# No Syntactic Association with Focus:
## A View from the Japanese Additive Particle *Mo*

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### 1. Issue

This paper explores the nature of focus in light of Japanese expressions. As suggested in the literature, focus is projected by *phonological marking*, however it is theoretically implemented (e.g., Jackendoff (1972)). To make the point, let us describe what counts as a focus, as shown in (1) (see Ishihara (2001) for relevant discussions on Japanese):

(1) *Sufficient condition & necessary condition for focus* (*descriptive*)
  a. If XP *answers* the part asked in a question, XP is a focus.
  b. If XP is a focus, XP *contains* phonological prominence.

Thus, if XP answers the part asked in a question, XP must contain phonological prominence, indicated by boldface (e.g., ***John****-ga* 'John-Nom')). Given that the part asked in a *yes-no* question is signaled by phonological prominence, we can account for the contrast in (2), where (B), but not (A), is a felicitous answer to (Q):

(2) Q: *John-wa Mary-ni* ***LGB****-o ageta-nodesuka?* (*Yes-no* question)
  John-Top Mary-Dat LGB-Acc gave-Q
  'Did John give Mary LGB?'
  A: #*Hai, John-wa* ***Mary****-ni LGB-o agemasita.*
  Yes John-Top Mary-Dat LGB-Acc gave
  'Yes, John gave Mary LGB.'
  B: *Hai, John-wa Mary-ni* ***LGB****-o agemasita.*

Note that, while the notion of focus described in (1) is substantial (hence, the contrast above), it does not change the truth condition of a sentence on its own, whichever XP may encode it; for example, (2A) is true iff (2B) is true.

Let us now introduce the issue addressed in this paper: *How can focus be involved in the interpretation of expressions?* In the literature on Japanese, some researchers claim that focus is a semantic input/argument for particular lexical items, but such an argument-taking relation is formed syntactically (e.g., Aoyagi (1994), Nakanishi (2008), Kotani (2008)). An analysis in this direction treats the nature of *focus particles* (FPs), such as the additive *mo* 'also,' as stated in (3):

(3) *C-command condition for focus particles* (e.g., Jackendoff (1972))
As their semantic inputs, FPs take foci that they c-command.

For example, Aoyagi (1994: 24) points out that, when *mo* takes a VP as its syntactic complement, as shown in (4a), it can induce at least the three different readings given in (4b-d), depending on which element within the VP is identified with a focus:

(4) a. *John-wa* [$_{VP}$ [$_{NP}$ *sakana*]-*o* [$_{V}$ *yaki*]]-*mo* *si-ta*.
John-Top fish-Acc bake-also do-Past
'John also baked the fish.'
b. If the VP is a focus:
*John baked the fish besides doing something else* (e.g., boil the egg)
c. If the NP is a focus:
*John baked the fish besides something else* (e.g., the beef).
d. If the V is a focus:
*John baked the fish besides doing something else with it* (e.g., fry).

Aoyagi's point is that *mo* cannot be associated with the subject (i.e., *John-wa*), even if it is stressed. Thus, FPs can only interact with foci that they c-command, and in principle they can be *non-locally* associated with whichever focus they c-command, as in the case of (4c). Note that the c-command condition demands the additional theoretical device in (5) (or some variants, such as Kotani's (2008)

*overt lowering*):

(5) *Covert raising of focus particles*
FPs can covertly move to be attached to the projection of a higher head.

This option is intended to capture the fact that FPs are *not always* associated with foci that they overtly c-command (e.g., Aoyagi (1994)). For example, let us consider (6), where *mo* is attached to the object NP:

(6) *John-wa* [$_{VP}$ [$_{NP}$ ***sakana***]-*mo* *yai*]-*ta.*
John-Top fish-also bake-Past
'John baked also the fish.'

Here the FP can take as its semantic input either the NP or the VP, both of which *contain* the phonological prominence of the noun *sakana* 'fish' and can be candidates for an actual focus. More specifically, (6) can make an additive presupposition either with regard to the NP, as in (7a), or the VP, as in (7b):

(7) a. *John-wa* [$_{NP}$ *niku*]-*dake-zyanaku* [$_{NP}$ ***sakana***]-*mo* *yai-ta.*
John-Top meat-only-not fish-even bake-Past
'John baked, not only the meat, but also the fish.'
b. *John-wa* [$_{VP}$ *niku-o itame*]-*tekara* [$_{VP}$ ***sakana***-*mo* *yai*]-*ta.*
John-Top meat-Acc fry-after fish-also bake-Past
'After frying the meat, John baked also the fish.'

