

TOPICALIZATION AND COORDINATION IN JAPANESE*

HIDEKI KISHIMOTO
Kobe University

1. Introduction

In Japanese, the surface structural position of topics, which are marked with *wa*, may vary; even though the most typical position where a *wa*-marked topic appears is the left periphery of a clause (i.e. to the left of a subject if there is one), as in (1a), it can appear in a clause-internal position as well, as shown in (1b). (Kuno 1973, Heycock 2008).

- (1) a. Kooen-de-wa kodomo-ga ason-de i-nakat-ta.
park-in-TOP child-NOM playing be-NEG-PAST
'In the park, there were no children playing.'
b. Kodomo-ga kooen-de-wa ason-de i-nakat-ta.
child-NOM park-in-TOP playing be-NEG-PAST
'No children were playing in the park.'

The fact that topic phrases can appear in various structural positions raises the question of how they should be formally licensed. A number of different accounts come into mind. Since topics can appear either clause-initially or clause-internally, one might claim that topics could be licensed in both TP-internal and TP-external positions. Some researchers (including Mihara (1994) and Tomioka (2007)) maintain that there is no privileged syntactic position for licensing topics. As argued by Kishimoto (2009), it is also possible to claim that the relevant configuration where topics are licensed should emerge at the LF level rather than in overt syntactic structure, and that topics are licensed in their licensing projections located above TP regardless of whether they appear in clause-internal or clause-initial position on the surface.

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In this paper, we will present evidence for the third approach taking LF to be relevant for licensing topics, and show that a *wa*-marked topic phrase is placed in a projection located above TP (i.e. ModP).¹ It is argued that a topic needs to be positioned in ModP for its licensing at LF, regardless of where it appears in overt constituent structure. Substantial evidence that even a clause-internal topic, which does not undergo overt movement, should be placed in ModP at the LF level may be adduced by looking at one type of coordinate structure introduced by *mo*, which is constrained by the coordinate structure constraint (see Ross 1967).

2. The Constituent Structure of *Mo*-Coordination

For the purpose of illustrating that all kinds of topics are positioned outside TP at the LF level, we will look into the type of coordinate structure where two conjuncts are coordinated by the particle *mo* ‘also’. Before going into the discussion of how a clause-internal topic is positioned outside TP, let us consider the basic properties of this coordinate structure. One representative example is given in (2).

- (2) [John-ga wain-o nomi-mo] [Mary-ga pan-o tabe-mo] si-nakat-ta.
 John-NOM wine-ACC drink-also Mary-NOM bread-ACC eat-also do-NEG-PAST
 ‘John did not drink the wine and Mary did not eat the bread.’

In the coordinate structure (2), the two instances of the particle *mo* work as a coordinator. At first sight, it might look as if the coordinate clause in (2) involves vP-coordination, as represented in (3), since *mo* occurs to the right of the verb, and no overt material which projects above vP appears in the first conjunct.

- (3) [_{TP} [_{Coord} [_{vP} SUBJ.... V-v-**mo**] [_{vP} SUBJ..... V-v-**mo**]] NEG PAST]

In (3), vP constituents are coordinated, and negation and tense are located outside the coordinate structure. Given the surface form of (2), it is tempting to say that (3) should be the syntactic structure for (2), but we claim that (3) does not represent the correct structure. We argue instead that (2) should involve TP-coordination, as illustrated in (4).

- (4) [_{Coord} [_{TP} SUBJ V-v-**mo** (NEG-PAST)] [_{TP} SUBJ ... V-v-**mo** NEG PAST]]

We claim here that both TP and NegP projections are present in the first conjunct, but that they are not spelled out phonologically, i.e. these two projections exist syntactically within the first conjunct, while serving as silent (or unpronounced) elements. Note that in (2) the first clause is interpreted in the same way as the second clause with respect to tense (past/non-past) and polarity (positive/negative). Under the TP-coordination analysis, the first conjunct can be assumed to

¹ In the cartographic approach advanced by Rizzi (1997), a number of distinct functional projections, including a projection licensing a topic, are projected over TP. In the Japanese literature, it is often discussed that a topic is licensed in a structural layer in which a certain modal element can appear, so the projection licensing the occurrence of a topic is referred to as ModP (see Masuoka 1991). The crucial point is that this projection is located outside the core propositional domain of TP.

receive the same ‘positive/negative’ and ‘past/non-past’ interpretations as the second conjunct by way of identification.

The question to be addressed here is whether there is evidence that allows us to choose (4) over (3), as an appropriate structural representation for the coordinate structure (2). The answer is yes, and in the following discussion, we will provide empirical evidence suggesting that (4) should be the correct structure for (2).

One piece of evidence indicating that (2) involves a structure larger than vP-coordination may be adduced from the fact that temporal adverbials, which we can assume are licensed by adjunction to TP, may occur in both conjuncts, as shown in (5).

- (5) [John-ga kyoo hasiri-mo] [Mary-ga kinoo hasiri-mo] si-nakat-ta.
 John-NOM today run-also Mary-NOM yesterday run-also do-NEG-PAST
 ‘John did not run today and Mary did not run yesterday.’

Observe that temporal adverbs referring to distinct points of time cannot be iterated in a single clause, as shown in (6).

