

THE SUBJACENCY PRINCIPLE AND THE GOVERNING CATEGORY PARAMETER IN SECOND LANGUAGE ACQUISITION

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The subjacency principle and the governing category parameter (GCP) have been extensively investigated in second language (L2) acquisition studies with regard to the effects of Universal Grammar (UG). Subjacency is a constraint on movement operations. A moved element, in this case a *wh*-word, cannot cross more than one bounding node, the bounding nodes varying from language to language. For example, in English they are *S'*, *S* and *NP* while in French, *S* is not bounding (White, 1985; 1988). In consequence, some *wh*-word extractions from such constructions as *wh*-islands, which are not possible in English, are allowed in French. When French L1 (first language) speakers learn English as L2, the question arises as to how these learners get to know the status of subjacency in English, that is, English counts *S* as a bounding node. If we take a position that L2 learners adopt the unmarked hypothesis or the most restrictive one in which all nodes are counted as bounding, these French learners should realize the bounding status of *S* in English in the early stage of acquisition. However, the result of White's (1985) study indicates this is not true of all of her subjects.

The question of the subjacency principle presents a further complex picture in the case of the L2 learners with other native languages. Korean, for instance, has neither syntactic *wh*-movement nor subjacency constraints, and Chinese does not have *wh*-movement although subjacency works in other types of extraction. Bley-Vroman et al. (1988) and Schachter (1989; 1990) studied L2 learners of English with these native languages and reached different conclusions as to whether they have access to subjacency effects. Bley-Vroman et al. maintain that UG, i.e. the subjacency principle does operate in Korean adult language acquisition, though it is available in some attenuated form. On the other hand, Schachter argues that her results support the opposite conclusion.

White (1992a) views this issue from a different perspective. Following Martohardjono and Gair's suggestion, White considers that movement is not necessarily involved in the interlanguage grammars of Chinese, Japanese and Korean adult learners of English. The relationship between a fronted *wh*-word and the gap is not one of movement, and is consequently not subject to subjacency. In the interlanguage grammar of these learners, the relationship between a gap and a *wh*-word may be that of a base-generated *pro* with

a base-generated wh-phrase as its antecedent. Thus, their failure to recognize subjacency constraints might not entail the non-operation of UG in L2 acquisition. Hence, White does not regard this issue as subjacency but interprets it in terms of the Binding Principles. Native speakers of English treat the relationship between a gap and a wh-word in English sentences as that of a wh-trace (or a variable) with its antecedent, that is, a relationship of movement, and hence subject to subjacency. Because the relationship contains a variable, it comes under Principle C of the Binding Theory. Chinese, Japanese or Korean L2 learners of English, however, analyse the relationship as containing a pro and a base-generated wh-phrase, as above mentioned, for their native languages allow a null pronoun, i.e. pro, to appear in object position. And, viewed from the Binding Theory, the relationship falls under Principle B. Accordingly, it should be necessary, White argues, to look not only at the subjacency principle, but also at how the Binding Principles apply to empty categories in interpreting L2 learners' interlanguage grammar.

The governing category parameter (GCP) proposed by Wexler and Manzini (1987) has been used to account for the different status of locality domain among languages. Research has been focusing on the binding condition of reflexives, which, along with reciprocals, make up the class of anaphors. And anaphors fall under Principle A of the Binding Theory which prescribes that an anaphor must be bound in its governing category (Lakshmanan and Teranishi, 1994). Whereas the reflexive in English must be bound or coindexed with its antecedent in the minimal clause, the reflexive in Chinese as well as in Japanese or Korean can take either the subject of the minimal/embedded clause or the subject of the matrix clause as its antecedent. This is because the values of the GCP are different in that English instantiates the value that takes the minimal clause as its governing category whereas Chinese and other Asian languages are associated with the value that takes the matrix clause as its governing category.

These studies of L2 acquisition have been based on Generative Syntax, the theories of which have been constantly changing, and are most likely to keep changing (or developing) from now on. This paper gives a thought to the linguistic theories employed in L2 acquisition research by reviewing some influential studies on the subjacency principle and the GCP. Through this review, I hope to get some hints on a future perspective of the relationship between linguistic theories and L2 acquisition research.