Thus, under the c-command condition in (3), the FP is required to move covertly above the VP to ensure the semantic ambiguity of (6), as schematized in (8):

(8) a. *Base structure*: [$_{VP}$ [$_{NP}$ **N**]-FP V] → *NP-association reading*
b. *Covert raising*: [$_{VP}$ [$_{NP}$ **N**]-$t_1$ V]-FP$_1$ → *VP-association reading*

The aim of this paper is to argue against this "syntactic association" view of FPs by investigating the interpretive nature of the additive *mo*. The discussion is developed as follows. Section 2 makes arguments against the c-command condi-

tion for FPs and the covert raising of FPs. Section 3 offers an alternative approach to the focus effect by adopting Schwarzschild's (1999) and Kehler's (2002) theory of discourse coherence. Section 4 concludes with a summary.

## 2. Counterarguments

### 2.1. No C-command Condition for Focus Particles

Let us argue against the "syntactic association" view of FPs by showing the invalidity of one prediction that the c-command condition makes. That is, if FPs can be freely associated with foci that they c-command, we predict that they *can always* induce the same type of reading in the two configurations given in (9):

(9) a. *Local configuration*: [$_{VP}$ [$_{NP}$ **N**]-FP V]
The FP is attached to the object NP, and the object NP is a focus.
b. *Non-local configuration*: [$_{VP}$ [$_{NP}$ **N**] V]-FP
The FP is attached to the VP, and the object NP is a focus.

However, this prediction is incorrect, as there are some cases where the local configuration is acceptable, but not the non-local configuration, showing that they *cannot always* induce the same reading. For example, let us consider the paradigm in (10):

(10)a. *John-wa* [[*zutto* *kai-takat-ta*] *DVD*]-*mo* *kat-ta.*
John-Top since buy-want-Past DVD-also buy-Past
'John bought also the DVD he had wanted to buy all the time.'
b. # *John-wa* [[*zutto* *kai-takat-ta*] *DVD*]-*o* *kai-mo-si-ta.*
John-Top since buy-want-Past DVD-Acc buy-also-do-Past
'John also bought the DVD he had wanted to buy all the time.'

In (10a), the attachment of *mo* to the NP leads to a reading where John bought the DVD which he had wanted to buy, in addition to something else (e.g., a new-arrival DVD). Importantly, such a reading entails that the whole NP serves as a focus, so that we predict that *mo* can be associated with the NP even in the non-local configuration. Nevertheless, in (10b), the attachment of *mo* to the VP does

not result in the same reading as above. Rather, it sounds odd as it stands. Thus, the contrast in (10) makes a challenge to the c-command condition for FPs.

Note that clarifying the oddness of (10b) makes a further argument against the c-command condition. The point is that the FP *mo* takes as its associate, not a focus that it c-commands, but just the "whole" of its very complement. To be more specific, let us tentatively assume that, when attached to the VP, *mo* must contrast its meaning as a "more surprising" choice. Thus, (10b) is odd because it is *unsurprising* that John *buys* the DVDs that he wants to *buy*. One prediction from this account is that, if the VP with *mo* as a whole expresses a "more surprising" choice, the sentence should be acceptable. This is borne out by (11), where we add to (10b) the floating universal quantifier *zenbu* 'all,' associated with the accusative object:

(11) *John-wa* [[*zutto kai-takat-ta*] *DVD*]-*o* *zenbu* *kai-mo-si-ta.*
John-Top since buy-want-Past DVD-Acc all buy-also-do-Past
'John bought also all the DVDs he had wanted to buy all the time.'

For (11), we can infer that it is *more surprising* that he buys *all of the DVDs* that he wanted to buy, than that he buys *one of them*. Thus, FPs are simply associated with the interpretive content of their syntactic complement, not of any constituent of it.

