

# A Scope Theory of Contrastive Topics

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## Abstract

Contrastive Topics (CTs) in Japanese mimic foci more than topics in many ways. Their prosodic properties are essentially the same as the pattern found with foci, and information structurally, they can correspond to new information. In my previous work (Tomioka, to appear), I have argued that CTs always involve contrasted speech acts. There are some unresolved issues in that paper, however, and I will attempt to address in this current paper one particular problem, namely how a focus and a CT are distinguished when they appear simultaneously in one sentence. I argue that a focus is subjected both to the exhaustifying operation at the level of proposition and to the set-generating operation at the level of speech act whereas a CT must be spared from the exhaustification below speech act. The differentiation is achieved via the ‘selective binding’ approach to association with focus proposed by Wold (1996).

**Keywords:** topic, focus, contrast, scalar implicature, speech act, selective binding

## 1. Introduction

Contrastive Topics (CTs, henceforth) are a multi-faceted phenomenon that cannot be analyzed comprehensively in a small project like the current paper. I would like to begin, therefore, by defining what the scope of the paper is and where the limitations lie. First of all, I will focus almost exclusively on CTs in Japanese; contrasted expressions that come with the particle *wa*. As far as I know, CTs with the particle *(n)un* in Korean are to a large extent comparable to the Japanese counterparts. All of us who have worked on comparative studies between the two languages now know, however, that we should not be surprised if we find some interesting micro-variations between the two languages. I therefore do not intend to proclaim that my account should be unconditionally

extended to the Korean CT construction. I nonetheless hope that it will provide a guideline for a proper analysis of the Korean CTs. Cross-linguistic variations beyond Japanese and Korean must wait for another occasion. CTs in complex sentences, such as in conjunctions or embedded sentences, add to the phenomenon another layer of intricacy that I cannot properly discuss at this point. I will therefore concentrate on appearances of CTs in simple, root sentences. I have expressed my general view on CTs as contrasted speech acts in Tomioka (to appear), and the main topic of this paper is one of the unresolved issues in that paper, namely the interactions between foci and CTs. My working hypothesis is that a CT is actually nothing but an instance of focus. The primary difference between a CT and a garden-variety (free) focus is the levels at which their focus values (sets of alternatives) are ‘used up’. Hence, I call my analysis a scope theory of CT. This paper examines some of consequences of this hypothesis.

## 2. Contrastive Topics and Contrasted Speech Acts

My proposal for Japanese CTs can be summarized as follows. The focal accent on a CT generates a non-singleton focus value in the sense of the traditional Alternative Semantics for Focus (cf. Rooth 1985, 1992, Kratzer 1991 among others). These focus alternatives of a CT are preserved until the computation goes beyond the speech act level, which, following Krifka (2001, 2002), I assume to be explicitly represented in syntax. The preservation of the focus values is the primary function of the topic marker *wa*. The presence of alternative speech acts encourages the hearer to speculate why the speaker didn’t carry out any speech acts among the alternatives other than the very act that she engaged in. The pragmatic effect of uncertainty, non-finality, and/or incompleteness is the result of the hearer’s speculation on alternative speech acts.

The analysis is based on a variety of empirical facts concerning Japanese CTs, some much discussed in the past and others new. They are in many ways epitomized by an example like (1).

- (1) Trying to give an advice on where to visit in Japan, one might say;

*KYOOto-ni-wa/KYOOto-ni-WA iki-nasai*  
Kyoto-to-TOP/Kyoto-to-TOP go-imperative

‘(At least) go to KYOto.’

