

Contrastive Topic, Contrastive Focus, Alternatives, and Scalar Implicatures

Chungmin Lee

Abstract This chapter attempts to establish Contrastive Topic (CT) and Contrastive Focus (CF) in relation to how their alternatives are evoked via their focal components involved and Question under Discussion (QUD) in discourse. CT, as part of Potential Topic, is claimed to generate conventional scalar implicature, not cancellable. CT but not ‘list CT’ has unresolved sub-questions. CF is shown to occur via alternative question (ALT-Q), which has the exhaustivity condition that exactly one disjunct holds. CT and CF constructions are cross-linguistically witnessed. CF, in parallelism with ALT-Q, may shed some light on the problematic exceptions to suspension of scalar implicatures in DE contexts such as antecedents of conditionals, and similar problems as well.

Keywords Contrastive topic • Contrastive focus • Potential topic • QUD • Conventional scalar implicature • Alternative question (ALT-Q) • Exhaustivity

1 Contrastive Topic

Sentential utterances in discourse are structured to optimize the exchange of information. Several dimensions of information structure have been identified by various authors: Topic and Focus, Topic and Comment, Topic (=Link), Tail and Focus, and finally Contrastive Topic and Contrastive Focus. As for topic-comment, the speaker of a sentence identifies something to talk about as a topic, and then

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C. Lee (✉)

Department of Linguistics, Seoul National University, Seoul 151-742, Republic of Korea
e-mail: cleee@snu.ac.kr

makes a comment about it. Within the comment, there is a Focus that induces alternatives relevant for the interpretation of expressions. Information structure, particularly Focus, has the pragmatic purpose to improve discourse coherence, but it also can affect truth conditions.¹ This occurs if intonational focus is in reason clauses or if it is associated with adverbial operators such as *only*, *usually/always*, and *fortunately*.

Contrastive Topic (CT) and Contrastive Focus (CF) are natural as answers to explicit or implicit questions, and do not occur naturally in discourse initial sentence. Roberts (1996/2012) has introduced the notion of Question under Discussion (QUD), to explain the function of CT (and CF). The notion of QUD seems to be better equipped linguistically than the notions of simple ‘Goal’ in Ducrot (1972) and Merin (1999).² To illustrate, let us assume that there are people named Fred, Sue, and Kim, and things to eat such as beans, peas, and kimchi in the discourse settings (cf. Jackendoff 1972; Carlson 1983; von Stechow 1994).

- | | | |
|-----|---|--------------------|
| (1) | a. Who ate what? | QUD |
| | b. What did <i>Fred, Sue and Kim</i> eat? | Potential Topic |
| | A: <i>They</i> _{TOP} ate kimchi. (answer to (b)) | Topic ³ |
| | c. Well, what about FRED? What did HE eat? | Sub-Q under (b) |
| (2) | FRED _{CT} ate the beans. | CT |

The QUD is recursively broken down into sub-questions. A sub-question is a strategic move to get a CT answer from a dominating QUD for Roberts. But what we crucially need is the stage of replacing a *wh*-question in QUD by a **Potential Topic**³ (Lee 2006, 1999) consisting of a set of relevant alternatives, e.g., *Fred, Sue, and Kim* for (1b) or *beans, peas, and kimchi*, replacing *what* in the QUD. According to Büring (2003), the CT value of the CT utterance (2) is like a set of question meanings such as (3) or equivalently a set of a set of propositions such as (4).

- (3) {What did Fred eat? What did **Sue** eat? What did **Kim** eat?}
 (4) [[FRED_{CT} ate the beans]]^{cf} = {{x ate y | y ∈ De} | x ∈ De} (Büring 2003)

A CT answer to either (1b) or (1c) has its alternatives minus the CT individual itself **unresolved**. Its neighboring relevant sub-questions have not been resolved, and so the unresolved part gives rise to a **conventional scalar implicature**.

¹See a scenario of truth-conditional reason clauses. [Pat had two daughters Bertha and Aretha. Aretha is indispensable to him in his business. He had made a commitment to marry one of the daughters one of the sons of a man who once saved his life. There were two such sons, the elder son Clyde and the younger son Derek. Because of a custom of seniority, an elder son had to marry before his younger brothers. The best thing to do was to marry Bertha to Clyde, as he actually did.] Evaluations: (1) The reason he married Bertha_F to Clyde was that Aretha was indispensable in the business. **true** (2) The reason he married Bertha to Clyde_F was that Aretha was indispensable in the business. **false** (Dretske 1972, Rooth 1999). This has to do with Contrastive Focus to be treated shortly. For adverbial operators, see Rooth (1992, 1995, 1999).

²Their Argumentative Goal has a similar function but it seems to go afar, in a linguistically less predictable way. See a recent discussion by Roberts (2012).

³This is a definite anaphoric pronoun. As a sentential Topic, a proper noun and other definite nouns including a generic subject can appear.

A question is asked to resolve decision problems (van Rooij 2003; Merin 1999). A Topic answer, as in (1b), is anaphoric to the Potential Topic as a whole and leaves nothing unresolved. I claim that the questioner faces a decision problem that involves a Potential Topic as a frame in the context. The question with a Potential Topic is not resolved completely by a CT answer. A question as its set of resolving answers must provide an *exhaustive* list of individuals or predicates in the Potential Topic set³; a CT answer in (2) is just a *partial* answer. Of course, if we provide a **list CT** (Lee 2000) answer as (5) (with a final fall in English and with an intonation different from the regular CT in Korean), it can be complete and there is no need for an implicature.