One might suggest that, in (11), *mo* can identify the newly added element (i.e., *zenbu*) with a focus, which it c-commands, and can somehow induce an acceptable result in contrast to (10b). Still, this account is problematic in two respects. First, FPs in general cannot be attached directly to universal quantifiers, as shown in (12), suggesting that *zenbu* is not a candidate for the semantic input to *mo*:

(12) * *John-wa* [[*zutto kai-takat-ta*] *DVD*]-*o* *zenbu*-*mo* *kat-ta.*
John-Top since buy-want-Past DVD-Acc all-also buy-Past
'John also bought all the DVDs he had wanted to buy all the time.'

Second, it is not true that any floating quantifier can suffice to improve (10b). For example, numeral quantifiers, such as *ichimai* 'one,' do not work, as shown in (13):

(13) # *John-wa* [[*zutto kai-takat-ta*] *DVD*]-*o* *ichimai* *kai-mo-si-ta.*
John-Top since buy-want-Past DVD-Acc one buy-also-do-Past
'John also bought one of the DVDs he had wanted to buy all the time.'

Thus, the conclusion is still the same: the semantic input to FPs is simply their syntactic complement. This means that the c-command condition is not tenable in that it fails to account for the contrast in (10).

### 2.2. No Covert Raising of Focus Particles

We now argue against the covert raising of FPs in two respects: *lack of empirical necessity* and *lack of theoretical detail*. First, we can no longer posit any empirical motivation for it, because we have disproved the c-command condition for FPs. That is, if FPs do not rely on c-command to determine their semantic inputs, it is not clear whether FPs must move covertly to higher positions to c-command foci. Second, we cannot make any particular predictions for the operation, because its detail is not explicit. For example, it is not evident what positions FPs can covertly move to. Thus, this situation prevents us from verifying its empirical adequacy.

Still, we consider one possible solution to the second problem for the sake of argument. That is, let us suppose that *FPs can covertly move to any positions where they can overtly occur* (cf. Kotani (2008)). This assumption can explain why the *mo* example in (14a) is ambiguous between "NP-association" and "VP-association" readings, because *mo* can be overtly attached to VPs, as shown in (14b):

(14)a. *John-wa* [$_{VP}$ [$_{NP}$ ***sakana***]-*mo* *yai*]-*ta.*
John-Top fish-also bake-Past
'John baked also the fish.'
b. *John-wa* [$_{VP}$ [$_{NP}$ ***sakana***]-*o* *yaki*]-*mo-si-ta.*
John-Top fish-also bake-also-do-Past
'John also baked the fish.'

Then we predict that, if the overt attachment of *mo* to a VP results in an accepta-

ble sentence, the overt attachment to its object NP should, too, because *mo* can undergo covert raising to the VP.

However, this prediction is incorrect for one empirical paradigm. That is, it is not clear why *mo* cannot undergo covert raising when attached to universal quantifiers. We recall that *mo* cannot be overtly attached to universal quantifiers, as in (12); call this a UQ-R(estriction). Then, if *mo* can covertly move to a VP from its overt position, its attachment to the object universal quantifier should be able to nullify the UQ-R. The fact contrary to this is given in (15b), where *mo* causes a UQ-R violation:

(15)a. *John-wa* [$_{VP}$ [$_{NP}$ *zen'in*]-*o* *kibisiku* *sikari*]-*mo*-*si*-*ta.*
John-Top everyone-Acc severely scold-also-do-Past
'John also scolded everyone severely.'

b. * *John-wa* [$_{VP}$ [$_{NP}$ *zen'in*]-*mo* *kibisiku* *sikat*]-*ta.*
John-Top everyone-also severely scold-Past
'John scolded also everyone severely.'

Thus, we need a better solution for the detail of covert raising, and such a solution must be able to predict the existence or absence of the UQ-R. After all, the problem with covert raising is that its detail is not clear enough to cover the contrast in (15).

### 2.3. Summary: Toward a Semantic and Pragmatic Analysis

We conclude that the syntactic association view of FPs is untenable; the c-command condition for FPs and the covert raising of FPs cannot be adopted on theoretical and empirical grounds. This suggests two new directions for the analysis of the focus effect on FPs: *a different syntactic approach* or *a non-syntactic approach*.

