Morphological vs. phonological contrastive topic marking

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1 Introduction

In recent studies, several authors have claimed that a contrastive topic (CT; also known as *topic-focus*, *contrastive focus*, etc.) is morphologically marked in languages like Japanese (Hara *in press*) and Korean (Lee 1999a,b), while it is phonologically (tonally) marked in other languages.

In English, for example, it is said that a contrastive topic is marked with the so-called B-accent (fall-rise tone; (L+)H*L-H%), while a focus is marked with the A-accent (fall tone; H*L-L%) (Jackendoff 1972; Büring 2003; Kadmon 2001):

(1) A: Well, what about FRED? What did HE eat?
B: \ / \
[FRED]$_{CT}$ ate the [BEANS]$_{F}$.
A: Well, what about BEANS? Who ate THEM?
B: \ \ /
[FRED]$_{F}$ ate the [BEANS]$_{CT}$.

Authors like Hara (*in press*) and Lee (1999a,b) claim that contrastive topics in Japanese and Korean are marked with a particle, i.e. *wa* in Japanese and *nun* in Korean:

(2) a. FRED-WA mame-o tabe-ta.
Fred-CT beans-Acc eat-Past
'[Fred]$_{CT}$ ate [beans]$_{F}$.'
b. MAME-WA Fred-ga tabe-ta.
beans-CT Fred-Nom eat-Past
'[Fred]$_{F}$ ate [beans]$_{CT}$.'

Traditionally, these particles have been said to have a function to indicate a contrast (Numata 1986; Choi 1999, among others).

In this paper, I argue that information structure-based analyses of CT-contours (e.g. English B-accent) along the lines of Büring (2003) and Roberts (1996) cannot be applied to CT-morphemes, and propose an alternative semantic analysis of CT-morphemes.[1] The structure of the paper is as follows. In Section 2, I briefly review the analysis developed by Roberts (1996) and Büring (2003). In

[1] All the data in this paper are taken from English and Japanese. I speculate that the arguments drawn on these two languages apply by and large to a larger class of "CT-contour languages" (like German and French) and "CT-morpheme languages" (like Korean).

Section 3, I discuss that Roberts-Büring's analysis cannot be applied to CT-morphemes, demonstrating that certain crucial assumptions that it makes about CT-contours do not hold for CT-morphemes. In Section 4, I propose an alternative analysis of CT-morphemes; I argue that the semantic contribution of a CT-morpheme is antonymous to that of the additive particle 'also'. In Section 5, I examine whether the proposed analysis can be extended to CT-contours, so that CT-morphemes and CT-contours can be given a uniform analysis.

2 CT-contours: Information structure-based analyses

2.1 Roberts' (1996) discourse model

Roberts (1996) proposes to model conversation/discourse as a sort of cooperative game, whose goal is to discover the information about the world, or more technically, to make the context set (the intersection of all propositions in the common ground) smaller and ultimately reduce it to the singleton set whose member is the actual world.

When a question is asked and accepted by the interlocutors, it becomes **the (immediate) question under discussion**. The next move by the interlocutors must be either (i) to answer it (or to conclude that it is practically unanswerable), or (ii) to divide it into more manageable form i.e. to pose a subquestion of the question under discussion, which becomes the next question under discussion.[2]

The set of as-yet unanswered questions at a given point in a discourse is modelled using a push down store (**the QUD stack**). At any point in the discourse, the question on the top of the stack is the question under discussion. The question under discussion is removed from the stack when it is answered or all of its subquestions are answered.

In (4), a sample discourse D_0 (Roberts 1996:101) is illustrated with the QUD stack after each move (D_0 presupposes a model with only two individuals, Hilary and Robin, and two kinds of food, bagels and tofu; the "top" of the stack is the rightmost member):

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[2] The definition of subquestion/superquestion is as follows: for any pair of questions Q_1 and Q_2, Q_1 is a subquestion of Q_2 (Q_2 is a superquestion of Q_1) iff Q_1 entails Q_2, i.e. every proposition that answers Q_1 answers Q_2 (ibid.:94). For example, *What food does John like?* entails *What does John like?*.