(5) FRED_{CT} ate the beans, SUE_{CT} the peas, and KIM_{CT} kimchi. (In pondering.)

A partial CT answer leaving the Potential Topic question only partially resolved forces the generation of an implicature concerning the rest of the Potential Topic set. Büring did not investigate the conveyed meaning part in detail.⁴ He and some other researchers conceive of the implicature thus generated as simply “**conversational.**” **But CT marking cross-linguistically is a marked “linguistic device”** with its special CT intonation, like the B accent or L + H * LH% in English and other CT intonations in German (T accent) and French (C accent, Marandin et al. 2002) or lexical CT markers in Korean, Japanese, Chinese, Vietnamese and Aymara. Korean *-nun* and Japanese *-wa* with a high tone for CT nominals, predicates, adverbials, and sentences and no high tone for non-contrastive Topic. In contrast, Vietnamese *-ty*, Aymara *-sti* and Chinese *-ne* are used exclusively for CT, not for Topic at the same time. For the French C accent CT, a high tone starts at the beginning of the CT phrase (to avoid a conflict with a natural phrase end rise in French presumably). See an analogous S initial rise in a CT S in Lee (2000). Lambrecht’s (1996) denial of “contrastive” topic and Chiarcos’s (2011) degree of saliency in context may not treat these morphologically distinct CT markers and/or equivalent intonations.⁵ Hence we should assume that this implicature is in fact a **conventional** implicature, an implicature that is tied to certain linguistic form features and cannot be canceled (Constant 2012 joins my conventionality claim). To see this, observe the contrast that we get in case we remove that linguistic form feature; in this case we end up with a mere conversational scalar implicature that can be canceled. This is happening in (6), whereas in (7) the implicature generated

⁴Büring presents a CT sentence with information focus in it following the German pattern but we can have just a CT phrase without a focal part in its sentence in other languages such as English, Korean and Japanese. *She APPLIED_{CT}* is a CT utterance with no separate focal part in it. *She* is a Topic. VP CT will be discussed.

⁵In Ngwo, a Bantu language, an utterance initial rising tone occurs for a CT, although the contrasted element ($\eta\epsilon^{\wedge}m$ ‘meat’) is located at the end. This shows that in our mind the contrast is preplanned. Observe: (15) $ma/nde^{-}\eta\epsilon^{\wedge}m$ ‘I ate meat_{CT}’ (but not vegetables) (Lee 2000).

by the CT-marked utterance cannot be canceled (Lee 2000, 2007 = 2002, 2006 for English, Korean and other languages; Constant 2012 for English).⁶

- (6) Most of the roommates ate kimchi. In fact, all of them did.
 (7) MOST_{CT} of the roommates ate kimchi. #In fact, all of them did.

The CT intonation with its high boundary tone H% at the end of an intonational phrase signals the speaker's **uncertainty** (Ward and Hirschberg 1985) in the partial CT answer. (2) is partial with regards to the predicate meanings of the entire Potential Topic set and (7) is partial with regards to those of the entire Potential Topic set of scalar values on the quantificational scale. The partial CT assertion is concessively admitted by the speaker, and the unresolved part is left as a semantically elliptical proposition starting with a concessive *But*. (2) can be continued by a stronger version of the conventional implicature in (8a) and a weaker version by (9). Alternatives cannot co-occur with an additive, as in (8b).

- (8) a. *But Sue and Kim did not eat kimchi.*
 b. # *Sue and Kim ate kimchi, too.*
 (9) *I do not know what Sue and Kim ate.*
 (see Sauerland (2004) about conversational scalar implicatures; Grice (1975))

People seem to manipulate or exploit the implicature of negating stronger alternatives. If an investigator asks (10), (11) is used by the suspect. Hirschberg (1985) established a wide range of scalar implicatures by extending Horn's entailment scale to pragmatic scale, but she has no notion of CT crucially involved here. Not only individuals but also a predicate of type $\langle e, t \rangle$, a modifier of type $\langle \langle e, t \rangle, \langle e, t \rangle \rangle$, and a proposition of type $\langle t \rangle$, I claim, can be CT-marked and form scales (to be discussed). Therefore, not only arguments but also functions and propositions can be asked by *wh*-words in QUD: *What did he do about the food? What happened?* CT in root clauses is speaker-oriented, and even a CT embedded in the complement of *say* and *believe* shows the speaker's attitude, not the attitude of the matrix subject. (11a) is about the speaker's own actions and the CT is meant to convey (11b). The weaker implicature version \sim KspP, that is, that it is not the case that the speaker knows P, is not an adequate representation. If a negative CT

⁶Hara (2006) also views the J CT *-wa* as generating 'conventional' implicature and Vermeulan (in Neelman and Vermeulan 2012) is in support of it, although Oshima (2002) differently views it as generating 'presupposition.' Lee (2007 = 2002) indicated that cancellation of CT implicatures would be possible only with heavy epistemic hedge, which can connect even contradictory sentences. This is contra Yabushita in this volume. Yabushita's "secrecy" issue sounds interesting (*Mary_{CT} came but I cannot tell about others*) but its expression is somewhat against sincerity condition or cooperative principle and cannot be in the realm of conveyed meanings and the 'secrecy' is still negative to the hearer, who remains ignorant about other alternatives. Partitively quantified CT expressions in Korean take *-nun*: *Roommate-tul-ey/cwung taypwupwun/celpan isang/se-y myung-un kimchi-rul mek-ess-ta* 'Most/more than half/three of/among the roommates ate kimchi' like (7) but non-partitive counterparts take *-ka* in Korean like (6). The same happens in Japanese.

utterance is given as a reply, a polarity-reversed weaker affirmative implicature arises, as in (12b).