Let us take the second route, as there is evidence in its favor. The point is that there are some cases for which the "alleged" effect of covert raising cannot be readily obtained. For example, (16b) is much more difficult to accept than (16a):

(16)a. *John-wa* [$_{VP}$ *niku-o* *itame*]-*tekara* [$_{VP}$ ***sakana***-*mo* *yai*]-*ta.*

John-Top meat-Acc fry-after fish-also bake-Past
'After frying the meat, John baked also the fish.'

b. # *John-wa* [$_{VP}$ *niku-o* [*sute*]-*tekara* [$_{VP}$ ***sakana-mo*** *yai*]-*ta.*
John-Top meat-Acc dump-after fish-also bake-Past
'After throwing away the meat, John baked also the fish.'

This minimal pair shows that the "alleged" effect of covert raising is under semantic and pragmatic control, as it is *not* a syntactically minimal pair. Thus, one alternative to covert raising is to take the semantics and pragmatics of FPs more seriously.

## 3. Alternative Approach

### 3.1. Assumptions

Let us begin by outlining the theoretical framework under which we present a semantic analysis of the focus effect. First, we adopt Heim and Kratzer's (1998) theory of the syntax-semantics mapping. A semantic model that we assume is a structure <***E***, ***F***>, where ***E*** = *a set of entities*, and ***F*** = *a function assigning a denotation to each expression*. Let $[[\alpha]]^g$ be the denotation of expression α under a variable-value assignment *g*. Then the basic semantic types of $[[\alpha]]^g$ are the *entity* type **e** and the *proposition* type **t**, and for any semantic types **x** and **y**, **<x, y>** is a semantic type. We then assume the syntax-semantics mapping rule given in (17):[1)]

(17) *Functional Application* (FA) (cf. Heim and Kratzer (1998: 95))
Let α be a branching node with daughters β and γ, where $[[\beta]]^g$ is a function whose domain contains $[[\gamma]]^g$. Then $[[\alpha]]^g = [[\beta]]^g([[\gamma]]^g)$.

Second, we adopt Schwarzschild's (1999) theory of discourse coherence that exploits focus to organize successive utterances in terms of anaphora. Under this theory, the discourse appropriateness of an utterance U is evaluated by calculating which constituent of U is *not* a focus, as stated in (18):

(18) *GIVENness Constraint* (cf. Schwarzschild (1999: 155))

Every constituent of U must be GIVEN, unless it is (part of) the focus.

The first approximation to the definition of GIVEN is this: *an utterance U is GIVEN iff U is entailed by prior discourse* (Schwarzschild (1999: 147)). However, entailment is a relation held between propositions. To apply it to non-propositional units as well, Schwarzschild proposes the two interpretive operations shown in (19) and (20):

(19) *Existential Type-shifting* (∃-TS) (cf. Schwarzschild (1999: 147))
∃-TS(α) is the result of raising α to type **t** by existentially binding unfilled arguments of α, if any.

(20) *Existential F-closure* (∃-FC) (cf. Schwarzschild (1999: 150))
∃-FC(α) is the result of applying ∃-TS to α and replacing focused constituents in ∃-TS(α), if any, with existentially bound variables.

Schwarzschild then gives the final (informal) definition of GIVEN, as stated in (21):

(21) *GIVEN* (cf. Schwarzschild (1999: 151))
An utterance U is GIVEN iff U has a salient antecedent A, and
a. if U is of type **e**, then A and U co-refer.
b. otherwise, ∃-TS(A) entails ∃-FC(U).

For us, the point of this theory is the workings of ∃-FC, which require that *a focus of U be replaced with an existentially bound variable* to calculate whether every constituent of U satisfies the GIVENness Constraint. For details on how to analyze the focus effect in question-answer pairs such as (2), see Schwarzschild (1999: 156-163).

