

論文の内容の要旨

論文題目 **Scope Rigidity and Word Order Flexibility**
 (スコープの固定性と語順の自由性)

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This dissertation addresses three questions on scope interaction. First, It has been pointed out in the literature that there is an inverse correlation between word-order rigidity and scope rigidity. That is, in free-word-order languages, sentences (or more precisely, clauses) containing multiple scope-taking operators fail to exhibit scope ambiguity, whereas in rigid-word-order languages, (clause-mate) scope-taking operators interact with each other, thereby yielding scope ambiguity. The first question to be addressed in this dissertation is what rationale underlies this correlation.

Although it is a crosslinguistically robust fact that scope rigidity is inversely correlated with word-order rigidity, Mandarin Chinese is a potential counterexample to this generalization. That is, Mandarin Chinese is not characterized as a free-word-order language, but scope shift is not observed. The second question to be addressed is why sentences with multiple scope-bearing operators in Chinese usually receive only surface-scope interpretations.

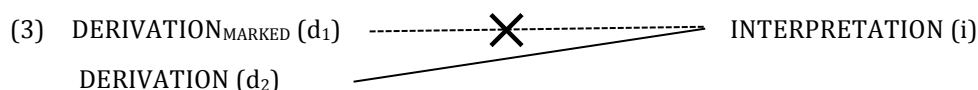
We also investigate acquisition data on scope interaction. By thoroughly reanalyzing experimental data reported in previous studies, we argue that Japanese-speaking children (i.e. child speakers of a scope-rigid language) inconsistently accept inverse-scope readings. The third question we address is why Japanese-speaking children show inconsistent acceptance patterns when their comprehension of inverse-scope interpretation is tested.

An answer of the first question is provided in Chapter 2. According to May, QPs are homogeneously subject to QR, so that, in cases like (1), both QPs raise at LF (as shown in (2)) to obtain the surface-scope interpretation, although the resulting scope relation is identical to the original (pre-movement) scope relation.

- (1) A student admires every teacher. $\exists > \forall, \forall > \exists$
 (2) $[_{IP} \text{ a student}_i [_{IP} \text{ every teacher}_j [_{IP} t_i \text{ admires } t_j]]]$ $\exists > \forall$

This means that in the case of the surface-scope interpretation, the application of covert movement is not informative in that it changes neither the phonological form nor the semantic interpretation. In terms of derivational economy, such phonologically and semantically vacuous movement is to be eschewed. Fox (2000) demonstrates with convincing evidence that scope-shifting operations occur only when they have semantic contribution. Thus the surface scope of the sentence in (1) obtains without recourse to QR, and the inverse scope obtains if QR applies only to the object QP.

Just like Fox, Reinhart (2006) also claims that QR does not come for free. In her analysis, QR, which is executed covertly, is a marked operation since its application leads to a change in semantic interpretation without changing the phonological form of the input, thereby increasing the number of possible interpretations associated with a given phonological form. Therefore, the operation applies just in case it is forced by interface needs. Within her framework, when QR is to be executed, it is always necessary to check whether its application is justified. Specifically, it is required to construct and compare a set of possible derivations and select the optimal competitor from out of the constructed set. This computation is called reference-set computation. Reference-set computation is called for in situations where the derivation contains a marked operation. Suppose there are two different derivations d_1 and d_2 which generate the same interpretation i , and d_1 contains a marked operation, as in (3). In such a case, d_2 (i.e., the derivation without a marked operation) is chosen as the optimal derivation to achieve i , with the consequence that the association of d_1 with i is blocked.



In this dissertation, we first clarified when reference-set computation comes into play; two pairs of derivation and interpretation $\langle d, i \rangle$, $\langle d, i \rangle_1$ and $\langle d, i \rangle_2$, are competed iff (a) $\langle d, i \rangle_1$ and $\langle d, i \rangle_2$ start with the same lexical array, and (b) $\langle d, i \rangle_1$ and $\langle d, i \rangle_2$ do not violate local or global constraints. Given the definition, inverse-scope interpretations of canonically-ordered sentences in

free-word-order languages like (4a) are blocked by their corresponding scrambled sentences like (4b), because scrambled sentences can derive the same interpretation without executing a marked operation, QR.