- (6) *Kyoo John-wa kinoo hasiri-mo si-nakat-ta.
 today John-TOP yesterday run-also do-NEG-PAST
 ‘Today, John did not run yesterday.’

Example (6) is not acceptable, since the clause has two temporal adverbs with distinct temporal specifications. The fact that the two conjuncts, unlike single clauses, can have two temporal adverbs suggests that each conjunct should contain independent TP. The well-formedness of (5) then gives us a clear indication that TP should be projected over vP in both conjuncts.

Note that in (2), the subject appears in each conjunct. If (3) is the structure that can be posited for (2), this means that the subjects are included in vP. Under the vP-internal subject hypothesis, this account might not be unreasonable if subjects appear in Spec,vP, without undergoing raising to Spec,TP. Nevertheless, there is evidence that subjects are located in Spec,TP, as discussed by Kishimoto (2001) (see also Miyagawa 1987). Consider the examples in (7).

- (7) a. Mary-wa [nani-o tabe-mo] si-nakat-ta.
 Mary-TOP what-ACC eat-also do-NEG-PAST
 ‘Mary did not eat anything’
 b. *Dare-ga [pan-o tabe-mo] si-nakat-ta.
 anyone-NOM bread-ACC eat-also do-NEG-PAST
 ‘Anyone did not eat the bread.’

In (7a), the indeterminate pronoun *nani* ‘what’ can be interpreted as an NPI (negative polarity item), since *mo* can bind it. If, as discussed by Kishimoto (2001), the particle *mo* appended to the verb takes scope over vP, we can state that the direct object is included in vP. In contrast, if the subject is an indeterminate pronoun, it fails to be bound by *mo*. The failure of indeterminate pronoun binding in (7b) suggests that the subject is located in TP, which is outside the scope of the particle *mo* attached to the verb.

It is worth noting at this moment that certain clause-peripheral elements may occur in each conjunct. For example, major subjects, which can be placed only to the left of thematic subjects, can occur in both conjuncts if marked with nominative case, as in (8).

- (8) [Zoo-ga hana-ga nagaku-mo] [kirin-ga kubi-ga nagaku-mo] nakat-ta.
 elephant-NOM trunk-NOM long-also giraffe-NOM neck-NOM long-also NEG-PAST
 ‘The elephant did not a long trunk and the giraffe did not have a long neck.’

As argued by Kishimoto (2009), major subjects marked in the nominative case are placed at the periphery of TP (see also Kuno (1973) and others). Furthermore, if thematic subjects are located in TP, the major subject construction (8) suggests the presence of full-fledged TP in each conjunct, despite the fact that tense is not overtly realized in the first conjunct. In the light of the data discussed above, we can assume that the coordinate construction in (2) involves TP-coordination, even though the coordinator *mo* is added to the verbs.²

The central claim of the present paper is that (2) should involve TP-coordination, and that constituents larger than TP are not conjoined. In the present perspective, since this type of coordinate structure includes some unpronounced elements appearing above vP in the first conjunct, it is also necessary to show that the coordinator *mo* cannot be used to conjoin constituents larger than TP. For the purpose of this demonstration, let us consider how adverbials behave in the coordination at issue.

First, note that as often discussed (see e.g. Zubizarreta 1987, Radford 2004), a modifier should be adjoined to the maximal projection it modifies. If so, we can reasonably assume that predicate modifiers like *hayaku* ‘fast’ and *yukkuri* ‘slowly’ are adjoined to vP or VP. As shown in (9), these adverbs can be readily placed inside the coordinate structure (2).

- (9) [John-ga hayaku hasiri-mo] [Mary-ga yukkuri aruki-mo] si-nakat-ta.
 John-NOM fast run-also Mary-NOM slowly walk-also do-NEG-PAST
 ‘John did not run fast, and Mary did not walk slowly.’

The adverbs *hayaku* ‘fast’ and *yukkuri* ‘slowly’ are predicate modifiers, which should be adjoined to vP/VP. This being the case, the well-formedness of (9) is naturally expected, since the adverbs should be added to the maximal projections whose heads are overtly spelled out in both conjuncts.

Japanese has a large number of modal adverbs, which we can assume are associated with projections located above TP, as argued by Minami (1974, 1993), Yuasa (2005) and others. Interestingly, these adverbs cannot appear in the type of coordinate structure given in (2). Thus, the following example is not acceptable.

- (10) ?*[Osoraku John-ga hasiri-mo] [tabun Mary-ga aruki-mo] si-nakat-ta.
 probably John-NOM run-also perhaps Mary-NOM walk-also do-NEG-PAST
 ‘Probably, John did not run and perhaps, Mary did not walk.’

² If subjects are not included in the coordinate structure, there remains the possibility that constituents smaller than TP are coordinated. In effect, this should be possible if TP-elements are not included in the two conjuncts. Nevertheless, the crucial point here is that the coordinate structure (2), where the subject included in both conjuncts, involve TP-coordination, despite the fact that the T-heads are not manifested.

The data illustrate that the modal adverbs should be licensed in a projection outside the constituent expressing a core proposition—in a structural position higher than TP. The fact that the modal adverbs are indeed licensed by occupying a structural position higher than the position of the predicate modifiers can be ascertained by looking at the contrast in acceptability between (11a) and (11b).