The subjacency principle

White has consistently supported the claim that UG is still available in L2 acquisition although it might not be as fully effective as in L1 acquisition (1985; 1988; 1989; 1990; 1992; 1995). In the earlier work (1985), taking subjacency as a case in point, she tested French and Spanish speakers learning English as L2 for their judgements on the bounding status of S in the L2 grammar. As already mentioned, unlike in English, S is not a bounding node in French, and it is not in Spanish either. Hence, the movement rules in

French and Spanish are less restrictive than those in English. In English, for example, the movement of a *wh*-word is allowed in (1a) and (1b) but not in (1c) in the following sentences.

- 1) a. What [S did Mary believe [S' that John saw ___?]]
- b. What [S did Mary say [S' that Jane believed [S' that John saw ___?]]]
- c. *What [S did Mary believe [NP the claim [S' that John saw ___?]]]

Sentences like (1c) are ruled out due to subjacency which stipulates that moved elements can cross only one bounding node. The bounding nodes for English are S', S and NP, but S' has an 'escape hatch' in the COMP position, through which the *wh*-word can move up to the front. That is, in each movement the *wh*-word is adjoined to a nearest complementizer *that* before being moved up to the next complementizer in another movement. Thus, (1a) and (1b) are allowed, while (1c) is ungrammatical because two bounding nodes, NP and S, neither of which has a COMP position, are crossed in one movement.

On the other hand, in French, the status of bounding is different. In the following, 2) and 3) French sentences are grammatical whereas the equivalent English translations are not:

- 2) Combien [S as tu vu [NP ___ [PP de personnes?]]]
- *How many did you see (of) people?
- 3) De quel livre [S connais-tu [NP la fin [PP ___ ?]]]
- *Of which book do you know the ending?

In the above, the moved *wh*-element has crossed more than one node but has still yielded grammaticality. From these data, White assents to the claim that French has a different set of bounding nodes from English, S being excluded. And she argues that the set of bounding nodes, in other words, subjacency, is parameterized.

White administered a grammaticality judgement test to native speakers of Spanish and French learning English as L2, who ranged from beginners to advanced. In the test White would look at:

- i) Whether L2 learners carry over the L1 parameter for subjacency.
- ii) Whether, more fundamentally, they seem to use random hypothesis testing based on a general problem-solving system or to have a consistent picture of the bounding nodes in L2 which must come from UG.

Although the results were not clear enough to draw any decisive conclusion, White has maintained that, with regard to issue i), the claim that the L1 parameter will be carried over is partially supported. While there were a number of subjects who consistently adopted the L1 parametric value where S is not bounding, there were also many who did otherwise. As to issue ii) above, i.e. the question of hypothesis testing, the results were again contradictory. Almost 60 per cent of the subjects took a consistent position

regarding the bounding status of S, which suggests the effects of UG knowledge. However, 40 per cent gave the impression of floundering around, which implies that random hypothesis testing was the means they employed to establish the status of bounding nodes in L2. In conclusion, White noted that this whole issue would call for further investigation with more varied testing.

White (1988) examined again native speakers of French acquiring English on the bounding status of S in the L2 grammar. The linguistic rationale for the tests was the same as that in her 1985 study. However, she used much more varied types of test sentences than before, including (4) wh-islands, (5) complex noun phrases (NP) and (6) that-trace effect such as below:

- 4) a. John wondered [S' whether [S Mary had chosen a good book]]
 b. * Which book [S did John wonder [S' whether [S Mary had chosen ___]]]?
- 5) a. Mary believed [NP the claim [S' that John had won the race]]
 b. * What [S did Mary believe [NP the claim [S' that John had won ___]]]?
- 6) a. Who does John believe that Mary saw ___?
 b. Who does John believe Mary saw ___?
 c. * Who does John believe that ___ saw Mary?
 d. Who does John believe ___ saw Mary?

In the above, (4b) is ruled out because a wh-word *whether* has already occupied the COMP position of S', which therefore cannot be an 'escape hatch' for *which book* (Compare the grammatical cases in (1a) and (1b)). And (5b) is not allowed because a wh-word *what* has crossed more than one bounding node, i.e. NP and S, though in this case S' has an 'escape hatch.' The ungrammaticality of (6c) known as the that-trace effect is accounted for in terms of the Empty Category Principle (ECP). ECP stipulates that each trace or empty category must be properly governed (Chomsky, 1982). In (6a) and (6b), the trace is governed by the verb *saw* while in (6d), the trace is properly governed by an antecedent trace in COMP. However, in (6c), proper government is blocked because of the presence of *that* in COMP. The different configurations between (6c) and (6d) are shown as (6'c) and (6'd) below:

- 6') c. * Who_i does John believe [COMP t_i' that [t_i saw Mary]]?
 d. Who_i does John believe [COMP t_i' [t_i saw Mary]]?