(4) a. Dareka-ga subete-no ringo-o tabeta. $\exists > \forall, * \forall > \exists$
 someone-NOM all-GEN apple-ACC ate
 ‘Someone ate all apples.’

b. Subete-no ringo_i-o dareka-ga t_i tabeta.
 someone-NOM all-GEN apple-ACC ate
 ‘Someone ate all apples.’

Rigid-word-order languages, on the other hand, have no option of scrambling, and thus no competitor blocks deriving inverse scope from canonically-ordered sentences. This is the mechanism responsible for the inverse correlation between word order rigidity and scope rigidity.

The second question is addressed in Chapter 3. In Mandarin Chinese, sentences like (5) do not allow inverse-scope readings.

(5) You yi-zhi xiao-mifeng chi-le mei-zhong shuiguo.
 有 一-只 小-蜜蜂 吃-了 每-种 水果
 have one-CL little-honeybee eat-ASP every-kind fruit
 ‘There is a little honeybee eating every kind of fruits.’ $\exists > \forall, * \forall > \exists$

If inverse scope is blocked by the availability of scrambling, the naïve prediction is that Mandarin Chinese sentences like (5) should allow inverse-scope readings because there is no option of scrambling in the language. We demonstrate, however, that in discourse-configurational languages like Chinese, canonically-ordered sentences enter into competition with topicalized sentences like (6).

(6) Mei-zhong shuiguo_i you yi-zhi xiao-mifeng chi-le t_i.
 每-种 水果_i 有 一-只 小-蜜蜂 吃-了 t_i
 every-kind fruit have one-CL little-honeybee eat-ASP
 ‘There is a little honeybee eating every kind of fruits.’

The idea is that other things being equal, topicalized sentences are chosen over corresponding

canonically-ordered sentences for scope purposes since the former do not involve a marked operation. This is why sentences with multiple scope-bearing operators in Chinese usually receive only surface-scope interpretations.

Chapter 4 is devoted to the discussion of the last question. We first reanalyzed acquisition data from previous studies and found that Japanese-speaking children inconsistently accept inverse-scope readings when a truth-value judgment task is conducted. Following Reinhart, we argue that children's inconsistent acceptance is due to their limited working memory. That is, they do not have sufficient processing capacity that can withstand the cost of reference-set computation, and as a result, they respond by guess when pressured to say yes or no.

We also conducted a series of experiments with Chinese-speaking children and found that Chinese-speaking children successfully reject inverse-scope readings unlike Japanese-speaking children. We suggested a possibility that children may have assigned incorrect syntactic structures to Chinese *you*-sentences like (5) due to processing reasons. That is, due to the structural properties of *you*-sentences, children might misinterpret these sentences as having two distinct clauses, each of which contains a QP. As such, for those children, the two QPs do not interact in terms of scope.

The implications of this dissertation are two-fold. First, although the questions that we addressed here, at first sight, are unrelated separate issues, adopting a reference-set-computation-based analysis provides a principled solution to all these issues. The analysis developed here is theoretically desirable in that multiple issues can be solved with fewer operations, much in line with the spirit of pursuing the simplest theory. This in turn means that our theory is congenial to the basic tenet of the Minimalist Program, which lays emphasis on the view that language meets the requirement of economy or efficiency. In theories where every QP is assumed to undergo QR, phonologically and semantically vacuous movement must always be required to obtain surface-scope readings in doubly-quantified sentences. Our theory successfully eliminated such phonologically and semantically uninformative movements precisely because QR applies only when it is forced by interface needs. Furthermore, our analysis does not face any learnability problems. That children accept inverse-scope readings in scope-rigid languages like Japanese is due to their processing limitations; that is, their limited processing resources cannot accommodate the cost of executing reference-set computation. Thus, it is expected under this scenario that children get to show adultlike interpretations once they have developed sufficient processing capacity.