- (11) a. [John-ga yukkuri hasi-ta toki], minna-ga warat-ta.
 John-NOM slowly run-PAST when all-NOM laugh-PAST
 ‘Everyone laughed when John ran slowly.’
 b. *[John-ga tabun hasi-ta toki], minna-ga warat-ta.
 John-NOM probably run-PAST when all-NOM laugh-PAST
 ‘Everyone laughed when John probably ran.’

As shown in (11), the temporal adjunct introduced by *toki* ‘when’ can include a verbal modifier, but not a modal adverb. This suggests that the temporal clause does not contain a projection that licenses modal adverbs. Moreover, a modal element like *daroo* ‘will’, which expresses a kind of judgment/conjecture (see Masuoka 1991), does not appear to the right of tense in the temporal clause.

- (12) *[John-ga hasi-ru daroo toki], minna-ga wara-u daroo.
 John-NOM run-PRES will when all-NOM laugh-PRES will
 ‘Everyone will laugh when John will run.’

The fact suggests that modal adverbs are allowed to occur when a modal projection—which can accommodate a modal element like *daroo*—is present in the clause. (This modal projection is referred to as ModP.) Note that the same temporal adjunct headed by *toki* allows a temporal adverb like *kinoo* ‘yesterday’, which should be associated with TP, as illustrated in (13).

- (13) [John-ga kinoo hasi-ta toki], minna-ga okot-ta.
 John-NOM yesterday run-PAST when all-NOM get.angry-PAST
 ‘Everyone got angry when John ran yesterday.’

The data illustrate then that the subordinate clause selected by *toki* ‘when’ includes TP, but not projections above TP. If modal adverbs are licensed in a projection headed by a modal element like *daroo*, it follows that they cannot appear in the *toki*-clause.

If, as suggested above, (2) involves coordination at the TP-level, the projections higher than TP should lie outside the coordinate structure. This brings us to the expectation that the modal adverbs will be allowed to occur outside the two conjuncts. This is indeed the case, as we can see in (14).

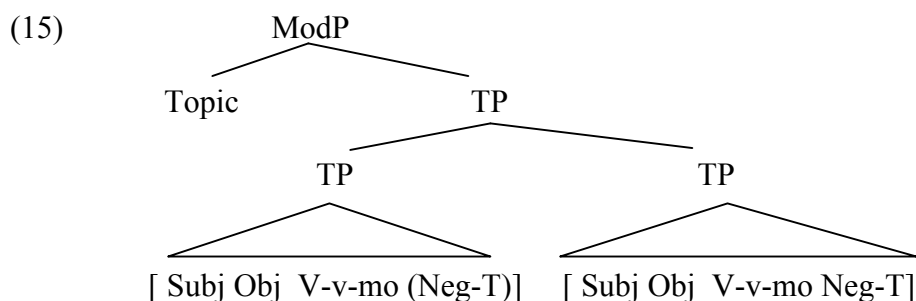
- (14) Osoraku/Tabun [John-ga hasiri-mo] [Mary-ga aruki-mo] si-nakat-ta.
 probably/perhaps John-NOM run-also Mary-NOM walk-also do-NEG-PAST
 ‘Probably/Perhaps, John did not run and Mary did not walk.’

The fact that the modal adverbs are not allowed within the coordinate structure in (10) can then be taken as indicating that a modal projection (i.e. ModP) licensing them lies outside the

coordinate structure whose conjuncts are conjoined by *mo*. On the basis of this fact, we can reasonably conclude that (2) should involve coordination at the level of TP, and that no projections projected above TP can be conjoined by the coordinator *mo*, which is attached to the verb.

3. Movement in the Coordinate Construction

Thus far, we have seen that a coordinate clause like (2), where subjects are included in the conjuncts, involve coordination at the level of TP. With this fact in mind, let us now proceed to discuss the structure of the coordinate construction comprising topics. We argue that topics are licensed if they are placed in ModP located above TP at the LF level, regardless of their surface position, as illustrated in (15).



We maintain here that the projection licensing a topic is ModP, since, as observed by a number of researchers, a topic can be placed in a clause where a certain type of modal element (like *daroo*) is allowed to appear (see Masuoka 1991, Minami 1974, 1993).

In the following discussion, it is argued that if topics are generated within the coordinate structure, they must be moved to their licensing projection above TP. The coordinate structure introduced by the particle *mo* leads to the conclusion that topics should be licensed by moving out of TP when they are located in TP-internal position on the surface.

3.1 Topic Movement

First of all, observe that the two conjuncts in the coordinate structure constructed by adding the coordinating particle *mo* to the component verbs cannot include topic phrases, as seen in (16).