Finally, we adopt Kehler's (2002) theory of discourse coherence that exploits inferences to organize successive utterances in light of predication. This theory postulates three primitive categories of predication held among utterances: *Resemblance*, *Cause-effect*, and *Contiguity*. Of particular interest here is a subcategory of the first, namely, *Parallel*. This type of cognition requires that, for each two utterances, the interlocutors do two things: (i) identify a relation $P_1$ that ap-

plies over a set of entities $a_1$, ..., $a_n$ from the first sentence $S_1$ and a corresponding relation $P_2$ that applies over a corresponding set of entities $b_1$, ..., $b_n$ from the second sentence $S_2$; (ii) infer a common relation ***R*** that subsumes $P_1$ and $P_2$, along with an imaginable set of common properties $\boldsymbol{T}_i$ of the arguments $a_i$ and $b_i$ for all *i*. This requirement is summarized in (22) (cf. Kehler (2002: 16)):

(22) *Parallel* ($S_1$, $S_2$):
Infer the following from $P_1(a_1, a_2, ...)$ in $S_1$ and $P_2(b_1, b_2, ...)$ in $S_2$:
a. A common relation ***R*** such that ***R*** subsumes $P_1$ and $P_2$;
b. A set of common properties $\boldsymbol{T}_i$ such that, for all *i*, $\boldsymbol{T}_i(a_i)$ and $\boldsymbol{T}_i(b_i)$ hold.

For example, let us apply the format of Parallel to (23):

(23) [$_{S1}$ *John-ga niku-o itame*]*-te,* [$_{S2}$ *Tom-ga sakana-o yaita*].
John-Nom meat-Acc fry-and Tom-Nom fish-Acc baked
'[$_{S1}$John fried the meat], and [$_{S2}$ Tom baked the fish].'

Suppose we identify $P_1(a_1, ..., a_n)$ with **fry**(**john**, **meat**) from $S_1$ and $P_2(b_1, ..., b_n)$ with **bake**(**tom**, **fish**) from $S_2$, then we can infer a common relation ***R*** that subsumes $P_1$ and $P_2$ (e.g., ***R*** = **cook**(x, y)), and two common properties $\boldsymbol{T}_1$, such that $\boldsymbol{T}_1$(**john**) and $\boldsymbol{T}_1$(**tom**) hold, and $\boldsymbol{T}_2$, such that $\boldsymbol{T}_2$(**meat**) and $\boldsymbol{T}_2$(**fish**) hold (e.g., $\boldsymbol{T}_1$ = **man**(x), $\boldsymbol{T}_2$ = **food**(x)). Thus, note that we can regard the predication of Parallel as *a strategy that requires two given propositions to share some commonalities for the relations and arguments consisting in them*.

### 3.2. Proposals

With the two constraints shown above, *the GIVENness Constraint* (GC) and *the Parallel Relation* (PR), we propose a rough model of language that consists of two different modules, say, *sentence grammar* (SG) and *discourse grammar* (DG). The point is that these two modules both incorporate the GC and the PR, but in their respective ways. More specifically, while DG applies the GC and the PR in defining (part of) discourse coherence, SG encodes the GC and the PR in defining (part of) the lexical entry of FPs, as summarized in (24):

(24)a. SG requires *FPs* to implement the GC under the PR.
b. DG requires *focus* to implement the GC under the PR.

Thus, the respective contributions of FPs and focus are made at different levels, suggesting that they be examined separately.

Let us now elaborate on the nature of the FP *mo*. The gist is that (i) there are two types of *mo* whose respective first arguments are NP (type **e**) and VP (type **<e, t>**); (ii) the semantics of *mo* describes alternative semantic objects ALT as GIVEN, shown by $ALT_F$; (iii) it also imposes the PR between the proposition it asserts, P(x), and its ALT, shown by **Π**(P(x), ALT); and (iv) it further contrasts the first argument α to its ALT as an *anti-expectation* with regard to the second argument β, shown by **AE**(α, ALT, β). The lexical entries of both types are given in (25), where the variables *x* and *y* are of type **e**, *P* and *Q* of type **<e, t>**:[2)]

(25)a. $[[mo^{N}]]^{g} = \lambda x.\lambda P.\ [P(x) \ \&\ \exists y_F.\exists Q_F.\ [\mathbf{\Pi}(P(x),Q(y)) \ \&\ \mathbf{AE}(x,y,P)]]$
b. $[[mo^{V}]]^{g} = \lambda P.\lambda x.\ [P(x) \ \&\ \exists Q_F.\exists y_F.\ [\mathbf{\Pi}(P(x),Q(y)) \ \&\ \mathbf{AE}(P,Q,x)]]$