Thus, the ECP handles cases which do not fall under subjacency, like that-trace effect.

In this study, White gave a number of tests to two groups of adult French speakers learning English; one was low intermediate and the other was high intermediate. The test sentences with extractions from complex NP, as in (5b) were ungrammatical in both French (whose bounding nodes are S' and NP) and English. But the sentences with extractions from wh-islands as in (4b) were ungrammatical in English but not in French

(where S is not bounding, as already seen). Both low and high intermediate groups exhibited considerable accuracy on complex NP violation sentences. White has stated that parameter resetting does not come into question in these sentences because of their ungrammaticality in both languages. The subjects might have referred to L1 knowledge or to UG. In the case of wh-island violations, however, the high intermediate group far surpassed the low intermediate group in accurately rejecting these incorrect sentences. This suggests, White has argued, that the high intermediate subjects reset the parametric value of bounding nodes and were treating S as bounding in the L2. Hence, White has inferred that the L2 learners have access to UG in the acquisition process, given that the L1 cannot provide appropriate information about the bounding status of S, and the L2 input alone is not sufficient to induce it (1990).

Contrary to White, Schachter (1988; 1989; 1990) has been consistent in opposing the accessibility of UG in L2 acquisition. She examined Chinese, Korean, and Indonesian subjects to assess subjacency effects in their learning English. As mentioned before, Korean and Chinese have no syntactic wh-movement, that is, they belong to the type of languages which do not form wh-questions by moving a wh-word to the front of a sentence. Accordingly, both of these languages are exempted from observing the subjacency principle in making wh-questions. Furthermore, Schachter (1989) argues that Korean does not allow other types of extraction to which subjacency is to apply at the level of S-structure, while Chinese is less constrained and allows certain types of extraction such as relative pronoun and topic extraction in which limited evidence of subjacency is shown. And, in the case of Indonesian, although it allows wh-movement where subjacency functions, wh-movement is not applicable to objects, but only to subjects. In the experiment, in addition to the subjacency test, the syntax test was administered for the purpose of checking whether these L2 learners had acquired such complex constructions as sentential subjects (SS), relative clauses (RC), etc. on which subjacency violations were examined. If they did not know these syntactic constructions, then the question would not be of subjacency, but of English proficiency itself.

Schachter's hypotheses were that (a) for each of the four tested constructions, subjects who demonstrate knowledge of that construction will exhibit evidence of subjacency regarding it and that (b) for each construction at issue, subjects who fail the syntax test will also fail the subjacency test. Thus, the results form the following contingency table (1989:79):

		<i>Syntax test</i>	
		Pass	Fail
<i>Subjacency test</i>	Pass	A	B
	Fail	C	D

If her hypotheses above were correct, the subjects should fall either in the A cell or in the D cell; in the former, the subjects can activate subjacency knowledge and pass the subjacency test because they have the syntactic knowledge concerned, whereas in the

latter, the subjects fail the subjacency test because of lack of the syntactic knowledge which is necessary for calling forth subjacency knowledge. And, if there were subjects who fell in the B or the C cell, the whole assumption would be negated that L2 learners can still make use of UG knowledge or in this case, subjacency.

The native speakers, who were also tested as controls, performed as expected in three of the four constructions. They positively fell into the A cell, i.e. they passed both the syntax and subjacency tests. The L2 learners, on the other hand, performed quite differently. They generally scored well in the syntax tests by recognizing the grammaticality of the test sentences containing the constructions in question; thus about three quarters of them fell into cells A or C. However, it was only about one third of the L2 subjects who, like the native controls, fell into the A cell. This means that a number of L2 subjects fell in the C cell, which then indicates that those subjects knew a syntactic construction without knowledge of the subjacency constraint corresponding to it. These data, as stated above, constitute a counterexample to the pro-UG availability theory in L2 acquisition. Schachter, hence, has been for the claim that adult L2 learners no longer have access to UG. This experiment also found that the Indonesian and Chinese subjects performed better than did the Koreans, suggesting that even limited knowledge of subjacency in Indonesian and Chinese could, to some extent, contribute to the promotion of L2 learning.