- (16) a. *[John-wa] wain-o nomi-mo [Mary-wa pan-o tabe-mo] si-nakat-ta.
 John-TOP wine-ACC drink-also Mary-TOP bread-ACC eat-also do-NEG-PAST
 ‘John did not drink the wine and Mary did not eat the bread.’
- b. *[Zoo-wa] hana-ga nagaku-mo [kirin-wa] kubi-ga nagaku-mo] nakat-ta.
 elephant-TOP trunk-NOM long-also giraffe-TOP neck-NOM long-also NEG-PAST
 ‘The elephant did not have a long trunk and the giraffe did not have a long neck.’
- c. *[John-ga] kooen-e-wa iki-mo [Mary-ga] gakkoo-e-wa iki-mo] si-nakat-ta.
 John-NOM park-to-TOP go-also Mary-NOM school-to-TOP go-also do-NEG-PAST
 ‘John did not go to the park and Mary did not go to school.’

In contrast, the coordinate constructions are fully acceptable when the conjuncts do not comprise any *wa*-marked phrases. The following sentences, where the topic phrases in (16) are replaced by non-topic phrases, are well-formed.

- (17) a. [John-ga wain-o nomi-mo] [Mary-ga pan-o tabe-mo] si-nakat-ta.
 John-NOM wine-ACC drink-also Mary-NOM bread-ACC eat-also do-NEG-PAST
 ‘John did not drink the wine and Mary did not eat the bread.’
- b. [Zoo-ga hana-ga nagaku-mo] [kirin-ga kubi-ga nagaku-mo] nakat-ta.
 elephant-NOM trunk-NOM long-also giraffe-NOM neck-NOM long-also NEG-PAST
 ‘The elephant did not have a long trunk and the giraffe did not have a long neck.’
- c. [John-ga kooen-e iki-mo] [Mary-ga gakkoo-e iki-mo] si-nakat-ta.
 John-NOM park-to go-also Mary-NOM school-to go-also do-NEG-PAST
 ‘John did not go to the park and Mary did not go to school.’

Of course, this does not mean that a topic is not compatible with the particle *mo*. A topic is allowed to appear in the non-coordinate construction (18), which comprises the particle *mo* affixed to the verb.

- (18) a. John-wa kono-wain-o nomi-mo si-nakat-ta.
 John-TOP this-wine-ACC drink-also do-NEG-PAST
 ‘John also did not drink wine.’
- b. John-ga kono-wain-wa nomi-mo si-nakat-ta.
 John-TOP this-wine-TOP drink-also do-NEG-PAST
 ‘John also did not drink wine.’

The well-formedness of the sentences in (18) suggests that there is no semantic incompatibility of the topic with the particle *mo*, which can be used to construct coordinate structure. Furthermore, a clause-initial topic is legitimate if it appears outside the conjoined structure. This can be seen in (19).

- (19) a. [John-wa [wain-o nomi-mo] [pan-o tabe-mo] si-nakat-ta].
 John-TOP wine-ACC drink-also bread-ACC eat-also do-NEG-PAST
 ‘John did not drink the wine and Mary did not eat the bread.’
- b. [Kono-zoo-wa [hana-ga nagaku-mo] [mimi-ga nagaku-mo] nakat-ta].
 this-elephant-TOP trunk-NOM long-also ear-NOM long-also NEG-PAST
 ‘This elephant has neither a long trunk nor long ears.’

The fact immediately suggests that no structural position that licenses a topic is available inside the coordinate structure. Since the DPs and PPs are permitted within the conjuncts when *wa*-marking is dropped, as in (17), it is clear that the sentences in (16) are not excluded for thematic reasons.³ Given that topics are licensed in ModP, we can state that the topics in (16) are extracted

³ Even if a DP-topic can be base-generated outside the coordinate structure, this possibility is excluded in (i).

(i) * [John-wa [wain-o nomi-mo] [Mary-ga pan-o tabe-mo] si-nakat-ta].
 John-TOP wine-ACC drink-also Mary-NOM bread-ACC eat-also do-NEG-PAST
 ‘John did not drink the wine and Mary did not eat the bread.’

from the coordinate structure at the LF level, so the sentences are ruled out in violation of the coordinate structure constraint.

- (20) * $[_{CP} \text{TOP}_i \text{TOP}_j [_{TP} t_i \text{V-mo } \phi_{\text{NEG}} \phi_{\text{PAST}}] [_{TP} t_j \text{V-mo do-NEG-PAST}]]$

Under the view held here, the ungrammaticality of (16) is a reflection of the fact that the coordinate structure can be formed by conjoining TPs, but not higher projections, so that it is not possible for topics to be licensed within the coordinate structure.

The proposed analysis gains further plausibility from the fact that the topic phrase in (21), which appears outside the coordinate structure, is licensed.

- (21) [Kooen-e-wa_i [John-ga t_i iki-mo] [Mary-ga t_i iki-mo] si-nakat-ta].
 park-to-TOP John-NOM go-also Mary-NOM go-also do-NEG-PAST
 ‘To the park, neither John nor Mary went.’

In (21), the *wa*-marked topic is understood to be a PP selected by the verb *iku* ‘go’, and hence the topic must be overtly extracted from both conjuncts in across-the-board manner, as depicted in (22).

- (22) [$_{CP} \text{TOP}_i$ [$_{\text{Coord}} [_{TP} \text{SUBJ } t_i \text{V-mo } \phi_{\text{NEG}} \phi_{\text{PAST}}] [_{TP} \text{SUBJ } t_i \text{V-mo do-NEG-PAST}]]$]

Since, as argued by Saito (1985), a topic, which falls into the DP type, can be base-generated in a position above TP, it might be possible to say that in sentences like (19), the topic phrases occur in ModP by base-generation without involving movement (i.e. DP-topics can be base-generated in the topic position, licensed by the so-called ‘aboutness’ relation (see Kuno 1973)).