(3)

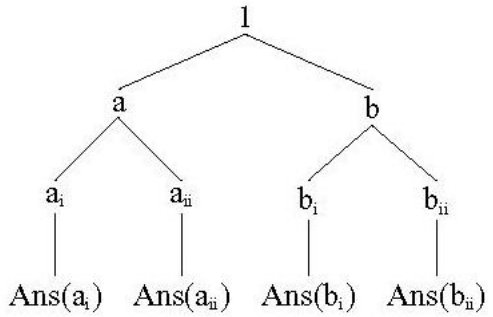
		QUD stack
		∅
D_0	1. Who ate what?	<1>
	a. What did Hilary eat?	<1, a>
	a_i. Did Hilary eat bagels?	<1, a, a_i>
	Ans(a_i). *Yes*.	<1, a>
	a_{ii}. Did Hilary eat tofu?	<1, a, a_{ii}>
	Ans(a_{ii}). *Yes*.	<1>
	b. What did Robin eat?	<1, b>
	b_i. Did Robin eat bagels?	<1, b, b_i>
	Ans(b_i). *No*.	<1, b>
	b_{ii}. Did Robin eat tofu?	<1, b, b_{ii}>
	Ans(b_{ii}). *Yes*.	∅

How a discourse evolves (or, how a question is divided into subquestions and then eventually answered) is represented as a **strategy of inquiry** (sequences of questions):

(4) The strategy of inquiry which aims at answering question 1 in D_0:
<1, {<a, {<a_i, ∅>, <a_{ii}, ∅>}>, <b, {<b_i, ∅>, <b_{ii}, ∅>}>}>

or more visually, what Büring calls a **d(iscourse)-tree**, where each node corresponds to a move:

(5)



Roberts further claims that focus-marking of an utterance is conditioned by such discourse structures. Specifically, the focus alternative set of an utterance

must be identical to the denotation of the immediate question under discussion.[3] Otherwise, the discourse is said to be **incongruent**.

2.2 CT-congruence

How can CTs be integrated in this picture? Roberts proposes that a CT (*contrastive focus* in her terminology) is a focus, and thus both (6a) and (6b) require that (7) be in the QUD stack (otherwise the discourse will not be congruent):

(6) a. $[\text{John}]_{CT}$ ate $[\text{beans}]_{F.}$
b. $[\text{John}]_{F}$ ate $[\text{beans}]_{CT.}$

(7) Who ate what?

(6a) and (6b) differ, however, in what *subquestion* of (7) they additionaly require to be in the QUD stack. In other words, (6a) and (6b) presuppose the same superquestion, but different subquestions (strategies); i.e. (6a) presupposes (8a) and (6b) presupposes (8b):

(8) a. What did John eat?
b. Who ate beans?

(9) a. The QUD stack at the point (6a) is uttered: < …, (7), (8a)>
b. The QUD stack at the point (6b) is uttered: < …, (7), (8b)>

Roberts' analysis is, however, not satisfactory in that it lacks a proper implementation of the rules to relate A- (focus-marking) and B- (CT-marking) contours to an appropriate strategy (see Büring 2003; Kadmon 2001). To remedy this problem, Büring provides a more elaborate analysis of discourse conditions that license CT, using a formal device called CT-value.

The function $[\![\ ]\!]^{ct}$, applied to a declarative sentence α, yields the CT-value of α, which is roughly a set of question meanings (i.e. a set of sets of propositions) where each question is formed by the following operations: (i) replacing the focus by a *wh*-word (and fronting it), and (ii) replacing the contrastive topic by some alternative to it. For example, the CT-value of (6a) is roughly the set of questions listed in (10):

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[3] Büring (2003) departs from Roberts in this respect, in that he assumes that focus-marking is conditioned by the Givenness of constituents (i.e. whether they are previously mentioned or not), rather than the congruence with the question under discussion.

(10) What did John eat?
What did Fred eat?
What did Mary eat?
What did … eat?

The discourse condition for a CT is proposed as follows:

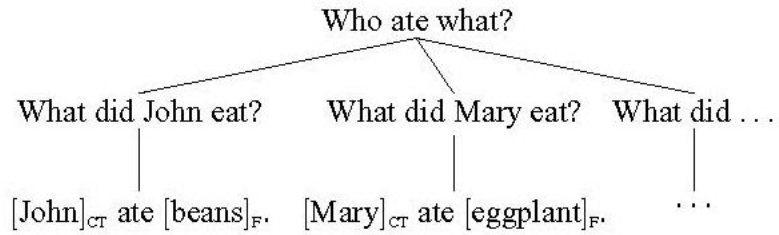
(11) CT-congruence: An utterance *U* containing a contrastive topic can map onto a move M_U within a d-tree *D* [i.e. is congruent within *D*] only if U indicates a strategy around M_U in *D*.

where to "indicate a strategy" is defined as:

(12) *U* indicates a strategy around M_U in *D* iff there is a non-singleton set *Q*' of questions such that for each *Q* in *Q*', (i) *Q* is identical to or a sister of the question that immediately dominates M_U, and (ii) $[\![Q]\!]^o \in [\![U]\!]^{ct}$.