First, as the parenthesized *at least* in the English translation suggests, (1) elicits scalar implicature or a pragmatic effect very similar to it. CTs are often connected to such pragmatic weakening (cf. Jackendoff 1972, Carlson 1983, Büring 1997, Lee 1999, Hara 2006 among others), and Japanese CTs are no exceptions. Second, Japanese CTs do not receive special prosody distinct from focus. It is hard, therefore, to motivate a theory of CTs that makes crucial use of two distinct accents (e.g. Büring 1997, 2003, Kadmon 2001). Furthermore, a CT can be the sole focal element in a sentence. In other words, a CT in Japanese can but need not be accompanied by another focal expression. In (1), for instance, the predicate *iki-nasai* ‘go-imperative’ does not get focal accent; on the contrary, its pitch is dramatically reduced as a result of the ‘post-focal reduction’ process (cf. Ishihara 2003 among others), which lowers the pitch range of the material that linearly follows a focused item. These facts do not sit well with an analysis that treats a CT as a thematic topic that is contrastive (e.g. Valduvi and Vilkuna 1998). Another obvious point in the example (1) is its sentence form: It is an imperative sentence, and Japanese CTs indeed appear in sentences of various speech acts; assertions, interrogatives, imperatives, exhortatives (*let’s do X*), volitionals (*I shall do X*), and performatives. While the pragmatic weakening of a CT is often associated with the knowledge state of the speaker, the use of a CT can be independent of it. For instance, the speaker may utter a sentence with CT out of politeness, intentionally leaving out the information that is known to the speaker but is judged inappropriate or impolite by the speaker. This is a challenge to a knowledge-based account, most notably Hara (2006) and Hara and van Rooij (2007).<sup>1</sup> The speaker’s knowledge is not necessarily relevant to CTs in non-assertion sentences, such as the imperative example in (1), and the theory cannot easily be extended to those cases of CTs where politeness is the main motivation for their uses. Finally, one cannot miss the morphology; the same particle is used for a CT and a so-called thematic topic (a TT).

In my analysis, a CT is treated as an instance of focus, and no special semantic function, apart from generating alternatives, is associated with it. It is

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<sup>1</sup> Yabushita (this volume) raises a similar point. Also see Wagner (2008) for discussion of related issues in connection to Rise-Fall-Rise intonation (RFR).

not a topic in the sense of the Topic-Focus articulation, and there is nothing that prevents a CT from corresponding to new information. There is also no reason to suppose that CTs are limited to assertion sentences, and with alternative speech acts, one is invited to speculate all sorts of reasons for the alternative acts being left out. Although the speaker's knowledge being partial may often be the most salient in our reasoning, some contexts encourage us to seek out reasons other than the speaker's knowledge. Finally, the role of the particle is argued to be the guarantor of CT's focus value beyond the speech act level. This is where a CT and a TT converge. If there is any linguistic expression that can take scope beyond the speech act level, the most likely candidate is a TT. In one branch of theories of sentence topics, first advocated by Jacob (1984) and later elaborated by Krifka (2001), Endriss (to appear) and Endriss and Hinterwimmer (to appear), a topic selection is regarded as a speech act of its own. A sentence topic, therefore, lies outside of the scope of the speech act operated on the main sentence. This 'outside of a speech act operator' is the common denominator for a CT and a TT.

The bottom line of the idea is that a CT is just an instance of focus whose focus value (a non-singleton set of alternatives) happens to be 'resolved' or 'used up' at the level higher than a proto-typical focus. I therefore call my analysis a scope theory of CT.<sup>2</sup> It is also a minimal theory of CT because it does not call for any special presuppositions, implicatures, or construction-specific rules. In the following section, we will see how the possible interpretations of a CT are restricted by the presence of the focus option. More concretely, the two focalizing strategies compete, and due to the stronger meaning associated with focus, the focus option is preferred to the CT option. It is also vital for a theory like mine to have a proper way to distinguish two focal expressions, and Section 3 will be devoted to this issue. I will examine a sentence that contains both a CT and a focus and demonstrate that focus sensitive operators are selective binders. Adopting Wold's (1996) analysis of nested foci, I suggest that

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<sup>2</sup> In using the term 'scope' for focus, I mean a specific point of structure where the set of alternatives is computed. The statement, 'a CT out-scopes a focus', means that the focus value of a CT is computed at a structurally higher position than that of a focus. It should not be confused with semantic scope of quantifiers. Quantified CTs often must take scope narrower than other scope-bearing elements, such as negation (cf. Büring 1997, Hara 2006).

a focus is bound twice; once by the exhaustive operator that generates a strong meaning and second time by the set-generating operator at the speech act level. A CT, on the other hand, gets caught only by the higher operator over speech acts.