Note, however, that (21) must be derived via Across-the-Board movement (ATB movement), which allows a constituent to be extracted from coordinate structure, as often discussed in the literature (see e.g. Ross 1967). This is precisely because PP-topics, unlike DP-topics, cannot be base-generated in the topic position. If, on the other hand, ATB movement is not involved, a topic cannot be extracted from either of the two conjuncts, as shown in (23).

- (23) a. * $[_{CP} \text{TOP}_i$ [$_{\text{Coord}} [_{TP} \text{SUBJ } t_i \text{iki-mo}] [_{TP} \text{SUBJ } t_i \text{gakkoo-e iki-mo}] \text{si-nakat-ta}]]$.
 park-to-TOP John-NOM go-also Mary-NOM school-to go-also do-NEG-PAST
 ‘To the park, John did not go and Mary did not go to the school.’
 b. * $[_{CP} \text{TOP}_i$ [$_{\text{Coord}} [_{TP} \text{SUBJ } t_i \text{gakkoo-e iki-mo}] [_{TP} \text{SUBJ } t_i \text{iki-mo}] \text{si-nakat-ta}]]$.
 park-to-TOP John-NOM school-to go-also Mary-NOM go-also do-NEG-PAST
 ‘To the park, John did not go to the school and Mary did not go.’

In (23a), the *wa*-marked PP is extracted from the first conjunct, and in (23b), from the second conjunct. In both sentences, the topic phrase is located outside the coordinate structure on the surface, but the sentences are not acceptable. Obviously, the two sentences in (23) are ruled out in violation of the coordinate structure constraint, as illustrated in (24).

In (i), the subject in the second conjunct bears nominative case. The sentence should be excluded as unacceptable on the grounds that the topic needs to be interpreted as located in the first conjunct owing to the parallelism constraint imposed on coordination.

- (24) a. * $[_{CP} \underline{TOP}_i [_{Coord} [_{TP} \text{SUBJ } t_i \text{ V-mo } \phi_{NEG} \phi_{PAST}] [_{TP} \text{SUBJ V-mo do-NEG-PAST}]]]$
 b. * $[_{CP} \underline{TOP}_i [_{Coord} [_{TP} \text{SUBJ V-mo } \phi_{NEG} \phi_{PAST}] [_{TP} \text{SUBJ } t_i \text{ V-mo do-NEG-PAST}]]]$

The fact suggests that the unacceptability of the coordinate constructions in (16) should result from the topics' undergoing LF extraction from the coordinate structure. The island effects observed in sentences like (16) would be expected if the topics appearing inside the two conjuncts need to move into their licensing projection (i.e. ModP) lying outside the coordinate structure.

3.2 Short Distance Movement

Under the present analysis taking an island effect to be induced when a constituent is extracted from the coordinate structure (without invoking ATB movement), we would expect that an island effect will not be incurred if a constituent is moved only TP-internally. This is indeed the case. Here, we will make this point by taking up scrambling, which can be moved short distance (i.e. within TP).

First, the coordinate constructions in (25) illustrate that the scrambling of an object to the left of the subject is possible.

- (25) a. [Wain-o John-ga nomi-mo] [pan-o Mary-ga tabe-mo] si-nakat-ta.
 wine-ACC John-NOM drink-also bread-ACC Mary-NOM eat-also do-NEG-PAST
 'John did not drink the wine and Mary did not eat the bread.'
 b. ?[Wain-o John-ga nomi-mo] [Mary-ga pan-o tabe-mo] si-nakat-ta.
 wine-ACC John-NOM drink-also Mary-NOM bread-ACC eat-also do-NEG-PAST
 'John did not drink the wine and Mary did not eat the bread.'
 c. ?[John-ga wain-o nomi-mo] [pan-o Mary-ga tabe-mo] si-nakat-ta.
 John-NOM wine-ACC drink-also bread-ACC Mary-NOM eat-also do-NEG-PAST
 'John did not drink the wine and Mary did not eat the bread.'

Example (25a), where the object is moved to the left of the subject in both conjuncts, is fully acceptable. (25b) and (25c) are a bit awkward because the parallelism in the surface linear order is disrupted, but both examples are fairly acceptable.

In (25), short distance scrambling is invoked. This movement should move the objects only clause-internally, without extraction out of the coordinate structure. In effect, if, as suggested by Saito (1985), scrambling may involve adjunction to S (or TP), we can assume that the scrambled objects in (25) have been moved within the conjuncts, which comprise TP.

