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<https://hdl.handle.net/2324/7405172>

出版情報 : Syntax. 22 (4), pp.419-437, 2019-08-17. Wiley

バージョン :

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Argument Ellipsis and Scope Economy in Japanese

Masako Maeda

Abstract. In this paper, I show that in Japanese, while some focus elements obligatorily take wide scope with respect to scope-bearing predicative heads, Argument Ellipsis reverses this scope possibility, leading to the obligatory narrow scope interpretation of focused elements. I further show that Scope Parallelism (Fox 2000) overrides the narrow scope requirement of elided arguments; when the antecedent clause exhibits scope interaction, the elided clause shows the parallel wide scope. I argue that such scope possibilities fall out from the interaction of the derivational PF-deletion analysis (Takahashi 2013, 2017), the Morphological Merger of predicative heads (Shibata 2015), and Scope Economy and Parallelism (Fox 2000).

Keywords. Scope Economy, Parallelism, Argument Ellipsis, Morphological Merger, focus

1 Scope and Argument Ellipsis

It has been noted in the literature that some focus elements such as disjunctive elements and additive particle *mo* ‘also’ in Japanese obligatorily take wide scope with respect to negation or

I would like to express my sincere gratitude to Nobuaki Nishioka, Yosuke Sato and Daiko Takahashi for insightful comments. I am also thankful to Yoshihiro Munemasa, Kento Nagatsugu, Taichi Nakamura, Miki Obata, Rumi Takaki, Kensuke Takita, Hiroyoshi Tanaka, Shoji Yamamoto and other participants at the 70th meeting of the Kyushu Branch of English Literary Society of Japan. This research has been supported by the Grants-in-Aid for Young Scientists (grant #18K12412) and the Grants-in-Aid for Scientific Research (C) (grant #18K00574).

(1) a. Mary-wa [DP supeingo ka furansugo-o] hanas-u ga,
Mary-TOP Spanish or French-ACC speak-PRES but
John-wa [DP supeingo ka furansugo-o] hanas-ana-i.
John-TOP Spanish or French-ACC speak-NEG-PRES
‘Mary speaks Spanish or French, but John doesn’t speak Spanish or French.’
(or » neg, *neg » or) (Funakoshi 2013:14)

b. John doesn’t speak Spanish or French. (or » neg, neg » or)

¹ However, Kitagawa (1994) and Watanabe (2000) observe that scope-rigidity is overridden by phonological manipulations. See also Sato and Maeda 2018 for a phase-based analysis on such scope interactions at the syntax-prosody interface.

- (2) a. Dareka-ga (kono heya-no) subete-no hon-o yonda.
 someone-NOM this room-GEN every-GEN book-ACC read
 ‘Someone read every book in this room.’ (some » every, *every » some)
 (Kuroda 1970:136)
- b. [(Kono heya-no) subete-no hon-o]_i dareka-ga *t_i* yonda.
 this room-GEN every-GEN book-ACC someone-NOM read
 ‘Someone read every book in this room.’ (some » every, every » some)
 (Kuroda 1970:137)

Going back to (1a), where the object is externally-merged in a lower position than negation, it is expected under scope rigidity that the object should take narrow scope with respect to negation. However, this expectation is not borne out in (1a), where the object obligatorily takes wide scope vis-à-vis negation. One possible explanation for the unexpected wide scope reading of the disjunctive element is to assume string-vacuous movement, either as a covert movement like Quantifier Raising (QR) in English (May 1977, 1985, Reinhart 1978, Fox 2000) or an overt, string-vacuous scrambling of subjects and objects (Shibata 2015), the latter of which I adopt (see section 2.1).

As opposed to (1a), Funakoshi (2011, 2012, 2013) observes that disjunctive elements that undergo Argument Ellipsis (AE) (Oku 1998, Saito 2007, Takahashi 2008) only take narrow scope with respect to negation, as illustrated in (3).

- (3) Mary-wa [_{DP} supeingo ka furansugo-o] hanas-u ga, John-wa Δ hanas-ana-i.
 Mary-TOP Spanish or French-ACC speak-PRES but John-TOP speak-NEG-PRES
 ‘(Lit.) Mary speaks Spanish or French, but John doesn’t speak.’

Given that movement may affect scope possibilities, as shown in (1a) and (2b), the obligatory narrow scope interpretation of disjunction is mysterious under the AE approach; if AE were available, there would be no reason to prohibit it from applying AE to a dislocated disjunctive element, erroneously yielding the wide scope reading of disjunction over negation. Funakoshi (2013), in his argument in favor of the verb-stranding VP Ellipsis analysis, accounts for the obligatory narrow scope reading of disjunction in (3) by suggesting that the null element is not a full-fledged noun phrase, but a null pronoun *pro* (Kuroda 1965, Ohso 1976, Hoji 1985, Saito 1985), which induces an interpretation analogous to the narrow scope reading of disjunction.