## 2. Focus vs. Contrastive Topic

### 2.1. Focus Wins

The necessity of considering focus in determining possible interpretations of CTs is exemplified by a sentence like (2), where a focused measure expression is marked with *wa*.

(2) How many people will come to the party?

*ZYUU-Nin-wa/ZYUU-nin-WA kuru-desyoo.*

TEN-CL-top/Ten-CL-TOP come-evid

‘(At least) Ten people will come, (as far as I can tell).’

This sentence elicits a set of alternative assertion acts of the form ‘assertion that X-many people will come,’ and the hearer is invited to think about possible reasons for the speaker’s not making any other than ‘the assertion that 10 people will come.’ The reason for 9 and under is obvious: Asserting 9 (or less) people will come when you know that at least 10 people will come would not be considered cooperative since you are asserting a proposition that is weaker and hence is less informative. The story is different for over 10. It seems perfectly reasonable to speculate that the reason for the speaker’s not asserting 11 (or more) people will come is because she knows that such a proposition is false. If we allow this kind of reasoning, then, we would arrive at the conclusion that the speaker meant that exactly 10 people will come. This is not right. (2) never receives the ‘exactly 10’ interpretation.<sup>3</sup> I argued that we can

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<sup>3</sup> Chung-min Lee (pc) pointed out to me that this is not entirely true. I speculate that he may have in mind a case like (i).

(i) I have ten cousins, and...

keep out the strong reading for a measure phrase CT by letting the focus strategy compete with the CT marking. Consider the utterance context of (2) again. One could have said (3), instead of (2).

(3) How many people will come to the party?

*ZYUU-Nin kuru-desyoo*

TEN-CL come-evid

‘Ten people will come.’

In this example, the measure expression is without the particle *wa* and is interpreted as the focus of the sentence. As is typically the case with a focused numeral, it carries the ‘exactly N’ implicature. Since this strategy is always available for the speaker, the hearer must take it as a part of his/her reasoning for a CT. Specifically, the hearer must find a reason why the CT marking on the measure phrase is chosen over the focusing of it. Since the use of focus would lead to the strong, ‘exactly 10’ meaning, the hearer now subtracts that meaning from the possible interpretations for the measure phrase CT. The result is the weaker, ‘at least 10’ interpretation.

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ROKU-NIn-wa niHOn-ni sunde-imasu-ga (nokori-no) YO-NIn-wa  
SIX-people-Top Japan-in live-prog-but rest-gen FOUR-people-top  
KAIGai-ni imasu  
abroad-in be  
‘(Of my ten cousins), SIX of them live in JaPAN, and the remaining  
FOUR live abROAD.’

It is certainly true that there is no scalar meaning associated with the CT numerals in (i), in which the two (proportional) numbers are overtly contrasted with each other. It is also true, as pointed out by C.-M. Lee, that cases like (i) show a different prosodic pattern: While the pitch peak in (3) can be either on the numeral or the particle *wa*, (iii) requires the numerals to bear the pitch peak. In this paper, I would like to focus on cases where a CT numeral is used as an answer to a *how many/much* question, which necessarily induces the ‘at least’ implicature.

## 2.2. Focus Wins: More Case Studies

There are several more pieces of evidence for the idea of the focus-CT competition. In Tomioka (to appear), I presented the case of the infelicitous CT-marking of a universal quantifier in an affirmative sentence.

- (4) #MINNA-wa/Minna-WA            kita.  
      ALL-Top/All-TOP                came  
      ‘[All people]<sub>CT</sub> came.’

This fact was noted by Hara (2006), who provided an account based on a scalar presupposition specifically tailored for a CT. Hara argues that the use of a CT requires that there be at least one scalar alternative that is stronger than the asserted one. The CT-marking on *minna* ‘all (people)’ in (4) would generate the following set of scalar alternatives.