- (26) a. $[_{CP} [_{TP} \underline{OBJ}_i \text{SUBJ } t_i \text{ V-mo } \phi_{NEG} \phi_{PAST}] [_{TP} \underline{OBJ}_i \text{SUBJ } t_j \text{ V-mo do-NEG-PAST}]]]$
 b. $[_{CP} [_{TP} \underline{OBJ}_i \text{SUBJ } t_i \text{ V-mo } \phi_{NEG} \phi_{PAST}] [_{TP} \text{SUBJ OBJ V-mo do-NEG-PAST}]]]$
 c. $[_{CP} [_{TP} \text{SUBJ OBJ V-mo } \phi_{NEG} \phi_{PAST}] [_{TP} \underline{OBJ}_i \text{SUBJ } t_i \text{ V-mo do-NEG-PAST}]]]$

In all cases in (26), the scrambled objects are not extracted from the coordinate structures, and hence do not incur a violation of the coordinate structure constraint. Accordingly, the examples in (25) are found to be acceptable.

In contradistinction, the example in (27), which involves the long distance scrambling of the object to the clause-initial position, is not acceptable, displaying an island effect caused by a violation of the coordinate structure constraint.

- (27) *[Kono-ronbun-o_i [Jane-wa [[[John-ga t_i home-mo] [Mary-ga ano-hon-o
this-paper-ACC Jane-TOP John-NOM praise-also Mary-NOM that-book-ACC
kenasi-mo] si-nakat-ta] to] it-te i-ru]].
criticize-also do-NEG-PAST that saying be-PRES
'The paper, Jane is saying that John did not praise and Mary did not criticize that book.'

In (27), the object base-generated inside the coordinate clause, which is embedded under the verb *yuu* 'say', is scrambled to the sentence-initial position. Sentence (27) involves long distance scrambling of the object out of the first conjunct, as illustrated in (28).

- (28) *[OBJ_i.... [CP [TP SUBJ t_i V-mo ϕ_{NEG} ϕ_{PAST}] [TP SUBJ OBJ V-mo do-NEG-PAST]]]

In (27), the object in the second conjunct is not moved, which means that no overt ATB movement is invoked; therefore, (27) is ruled out in violation of the coordinate structure constraint.

On the other hand, long distance scrambling can be legitimate if it involves ATB movement. The acceptability of (29) illustrates this point.

- (29) [Kono-ronbun-o_i [Jane-wa [[[John-ga t_i home-mo] [Mary-ga t_i kenasi-mo]
this-paper-ACC Jane-TOP John-NOM praise-also Mary-NOM criticize-also
si-nakat-ta] to] it-te i-ru]].
do-NEG-PAST that saying be-PRES
'This paper, Jane is saying that neither John praised nor Mary criticized.'

In (29), the object in the sentence-initial position is understood to be extracted from the object positions in the two conjuncts.

- (30) [OBJ_i.... [CP [TP SUBJ t_i V-mo ϕ_{NEG} ϕ_{PAST}] [TP SUBJ t_i V-mo do-NEG-PAST]]...]

Example (29) is acceptable, since the object is overtly moved out of the coordinate structure in an across-the-board manner, as depicted in (30).

It is worthwhile to note that the same asymmetry between ATB and non-ATB movement is obtained in other types of extraction from the coordinated TPs. The examples in (31) represent cases involving pseudo-cleft extraction.

- (31) a. *[[[John-ga t_i home-mo] [Mary-ga ano-hon-o kenasi-mo] si-nakat-ta]
John-NOM praise-also Mary-NOM that-book-ACC criticize-also do-NEG-PAST
no-wa] kono-ronbun_i da.
NOML-TOP this-paper COP
'It was this paper that John did not praise and Mary did not criticize that book.'
b. [[[[John-ga t_i home-mo] [Mary-ga t_i kenasi-mo] si-nakat-ta] no-wa]
John-NOM praise-also Mary-NOM criticize-also do-NEG-PAST NOML-TOP

kono-ronbun_i da.
 this-paper COP
 ‘It was this paper that John did not praise and Mary did not criticize.’

(31a) involves long distance pseudo-cleft movement out of the first conjunct. Since this extraction is not an instance of ATB movement, the sentence yields an island effect. In contrast, (31b) is acceptable, since it involves ATB pseudo-cleft movement out of the coordinate structure. Exactly the same fact is observed for relativization.

- (32) a. *[[John-ga t_i home-mo] [Mary-ga hon-o kenasi-mo si-nakat-ta] ronbun_i
 John-NOM praise-also Mary-NOM book-ACC criticize-also do-NEG-PAST paper
 ‘the paper that John did not praise and Mary did not criticize the book.’
 b. [[John-ga t_i home-mo] [Mary-ga t_i kenasi-mo si-nakat-ta] ronbun_i
 John-NOM praise-also Mary-NOM criticize-also do-NEG-PAST paper
 ‘the paper that John did not praise and Mary did not criticize.’

As seen in (32), a difference in acceptability is observed, depending on whether relativization involves ATB movement or not.

In the light of the data discussed thus far, we can reasonably conclude that overt extraction of topics from coordinate structure by ATB movement does not induce island effects. But if they are overtly extracted by non-ATB movement, island effects are observed. Furthermore, no island effects are found when movement takes place without involving extraction from the coordinate structure. Obviously, the island effects are incurred in sentences like (16), where the topics are superficially located in the coordinate structure, because ModP—the modal projection that licenses the topics—is located outside the coordinate structure.

3.3 The Absence of ATB Movement at LF

Up to this point, we have argued that a projection that licenses a topic is not included in the coordinate structure formed by the coordinator *mo*. With the constituent structure formed by the coordinating particle *mo* in mind, let now discuss the question of whether a covert version of ATB movement is possible.