To give an example, the CT/focus-marking in (6a) requires that in the discourse there be a question to which it is answering (*What did John eat?*) and that there be other questions like *What did Mary eat?*, *What did Ken eat?*, … as illustrated in (13) (not all the moves in this d-tree are necessarily explicit):

(13)



Finally, to explain the unacceptability of (14A), Büring adds the principle (15) (but without providing an independent motivation)[4] so that a complete answer cannot indicate a strategy:

(14) Q: How many abstracts got accepted?
A: #[All]$_{CT}$ abstracts got accepted.
(cf. A': [Some]$_{CT}$ /[Most]$_{CT}$ abstracts got accepted.)

[4] "I can see no particular reason why [(15)] holds, but the data clearly tell us in this case." (Büring 2003:534).

(15) Principle of highest attachment: If *M* is a complete answer to *Q*, *Q* immediately dominates *M*.

3 Roberts-Büring's analysis and CT-morphemes

In this section I discuss that Roberts-Büring's information structure-based analysis cannot be applied to CT-morphemes for two reasons: (i) An expression marked by a CT-morpheme often occurs as the sole focus of a sentence, (ii) CT-morphemes induce a presupposition, which cannot be explained by the information structure-based analysis.

3.1 *wa* in its contrastive use

It is broadly known that the particle *wa* in Japanese has two distinct uses, namely the "thematic" use, which marks a constituent that stands as a sentence topic, and the "contrastive" use (Kuno 1973; Teramura 1991; Nakanishi 2001, among others). In the current work I discuss only the latter.[5]

How can we tell whether a given occurrence of *wa* is thematic or contrastive? Tones provide important clues. An item associated with thematic *wa* is part of the (information-structural) background, while one associated with contrastive *wa* is a focus. As such, typically, the former is phonologically subdued while the latter is phonologically prominent.[6] In Japanese, "phonological prominence" of a phrase is realized in various ways, including expanded pitch movements and a phrase-final rising tone (see Kori 1997; Oshima 2007); in the following, I indicate phonological prominence of a phrase by small capitals (e.g. *TARO-WA*; the absence of small capitals, however, does not necessarily mean the absence of phonological prominence).

3.2 CT as a sole focus

A CT-morpheme is naturally associated with the sole focus of a sentence (cf. Nakanishi 2001), while a CT-contour generally accompanies another focus-contour within the same sentence (at least this is the common assumption; Roberts 1996:122-3). In the following conversation, for example, speaker B's utterance has a single focus, which coincides with the *wa*-marked phrase.

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[5] One might be tempted to derive the thematic/contrastive distinction "compositionally", by, say, postulating that thematic *wa* is characterized by the features: [+topic, –focus], while contrastive *wa* is characterized by [+topic, +focus] (see Choi 1999, Fry 2003:131-133). Such an attempt is challenged by the fact that only thematic *wa*, but not contrastive *wa*, is subject to the distributional restriction and cannot occur in many types of subordinate clauses (see Noda 1996:170-180). It is not clear how this distributional difference follows from a compositional treatment.

[6] It is admittedly too simplistic to say that topics in general are phonologically subdued. As noted by Lambrecht (1994), cross-linguistically, this applies only to "continuing topics" but not to "newly established topics" (see also Fry 2003:145-155). It seems sensible to hypothesize that "prominent *wa*-marked topics" in Japanese correspond to "B-accent marked CTs" in English; but see also discussion in Section 5.

(16) A: Dare-ga siken-ni ukat-ta-no?
who-Nom exam-Dat pass-past-Q
'Who passed the exam?'
B: KEN-WA ukat-ta.
Ken-CT pass-Past
'[Ken]$_{CT}$ passed it.'