- (10) Did you give money to the Governor?
 (11) a. [I made a few phone calls to her]_{CT} (*-nun* is attached to the verb *-kel* “make” in K)
 b. ~> But I did not even meet her. How can I give money to her?
 (12) a. [I did not give money to her]_{CT}
 b. ~> But I just offered some golf plays.

There can be multiple CTs in a sentence. A multivariable CT operator has been proposed (Lee 2000): $CT_{x, y, z}$ [$DP_x DP_y DP_z$ give]—each CT-bound DP has its own contextual set of alternatives and respective conventional scalar implicature. In Japanese and Korean, up to three CTs tend to be barely possible due to a processing constraint, as follows:

- (13) *emeni-nun_{CT} tongsayng-hanthey-nun_{CT} cangnankam-un_{CT} sa-cwusi-ess-e*
 ‘Mother_{CT} bought my younger brother_{CT} a toy_{CT}.’

But English allows for only two CTs due to intonational restrictions (Lee 2007), as in (14).

- (14) a. Sam_{CT} ate kimchi_{CT}. (But others ate cheese.)
 b. Mary_{CT} just applied_{CT}. (But Judy has been accepted.)

In Korean, a relative clause can contain a CT but not a non-contrastive Topic (*Sue-nun_{CT} cohaha-nun yenghwa* “a movie Sue_{CT} likes”; its head nominal is already topical in derivation (Lee 1973), but a complement clause can contain both. A CT in a relative clause also generates conventional scalar implicatures. A set of multiple CT contextual alternatives resists an easy interpretation, requiring expensive processing costs with calculation of alternatives in proper contexts. [CT + **Focus**] in a sentence is not required in most languages (except in German). A partition semantics approach with cells and blocks is a possibility (Yabushita 2016) but the exact nature of the involved implicature is not easily characterized by this model.

Answers involving a complete sub-question CT look like pair-list interpretations of universal quantifier in a question responding to conjoined speech act questions (Krifka 2003). The universal quantifier as a generalized conjunction is employed here. But the more typical partial CTs lack information on other conjoinable alternatives in a Potential Topic set, except by implicature. A Potential Topic phrase consists of conjuncts (as in *Fred, Sue, and Kim* in (1)) but not disjuncts (Lee 2006; Onea and Steinbach 2012). For (10), there must be a (scalar) series of alternative conjoinable acts such as *make a call, meet her, and offer a golf ticket*, leading to the strongest act of *giving money to the Governor*, as a Potential Topic. The stage of QUD with Potential Topic is most relevant to CT, and the questioner at that stage must have a *goal* (as in Ginzburg 1995 and van Rooij 2003, resolving levels of specificity in the context, etc.) and the goal can involve Potential Topic. Ducrot (1972) and Merin’s (1999) *goal* is useful in explaining the concessive *But* (and general causal relations), although it is sometimes linguistically distant, involving nonlinguistic orientational acts. Although contextual dependency is heavy for CT, the presence of implicature is mandatory, hence it is conventional.

We already observed the scalar nature of CT implicatures in the examples. Remember the totality of a Potential Topic set, with regards to which CT is established. Even in the case of list-like examples such as I_{CT} passed in the context of you and I, a scale $\langle I, \text{you and I} \rangle$ is formed and the implicature negates the higher value “both you and I,” leaving “you” to be negated because “I” has been affirmed in the utterance. The totality or sum in quantity (of individuals) by Potential Topic is always a higher value than a CT-marked referent. In the case of predicate CTs involving quality/property, different alternative predicates already form scales, no matter whether they are Horn’s entailment scales such as $\langle \text{possible, necessary} \rangle$ or Hirschberg’s pragmatic scales such as $\langle \text{date, be engaged, be married} \rangle$, $\langle \text{apply, be admitted} \rangle$, etc. Observe an example, as in (15).

- (15) Mary applied_{CT}. \sim > But she was not admitted.
Apply she did. (CT meaning; bombastic meaning)

Our Potential Topic is conjunctive and not disjunctive, i.e., not inquisitive (in the sense of the term in Inquisitive Semantics (InqSem), see Groenendijk et al. 2011; Ciardelli et al. 2013). My claim that Topics are conjunctive (2006) is supported by Onea and Steinbach (2012), and that is why (16a Cf. $\langle 1 \rangle$) and (17d) are non-felicitous.⁷ In contrast, in the *As for* CT construction (‘CT’ I say because it is with B accent in Jackendoff 1972), the *not both* implicature of *or* is suspended, as in (16), no matter whether the predicate is individual-level or not, unlike in DP Topics without *as for* in English. As in (17a), if the original object is in the *as for* CT, its pronominal copy *them* must remain, whereas an object Topic without *as for*, leaves no pronominal copy, as in (17b). A disjoined DP object, as in (17c), with the “not both” scalar implicature, gives rise to a sluiced clause with *which*, requiring a choice between the previous two alternatives out of the inquisitive object. An inquisitive object can be a disjoined DP or an epistemic *wh*-indefinite positive polarity item (PPI) such as *someone/something* and *which*. The latter generates a sluiced clause with *which*. (17c) has: *I don’t know which of the alternatives {oranges, bananas} Mary carried -> Did Mary carry oranges_{CF} or bananas_{CF}* (ALT-Q). However, if the disjunctive object is topicalized to function as a Topic, as in (17d), it results in an anomaly. In the *as for* CT construction, other monotone-decreasing elements such as *any* are not permitted, as in (17d). Apart from *as for*, *what about* is a CT-eliciting *wh*-question, as shown in (1c) above.