- (5) {(assert that) all people came, (assert that) most people came, (assert that) some people came, (assert that) no one came}

The problem is the asserted proposition is the strongest among the alternatives that do not contradict the assertion. Hara’s scalar presupposition correctly predicts the infelicity of (4). Since I advertised my analysis as a minimal theory of CT, however, I would rather seek an alternative account without CT-specific presuppositions. The idea of competition between focus and CT turns out to be useful in this case as well. In the same utterance context as in (4), the speaker could have said (6).

- (6) MINNA-ga    kita  
      all-nom        came  
      ‘All people came.’

(6) would generate exactly the identical alternatives. Is there any reasoning that allows us to conclude the speaker has chosen (4) over (6)? There really aren’t any. The proposition that no one came would contradict (6), and all the others are weaker propositions than (6). Therefore, the generalization is that the use of a CT is disallowed when it doesn’t distinguish its interpretation from that of a

focus. (7) is another instance in which the indistinguishable reasoning between CT and focus makes the CT choice infelicitous.

(7) Among Ken, Erika, and Mari, who won the match?

#ERika-wa/ERika-WA kat-ta  
ERIKA-top/ERIKA-TOP win-past  
“[Erika]<sub>CT</sub> won.”

The question in (7) presupposes that there is one and only one winner. In other words, the set of alternatives for (7) is (8a), not (8b).

- (8) a. {(assert that) Ken won, (assert that) Erika won, (assert that) Mari won}  
b. {(assert that) Ken won, (assert that) Erika won, (assert that) Mari won,  
(assert that) Ken and Erika won, (assert that) Ken and Mari won,  
(assert that) Erika and Mari won, (assert that) all the three won}

In a case like this, asserting that Erika won implies that neither Ken nor Mari won. This would be another instance in which Hara’s scalar presupposition comes into play. Such a presupposition is dispensable, however, if we assume the preference of focus to CT when the two strategies lead the same reasoning on the hearer’s part.

There are a few more phenomena that follow naturally from the focus-CT competition. If the pragmatic weakening of a CT is due to the existence of a focus strategy as an alternative option, then it is expected that no obligatory weakening takes place when the focus strategy is independently blocked. This prediction is borne out. Consider (9).

(9) Did both Erika and Ken pass?

*ERika-wa/ERika-WA ukat-ta*  
Erika-CT/Erika-CT pass-past  
“[Erika]<sub>CT</sub> passed.”

While it is still possible to conjecture that the speaker doesn’t know the outcome for Ken, the strong meaning is not blocked. In other words, we can entertain the possibility that the speaker implied that Ken didn’t pass. The reason

for the survival of the strong meaning is the unavailability of focus. In the context of (9), (10) is not an appropriate answer.

(10) Did both Erika and Ken pass?

#*ERika-ga ukat-ta*  
Erika-nom pass-past  
“[Erika]<sub>F</sub> passed.”

Therefore, no competition arises, and the strong meaning survives.<sup>4</sup>

Another piece of evidence comes from CT-marking of disjunctive NPs. Imagine the following discourse.

(11) Who passed?

*[ERika-ka KEn]-ga ukat-ta*  
Erika-or Ken-nom pass-past  
“[Erika or Ken]<sub>F</sub> passed.”

The answer in (11) is doubly exhaustive. As a complete answer to the question to *who passed?*, it carries the implicature that no one other than Erika or Ken passed. At the same time, the disjunction *ka* ‘or’ brings out the typical scalar implicature that not both of them passed. If the disappearance of a stronger, exhaustive meaning with a CT is tied to its competition with focus, then, the CT counterpart of (11) should eliminate the focus-related strong meaning but preserve the ‘not-both’ meaning. This is precisely what happens in (12).<sup>5</sup>

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<sup>4</sup> It is important to note that the option of using *-dake* ‘only’ does not come into play. We are in a situation very similar to the implicature associated with a numeral. In order to obtain the ‘exactly N’ reading for a numeral, we cannot consider the expression *exactly N* as an option.

<sup>5</sup> It is possible to weaken the ‘not both’ meaning by placing high pitch on the disjunctive particle *ka* or by adding *dotiraka* ‘either’ to the disjunctive phrase.