Recall here that in Japanese, topics are not necessarily positioned clause-initially on the surface; they can appear in clause-internal position, as well as in clause-initial position, as we can see in (33).⁴

- (33) a. John-ga kono-ronbun-wa yoma-nakat-ta.
 John-NOM this-paper-TOP read-NEG-PAST
 ‘As for this paper, John did not read it.’
 b. Kono-ronbun-wa John-ga yoma-nakat-ta.
 this-paper-TOP John-NOM read-NEG-PAST

⁴ Note that the two sentences receive interpretations. As discussed by Kuno (1973), the clause-internal *wa*-marked phrase in (33a) may receive a neutral thematic, as well as a contrastive interpretation. By contrast, the clause-internal topic in (33b), unlike the topic appearing in clause-initial position, receives a contrastive interpretation only (see also Saito (2009)).

‘As for this paper, John did not read it.’

The existence of LF movement raising a clause-internal topic to ModP can be evidenced by the island effects observed in (34), where clause-internal topics appear inside the coordinate structure. (34a) has a clause-internal topic only in the first conjunct, and (34b) in both conjuncts. In either case, ungrammaticality results.

- (34) a. *[John-ga wain-wa nomi-mo] [Mary-ga pan-o tabe-mo si-nakat-ta].
 John-NOM wine-TOP drink-also Mary-NOM bread-ACC eat-also do-NEG-PAST
 ‘John did not drink the wine and Mary did not eat the bread.’
 b. *[John-ga wain-wa nomi-mo] [Mary-ga pan-wa tabe-mo si-nakat-ta].
 John-NOM wine-TOP drink-also Mary-NOM bread-TOP eat-also do-NEG-PAST
 ‘John did not drink the wine and Mary did not eat the bread.’

In both cases, the nominative-marked subjects are included in the two conjuncts of the coordinate structure. Therefore, the topics that follow the subjects must be included in the two conjuncts. In (34), where the clause-internal topics have not been moved in overt constituent structure, island effects are observed, because they need to be extracted from the coordinate structure at the LF level, i.e. by covert topic-movement.

- (35) a. *[_{CP} TOPIC_i [_{TP} SUBJ t_i V (Neg-T)] [_{TP} SUBJ OBJ V Neg-T]]
 b. *[_{CP} TOPIC_i TOPIC_j [_{TP} SUBJ t_i V (Neg-T)] [_{TP} SUBJ t_j V Neg-T]]

The fact illustrates that an island violation is caused if a constituent is extracted from the coordinate structure island via LF movement.

In regard to the question of whether covert ATB movement can be instantiated, Bošković and Franks (2000) claim that ATB movement is not available at LF. In effect, a comparison of the examples in (36) shows that a clause-internal topic, which should be susceptible to LF topic movement, cannot be extracted from the coordinate structure island in an across-the-board manner.

- (36) a. *[John-ga sono-tubo-wa sawari-mo] [Mary-ga sono-tubo-wa tataki-mo
 John-NOM that-pot-TOP touch-also Mary-NOM that-pot-TOP beat-also
 si-nakat-ta].
 do-NEG-PAST
 ‘John did not touch that pot and Mary did not beat that pot.’
 b. [Sono-tubo-wa_i [John-ga t_i sawari-mo] [Mary-ga t_i tataki-mo si-nakat-ta].
 that-pot-TOP John-NOM touch-also Mary-NOM beat-also do-NEG-PAST
 ‘As for that pot, John did not touch it or Mary did not beat it.’

In (36a), the two topic phrases referring to the same entity are included in the coordinate structure. The ill-formedness of (36a) indicates that LF topic movement displays an island effect. Note that if the ATB movement were possible, (36a) should be acceptable, just in the same way as (36b). The fact that the coordinate structure (36a) is not acceptable is in conformity with the conclusion reached by Bošković and Franks (2000), since the data illustrate that the topics cannot not be moved in an across-the-board manner at LF.

4. More on Island Effects

The present analysis taking clause-internal topics to undergo covert movement makes a further prediction; namely, if they are embedded under other syntactic islands, they should exhibit island effects. (Note that coordinate structure is just one type of syntactic island, and that no ATB movement is available at LF.) LF movement of a clause-internal topic out of other islands indeed exhibits an island effect as a symptom of movement.

In the literature on Japanese (e.g., Yamada 1936, Noda 1995), it is often mentioned that *wa*-marked topic phrases cannot appear in certain syntactic contexts, which include relative clauses, conditional clauses, and some temporal-adjunct clauses. Some of the relevant examples are given in (37).

- (37) a. *[Mary-wa kat-ta] hon-ga koko-ni ar-u.
 Mary-TOP buy-PAST book-NOM here-in be-PRES
 ‘The book [that bought Mary] is here.’
 b. *[Koko-ni Mary-wa i-ru nara] John-wa uresi-i.
 here-in Mary-TOP be-PRES if John-TOP happy-PRES
 ‘If Mary is here, John is happy.’

The sentences in (37), where topics are located in syntactic islands, are not acceptable. Note that the adjunct clauses do not allow the modal *daroo* ‘will’ to occur, as illustrated in (38).