On the other hand, Saito (2017) puts forth an LF-copying approach to data like (3), by proposing that any syntactic object forming an A'-chain cannot be copied onto one argument position; if the disjunctive element in (3) undergoes movement, it can take wide scope on a par with (1a). At the same time, however, the movement creates A'-chain, rendering LF-copying onto the empty slot in the elliptical clause impossible. This leads to the ban on movement in (3), which leads to the obligatory narrow scope interpretation of disjunction at the semantic interface (for the LF-copying analysis, see also Oku 1998 and Sakamoto 2017).

Funakoshi's 2013 as well as Saito's 2017 approaches, however, cannot account for data like (4), where the antecedent clause includes negation; in this case, a disjunctive element that undergoes AE exhibits the obligatory wide scope reading (Sakamoto 2016), unlike (3).

- (4) a. John-wa [DP supeingo ka furansugo-o] hanas-anai.
 John-TOP Spanish or French-ACC speak-NEG
 'John doesn't speak Spanish or French.'
- b. Bill-mo Δ hanas-ana-i.

Bill-also speak-NEG-PRES

‘(Lit.) Bill also doesn’t speak.’ (or » neg, *neg » or) (Sakamoto 2016:8)

To summarize, the scope interaction of disjunctive elements and negation in Japanese raises the following empirical challenge: (i) why does an overt disjunctive element obligatorily take wide scope with respect to negation, as shown in (1a)? (ii) Why does a null disjunctive element obligatorily take narrow scope with respect to negation, as shown in (3)? (iii) Why does the presence of negation in the antecedent clause lead to the obligatory wide scope interpretation of a null disjunctive element, as shown in (4)?

The purpose of this paper is to further motivate the interaction of AE with Scope Economy and Parallelism, which is independently established by Takahashi 2008. In doing so, I develop a new analysis which accounts for the apparently paradoxical observations in a uniform fashion. The paper is organized as follows. In section 2, I argue that the scope possibilities are constrained by several independently motivated operations and restrictions at the interfaces, such as the derivational PF-deletion theory (Takahashi 2013, 2017), Morphological Merger (Halle and Marantz 1993, Shibata 2015), and Scope Economy and Parallelism (Fox 2000, Takahashi 2008). In section 3, I will show that the analysis accounts for other hitherto-unnoticed data regarding scope interactions observed with additive particles, complex predicates and pseudoraising. Section 4 is the conclusion.

2 Proposal

In this section, I propose that the interactions of Morphological Merger, derivational PF-deletion, Scope Economy and Parallelism lead to a unified account for the complex scope possibilities of focus elements and scope-bearing predicative heads.

2.1 The Morphological Merger Analysis on the Anti-Reconstruction Effect

This section introduces Shibata's 2015 Morphological Merger analysis on the scope interaction between a disjunctive element and negation exemplified in (1a). Shibata (2015) calls the absence of disjunctive elements' narrow scope with respect to negation (and other scope-bearing predicative heads) the anti-reconstruction effect and deduces the effect from the combination of Morphological Merger and the obligatory late insertion of focus operators.

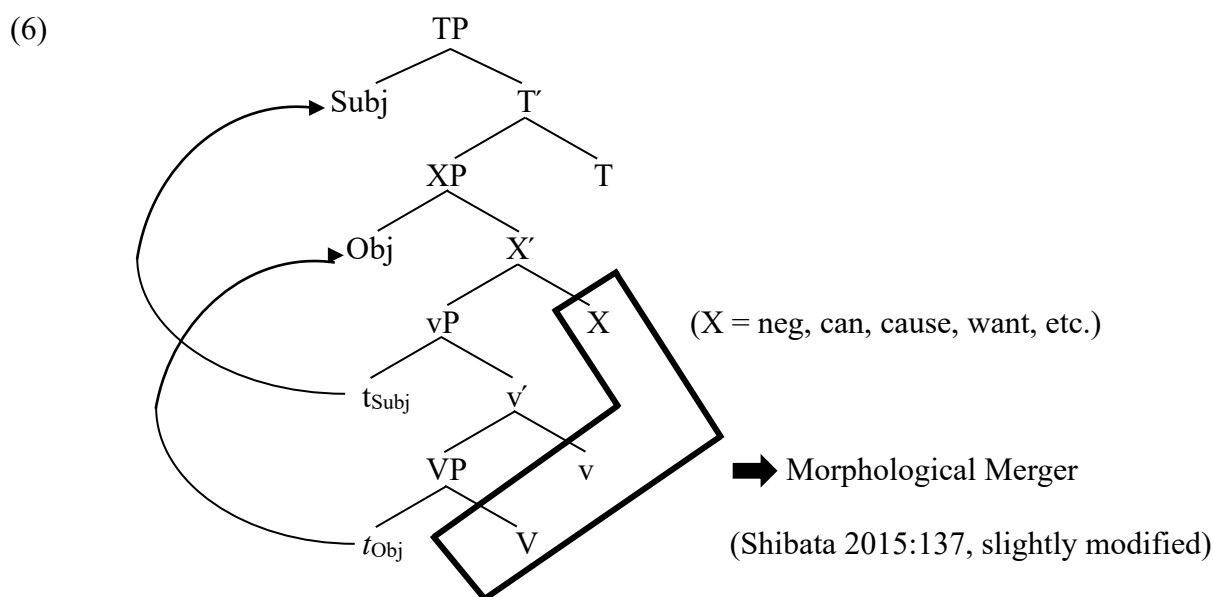
Employing the assumptions of the theory of Distributed Morphology (Halle 1990, Halle and Marantz 1993, Noyer 1997, Embick and Noyer 2001), Shibata argues that agglutinative predicates in Japanese are derived by the Morphological Merger of predicative heads. Following the standard assumption that the version of Morphological Merger that creates a feature bundle for a legitimate Vocabulary Insertion must obey structural adjacency (Halle and Marantz 1993, Embick and Noyer 2001), Shibata proposes that the Morphological Merger of predicative heads in Japanese also obeys structural adjacency, as defined in (5).