- (i) a. *[Erika-KA Ken]-wa/WA ukat-ta*  
Erika-OR Ken-CT pass-past

(12) Who passed?

[*ERika-ka KEn*]-*wa/WA ukat-ta*

Erika-or Ken-CT pass-past

“[Erika or Ken]<sub>CT</sub> passed.” can mean “One of them passed, but I am not sure if people other than Erika or Ken passed.”

So far so good. The range of possible interpretations of a CT is influenced by the availability of the focus strategy. Since focus is more informative, whenever the two strategies are compared, the focus wins over the CT if the speaker knows enough or feels confident enough to use it. But how do we ensure that focus is stronger in the first place? Do we not also evoke a similar sense of alternative speech acts when we use focus, instead of CT? If so, where does the difference between the two strategies lie? These are the questions that I will address in the following section.

### 3. Grammar of (Anti-)Exhaustivity

#### 3.1. Exhaustive Operator in Syntax

How does the exhaustive meaning of focus come about? One idea is found in Krifka (1995), who proposes that so-called ‘free’ focus is actually an instance of association with focus; the operator it associates with is Assertion Operator. I follow Krifka’s idea that focus is always associated with some operator, but the relevant operator is not a Speech Act operator but one that specifically derives exhaustivity. Fox (2006), for instance, advocates the view that the exhaustivity

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b. [*Erika-ka Ken-no DOTIRAKA*]-*wa/WA ukat-ta*

Erika-or Ken-gen EITHER-CT pass-past

“[EITHER Erika or Ken]<sub>CT</sub> passed.”

Both sentences mean something close to ‘at least one of the two passed.’ They can be followed by such a statement as ‘But I am not sure if both of them passed.’

associated with disjunction and other scalar items is derived via the exhaustivity operator (Exh).<sup>6</sup>

(13)  $\text{Exh}(A_{\langle \text{st}, \text{t} \rangle})(p_{\text{st}})(w) = p(w) \ \& \ \forall q \in \text{NW}(p, A): \neg q(w)$  (= Fox 2006, (15))

Notes:  $A_{\langle \text{st}, \text{t} \rangle}$  = a set of (scalar) alternatives

$\text{NW}(p, A)$  = a set of alternatives that are not weaker than  $p$

Although Fox does not specifically discuss the exhaustivity associated with contrastive focus, its potential to be extended to contrastive focus is quite obvious.<sup>7</sup> So, focus is necessarily caught by the Exh operator while a CT is spared from the exhaustification and the alternatives generated by it move up to the speech act level. How could this distinction be made?

### 3.2. Focus Index and Selective Binding

The issue becomes crucial when a CT is accompanied by a focus. While a CT can be the sole focalized element in a sentence, it can appear with an additional focus.

(14) Who ate what?

*ERIka-wa MAME-o tabe-ta (kedo)*

Erika-top beans-acc eat-past (but)

‘Erika ate beans (but ...)’

This sentence receives the interpretation very similar to the English A-/B-accents (cf. Jackendoff 1972, Büring 2003) and the German Rise-Fall contour Büring 1997, Krifka 1998). From the meaning specified in (13), it is obvious that the Exh operator sits at the level of proposition (or more generally, at the level of sentence radical). Since a CT is structurally lower than this operator, it becomes crucial to prevent the focus value of a CT from accidentally getting caught by the Exh operator. Although LF movement of a CT over the Exh

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<sup>6</sup> (13) is not the final version that Fox endorses, but it is simpler and serves out purpose perfectly well.

<sup>7</sup> Fox himself is quite receptive to this possibility (Fox 2006, footnote 13).

operator may seem like a reasonable option, I have expressed skepticism about this option in Tomioka (to appear).<sup>8</sup> If one opts for a different solution, the best candidate is Kratzer's (1991) idea of focus indices. Furthermore, we postulate that focus-sensitive operators, such as the Exh operator, are indexed so that, for any given focus-sensitive operator, only the co-indexed focus expressions are computed. Specifically, I adopt the system of 'selective binding' of focus indices that Wold (1996) developed. First, let us assume the following LF for (15).