There are two points to add. First, **Π** works as designed in (22); it requires us to infer a common relation ***R*** that subsumes P and Q, and a common property ***T*** such that ***T***(x) and ***T***(y) hold. Second, the definitions of **AE** are made in the conditional form, as shown in (26), where ◊(X) means "X is a possible inference:"

(26)*Anti-expectation condition*
a. $\forall x.\forall y.\forall P.\ [\mathbf{AE}(x,y,P) \leftrightarrow \Diamond(P(y) \rightarrow \neg P(x))]$
b. $\forall P.\forall Q.\forall x.\ [\mathbf{AE}(P,Q,x) \leftrightarrow \Diamond(Q(x) \rightarrow \neg P(x))]$

To show how our whole proposal works, let us first consider the N type of *mo* in light of the oddness of (16b), repeated as (27a), with its partial semantics in (27b) (see note 2 for the necessity of *Quantifier Raising* of the *mo*-phrase in this case):

(27)a. # *John-wa* [$_{VP1}$ *niku-o* *sute*]-*tekara* [$_{VP2}$ ***sakana-mo*** *yai*]-*ta.*
John-Top meat-Acc dump-after fish-also bake-Past

'After throwing away the meat, John baked also the fish.'

b. $[[mo^{N}]]^{g}([[sakana]]^{g})([[VP_2]]^{g})$
= [**bake**(**john**, **fish**) & $\exists y_{\Gamma}.\exists Q_{\Gamma}$. [**Π**(**bake**(**john**, **fish**),Q(y)) & ... ]]

Here, suppose that the GIVEN alternatives $Q_{\Gamma}$ and $y_{\Gamma}$ are identified with λx. [**throw-away**(**john**, x)] and **meat**, which are abstracted from the $VP_1$. Then what is important is that *mo* requires the asserted proposition (i.e., **bake**(**john**, **fish**)) and the GIVEN content of Q(y) (i.e., **throw-away** (**john**, **meat**)) to share a common relation ***R*** and a common property ***T***. In this case, however, it is very difficult to infer such a common relation ***R*** that subsumes both P and $Q_{\Gamma}$; what is a possible generalization from **bake** and **throw-away**? Thus, the oddness of (27a) can be reduced to the failure to generalize P and $Q_{\Gamma}$. Next, let us consider the V type of *mo* in terms of the contrast between (10b) and (11), repeated in (28):

(28)a. #*John-wa* [[*zutto kai-takat-ta*] *DVD*]-*o* *kai-mo-si-ta.*
John-Top since buy-want-Past DVD-Acc buy-also-do-Past
'John also bought the DVD he had wanted to buy all the time.'

b. *John-wa* [[*zutto kai-takat-ta*] *DVD*]-*o* *zenbu* *kai-mo-si-ta.*
John-Top since buy-want-Past DVD-Acc all buy-also-do-Past
'John also bought all the DVDs he had wanted to buy all the time.

The semantic representations of (28a, b) are shown in (29a, b), respectively:

(29) a. $[[mo^{V}]]^{g}([[VP]]^{g})([[John]]^{g})$
= [**buy**(**j**, **dvds**) & $\exists Q_{\Gamma}.\exists y_{\Gamma}$. [... & **AE**(**buy**(x, **dvds**), Q, **j**)]]

b. $[[mo^{V}]]^{g}([[VP]]^{g})([[John]]^{g})$
= [**buy.all.of**(**j**, **dvds**) & $\exists Q_{\Gamma}.\exists y_{\Gamma}$. [... & **AE**(**buy.all.of**(x, **dvds**) Q, **j**)]]

To begin, suppose that the GIVEN alternative $Q_{\Gamma}$ is identified with λx.∃y.[**buy**(x, y) & **dvd**(y)], which is somehow obtained from the relative clause. In (29a), then, *mo* requires **AE**(**buy**(x, **dvds**), Q, **j**) to mean the following (cf. (26b)):

◊(∃y.[**buy**(**john**, y) & **dvd**(y)] → ¬**buy**(**john**, **dvds**))

As is clear, however, this is a contradictory inference. That is, it is not valid to consider it possible that, if John buys some DVDs, then he *does not* buy the