- (16) a. As for linguists **or** philosophers, they are stubborn. <“not both” suspended: meaning “both”>
 Cf. $\langle 1 \rangle$? *Linguists or philosophers are stubborn.
 $\langle 2 \rangle$ Are linguists or philosophers stubborn?
 b. As for the oranges **or** the bananas, they are next to the door. <“not both” suspended: meaning “both”>

⁷I thank Darcy Sperlich and Luke Bates for confirming the judgments for (16) and (17). I also thank Greg Ward (at CLS 40) and Manfred Krifka (reading my draft) for appreciating my finding of anomaly in (17d).

- (17) a. As for the oranges, Mary likes *(them).
 b. Oranges, I like.
 c. Mary carried oranges or bananas, I don't know which. (Cf. (45) with *neg > or*)
 d. ?* Oranges or bananas, Mary carried.
 e. *As for *any* linguists, they are stubborn. (Lee 2006)

The proposition which is partially admitted as a concession in a CT utterance may be incorporated into the Common Ground (CG), as we discussed mutual or public belief, being incorporated into the CG. But we cannot be quite sure about the non-at-issue proposition, which we call (conventional) implicature (but not pre-supposition). Therefore, it is not clear if this situation is what Baltag and Smets (2009) calls “uncertain information.” It is just partially certain and uncertain for the rest and as a whole it may still be called “uncertain.” The answerer’s partial plus implicational meaning is conveyed to the questioner.

Some researchers including Roberts (2011) rarely admit CT to constituents other than subject (-like) nominals, predicates, and (temporal) adverbials and some are reluctant to admit even predicate CTs, which are cross-linguistically prevalent in various forms. Kuroda (1965) used the term “contrastive,” which cannot distinguish between CT and CF. However, we notice a recent exception such as Jasinskaja’s admission of predicate CT (2016) or “predicate doubling” in Slavic, which Lee (2002) investigated, using Russian data. Some simply confuse CT with CF, e.g., Choi (1999) calls *-nun* here (in VP) in [1] “Contrastive Focus,” which is a misnomer. It is a typical CT in-situ, generating alternatives in contrast and evoking scalar implicatures (denying [Potential Topic total minus Inho = ‘others’]). Observe.

- [1] Sohi-ka Inho-nun manna-ss-ta
 S -NOM I -nun meet-PAST-DEC
 “Sohi met Inho (but not others)”
 [2] Inho-nun Sohi-ka manna-ss-ta
 I -nun S-NOM meet-PAST-DEC
 “As for Sohi, Inho met” (her translation has the CT marker *As for* before the Topic DP).

The sentence in [2], on the other hand, has a topicalized *-nun*-marked object, which she calls “Topic,” apparently having CT in mind with ‘prominence’ underlined. This part is understandable but the topicalized (fronted) *-nun* DP can also function as a real, non-contrastive Topic. The CT in the Topic position gets a more marked CT intonation (to distinguish it from a non-contrastive Topic possibility) than that in mid-sentential (VP) position, as experimentally shown. Her discussion of German and English data may also need to consider CT intonations as well in addition to word ordering.

I also noticed an erroneous treatment in some other work that calls subject CT a “CF” erroneously in the following context:

- [3] A: “Who came?”
 nwu-ka w-ass-ni?
 who-NOM come-PAST-DEC
 B: Sohi-nun w-ass-e
 S-nun come-PAST-DEC
 ‘Sohi came.’

In [3A], the question has the subject *wh*-phrase, *nwu-ka*. Therefore, B’s reply in [3B] with *-nun* is initially non-congruent because A expects a Focus subject exhaustively and the initially expected reply ought to be *Sohi-ka_{FOC}*. Some may mark the *-nun*-marking in [3B] as a little unnatural in this context. For B’s reply with *-nun* to be properly interpreted, the DP should be a CT and B should have some relevant alternative nominals in mind to be contrasted with *Sohi* and A must be cooperative with B to understand each other. Otherwise, A may remain puzzled because of B’s non-congruent reply with CT. CF cannot step in here; no ALT-Q (to be discussed) or immediately relevant alternative given in the context. A normal *wh*-Q simply evokes a Focus, pragmatically exhaustive. A Southern Ryukyuan has a Focus marker *du* for *wh*-Q subject and object and their corresponding answers consistently (Davis 2014), with the NOM and FOC markers separately in a declarative answer as in *Sohi-n_{Nom}-du_{FOC}*—for *taa(who)-du_{FOC} suba-ba_{Acc} fai(ate)?* ‘Who ate soba?’ and with the ACC and FOC markers as in *Sohi-ja_{Top} suba-ba_{Acc}-du_{FOC} fai* ‘Sohi ate soba’ for ‘What did Sohi eat?’. In Korean, *wh*-Q subject and object and their answers happen to have subject and object markers with Focus on the core arguments. That’s why the initially congruent question and answer pairs in [3A, B] must have the subject/NOM marker *-ka_{FOC}*. A CT is a sort of Topic with topicality as its subcategory, although it is topical and focal at the same time. Because of its focal component (scalar) alternatives are present. If it happens to be located at the default focus position in an utterance, it tends to give some more focal flavor (that is why some people like to have “foci”) and if located at the topic position it tends to give more topical flavor. A CF is a sort of Focus with focality, as its subcategory. We must pay attention to the head nouns of ‘Contrastive Topic’ and ‘Contrastive Focus.’