$$(15) [\text{Op}_1 [\text{Speech Act P Assert } [\text{IP Exh}_2 [\text{IP [ERika-wa]}_1 [\text{MAME-o}]_2 \text{ tabeta } ]]]]$$

The first operator  $\text{Op}_1$  is a simple alternative-generating operator without any quantificational meaning whereas  $\text{Exh}_2$  is an index-sensitive version of our previous Exh. Their meanings are represented below.

$$(16) \text{a. } \llbracket \text{Exh}_i \alpha \rrbracket^g = \lambda w. \llbracket \alpha \rrbracket^g(w)=1 \ \& \ \forall p \in \text{NW}(p, \{ \llbracket \alpha \rrbracket^g \cup \{ \langle i, x \rangle \} \mid x \in D\tau \}) \\ [p(w)=0]$$

$$\text{b. } \llbracket \text{Op}_i \alpha \rrbracket^g = \{ \llbracket \alpha \rrbracket^g \cup \{ \langle i, x \rangle \} \mid x \in D\tau \}$$

Another important ingredient in Wold's analysis is the Novelty Condition on focus indices:

$$(17) \text{ For a focus-sensitive operator } \Omega \llbracket \Omega_i \alpha \rrbracket^g \text{ is defined only if } i \notin \text{Dom}(g)$$

In other words, beyond the constituent that contains  $\Omega$  and its sister,  $g(i)$  is not defined. When  $i \notin \text{Dom}(g)$ , we ignore the index, so  $\llbracket \beta_i \rrbracket^g = \llbracket \beta \rrbracket^g$ . The way this indexing system works can be illustrated by (18).

$$(18) [\text{XP } \dots [\text{YP Op}_2 [\text{ZP } \dots [\beta]_2 \text{ F } \dots ]]]$$

The index 2 is introduced to the domain of  $g$  at the time when the derivation

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<sup>8</sup> In Tomioka (to appear), I raised two issues concerning LF raising of a CT over the speech act level. First, a quantificational CT does not necessarily take the wide scope, which means that semantic reconstruction becomes necessary. Second, a verb, an adjective, or only a part of a complex predicate can be a CT, and it is hard to motivate LF movement of such elements.

reaches the focus sensitive operator ( $Op_2$ ), so in any constituent below (i.e., ZP and below), the index does not contribute to the meaning. Thus,  $\llbracket \beta_i \rrbracket^g = \llbracket \beta \rrbracket^g$ , and  $\llbracket [_{ZP} \dots [\beta]_{2 F} \dots] \rrbracket^g = \llbracket [_{ZP} \dots [\beta] \dots] \rrbracket^g$ . In interpreting YP, the focus index is bound by the operator and yields a set denotation (the exact denotation depends on the meaning of the operator in question). Beyond the operator (e.g., XP in (18)), the index 2 is no longer in the domain of  $g$ , so it makes no contribution. In other words, the set meaning is used up at the level of YP and will not be recycled beyond that level. With this theory of focus indexing, the semantic values of (15) are computed as follows. The (parenthesized) part is implicature.

- (19)a.  $\llbracket [_{IP} Exh_2 [_{IP} [ERika-wa]_{1 F} [MAME-o]_{2 F} tabeta] ] \rrbracket^g = \lambda w. Erika \text{ ate beans in } w \text{ and for all } p \in NW(p, \{\lambda w. \exists x. P(x) \text{ and Erika ate } x \text{ in } w \mid P \in D_{\langle e, t \rangle}\}), p(w)=0. \text{ The proposition that Erika ate beans (and nothing else)}$ .
- b.  $\llbracket [Op_1 [_{Speech Act P Assert} [_{IP} Exh_2 [_{IP} [ERika-wa]_{1 F} [MAME-o]_{2 F} tabeta] ]]] \rrbracket^g = \{\text{assertion that } x \text{ ate beans (and nothing else)} \mid x \in D_e\}$

Unfortunately this is not right. (19b) is a set of assertions of the form ‘assert that  $x$  ate beans (and nothing else)’, which would lead to the uncertainty/incompleteness implicature that the speaker may not know whether the other people did the exclusive eating of beans. This does not capture the meaning of (15). What we need is the implicature that the speaker may be unsure what the other people ate.