(cf.) A: Ken-wa siken-ni ukat-ta-no?
Ken-Top exam-Dat pass-past-Q
'Did Ken pass the exam?'
B: Un, Ken-wa UKAT-TA.
yes Ken-Top pass-Past
'Yes, Ken did pass it.'

The backgroundness of *ukat-ta* in (16B) is reflected in its subdued phonological status; that is, pitch movements within it are (obligatorily) suppressed (see Kori 1997; Oshima 2007).

This does not necessarily mean that Büring's analysis cannot be applied to CT-morphemes (see discussion in Section 5.1). However, under the assumption that CT-contours and CT-morphemes carry essentially the same function, it is not clear how this contrast can be explained.

3.3 Presupposition-hood of "negative indication"

A CT-morpheme induces a presupposition, which I term *reversed polarity presupposition* (RPP). Namely, when a sentence S contains a CT-morpheme and the "core" part of S (i.e. S without the CT-morpheme) expresses a proposition *p*, S can be felicitously uttered only if at least one of the alternative propositions of *p* does *not* follow from the interlocutors' common ground (shared knowledge); the effect of an RPP is illustrated in (17):

(17) **Context**: Taro and Ken (and nobody else) took an exam.
A: So, Taro passed the exam. How about Ken?
B: #KEN-WA ukat-ta.
Ken-CT pass-Past
'[Ken]$_{CT}$ passed it.'
B': KEN-WA oti-ta.
Ken-CT fail-Past
'[Ken]$_{CT}$ failed it.'

A similar effect is observed for CT-contours as well.[7] Büring (2003) claims that it is a conversational implicature (derived from the maxim of Quantity); Lee (1999b) calls it *reversed polarity implicature*. The "negative indication" induced by a CT-morpheme, however can be shown to be a genuine presupposition, rather than an implicature (cf. Hara *in press*), using two standard diagnostic tests:

(i) **uncancellability**: Answer B in (17) sounds downright bad, rather than merely awkward.

(ii) **embedding under negation**: As illustrated in (18), an RPP survives under negation:

(18) a. TARO-WA siken-ni ukat-ta.
Taro-CT exam-Dat pass-Past
'[Taro]$_{CT}$ passed the exam.'
presupposition: "(Putting aside Taro) there is at least one person who failed or is not known to have passed the exam."

b. [TARO-WA siken-ni ukat-ta] toiu-koto-wa-na-i.
Taro-CT exam-Dat pass-Past it.is.not.the.case
'It is not the case that [Taro]$_{CT}$ passed the exam.'
presupposition: "(Putting aside Taro) there is at least one person who failed or is not known to have passed the exam."

In the context given in (17), (18b) (like (18a)) implies that Ken did not pass the exam either or it is not known whether Ken passed it or not. This sharply contrasts with, for example, the case of the exhaustiveness implicature induced by an identificational focus (see É. Kiss 1998; Kuno 1973):

(19) a. TARO-GA siken-ni ukat-ta.
Taro-Nom exam-Dat pass-Past
'[Taro]$_{IdF}$ passed the exam.'
implicature: "No one other than Taro passed the exam."

b. [TARO-GA siken-ni ukat-ta] toiu-koto-wa-na-i.
Taro-Nom exam-Dat pass-Past it.is.not.the.case
'It is not the case that [Taro]$_{IdF}$ passed the exam.'
~~*implicature*: "No one other than Taro passed the exam."~~

The focus-marking in (19b) (and (19a)) also induces an implicature (or possibly a presupposition) that someone passed the exam. Thus, in the context given in (17), (19b) implicates that Ken passed the exam.

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[7] "[…] native speakers will typically attribute to the answer *FRED*$_{CT}$ *ate the BEANS*$_{F}$ [to the question *What did Fred eat?*] some sort of indication that other people ate other things." (Büring 2003:522-3)

4 Proposal: CT-morphemes as paradigmatic operators

4.1 Semantics of CT-morphemes

I propose that CT-morphemes are a kind of paradigmatic operators (also called "focus sensitive operators"; e.g. *also*, *only*, *even*)[8] that induce a reversed polarity presupposition (RPP). The RPP induced by Japanese *wa* in its contrastive use can be formulated as follows:

(20) A sentence S: '…α-WA …' can be felicitously uttered only if there is some proposition $p \in C$ such that $p \neq [\![S']\!]^{Mg}$ and p does not follow from the common ground, where S' is identical to S except that it lacks the CT-morpheme and C is a contextually determined set of alternative propositions of $[\![S']\!]^{Mg}$ with respect to α.