- (38) a. *[Mary-ga kat-ta daroo] hon-ga koko-ni ar-u.
 Mary-TOP buy-PAST will book-NOM here be-PRES
 ‘The book [that bought Mary] is here.’
 b. *[Koko-ni Mary-ga i-ru daroo nara] John-wa uresi-i.
 here-in Mary-TOP be-PRES will if John-TOP happy-PRES
 ‘If Mary is here, John is happy.’

Since the modal *daroo* should occupy the head position of a projection in which a topic is formally licensed, the data in (38) illustrate that in (37), no projection licensing a topic exists inside the adjunct clauses. This means that in (37), the topics should be extracted from the adjunct clauses at LF. Thus, the examples in (37) are ruled out, in violation of the adjunct island constraint.⁵

⁵ It is important to note that a topic is allowed to appear even in syntactic islands when they contain a projection that licenses it. One representative example, which is acceptable despite the fact that a topic occurs in a syntactic island, is given in (i).

- (i) [John-ga Mary-ni-wa sono-koto-o sirase-ru kara] sore-de i-i.
 John-NOM Mary-DAT-TOP that-matter-ACC inform-PRES because that-with good-PRES
 ‘It is all right because John tells this matter to Mary.’

In (i), a topic is included inside the reason adjunct clause, but still, the sentence is acceptable, indicating that no island violation is incurred in (i). Note that the reason adjunct clause allows the modal *daroo* to be inserted at the end of the clause, as shown in (ii).

- (ii) [John-ga Mary-ni sono-koto-o sirase-ru daroo kara] sore-de i-i.
 John-NOM Mary-DAT that-matter-ACC inform-PRES will because that-with good-PRES

As noted earlier, when ATB movement is invoked out of coordinate structure, no island effect is observed. We can postulate that ATB movement voiding an island effect may apply only to the coordinate structure island, which leads to the expectation that an island violation cannot be evaded if overt ATB movement involves extraction out of other types of islands. This expectation is in fact correct. To make this point, observe first that the coordinator *mo* can be used to coordinate two DPs, as illustrated in (39).

- (39) Ken-wa [[hon-mo] [memo-mo]] nakusi-ta.
 Ken- \emptyset P book-also note-also lose- AST
 ‘Ken lost the book and the note.’

The coordinate structure formed by conjoining two DPs can contain a relative clause which constitutes a syntactic island, as shown in (40).

- (40) Ken-wa [[Mary-ni age-ru] hon-mo] [[Jane-ni watas-u] memo-mo] nakusi-ta.
 Ken- \emptyset P Mary-DA T give-PRES book-also Jane-DA Thand-
 PRES note-also lose- AST
 ‘Ken lost the book that he would give to Mary and the note that he would give to Jane.’

In this type of coordinate construction, it is not possible to extract a constituent from within the coordinate structure. Thus, the following example, where the dative phrase in the first conjunct has been moved to the sentence front, is not acceptable.

- (41) *Mary-ni-wa_i Ken-wa [[t_i age-ru] hon-mo] [[Jane-ni watas-u] memo-mo]
 Mary-DA T Ken- \emptyset P give-PRES book-also Jane-DA T
 hand-PRES note-also
 nakusi-ta.
 lose- AST
 ‘ $\text{\textcircled{T}}$ MaryKen lost the book that he would give and the note that he would give to Jane.’

In (41), the relative clause constitutes an island for extraction, alongside the coordinate structure. In this case, even if A TB movement is invoked to move the topic from within the coordinate structure, it does not void the relative clause island. Thus, in (42), an island effect is observed even if it also involves extraction from within the coordinate structure island.

- (42) *Mary-ni-wa_i Ken-wa [[t_i age-ru] hon-mo] [[t_i watas-u] memo-mo] nakusi-ta.
 Mary-DA $\text{\textcircled{T}}$ P Ken- \emptyset P give-PRES book-also
 hand-PRES note-also lose- AST
 ‘ $\text{\textcircled{T}}$ MaryKen lost the book that he will give and the note that he will give to Jane.’

‘It is all right because John will tell this matter to Mary.’

The fact suggests that the adjunct clause introduced by *kara* ‘because’ should include ModP, so that the topic in (i) is licensed.

Note that (42) involves overt ATB movement; nevertheless, the example is not acceptable. The fact illustrates that ATB movement cannot void the relative clause island even though it can evade a coordinate structure island violation.

5. Conclusion

In this paper, we have seen that a structural position where topics can be licensed (i.e. ModP) is not provided inside the coordinate structure where TPs are conjoined by the coordinating particle *mo*. We have argued that if a topic appears within the TP-coordinate structure, it must be extracted from within TP by either overt or covert topic movement. If a topic is extracted from the coordinate structure island, an island violation is incurred unless overt ATB movement is instantiated. Since the coordinator *mo* can conjoin TPs, but not higher projections than TP, the coordination facts illustrate that even if a topic is superficially located in a TP-internal position, it must be moved into a modal projection (i.e. ModP), which is located above TP. This in turn indicates that *wa*-marked topic phrases, regardless of their surface position, need to be accommodated in a projection higher than TP for their formal licensing at the LF level.

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