2 Contrastive Focus

Focus is marked typically by pitch accent to indicate new information (about Topic or CT), correct existing information, or make choice between alternatives. The first category is Information Focus (IF) and the other two categories belong, we claim, to Contrastive Focus (CF). IF is induced by a *wh*-question and CF by a disjunctive alternative question (ALT-Q, see below).

CF typically invokes a closed set of disjunctive alternative possibilities. Previous studies (Bolinger 1961; Chafe 1976; Rooth 1992, 1995; Schwarzschild 1999; Selkirk 1984, 2002; Kratzer and Selkirk (K&S) 2010; Katz and Selkirk 2011) all show different aspects of CF intuitively and innovatively but **explicit “CF-marking”** has rarely been proposed, analogous to “F-marking.” We propose it via ALT-Q, arguing that CF-marking requires both semantic (/pragmatic) motivations and phonetic prominence. Cho and Lee (2012) experimentally showed that CF in English has significantly longer duration and greater intensity than information

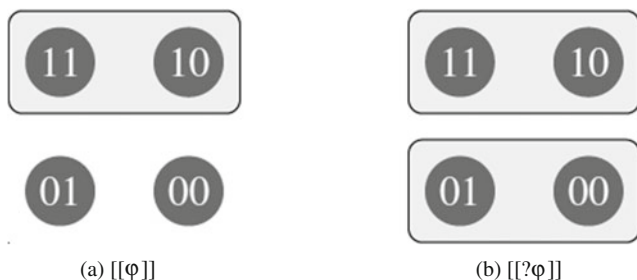


Fig. 1 Simple propositions visualized

focus, though pitch was primarily affected by prosodic position (phrase initial versus noninitial). Various cases of CF, including correction, clefts, and CF-reduplication in English need CF-marking, correlated with ALT-Q. Cross-linguistic manifestations also require CF. ALT-Q is based on **immediately relevant alternatives** in the dynamic hearer–speaker information exchange. This may well be compatible with Pruitt & Roelofsen’s (P&R) (2011) alternative disjunctive questions in Inquisitive Semantics. They show how *Sue drank wine* (φ) is simply informative with a single possibility (Fig. 1a) and *Did Sue drink wine* ($?\varphi$) is inquisitive with two possibilities of Sue’s drinking wine and her not drinking wine, requesting a response (Fig. 1b) ($[[\varphi]]$ is inquisitive iff $\text{info}(\varphi) \notin [[\varphi]]$). A disjunctive YN-Q *Did Sue drink wine-or-beer*↑? (YN $?\Phi$) is shown in Fig. 2a. A prototypical ALT-Q is: *Did Sue drink wine*↑*or did she drink beer*↓? (ALT $?\Phi$) and its exclusive strengthening is represented in (Fig. 2b). From φ , 11 in a circle in Fig. 1 is a world in which Sue drank both wine and beer, 10 a world in which she drank wine but no beer (See Collins et al. (2014) for the inquisitive potential of appositive content with an indefinite NP antecedent for sluicing).

CF is argued to come overtly or covertly from ALT-Q, as an intermediate QUD in question–answer interlocation. ALT-Q consists of two or more underlyingly full interrogative clauses cross-linguistically, the first with a Q final rising high tone and the second (or last) with a Q final falling contour, joined by disjunction in English

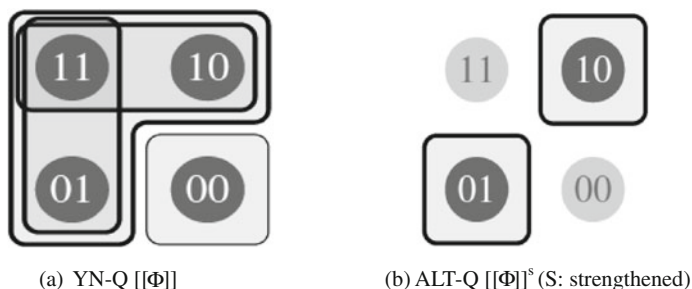
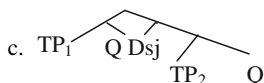


Fig. 2 Disjunctive questions

and Korean. ALT-Q also manifests itself in other unique characteristics in various languages, distinct from a yes/no question with constituent disjunction in it. In English, the second clause can be elliptical except the element with CF but in many languages including K ellipsis is harder. In K, as a head-final language, clause-final Q marker is required for each disjunct clause of TP or VP at least. Observe an ALT-Q in (18).

- (18) a. Did she dance_{CF}↑ or sing_{CF}↓?
 b. kunye-ka chwum-ul chwu_{CF}-ess-ni↑ (animyen) noray-rul pwul_{CF}-ess-ni↓?
 she-NOM dance-ACC dance-PAST-Q (if not) song-ACC sing- PAST-Q



AltQ as disjoined polar Qs: Lee (2003), Pruitt et al. (2011), Uegaki (2012), similarly Krifka (2017); but not like Han and Romero (2004) or Guerzoni and Sharvi (2013), who have the highest Q.