(5) Structural Adjacency (Shibata 2015: 146)

X and Y are structurally adjacent if and only if there is no overt Z which is asymmetrically c-commanded by X and asymmetrically c-commands Y.

The definition (5) states that the adjacency requirement of Morphological Merger is violated by overt vP-internal elements such as subjects and objects. Hence, vP-internal elements obligatorily undergo syntactic movement out of vP in Japanese, as schematized in (6):²

² As an anonymous reviewer points out, given that tense particles form a morphological unit with the verb in Japanese, it is expected that the object in (6), which intervenes between v/X and T, should give rise to the intervention effect on Morphological Merger. Shibata (2015:



Shibata (2015) then argues that, when a focus element such as disjunction undergoes movement, it is merged with its focus-operator acyclically. The acyclic merger of a focus operator is motivated by Fox's (2003) Trace Conversion. Trace Conversion consists of two syntactic operations in (7). Variable insertion converts lower copies into structures that contain variables. Determiner replacement converts a copy to a definite description, which refers back to the chain-head.

(7) a. Variable Insertion: (Det) Pred $\rightarrow$ (Det) [Pred λy ($y = \text{him}_n$)]

b. Determiner Replacement: (Det) Pred $\rightarrow$ the [Pred λy ($y = \text{him}_n$)]

(Where n is the index of the moved quantificational NP)

(Fox 2003:111)

152-157) proposes two possible solutions for the problem: one is to move the object higher than T, and the other is to assume that the apparent tense particles are actually lower heads such as Asp that is located lower than T. Since this paper is concerned with scope interactions between the object and X/the subject, I leave the exact landing sites of the vP-external elements for future research.

Note here that determiner replacement affects determiners, and hence DP-external operators remain unaffected by Trace Conversion. Shibata (2015) argues that this is the case with disjunctive elements, adopting Chierchia, Fox & Spector's (2012) proposal that a disjunctive element is interpreted with a DP-external silent exhaustive operator O_{ALT} . Hence, if an exhaustive operator, a kind of focus operator, were present before the movement of a focus element from [Spec, vP] to [Spec, TP], we would obtain the copy of the operator at the base as well as at the derived positions. This would, in turn, map the syntactic derivation of (8a) onto the LF representation roughly schematized in (8b). However, this representation is semantically uninterpretable because there are two identical operators in different positions.

- (8) a. John or Tom will come.
 b. [O_{ALT} (John or Tom) [will [O_{ALT} (John or Tom) come]]]

Shibata argues that such an ill-formed LF representation can be evaded only if the operator in question is obligatorily adjoined to the DP after the movement of the DP, as shown in (9).

- (9) [O_{ALT} (John or Tom) [will [(John or Tom) come]]]

Keeping the late merger of focus operator in mind, let us review Shibata's explanation for (1a). First of all, the disjunctive element undergoes obligatory extraction in order to satisfy structural adjacency for the purpose of Morphological Merger. This obligatory movement of the disjunctive element in turn leads to the obligatory acyclic merger of a focus operator O_{ALT} , given that O_{ALT} is a DP-external operator and is not subject to Trace Conversion. Under the reasonable assumption that scope properties are encoded by focus operators, the acyclic merger

of a focus operator to a moved element induces the obligatory wide scope reading of the focused element vis-à-vis negation, as illustrated in (1a).³

2.2 Derivational PF-Deletion Induces the Scope-Trapping Effect

Indeed, Shibata's theory works beautifully with the obligatory wide scope reading of an overt disjunctive element, as illustrated in (1a), but his analysis may be problematic in face of the scope properties of the null counterpart of the disjunctive element; as opposed to (1a), which shows the obligatory *wide* scope interpretation of the disjunctive element with respect to negation, the example (3) shows that the disjunctive element takes obligatory *narrow* scope with respect to negation when it undergoes AE (Funakoshi 2011, 2012, 2013).

In this section, I argue that the derivational PF-deletion approach to AE, where an element that undergoes AE is marked for deletion with the [E] feature (Merchant 2001, Aelbrecht 2010) in the course of syntactic derivation and deleted at PF (Takahashi 2013, 2017), combined with the Morphological Merger analysis of Shibata (2015), gives a plausible explanation for the scope-trapping effect of AE shown in (3). Specifically, I adopt Takahashi's (2017) derivational PF deletion analysis where an element which undergoes AE is marked for deletion when it is merged with its theta-role assigner in the syntactic derivation; the object is marked as [E] when merged with V, and the subject is marked as [E] when merged with v.