For example, an utterance of (21) is felicitous only if at least one of the alternative propositions of $[\![(21)]\!]^{Mg}$ with respect to John, like those listed in (22), is *not* in the common ground.

(21) JOHN-WA paatii-ni ki-ta.
John-CT party-Dat come-Past
'[John]$_{CT}$ came to the party.'

(22) {Max came to the party; Pat came to the party; Ken came to the party; …}

(23) a. JOHN-WA paatii-ni ki-ta-keredo, hoka-no minna-wa
John-CT party-Dat come-Past-though other-Gen everyone-CT
ko-nakat-ta.
come-not-Past
'[John]$_{CT}$ came to the party, but [all the others]$_{CT}$ did not come.'

b. #JOHN-WA paatii-ni ki-ta-si, hoka-no minna-mo
John-CT party-Dat come-Past-and other-Gen everyone-also
ki-ta.
come-Past
'[John]$_{CT}$ came to the party, and so did all the others.'

The semantics of a CT-morpheme is, as such, antonymous to that of *also* (see Karttunen and Peters 1979:32-3, among others; *mo* is a counterpart of *also* in Japanese):[9]

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[8] By the term *paradigmatic operators*, I roughly refer to the class of expressions which König (1991) calls *focus particles*, which does not include negation, temporal adverbs like *always*, etc.

[9] Heim (1992: 189ff) defends an alternative analysis of 'also', where the induced presupposition is anaphoric rather than existential (that is, 'also' is equivalent to 'in addition to x' where the value of x is anaphorically determined). If this option is chosen, it would be plausible to hypothesize that

(24) A sentence S: '…α-mo …' can be felicitously uttered only if there is some proposition $p \in C$ such that $p \neq [\![S']\!]^{Mg}$ and p follows from the common ground (where S' and C are as defined in (20)).

The proposed analysis is thus highly resonant with the observation in the traditional literature that contrastive *wa* shares a host of morphological/semantic properties with other paradigmatic operators (*toritate-si*), including *mo* (Numata 1986; Teramura 1991, among others).

4.2 Scope inversion

CT-morphemes induce scope inversion between a universal quantifier and a negation (see Hara *in press*; Lee 2000):

(25) a. MINNA-GA ko-nakat-ta.
everyone-Nom come-Neg-Past
'For every person x, x did not come.' (∀¬), or
(?)'Not everyone came.' (¬∀)

b. MINNA-WA ko-nakat-ta.
everyone-CT come-Neg-Past
'Not everyone came.' (¬∀), but
*'For every person x, x did not come.' (∀¬)

This phenomenon naturally follows from the proposed analysis; neither the principle of highest attachment ((15) above; Büring 2003) nor the stipulation that a CT-morpheme is inherently scale-inducing (Hara *in press*) is required.

The assertion of the ∀¬ reading of (25b) entails all of the alternative propositions where the CT-marked quantifier is replaced by some other member of the scale of quantifiers à la Horn:

(26) {For **all but one** people x, x didn't come; For **many** people x, x didn't come; For **most** people x, x didn't come; …; There is **one** person x such that x didn't come}

This is, of course, incompatible with the presupposition induced by the CT-morpheme: i.e. "some member of (26) does not follow from the common ground" (or in other words, "there is at least one Q: $Q \in$ {~~all~~, all but one, many, most, …,

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the RPP induced by a CT is likewise anaphoric (i.e., 'unlike x, it is known that y [= the CT-marked element] is …').

one} such that it is not the case that or it is not known whether *Q* people did not come").[10]

5 CT-contours revisited

So far we have seen that Roberts-Büring's analysis of CT-contours cannot be applied to CT-morphemes, because certain assumptions it makes about CT(-contour)s, i.e. (i) that a CT generally occurs with a focus elsewhere in the same sentence, and (ii) that negative indication induced by a CT is a conversational implicature, do not hold for CT-morphemes.

In this section, I examine whether these assumptions really hold for CT-contours in the first place, and whether the proposed semantic analysis of CT-morphemes can be applied to CT-contours so that they can be given a uniform analysis. One obvious advantage of the present analysis is that it dispenses with the principle of highest attachment (Section 2.2), which is a rather *ad hoc* stipulation.