Under total ellipsis, based on the common ground, just the two categorically disjunctive elements in CF with the core prosody of rise ↑ and fall ↓ (e.g., ‘This↑ or this ↓?’) can convey an ALT-Q. A final boundary tone H% in an ALT-Q signals something unresolved and a final falling contour in the second (or last) disjunct in an ALT-Q in E and K signals closure and ‘exclusive strengthening,’ proposed as an operator E by P&R, assimilated to some LF lexical meaning. Intonation is compositional (Pierrehumbert and Hirschberg 1990). Its conventional, “imposed” meaning is accepted by default, resulting in the exhaustive consequence “**exactly one** disjunct holds.” Typically, if one disjunct holds, other disjuncts do not hold or are excluded. The exclusive component of an ALT-Q is not directly challengeable and thus constitutes a non-at-issue implication of a conventional implicature (Karttunen and Peters 1976) (or presupposition (Aloni and Egfré 2008)). However, an ALT-Q may have the atypical forms of [$P_{CF}↑ R_{CF}↑$ or both_{CF}↓], [$P_{CF}↑ R_{CF}↑$ or neither_{CF}↓], or [$P_{CF}↑ R_{CF}↑$ both_{CF}↑ or neither_{CF}↓]. If ‘both’ or ‘neither’ holds, exclusion/inclusion becomes different.

If one CF-marked alternative is accepted in the reply and not challenged by the questioner, the question is resolved and the chosen possibility becomes mutual or public belief, being incorporated into the CG. The answer assertion commits the speaker to the proposition expressed and we can separate out the beliefs publicly attributed to each participant, as in (19) (adapted from Gunlogson 2003). Let $CG_{\{a,b\}}$ be the CG of a discourse in which a and b are the individual discourse participants (PB = public belief).

- (19) a. PB_a of $CG_{\{a,b\}} = \{p: B_{ap} \in CG_{\{a,b\}}\}$
 b. PB_b of $CG_{\{a,b\}} = \{p: B_{bp} \in CG_{\{a,b\}}\}$
 c. CG of a discourse = $\{p \in \wp(W): p$ is a mutual belief of the participants of the discourse}

In sharp contrast, a disjunctive yes/no Q (= YN-Q) ($Q > \vee$) rises at the end, as in (20).

- (20) a. Did she drink coffee or tea↑?
 b. kunye-ka coffee-*na* cha-rul masi-ess-ni?
 she -NOM c -or tea-ACC drink-PAST-Q
 Same as (20a).

The YN-Q (20) has no rise on the pre-disjunction element and has a single final rise in English and analogously in K. The disjunction marker *-na* in (20b) in K only functions as an operator of constituent disjunction in a YN-Q but not in an AltQ.

Strikingly in Chinese, the ALT-Q disjunction marker *haishi* (its associated core alternative constituents being CF-marked) and the YN-Q constituent disjunction marker *hou* are lexically distinct and the latter ends with the yes/no Q ending *ma*, unlike in AltQ.⁸ Observe an ALT-Q in (21), both in matrix Q and embedded/indirect Q, as opposed to the latter in (22a). Korean has the predicative (YN-Q) disjunction marker *-kena*, distinct from nominal disjunction marker *-na*, as in (22b).

- (21) a. ta shi tiao-wu le haishi chang-ge le?
 she CF dance ASP AltQ-or sing ASP
 ‘Did she dance or sing?’ like (18a) in English.
 b. caicai ta shi tiao-wu le haishi/*hou chang-ge le.
 guess she FOC dance ASP AltQ-or/or sing ASP
 ‘Guess whether she danced or sang.’
- (22) a. ta shi tiao-wu le hou chang-ge le **ma**?
 she FOC dance ASP or sing ASP YN-Q
 ‘Did she dance or sing ↑?’
 b. ku yeca-ka chum-ul chwu-kena noray-rul pwul-ess-ni↑? (Korean)
 the woman-NOM dance-ACC dance-or song-ACC sing-PAST-YN-Q
 ‘Did she dance or sing ↑?’ (with the predicative disjunction *-kena*)

A YN-Q such as [1] *Is it raining?* has been considered as equivalent to an ALT-Q [2] *Is it raining or (is it) not (raining)?* but as syntactically *degenerate* (Karttunen 1977). However, the YN-Q [1] itself is foregrounded (by the **highlight** operation InqSem) and can readily generate relevant conversational implicatures such as *I may have to take an umbrella*, whereas the ALT-Q [2] (the YN-Q predicative disjunction *-kena* cannot be employed here in Korean: **Pi-ka o-kena an o-ni*↑? *‘Is it raining or not raining?’) directly expects an alternative between *It is raining* and *It is not raining*. Therefore, the ALT-Q between positive and negative has quarreling effects in most languages. Interestingly, however, the frequently used Chinese A-not-A question has no such quarrelling effects, except the mild effect of narrowing down the interlocutors’ attention to the given utterance. A polarity ALT-Q like (23) cannot occur with the regular YN-Q ending *ma* or extrasentential Yes/No (*shi/bu-shi*) responses. For English, *no* seems to be possible in this particular case, as in Farkas and Roelofsen.⁹ It has no bias regarding truth or polarity in Chinese.

⁸Krifka (p.c.) directed me to Karttunen (1977) for a similar distinction, *vai* in ALT-Q and *tai* elsewhere, in Finnish.

⁹Krifka (p.c.) drew my attention to the paper for this possibility in English.

- (23) ni bu ni (*ma)? (as opposed to *ni ma?* “Is it greasy?”)
 greasy not greasy
 ‘Is it greasy or not?’