I argue that the Morphological Merger analysis, combined with the derivational

³ One could assume that a disjunctive element, a kind of a focus phrase, must undergo focus movement to the Spec of FP and this leads to the obligatory wide scope of disjunction with respect to negation. However, the assumption that a focus phrase undergoes obligatory focus movement may have difficulty in accounting for the fact that an elided disjunctive element may move or stay in situ, depending on the presence of scope interactions in the antecedent/elided clause (see section 2.2 and 2.3).

PF-deletion approach, yields the important consequence that AE makes the object invisible for the purpose of the application of Morphological Merger; Shibata (2015) argues that, if the vP-internal elements undergo overt movement out of vP, they do not interfere with the Morphological Merger of predicative heads. From a somewhat different point of view, this supposition states that copies of movement, which stay within the predicate but nonetheless are not pronounced, do not cause trouble for Morphological Merger. I maintain that the same obliteration effect is observed with [E]-marked arguments in the case of AE in Japanese; [E]-marked elements, like copies of movement, are not pronounced and hence do not count as an interference factor for Morphological Merger at the syntax-phonology interface. Suppose now that an object that is to be deleted at PF is [E]-marked when it is merged with its theta-role assigner V. Since this [E]-marking occurs at the very early point in the overt syntax, the [E]-marked element, even if it stays in situ, does not inhibit the Morphological Merger of predicative heads, which occurs post-syntactically. I argue that the invisibility of [E]-marked arguments creates the optionality of movements of such arguments, allowing the narrow scope interpretation of the disjunctive element in (3).

However, it is important to note here that the obliteration effect by [E]-marking only allows the disjunctive element to stay in situ, which leads to the narrow scope reading of disjunction with regard to negation, but [E]-marking does not prohibit the disjunctive element from moving, which would lead to the *obligatory* narrow scope interpretation of the disjunctive element, as actually attested in (3). In the next section, I propose that the obligatory narrow scope interpretation of disjunction in (3), as well as the obligatory wide scope attested in (4), is the manifestation of constraints at the syntax-semantics interface, that is, Scope Economy and Parallelism (Fox 2000, Takahashi 2008).

2.3 Argument Ellipsis, Scope Economy and Parallelism

In this section, I show that the obligatory narrow/wide scope of a disjunctive element which undergoes AE is attributed to Scope Economy and Parallelism (Fox 2000), which is independently motivated by scope interactions in VP-deletion constructions in English (Fox 2000) and the scrambling data of null quantificational elements in Japanese (Takahashi 2008).

Before accounting for the Japanese data, let me outline Fox's (2000) definitions of Scope Economy and Parallelism with the VP-deletion data in English. Fox proposes that syntactic derivation is constrained by an economy principle, which prohibits movements that do not yield a new interpretation at the interface. According to the economy principle, when movement is covert and does not contribute to a new output for the phonological interface, the movement should yield a new interpretation for the semantic interface. Fox argues that covert operations such as QR obey this economy condition, prohibiting scopally vacuous QR.

(10) Scope Economy

Covert optional operations cannot be scopally vacuous (i.e., they must reverse the relative scope of two noncommutative quantificational expressions). (Fox 2000:75)

Fox assumes that scope vacuity is dependent on whether QR reverses the relative scope of two quantificational expressions. If QR does not change scope possibilities, the sentence is regarded as scopally uninformative. Scope Economy disallows the vacuous application of QR on the scopally uninformative sentences, leading to obligatory surface scope.

Fox (2000) proposes another restriction on scope possibilities; that is, ellipsis must obey the Parallelism condition, as stated in (11). Parallelism ensures that in ellipsis environments two sentences will have isomorphic syntactic representations at LF. Specifically, Parallelism dictates that the antecedent and the elided clauses have the parallel scope under ellipsis.

(11) Parallelism

In an ellipsis/phonological reduction construction the scopal relationship among the elements in β_A must be identical to the scopal relationship among the parallel elements in β_E . (Fox 2000:32)

The combination of Scope Economy and Parallelism yields an interesting prediction regarding scope possibilities between two sentences S and S'. Scope Economy licenses inverse scope if S is scopally informative, that is, if S is semantically distinct under surface and inverse scope. In such a case, Parallelism allows for inverse scope in S'. On the other hand, if S is scopally uninformative, that is, S is semantically equivalent under surface and inverse scope, then Scope Economy does not allow inverse scope in S. In such a case, it follows from Parallelism that inverse scope is not allowed in S'. Given that Parallelism is a condition under ellipsis, S and S' can be restated as the antecedent clause and the elliptical clause, and vice versa. Therefore, scope-shifting operations such as QR are allowed only when the antecedent clause and the elided clause are both scopally informative.