Schachter (1990) conducted a similar research again in which she tested one more language group, i.e. the Dutch and native-speaker controls, as well as subjects of the three languages in her previous study. The Dutch subjects seemed to have an advantage over the subjects of three other languages in that Dutch has the subjacency effects which are similar to those of English. As expected, the Dutch speakers scored almost as high as the native controls both in the syntax and the subjacency tests. On the other hand, the Korean, Chinese, and Indonesian subjects performed fairly well in the syntax test, but many of them failed in the subjacency test; thus, just as in the previous study, a number of them fell into cell C of the contingency table. Besides their advantage regarding knowledge of subjacency, the Dutch group seemed to have a few more advantages over the other language groups, that is, the earlier age of starting English and the longer hours of English instruction received at school (White, 1992b). However, overall, the results of this research, argues Schachter, appear to show that if a certain UG principle is instantiated both in L1 and in L2 in a similar way, L2 learners can easily employ it, as in the case of Dutch speakers, in acquiring correct L2 grammar. But these results cannot be used as evidence to decide whether or not UG operates in L2 acquisition because it is not possible to judge whether the Dutch subjects' superb performance was due to their having access to UG or to their using their L1 knowledge as a base (Schachter, 1996).

The Korean group performed worse on subjacency violations, behaving randomly. Unlike the case of the Dutch, these Korean results can be the evidence to negate the accessibility of UG in L2 acquisition. For the Korean subjects have nothing but UG in responding to subjacency without being able to fall back on their L1 in which the

subjacency principle is not instantiated. Thus, their poor performance in the subjacency test should indicate that they did not have access to UG.

The Chinese and Indonesian subjects also performed significantly below the native controls in the subjacency test, but their performance, which was above chance, slightly excelled that of the Koreans which seemed purely random. As shown in the previous experiment, this suggests that even limited knowledge of subjacency of their first languages could help the Chinese and Indonesian subjects, though only partially, in rejecting subjacency violations in the L2. Their performance may add further evidence to the claim that UG is no longer available to L2 learners, since it was their L1 knowledge rather than UG that helped them in the behavior on subjacency violations. Schachter (1996) has cited Johnson and Newport (1991) who also studied Chinese speakers of L2 English, focussing on the role of subjacency. Having lived in the U.S.A. for a minimum of five years, their Chinese subjects were proficient in English. They were given an oral grammaticality judgement task, and the results were consistent with the finding of Schachter, that is, their Chinese subjects also behaved above chance and significantly below native-speaker controls. However, for lack of analysis on the differences in languages, the study of Johnson and Newport does not seem as reliable as Schachter has claimed.

Bley-Vroman, Felix, and Ioup (1988) have been considered to take a middle position between White and Schachter, owing to the claim that their Korean subjects did comparatively well, clearly above chance on subjacency violations. Bley-Vroman et al. examined advanced Korean adult acquirers of English operating subjacency and the Empty Category Principle (ECP). As seen before, Korean has no syntactic *wh*-movement and accordingly no subjacency constraints accompanying it. The research of Bley-Vroman et al. was also based upon this linguistic premise. In addition, it employed another premise that even a language with no syntactic movement such as Korean or Japanese would have some movement rules at the level of Logical Form (LF). The movement rules are epitomized as ECP which states, as mentioned before, "that nonpronominal empty categories, i.e., those resulting from movement, must be properly governed" (Bley-Vroman et al., 1988: 10). Besides *that*-trace effect which was already mentioned, ECP also handles the ungrammaticality of such sentences as below (1988: 11-12):

Superiority:

- 7) I can't remember who *t* did what.
- 8) *She forgot what who said *t*.

Sentential subject islands:

- 9) *What sort of food is [*s*' *t*' [*s* PRO to digest *t*] easy]
- 10) What kind of book is it necessary [*s*' *t*' [*s* PRO to read *t*]]

In sentence (7), *who* is syntactically moved to COMP before the level of S-structure. The empty category created is antecedent-governed by the *who* which is now in COMP.

At the level of LF *what* is adjoined to COMP because, semantically, *what* as well as *who* is an interrogative that requires an answer (Ando et al., 1996). The empty category created now is properly governed by the verb *did* as illustrated in (11) below. In sentence (8), *what* is syntactically moved to COMP before the level of S-structure. The empty category created is properly governed by the verb *said*. At the level of LF *who* is adjoined to COMP. The empty category thus created, however, cannot be antecedent-governed by the *who* in COMP because *who* does not c-command (=constituent command) the empty category as illustrated in (12) below:

- 11) I can't remember [COMP what_j who_i]_i [t_i did t_j].
 12) *She forgot [COMP who_i what_j]_j [t_i said t_j].