A negative question must also come from two possibilities by highlighting, as in (24). But, whereas a positive question *Is she married?* is rather neutral, a negative question is biased towards its positive counterpart, particularly in its contracted form. This biased belief needs modeling, which InqSem currently lacks. Declarative questions (Queclaratives) such as *It’s raining?* have been analyzed by modeling a bias involved in terms of commitment sets, contextual bias, controversiality (Gunlogson 2003). A commitment set, as a representation of an individual’s dynamic *public* commitments rather than that of the individual’s doxastic state should be relevant here. The addressee’s commitment via a question in negation to prevent the neutral inquisitiveness of the positive question is the speaker’s way of leading the conversation to the enriched CG. We also argue that expletive negation is rooted in the positive bias of negative question with matrix modal attitude verbs (often DE) such as ‘fear’ (Choi and Lee 2017).

- (24) Isn’t she married?—*Biased towards* “She is married.”

The correction type of CF is phonetically most prominent but it is simply F-marked by Schwarzschild (1999) and Rooth (1992, 2007), although givenness is well appreciated by K&S. K&S reports, “The duration of a contrastive focus constituent is greater than the duration of a new constituent in the same sentential position.” The notion of CF is semantically plausible and phonetically supported.

CF is licensed if a pair or more of **immediately relevant alternatives** are available in the discourse context. Typically one is given in the preceding context, and the other proposed by the speaker from the context, as an alternative not challengeable by the addressee and they together form an overt or covert ALT-Q. The representation for *RITA* in (25B) as (22b) is not enough. The focus value for IP₁ in (18b) is the set of alternatives to the proposition that *Rita married John*, where *Rita* is replaced by alternative individuals of type <*e*> in (25). But it is not simple replacement by any alternatives in the domain for a *wh*-Q. The immediately relevant pair of alternatives in rivalry and contrast matter here with an accommodated CF-accompanying ALT-Q, as in (28). It is a stage of speaker–hearer conflict on the contrastively focused issue elements. To form an ALT-Q, the answerer must have an immediately relevant alternative to impose, which the questioner may not challenge. In (25B), a refuting negation “**Sue** did not marry Sam” is implicated (to be in *no*). For simple F-marking, there is no restricted, explicit pair or list of immediately relevant alternatives of any corresponding constituent types. Such correctives and all explicitly refuting constructions form CF-marked ALT-Qs. [*not X but Y* (*X, Y* are identical sub-clausal categories)] (Lee 2009, in press) is a typical CF construction constituting metalinguistic negation (see also Horn 1989). (25) and (26) can also be effective with an anaphoric proposition from the context but we must make sure that we set up a list of **immediately relevant alternatives** to CF-mark them in an overt or covert ALT-Q. One alternative appears in the surface

answer, CF-marked by inheritance from the previous ALT-Q. The possibility of **SUE**_{CF} is rejected. A simple *wh*-information Q ‘Who married Sam?’ is different in replacing the *wh*-word with F-marked alternative from a set of contextually more open (though loosely relevant) alternatives in (27).

- (25) A: Sue married Sam?
B: No, RITA married Sam.
- (26) a. [_{IP} Sue married Sam]¹
b. [_{IP}₂ ~ 1 C [_{IP}₁ **Rita**_F married Sam]]
- (27) [[_{IP}₁]]^f = { λw : marry_w(x, Sam) | x ∈ De}
(cf. Mayr 2010, adopting Rooth 1992)
- (25) A: Sue married Sam?
- (28) Did **SUE**_{CF} marry Sam↑ or did **RITA**_{CF} marry Sam↓?
(From the **immediately relevant alternatives** set:
{**Sue** married Sam, **Rita** married Sam}) (Exactly one alternative holds.)
- (25') B: No, RITA_{CF} married Sam. (“No” is licensed by the highlighted/profiled question involving the denied alternative “**Sue**_{CF} didn’t marry Sam.”)

A D-linked alternative *wh*-Q can be CF-marked, with clear alternative possibilities to reject, as in “Which lady married Sam, SUE↑ or RITA↓?” equivalent to (28). It is possible only if there are **immediately** relevant alternative referents presupposed in the context. It is distinct from ordinary *wh*-Qs that denote a set of multiple alternative possibilities, out of which one individual (say, *Rita*) that corresponds to the *wh*-word is chosen in the answer. It is simply F-marked. Observe (29).

- (29) Who got married to Sam?
{ λw . Mary got married to Sam in *w*, λw . Cindy got married to Sam in *w*, λw . Sue got married to Sam in *w*, λw . Rita got married to Sam in *w*...}

In the following discourse, a corresponding constituent in the parallel structure can be in CF:

- (30) Q: Sam drove Mary’s red convertible. What did he drive before that?
A: He drove her **BLUE**_{CF} convertible.
- (31) Did he drive her RED convertible or her BLUE convertible?

The CF-marked **BLUE**_{CF} in (30A) comes from an AltQ like (31). CF is on **RED** and **BLUE**. CF avoids given information, “given” here. Exclusive (exhaustive) focus bears CF in context, as in (32). Similarly, a CF-marked “I” in English in (32) comes from an AltQ in speech context, as in (33).

- (32) Pago **IO**_{CF} ‘I_{CF}ll pay’
- (33) [‘Will **YOU**_{CF} pay or shall **I**_{CF} pay?’].

A reciprocal CF such as (34) comes ultimately from a reciprocal ALT-Q like (35).