DVDs; this contradiction results in unacceptability. In (29b), on the other hand, the first argument VP of *mo* denotes **buy.**$\boxed{\textbf{all}}$**.of**, or more exactly, $\lambda x.\forall y.$ [**dvd**(y) → **buy**(x, y)], as it contains the universal quantifier *zenbu*. Thus, *mo* requires **AE**(**buy.**$\boxed{\textbf{all}}$**.of**(x, **dvds**), Q, **j**) to mean the following:

$$\underline{\Diamond(\exists y.[\textbf{buy}(\textbf{john}, y) \,\&\, \textbf{dvd}(y)] \rightarrow \neg \forall y.[\textbf{dvd}(y) \rightarrow \textbf{buy}(\textbf{john}, y)])}$$

This is a consistent inference, as it is valid to infer that, if John buys some DVDs, then he *may not* buy every DVD.

### 3.3. Analysis

We now analyze the focus effect under our proposal. First, let us consider why (30a) can induce at least the three different readings in (30b-d):

(30)a. *John-wa* [$_{VP}$ [$_{NP}$ *sakana*]-*o* [$_{V}$ *yaki*]]-*mo* *si-ta*.
John-Top fish-Acc bake-also do-Past
'John also baked the fish.'

b. If the VP is a focus:
*John baked the fish besides doing something else* (e.g., boil the egg)

c. If the NP is a focus:
*John baked the fish besides something else* (e.g., the beef).

d. If the V is a focus:
*John baked the fish besides doing something else with it* (e.g., fry).

Under our proposal, the meaning of (30a) includes GIVEN alternatives, such as $Q_\Gamma$ and $y_\Gamma$, as shown in (31), so that it is important to determine what utterance precedes (30a). Let us consider the three possibilities given in (32):

(31) $[[mo^{V}]]^g([[VP]]^g)([[Mary]]^g)$
= [**bake**(**mary**, **fish**) & $\exists \boxed{Q_\Gamma}.\exists \boxed{y_\Gamma}.$ [**Π**(**bake**(**mary**, **fish**),Q(y)) & ...]]

(32)*Suppose that, before uttering (30a):*

a. We uttered α such that $[[\alpha]]^g$ = **boil**(**john**, **egg**), as in (30b).
Then the focus of (30a) must be the VP to satisfy the GC.

b. We uttered α such that $[[\alpha]]^g$ = **bake**(**john**, **beef**), as in (30c).
Then the focus of (30a) must be the object to satisfy the GC.

c. We uttered α such that $[[\alpha]]^g$ = **fry**(**john**, **fish**), as in (30d).

Then the focus of (30a) must be the V to satisfy the GC.

To illustrate, we consider the case of (32c). The preceding utterance α is [*John* [$_{VP1}$ [$_{V1}$ *fried*] *the fish*]], while the utterance in (30a) is [*John also* [$_{VP2}$ [$_{V2}$ *baked*] *the fish*]]. If the focus of (30a) is the object, then its $VP_2$ cannot find an antecedent in α; for example, it cannot take the $VP_1$ to be an antecedent, as shown in (33).

(33)a. ∃-TS([[*fried the fish*]]$^g$) = ∃x. [**fry**(x)(**f**)]
b. ∃-FC([[*baked* ***the fish***]]$^g$) = ∃y.∃x. [**bake**(x)(y)]
c. ∃-TS([[*fried the fish*]]$^g$) *does not entail* ∃-FC([[*baked* ***the fish***]]$^g$).

However, if the focus is the $V_2$, the $VP_2$ can identify the $VP_1$ as an antecedent, as shown in (34):

(34)a. ∃-TS([[*fried the fish*]]$^g$) = ∃x. [**fry**(x)(**f**)]
b. ∃-FC([[***baked*** *the fish*]]$^g$) = ∃Q.∃x. [Q(x)(**f**)]
c. ∃-TS([[*fried the fish*]]$^g$) *entails* ∃-FC([[***baked*** *the fish*]]$^g$).

Thus, in the case of (32c), the GC in discourse grammar requires the focus of (30a) to be the $V_2$, *independently of the semantics of* mo *in sentence grammar*. This results in a "V-association" reading. The same reasoning is applied to the other cases.

Next, let us consider why (35) can induce even a "VP-association" reading:

(35) *John-wa* [$_{VP}$ [$_{NP}$ ***sakana***]-*mo* *yai*]-*ta.*
John-Top fish-also bake-Past
'John baked also the fish.'