5.1 A CT-contour without a focus-contour?

As mentioned above, in the literature it has been assumed that a CT-contour (B-accent) generally accompanies a focus-contour (A-accent) within the same sentence (Jackendoff 1972; Roberts 1996). Büring (2003:532) notes, however, that "sole B-accents" are sometimes possible in English:

(27) Can Jack and Bill come to tea? -- BILL_{CT} can.

He, then, somewhat hesitantly suggests that the answer in (27) addresses the subquestion 'Can Bill come to tea?' (whose meaning is the singleton set: {*Bill can come to tea*}),[11] and that the discourse-tree for (27) looks like the following, so that the answer can "indicate a strategy":

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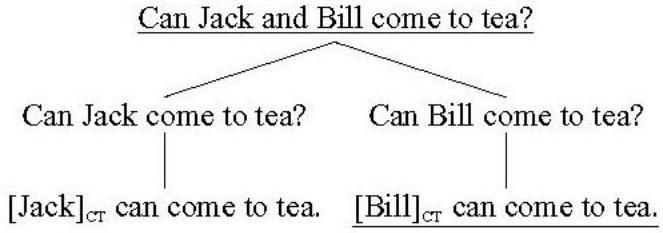
[10] A sentence like (i), in contrast, allows two readings, as predicted by the present analysis (cf. Hara *in press*):

(i) Ooku-no hito-WA paatii-ni ko-nakat-ta.
many people-CT party-Dat come-Neg-Past
'For many people *x*, *x* did not come to the party.' (many > not), or
'Not many people came to the party.' (not > many)

(i) can be followed by 'Many other people came to the party, though.' on the first reading but not on the second reading.

[11] "I do not have at this point have a complete account of these [= sole B-accents] to offer" (Büring 2003:532)

(28)



If polar questions like *Can Bill come to tea?* count as subquestions, however, Büring's definition of "to indicate a strategy" (given in (12)) must be substantially reformulated and consequences of this move must be carefully discussed. (Note that with this assumption the d-tree given in (13) must have an additional "layer" between answers and questions with a single *wh*-phrase.)

If sole CT-contours are indeed possible, then CT-contours are similar to CT-morphemes after all; they both can be a sole focus of the sentence, which optionally co-occurs with one or more other focus. I leave it for future research to determine: (i) whether and under what conditions sole CT-contours are possible, and (ii) what differences (if any) there are between CT-contours and CT-morphemes (and among CT-contours/CT-morphemes in different languages) in this respect.

5.2 Reversed polarity implicature or reversed polarity presupposition?

As mentioned above, Büring (2003) maintains that reversed polarity indication induced by a CT-contour is a conversational implicature. But how can we tell if it is a mere implicature or a genuine presupposition?

It is generally difficult to elicit clear judgments about intonation meanings. Nevertheless, (29B) seems to sound highly awkward for a mere conversational implicature violation:

(29) A: Among Charles, Bill, and Alice, who passed the exam?
B: #[Charles]$_{CT}$ did, and (in fact) so did Bill and Alice.
B': ?[Charles]$_{F}$ did, and so did Bill and Alice.

The diagnostic test for presuppositions with embedding under negation yields not so clear, but seemingly positive results too:[12]

[12] Embedding of a sentence marked with a CT-contour under a "pure sentential negation" like *It is not the case …* sounds awkward, probably for a stylistic reason. To avoid the interference of this awkwardness with the semantic judgment, a different matrix predicate is chosen in (30)/(31).

(30) a. [Charles]$_{CT}$ passed the exam.
(The speaker believes that, putting aside Charles, there is at least one person who is not known to pass the exam.)
b. I don't think [Charles]$_{CT}$ passed the exam.
(The speaker believes that, putting aside Charles, there is at least one person who is not known to pass the exam.)

(31) a. It is Charles who passed the exam.
(The speaker believes that nobody other than Charles passed the exam.)
b. I don't think it is Charles who passed the exam.
(The speaker believes that somebody other than Charles passed the exam.)

Again, I leave it for future research to settle this issue.

6 Summary

Roberts-Büring's information structure-based analysis of CT-contours cannot be applied to CT-morphemes. CT-morphemes are paradigmatic operators, which induce a reversed polarity presupposition. Their meaning is antonymous to that of 'also'. The proposed semantic analysis seems applicable to CT-contours as well; however, there remain several empirical issues to be clarified before drawing a definitive conclusion.

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