Takahashi (2008) argues that Scope Economy and Parallelism are at work with AE in Japanese as well. First, Takahashi observes that the scrambling of a null quantificational object yields scope ambiguity. Consider (12):

- (12) a. [Taitei-no sensei-o]_i zyosi-no dareka-ga *t_i* sonkeisiteiru.
 most-GEN teacher-ACC girl-GEN someone-NOM respect
 ‘(Lit.) Most teachers, some girl respects.’ (*scopally informative*)
- b. Dansi-no dareka-mo Δ sonkeisiteiru.
 boy-GEN someone-also respect
 ‘(Lit.) Some boy respects, too’ (some » most, most » some)

(12a) is a scrambled sentence where two quantifiers, the quantificational subject *zyosi-no dareka-ga* ‘some girl’ and the quantificational object *taitei-no sensei-o* ‘most teachers’, show scope ambiguity. (12b) is an AE sentence where the null object is intended to take the quantificational object *taitei-no sensei-o* ‘most teachers’ in (12a) as its antecedent. Takahashi observes that in (12), the elliptical clause with the elided quantificational object shows scope ambiguity in a way that obeys Parallelism (Fox 2000); from Parallelism it follows that, when the antecedent clause (12a) has the surface, base word-order scope where ‘some girl’ takes scope over ‘most teachers’, the elided clause (12b) may only have the surface scope as well. In the same vein, when the antecedent clause (12a) exhibits the inverse scope where ‘most teachers’ takes scope over ‘some girl’, the elliptical clause (12b) should exhibit the inverse scope as well.

Note here that both sentences in (12) contain two quantifiers and are scopally informative. In these sentences, Scope Economy as Fox (2000) defines it does not block scope-shifting operations. Under this reasoning, it is expected that, if one of the sentences contains only one quantifier and becomes scopally uninformative, the sentences are disambiguated in favor of the surface scope. Takahashi observes that the expectation is borne out, as shown in (13); while (13a) itself is potentially ambiguous on a par with (12a), it is disambiguated when followed by (13b):

- (13) a. [Taitei-no sensei-o]_i zyosi-no dareka-ga _{t_i} sonkeisiteiru.
 most-GEN teacher-ACC girl-GEN someone-NOM respect
 ‘(Lit.) Most teachers, some girl respects.’ (some » most, *most » some)
- b. Taroo-mo Δ sonkeisiteiru.

‘(Lit.) Taro respects, too.’ (*scopally uninformative*) (Takahashi 2008:314)

(14) a. [Taitei-no sensei-o]_i Taroo-ga *t_i* sonkeisiteiru.
 most-GEN teacher-ACC Taro-NOM respect
 ‘(Lit.) Most teachers, Taro respects.’ (*scopally uninformative*)

Importantly, scrambling in the antecedent clause yields a new output for the phonological interface, but nonetheless plays no role in licensing the movement of the elided object in the elliptical clause. From this it might follow that Scope Economy and Parallelism focus on the semantic interface, ignoring phonologically-meaningful but semantically-vacuous movements, at least in Japanese.⁴

⁴ The assumption that Scope Economy and Parallelism work only at the semantic interface is also supported by the following example, where the scrambling of the overt disjunctive element in the antecedent clause does not lead to scope ambiguity.

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Extending the empirical coverage of Fox (2000) and Takahashi (2008), I argue that Scope Economy and Parallelism are effective with the AE of disjunctive elements as well. Remember that [E]-marking for arguments that undergo AE makes them invisible for the purpose of the Morphological Merger of predicative heads, allowing the elements to stay in situ. Under this analysis, the movement of null disjunctive elements in (3) and (4) are purely optional, and more importantly, they do not contribute to a new output for the phonological interface, given their phonologically null status. Hence, the movement of null elements in such cases must have a new interpretive outcome at the semantic interface. In addition, since AE is a kind of ellipsis operation, AE in Japanese obeys Parallelism in addition to Scope Economy. To illustrate this point, let us consider the schematic structures for (3) and (4), shown in (15a) and (15b), respectively:

- (15) a. antecedent [[A or B] V] (*scopally uninformative*) (=3)
 ellipsis [[Δ] V-NEG] (*or » neg, neg » or)
- b. antecedent [[A or B] V-NEG] (*scopally informative*) (=4)
 ellipsis [[Δ] V-NEG] (or » neg, *neg » or)

In (15a), the antecedent clause is scopally uninformative. In this case, Scope Economy and Parallelism lead to the obligatory narrow scope reading of disjunction in the elliptical clause. In contrast, the antecedent clause in (15b) is scopally informative; the disjunctive element must take wide scope over negation. I assume with Shibata (2015) that the interpretation is induced by the obligatory extraction of the object out of vP for the purpose of Morphological Merger and the obligatory late insertion of a focus operator. In addition, the elliptical clause

John-TOP speak-NEG-PRES

‘(Lit.) Mary speaks Spanish or French, but John doesn’t speak.’ (*or » neg, neg » or)

work; the disjunctive element must take narrow scope with respect to negation when the antecedent clause is scopally uninformative. In contrast, the disjunctive element must take wide scope when the antecedent clause is scopally informative, and shows obligatory wide scope interpretation of disjunction.⁶ In the next section, I show that the proposal is extended to other scope interactions in Japanese.