Again, the meaning of (35) under our analysis requires us to consider what utterance precedes (35), because it includes GIVEN alternatives, as shown in (36):

(36) [[*mo*$^N$]]$^g$([[*sakana*]]$^g$)([[VP]]$^g$)
= [**bake**(**john**, **fish**) & ∃$\boxed{y_\Gamma}$.∃$\boxed{Q_\Gamma}$. [**Π**(**bake**(**john**, **fish**), Q(y)) & ...]

The question is how to derive a "VP-association" reading while placing phonological prominence on the object NP. To answer this, we have just to identify the focus of (35) with its VP, and it is possible, because the VP contains the prominence on the object NP. For example, let us suppose that (37) is uttered before (35):

(37) *John-ga* [$_{VP}$ [$_{NP}$ *niku*]-*o* *itame*]-*ta*.
John-Nom meat-Acc fry-Past
'John fried the meat.'

Then, if the focus of (35) is the VP, any non-focused constituent of (35) can find an antecedent in (37). For example, the TP of (35) can identify that of (37) as an antecedent, as shown in (38):

(38)a. $\exists$-TS([[*John fried the meat*]]$^g$) = [**fry**(**john**)(**meat**)]
b. $\exists$-FC([[*John* ***baked also the fish***]]$^g$) = $\exists$P. [P(**john**)]
c. (38a) (= the TP of (37)) *entails* (38b) (= the TP of (35)).

Thus, the GC in discourse grammar requires the focus of (35) to be the VP, *independently of the semantics of* mo *in sentence grammar*. Moreover, as (37) is uttered before (35), the GIVEN predicate $Q_\Gamma$ in (36) can be identified with λx. [**fry**(**john**, x)].

## 4. Conclusion

This paper addressed *how focus can be involved in the interpretation of expressions*. We began by disproving the "syntactic association" view of FPs that employs the c-command condition for FPs and the covert raising of FPs. We instead offered an alternative approach to the focus effect on FPs by isolating the contributions of FPs and focus, but still characterizing them as implementing the two same constraints: Schwarzschild's (1999) *GIVENness Constraint* (GC) and Kehler's (2002) *Parallel Relation* (PR). The essence of our proposals was that FPs and focus manifest the GC and the PR in their respective ways and constrain

a given utterance independently of each other. Thus, we conclude that focus is exploited at the semantics-pragmatics interface level to constitute the core of discourse coherence.

**[Notes]**

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1) We should also posit another rule that "returns" propositions to predicates, such as Heim and Kratzer's (1998: 95) *Predicate Abstraction*, because only such a rule feeds the possibility of *Quantifier Raising* (QR); see also note 2.
2) The N type of *mo* requires its projection MoP to undergo QR to VP if it is attached to the object NP; otherwise, it induces a type mismatch.

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SUMMARY

# No Syntactic Association with Focus:
## A View from the Japanese Additive Particle *Mo*

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This paper discusses the nature of focus in light of Japanese focus particles (FPs), especially the additive *mo* 'also,' and addresses how focus can be involved in the interpretation of expressions. Traditionally, some researchers claim that focus is a semantic argument for FPs, but such an argument-taking relation is formed syntactically. We argue against this "syntactic-association" view of FPs by empirically disproving its two theoretical devices: *the c-command condition for FP*s and *the covert raising of FPs*. We instead develop a semantic and pragmatic approach to the focus effect on FPs by isolating the contributions of FPs and focus, but still characterizing them as implementing the two same constraints on the cohesion of asserted propositions: *the GIVENness Constraint* (GC) and *the Parallel Relation* (PR). Specifically, we propose the lexicalized characteristics of *mo* as follows: (i) there are two types of *mo* whose respective first arguments are NP and VP; (ii) the semantics of *mo* describes alternative semantic objects as satisfying the GC; (iii) it imposes the PR between the proposition it asserts and its alternative; and (iv) it contrasts its first argument to its alternative as a "more surprising" choice with regard to its second argument. The essence of our proposals is that FPs and focus manifest the GC and the PR in their respective ways and constrain a given utterance independently of each other. We conclude that focus plays a role only at the semantics-pragmatics interface level to form the core of discourse coherence.