### 3.2. Double Indexing of Focus

To amend the selective binding analysis, let us go backward and try to understand what kind of alternative speech acts are needed. Instead of (19b), we should have (20).

- (20)  $\{\text{assertion that there is } x \text{ such that } P(x) \text{ and } y \text{ ate } x \mid x \in D_e, P \in D_{\langle e, t \rangle}\}$

We can get (20) by letting the alternative generating Op at the speech act level bind both the CT and the focus. Since the focus needs to be bound by the Exh operator at the IP level, we assign two indices to the focus.

(21)  $[[Op_{1,2} [SpeechActPAssert [IP Exh_3 [IP ERika-wa_1 [[MAME-o]_2]_3 tabeta ]]]]]$

This may look a little exotic, but a similar case has been reported in the past. Krifka (1991) pointed out that one focused expression can be bound by two distinct focus-sensitive operators.

- (22)a. I once only drank  $[Wine]_F$  .  
 b. I also once only drank  $[[WATER]_F]_F$

(22b) means that, in addition to the exclusive drinking of wine at some point, I also had an experience of exclusive drinking of water at another occasion. Wold (1996) revisits this example and proposes the double-indexing on *water*.

(23) I also<sub>1</sub> once only<sub>2</sub> drank  $[[WATER]_1]_2$

At the point where the smaller VP *only<sub>2</sub> drank  $[[WATER]_1]_2$*  is interpreted, the index 1 is not in the domain of g, so we ignore it. The indexed *only<sub>2</sub>* introduces the index 2 to the domain of g, and the object  $[[WATER]_1]_2$  is now replaced with a variable. This variable is the basis of generating the alternative VP meanings over which *only<sub>2</sub>* quantifies. When we proceed beyond the VP level, the index on the *only<sub>2</sub>* (i.e., the index 2) is no longer in the domain of g, according to the Novelty Condition specified in (17). When the larger VP *also<sub>1</sub> once only<sub>2</sub> drank  $[[WATER]_1]_2$*  is interpreted, the index 1 is added to the domain for g,  $[[WATER]_1]_2$  turns into a variable that is to be bound by *also<sub>1</sub>*.

With the double-indexing and the novelty condition on focus indices, we now have the following computations for (20).

- (24)a.  $[[[IP Exh_3 [IP [ERika-wa]_1 [MAME-o]_2]_3 tabeta ]]]^g = \lambda w. Erika ate beans in w and for all p \in NW(p, \{[[[IP [ERika-wa]_1 [MAME-o]_2]_3 tabeta ]]]^g \cup \langle 3, P \rangle \mid P \in D_{\langle e, t \rangle}\}, p(w)=0.$   
 $= \lambda w. Erika ate x in w \mid P \in D_{\langle e, t \rangle}, p(w)=0. \quad [= (18a)]$
- b.  $[[[Op_{1,2} [SpeechActP Assert [IP Exh_3 [IP [ERika-wa]_1 [MAME-o]_2]_3 tabeta ]]]]]^g = \{ [[Assert [IP Exh_3 [IP [ERika-wa]_1 [MAME-o]_2]_3 tabeta ]]]^g \cup \langle 1, x \rangle \cup \langle 2, P \rangle \mid x \in D_e, P \in D_{\langle e, t \rangle}\}$

= {assertion that there is x such that P(x) and y ate x | x ∈ D<sub>e</sub>, P ∈ D<sub><e,t></sub>} [= (19)]

(24b) correctly generates the kind of alternative speech acts that would lead to the implicature that the speaker may be unsure what people other than Erika ate.

### 3.4. Consequences and Implications

The conclusion we reached above is that a focus is bound twice whereas a CT is always spared from being bound by the Exh operator at the level of proposition. Double indexing on focus seems independently needed, and there are no reasons to suppose that the same strategy should not be exploited in the focus/CT co-occurrence case. The proposal nonetheless raises several questions. Although I am not ready to give the definitive answers to them yet, I believe that some preliminary discussions of them will be useful.