3 Additive Particle, Complex Predicates and Pseudoraising

3.1 *mo* ‘also’

Hasegawa (1994) shows that *mo* ‘also’ obligatorily takes wide scope over negation (see also Shibata 2015 and Saito & Takita 2016). For instance, (16) allows the interpretation that it is also to Taro that Hanako didn’t send a New Year’s card (also » neg), but it does not have the interpretation that it is not the case that Hanako sent a New Year’s card to Taro as well (*neg » also). The same wide scope is observed in the second clause in (17).

(16) Hanako-wa Taroo-ni-mo nengazyoo-o okura-nakat-ta.

⁶ As an anonymous reviewer points out, the LF-copying analysis (Oku 1998, Sakamoto 2017) accounts for the empirical data presented in this paper just as well (see also Saito 2017). Under the LF-copying approach, it is assumed that the antecedent is copied into the theta position of the ellipsis clause. One may assume that in those cases in which both the clauses are scopally informative, the copied argument may raise above another quantificational element to satisfy Parallelism. In those cases in which one of the clauses is scopally uninformative, the copied argument will have to remain in its theta-position, again, due to Parallelism. Since the theoretical and empirical comparison between the PF-deletion approach and the LF-copying approach is beyond the scope of this paper, I leave the issue for future research.

Hanako-TOP Taro-DAT-also New.Year's card-ACC send-NEG-PAST

‘Hanako also didn’t send a New Year’s card to Taro.’

(also » neg, *neg » also) (Saito and Takita 2016:422)

(17) Yuki-wa Ken-to-mo asonda. Mari-wa Ken-to-mo asob-anakat-ta.

Yuki-TOP Ken-with-also played Mari-TOP Ken-with-also play-NEG-PAST

‘Yuki also played with Ken. Mari also didn’t play with Ken.’ (also » neg, *neg » also)

According to Shibata (2015), the obligatory wide scope interpretation of XP-*mo* is accounted for in terms of the obligatory extraction of XP-*mo* from within the vP region for the purpose of Morphological Merger and the acyclic merger of a focus operator to the additive phrase. This assumption leads us to expect that null arguments are invisible for Morphological Merger and can stay in situ, which leads to the narrow scope reading of the additive phrase with respect to negation. As the examples (18a-b) show, the expectation is borne out; when an argument with the additive particle –*mo* ‘also’ undergoes AE, the elliptical sentence with a scopally uninformative antecedent shows obligatory narrow scope vis-à-vis negation.

(18) a. Yuki-wa Ken-to-mo asonda. (*scopally uninformative*)

Yuki-TOP Ken-with-also played

‘Yuki also played with Ken.’

b. Mari-wa Δ asob-anakat-ta.

Mari-TOP play-NEG-PAST

‘(Lit.) Mari didn’t play.’ (*also » neg, neg » also)

This is accounted for in terms of Scope Economy and Parallelism; from Scope Economy it

follows that the scopally uninformative antecedent clause in (18a), which only contains additive particle *-mo*, is restricted to surface scope. From Parallelism it follows that the elliptical clause in (18b) show the same surface, narrow scope reading of the additive phrase, prohibiting the inverse scope with respect to negation. On the other hand, the example (19) shows that the elliptical sentence exhibits obligatory wide scope if the antecedent clause contains negation in addition to the additive phrase.

- (19) a. Yuki-wa Ken-to-mo asob-anakat-ta. (*scopally informative*)
 Yuki-TOP Ken-with-also play-NEG-PAST
 ‘Yuki also didn’t play with Ken.’
- b. Mari-mo Δ asob-anakat-ta.
 Mari-also play-NEG-PAST
 ‘(Lit.) Mari didn’t play.’ (also » neg, *neg » also)

Since the antecedent clause as well as the elided clause are scopally informative in (19), Scope Economy does not block a scope-shifting movement. In addition, since the antecedent clause in (19a) shows obligatory wide scope interpretation of the additive phrase, from Parallelism it follows that the elided clause should exhibit the same wide scope interpretation of the additive phrase, forcing movement of the null additive phrase in (19b).

3.2 Complex Predicates

It has been observed that the object of a complex predicate obligatorily takes wide scope with respect to a scope-bearing element within the predicate in Japanese (Saito & Hoshi 1998, Hoshi 1999, Saito 2000, Bobaljik & Wurmbrand 2007), as is illustrated by the second clause in (20). Here, I follow Bobaljik & Wurmbrand (2007) in assuming that *wasure-* ‘forget’ is a

kind of negation.

- (20) Yuki-wa subete-no heya-no denki-o kesita.
Yuki-TOP every-GEN room-GEN light-ACC turned.off
Takasi-wa subete-no heya-no denki-o kesi-wasure-ta.
Takashi-TOP every-GEN room-GEN light-ACC turn.off-forget-PAST
‘Yuki turned off all the lights. Takashi forgot to turn off all the lights.’
(all » neg, ??neg » all)

Bobaljik & Wurmbrand (2007) argue that the obligatory wide scope reading of the object is derived from the obligatory movement of the object to a higher position c-commanding the scope-bearing element within the complex predicate.⁷

Now, let us apply AE to *subetenno-heya-no denki* ‘all the room’s light’ in a configuration like (20). (21) includes the scopally uninformative antecedent clause, while (22) includes the scopally informative antecedent clause.