The sentences (9) and (10) above show that an element cannot be extracted from a sentential subject, whereas extraction is possible when the same sentential form occurs after the matrix verb. The original empty categories in both (9) and (10) are properly governed by the lexical verbs *digest* and *read*. However, while the intermediate empty category t' in (10) is properly governed by *necessary*, the lexical predicate, that in (9) cannot be properly governed by the matrix INFL node because INFL is not a proper governor. Hence, an ECP violation results.

Bley-Vroman et al. used these and two other kinds of sentences on ECP as well as sentences on subjacency in their grammaticality judgement test. There was a possibility that the Korean subjects could make use of ECP, though not the subjacency principle if UG was available only by way of L1. The subjects scored below the native controls in the test, but their performance was significantly better than chance in almost all cases. They did not seem to be merely guessing at random. And there was no difference in the results between ECP and subjacency, which would negate the possibility stated above. Bley-Vroman et al. thus conclude that "something was causing UG effects," in other words, "it is extremely difficult to maintain the hypothesis that Universal Grammar is inaccessible to adult learners" (1988: 26). The remaining question, they argue, is that if access to knowledge of UG accounts for why the nonnative speakers performed above chance, what accounts for why they did not perform as well as native speakers? Giving only some suggestions, Bley-Vroman et al. do not put forward any definite claim for this.

Some papers have proposed different analyses of the languages discussed thus far and presented alternative views on subjacency in L2 acquisition (e.g., Sato, 1989; White, 1992a). As mentioned before, White (1992a) considers it incorrect to assume that Chinese, Japanese and Korean adult learners of English would treat the relationship between a fronted wh-word and the gap as that of movement. Rather, these learners may well generate the relevant structure with a base-generated wh-phrase and a base-generated pro without involving any movement, which is consequently not subject to subjacency, for in the native languages of the learners, the empty category is pro rather than a variable, and so unlike in English, pro is allowed in object position. Hence, the subjacency violations in their interlanguage grammars are, contrary to the assumption of previous

studies, not a sign of being against UG principles, but they may show that these L2 learners just follow another possibility permitted by UG. However, if this supposition is correct, that is, if *wh*-phrases can be base-generated with *pro* as the empty category, the learners should accept all subjacency violations as grammatical, which is apparently not the case in the experiments discussed so far. As a solution to this problem, White suggests a possibility that, in their interlanguage grammar, the L2 learners employ two different ways of producing English *wh*-structures. One is English way of involving movement (with variables) and the other is their native way of involving base-generation (with *pros*). That both ways are permissible in UG then negates the assumption of the previous studies. That is, the L2 learners' subjacency violations cannot be used as an indication of the non-operation of UG in L2 acquisition. If this argument is right, the investigation of subjacency in L2 acquisition will, as White claims, require much more elaborate and subtle theoretical reasoning and experimental procedures.

The governing category parameter

A number of researchers have looked at the governing category parameter (GCP) in adult L2 acquisition since Wexler and Manzini (1987) proposed it (e.g., Finer, 1991; Hirakawa, 1990; Thomas, 1991a; 1991b). Regarding the different status of locality domain or governing category among languages, Wexler and Manzini postulated five values. (See Ōno, 1996.) In the five-value parameters, English, for example, takes the most restrictive value permitting only the minimal clause with a subject as its governing category and Japanese or Korean takes the widest value allowing the matrix clause with a "root" tense as its governing category. Thus, the reflexive *himself* in English must be bound by its antecedent locally, or more restrictively than the reflexive *zibun* in Japanese or *caki* in Korean which can be bound either by the subject of the minimal clause locally or by the subject of the matrix clause in long-distance.