First of all, one might wonder what the focus operator at the speech act level does. The current version gives it no special meaning apart from generating a set of speech acts, and the mere existence of alternative speech acts is claimed to be sufficient for the hearer to entertain the kind of Gricean reasoning that leads to the pragmatic effects of CTs. There is an alternative approach to it, however. It has been pointed out in the literature (e.g., Krifka 2008, citing John Searle's work on speech acts) that 'negation' of a speech act is typically weak. The effect can be seen by the negation of a performative sentence; *I do not promise to leave* is weaker than *I promise not to leave* while *I do not want to leave* and *I want not to leave* are often interchangeable. Recall that the essential part of the meaning of the Exh operator is the negation of (non-weak) alternatives. If the operator at the speech act level is an Exh and has the 'speech act negation' as a part of its meaning, the result is the implicature that the speaker engaged in the ordinary value speech act but didn't perform any other acts in the set of alternatives. This is precisely what the hearer's Gricean reasoning derives. In other words, the speech act version of Exh embodies in its meaning the pragmatic reasoning associated with CTs. The emerging picture is the exhaustification as the default strategy for focusing. A focus elicits a set of alternatives, and the set must be made good use of. It can serve as the domain for a focus-sensitive operator (e.g., *only*, *always*, *even*). When there is no overt operator that requires a focus alternative, it must be caught by an Exh, at the propositional level or at the speech act level or both. The idea of 'speech act Exh' presents an interesting alternative to the 'underspecified' operator of the current version, but I cannot think of any empirical facts that favor one approach over the other.

The second issue that naturally arises from the current proposal is the double indexing of focus. The co-occurrence of a focus and a CT within one sentence makes it necessary for the focus to be bound twice. Does the double-binding also take place when there is no CT to accompany a focus? (25) illustrates the scenario where a focus is always bound twice.

(25) [Op<sub>1</sub> [Speech Act P [IP Exh<sub>2</sub> [IP ... [[focus]<sub>1</sub>]<sub>2</sub> ... ]]]]

The idea behind (25) is that focalization, either as a focus or a CT, always leads to the generation of alternative speech acts. Unlike the CT counterpart, however, focus highly restricts the pragmatic reasoning that the hearer can entertain. The strong meaning that results from the Exh practically eliminates all the possibilities but one: The speaker knows/believes that the alternative propositions are false. Thus, we can no longer speculate that the speaker may be uncertain or that the speaker might have failed to mention other propositions out of politeness.

The general picture that emerges out of the current discussion of foci and CTs is quite similar to Hara's (2006, Chapter 2) interpretation of Schulz and van Rooij (2006). Hara suggests that a CT is subjected to the general operation that corresponds to the typical Gricean reasoning (*grice* operation of Schulz and van Rooij 2006) but it cannot undergo the exhaustification process based on the notion of 'opinionated speaker' (*eps* operation of Schulz and van Rooij 2006). Fox (2006) calls his Exh operator the structural realization of opinionated speakerhood, and the thesis that some pragmatic reasoning has syntactic realizations is further extended to the general Gricean reasoning as well. The two operators sit at different structural positions; the Gricean operator always higher than the opinionated speaker operator.

### 3. Closing Remarks and Remaining Issues

Extending my previous analysis of CTs, I have examined how foci and CTs interact. The availability of using focus constrains possible interpretations of the CT counterpart as a consequence of the competition between the two strategies. I have also proposed a way to differentiate two focal expressions by adopting Wold's idea of selective binding and double indexing of focus.

In Tomioka (to appear), I left behind many issues as my homework. The focus/CT interaction and the mechanism of differentiating the two focalizing strategies was one of the unresolved problems, and I hope that I made a small progress here. The remaining

issues are crosslinguistic variations (including micro-variations between Japanese and Korean), CTs in complex sentences, such as conjunctions and embedding under attitude verbs, and a variety of syntactic positioning effects (cf. Vermeulen 2008). Although I believe that satisfactory accounts for these issues within the current proposal are possible, I will have to leave them for other occasions in the future.

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