- (21) a. Yuki-wa subete-no heya-no denki-o kesita.
Yuki-TOP every-GEN room-GEN light-ACC turned.off
‘Yuki turned off all the lights.’ (*scopally uninformative*)
b. Takasi-wa Δ kesi-wasure-ta.
Takashi-TOP turn.off-forget-PAST

⁷ Saito & Hoshi (1998), Hoshi (1999), and Saito (2000) argue for V-V compounds. They argue that the absence of narrow scope for the object in (20) follows straightforwardly from the mono-structural property of the V-V compound. However, the compound analysis may face a challenge in accounting for the narrow scope under AE, as illustrated in (21).

- ‘(Lit.) Takashi forgot to turn off.’ (all » neg, neg » all)
- (22) a. Yuki-wa subete-no heya-no denki-o kesi-wasure-ta.
 Yuki-TOP every-GEN room-GEN light-ACC turn.off-forget-PAST
 ‘Yuki forgot to turn off all the lights.’ (*scopally informative*)
- b. Takashi-mo Δ kesi-wasure-ta.
 Takashi-also turn.off-forget-PAST
 ‘(Lit.) Takashi also forgot to turn off.’ (all » neg, *neg » all)

In (21b), AE yields narrow scope that is not observed in its non-elliptical counterpart in (20). This is because the antecedent clause is scopally uninformative and Scope Economy does not allow the alleged scope-shifting operation, the movement of the object, in (21a). In addition, Parallelism requires that the syntactic representation of the antecedent clause and the elliptical clause be the same, thereby blocking the movement of the null object in (21b).⁸ On the other hand, in (22), where both the antecedent clause and the elliptical clause are scopally informative, Scope Economy allows scope-shifting operations in these sentences. In this case, the antecedent clause in (22a) shows the obligatory wide scope reading of *all* due to the obligatory extraction of the object for the purpose of Morphological Merger. In this case, Parallelism forces the parallel wide scope interpretation of *all* in the elided clause (22b).

3.3 Pseudoraising

Scope ambiguity also obtains with what Takahashi & Uchibori (2003) call *Pseudoraising*.

⁸ The scope interpretation where ‘all’ takes scope over negation may be derived from *pro*, where the elided clause exhibits the meaning equivalent to ‘*Yuki-wa sorera-o kesiwasureta* (Yuki forgot to turn off them).’

They observe that the raising verb *omoe* ‘seem’ may involve the overt A-raising of the embedded subject to the matrix clause, as shown in (23b):

- (23) a. Huziko-ni(-wa) [_{CP} Yawara-ga kin-medaru-o toru to] omoeta.

Fujiko-DAT-TOP Yawara-NOM gold-medal-ACC win C seemed

‘It seemed to Fujiko that Yawara would win a gold medal.’

- b. Yawara-ga_i Huziko-ni(-wa) [_{CP} *t_i* kin-medaru-o toru to] omoeta.

Yawara-NOM Fujiko-DAT-TOP gold-medal-ACC win C seemed

‘(Lit.) Yawara seemed to Fujiko that would win a gold medal.’

(Takahashi & Uchibori 2003:301-302)

Now, let us consider a pseudoraising construction that contains a quantificational embedded subject and a quantificational matrix experiencer. As (24) shows, when the embedded quantificational subject undergoes movement to the matrix clause, scope ambiguity results. The ambiguity in (24) reflects the fact that A-movement in Japanese may yield inverse scope, as attested in A-scrambling out of a control clause (Nemoto 1993, Uchibori 2000).

- (24) [Taitei-no kyoozyu-ga]_i zyosi-gakusei-no dareka-ni-wa *t_i*

most-GEN professor-NOM female-student-GEN someone-DAT-TOP

nooberusyoo-o toru to omoeta.

Nobel.Prize-ACC win C seemed

‘(Lit.) Most professors seemed to some female student to win the Nobel Prize.’

(most » some, some » most)

Next, consider the cases where the raising quantificational subject undergoes AE. First, (25)

is a case where two quantifiers exist both in the antecedent clause and in the elliptical clause, the latter of which includes the elided object that takes the quantificational raising subject *taitei-no kyoozyu-ga* ‘most professors’ as its antecedent. Hence, these clauses are both regarded as scopally informative.

- (25) a. [Taitei-no kyoozyu-ga]_i zyosi-gakusei-no dareka-ni-wa *t_i*
 most-GEN professor-NOM female-student-GEN someone-DAT-TOP
 nooberusyoo-o toru to omoeta.
 Nobel.Prize-ACC win C seemed
 ‘(Lit.) Most professors seemed to some female student to win the Nobel Prize.’
 (scopally informative)
- b. Dansi-gakusei-no dareka-ni-mo Δ nooberusyoo-o
 male-student-GEN someone-DAT-TOP Nobel.Prize-ACC
 toru to omoeta.
 win C seemed
 ‘(Lit.) Seemed to some male student to win the Nobel Prize.’
 (most » some, some » most)

In this case, Scope Economy licenses scope-shifting operations, allowing inverse scope both in the antecedent clause and the elliptical clause. However, it is important to note that Parallelism narrows down the scope possibilities to the parallel scope between the antecedent clause and the elliptical clause: when ‘some female student’ takes scope over ‘most professors’ in the antecedent clause, ‘some male student’ must take scope over ‘most professors’ in the elliptical clause as well, and vice versa.