Researchers have been interested in how L2 learners acquire the target value of the GCP by switching their L1 parameter, if they do, when the GCP value is different between L1 and L2. In conjunction with the acquisition of the GCP value, the Subset Principle also proposed by Wexler and Manzini (1987) is to be examined. The Subset Principle explains the learning process in the cases where the parametric values constitute a subset-superset relationship, one example of which is the GCP. It is said that studies on child L1 acquisition suggest that the Subset Principle is operative in setting the correct GCP value of L1 (Lakshmanan and Teranishi, 1994). For example, an English-speaking child first selects the smallest, subset GCP value as the Subset Principle states, and because the value is consistent with his/her L1 and so he/she is not likely to encounter positive evidence that contradicts it, the child stays with the value first selected. As the Subset Principle says, a Japanese-speaking child also selects the smallest GCP value, initially, for the reflexive *zibun*, but soon encounters positive evidence that requires him/her to switch to a larger parametric value until the child finally arrives at

the correct, largest GCP value for this Japanese reflexive.

Finer (1991) followed up his 1986 study with Broselow on the acquisition of English reflexives by six adult Korean subjects, conducting a picture identification test with 30 Korean and 14 Japanese subjects. He verified the claim of the original study that adult L2 learners would neither observe the Subset Principle nor transfer their L1 value to L2 English but would take an intermediate value of the GCP. The results indicated that both the Korean and the Japanese subjects strongly favored local antecedents in sentences with finite embedded clauses like *Mr. Fat thinks that Mr. Thin will paint himself*. However, in sentences with nonfinite embedded clauses like *Mr. Fat wants Mr. Thin to paint himself*, there was more frequency among the subjects to choose nonlocal antecedents, although a majority favored local ones. Finer hence argued that the results showed that his subjects chose the intermediate value (i.e., value (c)) of the GCP which makes a finite/nonfinite distinction.

Hirakawa (1990) tested 65 young Japanese students on this issue of the GCP value and reported similar but partly different results from Finer. As in Finer's study, the choice of nonlocal antecedents showed a significant difference between the finite clauses and the nonfinite clauses. However, the nonlocal responses in the finite clauses (17%) were far more than those (Korean 2%; Japanese 5%) in Finer's test. Hence Hirakawa's results did not necessarily support Finer's claim that the Japanese and the Korean subjects learning English would choose the intermediate GCP value that requires local antecedents in the finite clauses. One possible interpretation of Hirakawa's results is that some of her subjects transferred their L1 Japanese value of the GCP to English because they were still considered to belong to the early stages of L2 acquisition. Hirakawa thus indicated that her Japanese subjects appeared to fluctuate among possible values of the GCP before finally acquiring the L2 value. Thomas (1991a) studied the acquisitional cases of both English reflexives and Japanese reflexive *zibun*. And she argued that the adult L2 learners would have access to UG in that, as Hirakawa suggested, the learners chose only the possible interpretations of reflexives stipulated by the GCP.

However, these previous studies on reflexives in L2 acquisition in terms of the GCP do not provide a sufficient explanation for the behaviors of L2 learners. One of the flaws has been their inappropriate analysis of Japanese reflexives and Korean reflexives. In the GCP, as we saw, both Japanese and Korean are assigned to the widest value (value (e)) on the premise that these languages have one kind of reflexive; *zibun* in Japanese and *caki* in Korean. This simplistic premise has been challenged by some researchers, who then offer alternative views on the interpretation of reflexives. Katada (1991), for example, proposes a three-way classification of Japanese reflexives with regard to locality and subject orientation. In the following example (13):

- zibun_{i/j}/_K*
- 13) John_i-ga [Bill_j-ga Mike_K-ni zibun-zisin? *_{i/j}/_K* -no koto-o
 John SB Bill SB Mike IO kare-zisin? *_{i/j}/_K GN matter DO
 hanasita to] itta.
 told that said
 'John said that Bill told Mike about self.'

zibun is a long-distance (or nonlocal) reflexive with subject orientation, whereas *zibun-zisin* 'self-self' is a local reflexive with subject orientation and *kare-zisin* 'he-self' is a local reflexive with no particular orientation. This three-way classification is directly applied to Korean reflexives. That is, the counterparts of *zibun*, *zibun-zisin* and *kare-zisin* are *caki*, *caki-casin* and *ku-casin* respectively in Korean. It is obvious then why the GCP approach that defines a singular reflexive behavior for one language has not satisfactorily explained the behaviors of Japanese and Korean subjects in L2 acquisition.

White (1995) similarly introduces a recent different analysis of the interpretation of reflexives which assumes that there are two types. One is morphologically complex phrasal reflexives (XPs) such as *himself* and *herself* which are made of a pronoun and a morpheme meaning self, and the other type is morphologically simple head reflexives (X°) like *zibun(self)* in Japanese. The properties of each reflexive type are as follows (1995: 67):

- a. XP anaphors (or reflexives): morphologically complex, allow subject and non-subject antecedents, require local binding, e.g., *himself*, *herself*.
- b. X° anaphors (or reflexives): morphologically simple, require a subject antecedent, allow long-distance binding, e.g., *zibun*.

