots [X \alpha \gamma ] ] ]
   b. \[ Z \alpha \gamma \ldots [Y \beta \gamma \ldots [X \alpha \gamma ] ] ]
   c. \[ Y \alpha \gamma \ldots [X \beta \gamma Y [X \alpha \gamma \ldots [X \gamma ] ] ] ]

Given this framework, a derivation of the sentences in (1), (2) and (3) is as illustrated in (6).

(6) \[ [\gamma \text{who} C_{[T_{[\text{his mother}]}-\phi \text{T}_{[\phi \text{who}-\phi \text{[his mother]-\phi v [v \phi love who-\phi]]]}]]}]]

As illustrated in (6), who in the CP-Spec/Adjunct cannot retain \( \phi \)-features because it crosses intervening \( \phi \)-features of his mother in the TP-Spec. Note that who in the vP-Adjunct/Spec cannot move to a TP-Adjunct and then move to the CP-Spec because movement from a TP-Adjunct to the CP-Spec violates the Anti-locality Condition on Movement (4b). Therefore, who in the vP-Adjunct/Spec must directly move to the CP-Spec, which causes the disability of who's pied-piping of its \( \phi \)-features. Thus, given the current approach, the English sentence (1) and the Japanese/German one (2)/(3) should have the same derivation
In order to derive the binding facts without using A/A'-distinction, I propose (7).

7. Only a copy with \( \phi \)-features can be a binder (or license a bound variable).

Given (7), the copy of \( who \) in the CP-Spec in (6) cannot be a binder because it lacks \( \phi \)-features. Therefore, if the copy of \( his \) mother is interpreted at the TP-Spec, it cannot be bound by \( who \) because no copies of \( who \) with \( \phi \)-features \( c \)-command it.

8. 
\[
[CP \ who \ C [TP \ his \ mother-\( \phi \) T [VP \ who-\( \phi \) [\( \phi \) his \ mother-\( \phi \) \( v \) [\( VP \) love \( who-\phi \)]]]]]
\]

I propose that the grammatical difference between the English sentence (1) and the Japanese/German one (2)/(3) should be attributed to a position where a subject is interpreted, assuming (9) and (10).

9. Case checking renders the element visible for interpretation. (Boeckx 2001: 518)

10. In English, Nominative Case must be checked at a TP-Spec, whereas in Japanese/German it can be checked within a \( vP \). (reinterpretation of Ura 2000 under the current framework)

Given the assumptions (9) and (10), a possible structure for the English sentence (1) is as in (11a), while one for the Japanese/German sentence (2)/(3) is either (11a) or (11b).

11. a. \[
[CP \ who[1]_{\phi} \ [TP \ his_{1} \ mother[\phi]_{\text{Case}} \ T [VP \ who[1]_{\phi} \ [\( \phi \) his_{1} \ mother[\phi]_{\text{Case}} \ v \ [\( VP \) love \( who[1]_{\phi} \)]]]]]
\]

b. \[
[CP \ who[1]_{\phi} \ [TP \ his_{1} \ mother[\phi]_{\text{Case}} \ T [VP \ who[1]_{\phi} \ [\( \phi \) his_{1} \ mother[\phi]_{\text{Case}} \ v \ [\( VP \) love \( who[1]_{\phi} \)]]]]]
\]

In (11a), the bound variable \( his \) is not licensed because copies of \( his \) mother available for interpretation are only the one in the TP-Spec, and the copy of \( his \) is not \( c \)-commanded by any copies of the coindexed element \( who \) available for binding. In (11b), on the other hand, the bound variable \( his \) is licensed because a copy of \( his \) mother in the \( vP \)-Spec, which is available for binding, is \( c \)-commanded by the copy of \( who \) in the \( vP \)-Spec/Adjunct, which is available for binding. That is why the Japanese/German sentence is exempted form WCO effects.

Thus, given (9) and (10), subjects in English must be interpreted at a TP-Spec, whereas subjects in Japanese/German can be interpreted at a \( vP \)-Spec, which causes the grammatical difference in WCO effects. As for the fact that a certain subject can take lower scope in English, I assume Semantic Reconstruction (Cresti 1995, Rullmann 1995). Note that a sentence with a raising predicate in English is exempted from WCO effects, as exemplified in (12). This is because an experiencer DP is not an intervener for a subject's pied-piping of its \( \phi \)-features to the TP-Spec, as evidenced by that a raising subject can undergo a(n) (A-)movement to the TP-Spec across an experiencer DP.

12. Everyone, seemed to his \( i_{1} \) mother \( t_{1} \) to be smart.

Consequence: The current approach predicts that in a language without clause-internal WCO effects, Nominative Case can be checked within a \( vP \). The prediction is borne out in Japanese, Korean, Hindi, German, Turkish, Hungarian, Georgian, and Tamil: These languages allow Nominative objects and are exempted from WCO effects when an object moves across a subject within a clause.

The current approach can also capture the difference in binding effects between clause-internal scrambling and long-distance scrambling in Japanese. Contrasted to the case of clause-internal scrambling, long-distance scrambling cannot feed A-binding, as shown in (13).

13. *Darej\( n_{1} \) [soit\( u_{1} \)-no hahaoya]-ga [Hanako-ga ta\( t_{1} \) deatta to] omotta no who-Dat the.person-Gen mother-Nom H-Nom met C thought Q

Intended: 'Who\( n_{1} \) dis his\( i_{1} \) mother think that Hanako met t\( t_{1} \)?'

Under the framework developed in this paper, the embedded object \( who \) cannot retain \( \phi \)-features at the point where it moves to the CP-Spec/Adjunct in the embedded clause because \( \phi \)-features of \( Hanako \) in the embedded TP-Spec blocks \( who \) from pied-piping its \( \phi \)-features to the CP-Spec/Adjunct. Therefore, no copies of \( who \) available for binding can \( c \)-command any copies of the bound variable \( his \) in the matrix clause. That is why an element that undergoes a long-distance scrambling cannot license a bound variable in the matrix clause in Japanese.

14. 
\[
[CP \ who \ C [TP \ his \ mother-\( \phi \) T [\( \phi \) his \ mother-\( \phi \) \( v \) [\( VP \) think [CP \ who \ C [TP \ Hanako-\( \phi \) T [\( \phi \) who-\( \phi \) [\( \phi \) Hanako-\( \phi \) \( v \) [\( VP \) met \( who-\phi \)]]]]]]]]]
\]