As is expected by Scope Economy and Parallelism, when the antecedent clause is

scopally uninformative as shown in (26), the ambiguity disappears.

- (26) a. [Taitei-no kyoozyu-ga]_i Yuta-ni-wa t_i nooberusyoo-o
 most-GEN professor-NOM Yuta-DAT-TOP Nobel.Prize-ACC
 toru to omoeta.
 win C seemed
 ‘(Lit.) Most professors seemed to Yuta to win the Nobel Prize.’
 (*scopally uninformative*)
- b. Dansi-gakusei-no dareka-ni-mo Δ nooberusyoo-o
 male-student-GEN someone-DAT-TOP Nobel.Prize-ACC
 toru to omoeta.
 win C seemed
 ‘(Lit.) Seemed to some male student to win the Nobel Prize.’
 (*most » some, some » most)

(26a) involves the overt A-movement of the embedded subject – *taitei-no kyoozyu-ga* ‘most professors’ – to the matrix subject position. This movement changes word order and yields a new output for the phonological interface, but it cannot induce scope interaction, so that there is no effect on the semantic interface. It seems that Scope Economy and Parallelism do not detect any significant output from the antecedent clause, and does not license the movement of the null raising subject in the elliptical clause in (26b), only allowing the narrow scope interpretation of the raising subject with respect to the matrix experiencer. The same effect holds with the scopally uninformative elliptical clause, as illustrated in (27).

- (27) a. [Taitei-no kyoozyu-ga]_i zyosi-gakusei-no dareka-ni-wa t_i

most-GEN professor-NOM female-student-GEN someone-DAT-TOP

nooberusyoo-o toru to omoeta.

Nobel.Prize-ACC win C seemed

‘(Lit.) Most professors seemed to some female student to win the Nobel Prize.’

b. Taroo-ni-mo Δ nooberusyoo-o toru to omoeta.

Taro-DAT-TOP Nobel.Prize-ACC win C seemed

‘(Lit.) Seemed to Taro to win the Nobel Prize.’ (*scopally uninformative*)

(*most » some, some » most)

It is intriguing to note that the surface scope in the antecedent clause seems to be the one where the raising subject ‘most professors’ takes scope over the matrix experiencer ‘some female student’, given that the former c-commands the latter after A-movement. Nevertheless, Scope Economy and Parallelism dictate that the antecedent clause only allow the raising subject to take narrow scope. From this, it is concluded that Scope Economy indeed restricts A-movement in the scopally uninformative elliptical clause, and Parallelism puts restriction on the scope possibility of the antecedent clause based on the absence of the movement in the elliptical clause; the raising subject of the antecedent clause, even though it undergoes overt A-movement, is restricted to the narrow scope in a reconstructed position.

5 Conclusion

In this paper, as an empirical extension of Takahashi 2008, I have introduced new data that show the tight interactions of AE with Scope Economy and Parallelism. Specifically, based on the derivational [E]-marking of Takahashi (2013, 2017) and Shibata’s (2015) Morphological Merger analysis, I have argued that an element that is marked for AE in the course of syntactic derivation does not interfere with the Morphological Merger of predicate

heads and can stay in situ, allowing the narrow scope of focus/quantificational elements. I have argued that, in such cases, scope possibilities of AE obey Scope Economy and Parallelism in Fox's sense; more specifically, I have suggested that when either the antecedent clause or the elliptical clause is scopally uninformative, it follows from Scope Economy and Parallelism that the sentences cannot yield inverse scope interpretation. When both of them are scopally informative, they may exhibit inverse scope in a way that obeys Parallelism. Furthermore, the fact that the null quantificational object may have wide scope with respect to the quantificational element within vP sheds a new light on a current debate on the proper treatment of null arguments in Japanese: the AE analysis (Oku 1998, Takahashi 2008, Sakamoto 2017, among others) vs. the verb-stranding vP Ellipsis (VVPE) analysis (Otani and Whitman 1991, Funakoshi 2011, 2012, 2013, 2016). Remember that Funakoshi (2011, 2013) observes that a null quantificational element must take narrow scope with respect to negation, as illustrated in (3). Funakoshi takes the observation as a supporting evidence for the VVPE (+*pro*) analysis: the null object cannot move out of vP to have wide scope, as the vP-external element cannot be elided by VVPE.⁹ Following his logic, but showing that a null quantificational element does move out of vP to have wide scope in some cases like (4), this paper serves as another argument against the VVPE analysis and in favor of the AE analysis.

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⁹ As an anonymous reviewer points out, this paper does not undermine Funakoshi's (2016) observation regarding the null adjunct interpretation in favor of the VVPE analysis (but see Oku 1998 and Takita 2011 for the related discussion).

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