Citing Progovac (1992; 1993) who has proposed these analyses, White accounts for the differences in binding domains between XP type reflexives and X° type reflexives. X° or head reflexives must be bound in the domain of the nearest available head having person/number features, namely AGR (Agreement). XPs must be bound in the domain of the nearest XP subject. Hence (White, 1995:67):

XP anaphors (or reflexives) will always require local binding because the nearest XP subject will be in the Spec (specifier) of the clause that the reflexive is in.
 X° anaphors (or reflexives), on the other hand, only need to be in the domain of an AGR. If AGR is not realized in the clause containing the reflexive, the reflexive can have an antecedent outside its clause.

In such a language as Japanese which is said to lack morphological AGR, long-distance binding is thus allowed across any clause boundary.

These analyses give an explanation for the results of the L2 reflexive studies above conducted by Finer. Finer showed that his Japanese subjects (as well as Korean subjects) made a finite/nonfinite clause distinction in the interpretation of English reflexives and

chose nonlocal binding only out of nonfinite clauses. White assumes, based on the analyses above, that these Japanese subjects misanalyse English as having a head or X° reflexive (like their L1) but correctly find that English has morphologically realized AGR in finite clauses. This is why they permit long-distance binding only out of nonfinite clauses which lack AGR. This XP/ X° account describes the behavior of the Japanese subjects as the GCP account does, that is, the subjects appear to choose the intermediate value of the GCP. In addition, however, this alternative account also provides an explanation why the Japanese subjects behave that way.

In terms of movement and constraints on it, Cole, Hermon and Sung (1990) propose another view on the interpretation of reflexives. According to them, the reflexives in Chinese, as well as those in Japanese and Korean, can be bound either locally or in long-distance, whereas English reflexives, as we saw, must be strictly bound by local antecedents. The difference between Chinese and English is attributed to whether Infl (Inflection) in the two languages is lexical or functional. If Infl is lexical in Chinese, Cole et al. claim, it licenses the occurrence of long-distance reflexives. The Chinese reflexive *ziji* “moves to the Infl of its own clause, and from there it continues up the tree, eventually ending up adjoined to the Infl of the main clause” (1990: 5-7). Thus, the reading is possible in which *ziji* takes the main clause subject as its antecedent. In this movement, *ziji* does not violate any constraint because lexical Infl exempts VP from being a barrier by L(exical)-marking it. On the other hand, in English Infl is not lexical but functional, therefore VP is not L-marked by Infl, and so VP is a barrier. Thus, the long-distance movements of reflexives in English are blocked because they violate ECP. Hence, instead of employing the GCP to explain the behavior of reflexives, Cole et al. argue that it is the constraints on movement resulted from whether or not Infl is lexical which determine the occurrence of long-distance reflexives.

In conclusion, the previous studies on both the subjacency principle and the GCP in L2 acquisition have been challenged by more recent researches with more elaborate and precise theoretical reasoning. In the subjacency studies, as we saw, White and other researchers have posed a question as to the basic assumption that Chinese, Japanese and Korean learners of English treat the relationship between a wh-word and the gap as that of movement. Rather, they present a non-movement analysis that the relationship should be that of a base-generated pro with a base-generated wh-phrase. Thus, the behavior of those learners should not just be interpreted as the violation of subjacency constraints, but also given another possibility in which a different principle of the Binding Theory is applied.

Some recent linguistic researches have also pointed out that the GCP studies on reflexives in L2 acquisition are inappropriate in that the premise that Japanese and Korean have only one kind of reflexive is too simplistic. Their different proposals will help to improve an explanation for the behavior of L2 learners. The linguistic theories on which these L2 acquisition studies are based keep being refined. L2 researchers are required to follow the advancement of linguistic theories so that they can assess the

current L2 acquisition studies and give a better explanation for the actual behavior of L2 learners. New findings in linguistics may seem to undermine our present framework in L2 acquisition research at first, but they have a potentiality of increasing insight into L2 acquisition as they did so far.

ACKNOWLEDGMENTS

I am grateful to Joseph Stavoy for proofreading this paper. Needless to say, the errors that remain are mine.

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