- (34) I told you: **CARL**_{CF} sued the **COMPANY**_{CF}.
- (35) I did not get it. (ALT-Q) Did **CARL**_{CF} sue the **COMPANY**_{CF} or did the **COMPANY**_{CF} sue **CARL**_{CF}?

A clefted constituent in a cleft sentence also has CF if it is used for correction or contrast (cf. Prince 1978; Hedberg 2013). It comes from an ALT-Q again, as in (38).

- (36) Did Sam break the window?
 (37) No, it was SUE_{CF} who broke the window.
 (38) Did SAM_{CF} break the window or did SUE_{CF} break the window?

The marker *-no-ho* in Japanese appears in various CF contexts such as the *yori* comparative and cleft-S.¹⁰ Observe (39).

- (39) *Meari-ga tabeta-no-wa pizza-no-ho-da*
 “What Mary ate was pizza, (not a hamburger).”

Yet another interesting CF phenomenon in English and a few other languages is CF-Reduplication, as in *salad_{CF}-salad*, *drink_{CF}-drink*, etc. It is viewed as a dynamic prototype (see Song and Lee 2011). Its denotation is determined as context changes and it is not so obvious and must be a probabilistic interactive decision problem.

- (40) A: I want a drink.
 B: Here, have some coke.
 A: No, I want a *drink_{CF}-drink*.
 [Do I want a drink like COKE_{CF} or do I want a *drink_{CF}-drink*?]
 (immediately relevant alternatives?)

The denotation of the *drink_{CF}-drink* in contrast with *coke* (soft drink—nonalcoholic) is an ‘alcoholic drink’ by default (when a *drink* is offered, it is predominantly an alcoholic drink). But if beer or wine is offered, the same *drink_{CF}-drink* by the hearer may denote a “strong alcoholic drink,” for example, whisky (a salient type of alcoholic drink) (but a prototypical nonalcoholic drink such as “water” for few people, depending on special context). *Salad_{CF}-salad* is not a marked salad such as meat salad or fruit salad. It is green vegetable salad for most native speakers of English as a “prototype.” But still for some people it is “Caesar salad” and for Russian-American community it is “potato-salad.”

Interesting consequences of CF-marking appear in various ways. See its metalinguistic negation (MN) effect in (41). Cardinals forming an entailment scale normally invoke scalar implicatures, but not here in (41a). MN requires a separate scale.

¹⁰Yukaghir is reported to show subject nominal focus marking, which functions as a cleft-construction with the meaning of “It’s me who sit,” as in (1). The focus marking here must be CF. It has an infinitival (nominal) predicate source, suspending subject agreement (Malchukov 2013).

(1) Met-ek moda-l
 I FOC sit-INF
 ‘I sit.’

(41) a. Sam does not have [2]_{CF} kids; (*but) he has [3]_{CF} kids. (MN in Horn's definition, from ALT-Q)

b. A: Are you happy? B: (i) Are you happy or not? (Descriptive negation)

B': (ii) Are you happy or ecstatic?

'I am not happy; I am ecstatic.' (An MN reply; a surprise because A expected B answer. For surprise effects of CF, see Zimmermann 2007)

Downward-entailing (DE) contexts such as antecedents of conditionals, restriction of *every*, and even nonveridical contexts such as questions and imperatives typically suspend scalar implicatures. But the embedded question one can postulate would be an ALT-Q for QUD, as in (43), to derive the CF-marked cardinal [*two*]_{CF}. CF-marked alternatives in an ALT-Q are in contrast and mutually exclusive (choice of one negating the other), superseding scalarity between them. Exclusion of the other alternative turns out to be equivalent to making an exception to suspension of scalar implicatures but the processes involved are different. Such exhaustivity effects in DE contexts can be explained by conventional CF semantics, rather than by conversational implicature. CF-marking can occur virtually in all DE contexts. For this phenomenon, the explanation that localists such as Chierchia (2004) offer seems less intuitive.

(42) If John has [*two*]_{CF} cars, the third one parked outside must be someone else's.

(43) Does he have [*two*]_{CF} ↑ or [*three*]_{CF} ↓ cars?

Similarly, Sevi (2005) offers some echoic *wh*-Q such as (44), having wide-scope over other possible scope-bearers or quantifiers.

(44) Whom did not Sue meet?

Then, the relevant answer part corresponding to the *wh*-constituent will have narrow focus with wide scope over negation for him, as in (45).

(45) She did not meet Hugo **or** Theo (I do not know which).

But it is crucial for **or** to get CF-marked for prosodic support with its prominent pitch accent.

The so-called Krifka's puzzle (Krifka 1999) such that (46a) does not scalarly implicate (46b) (whereas *Sam has two kids* ~> *Sam does not have three kids*) also seems to have to do with CF. The covert ALT-Q does not allow for scalar alternatives (scales of humans do not need to be dense (Lee 2009); humans have individuation cognition) and it may be 'Does Sam have more than two kids or (just) two kids?'

(46) a. Sam has more than two kids.

b. ~> *Sam does not have more than three kids.

An ALT-Q is distinct from both a YN-Q and a *wh*-Q in that in the former both of the nouns/verbs connected by *or* are stressed and the second ones fall in intonation (↓) in English; two separate interrogative sentences rising and falling appear in Korean; possibly doubly focused-marked by *ne* (before the alternative constituents) in Kikuyu (Schwarz 2003). An ALT-Q can be answered properly by affirming an

alternative and negating the other, denoting the unit set containing the affirmed proposition (P_1 or P_2). If both alternatives are negated, the ALT-Q denotes the empty set and if both alternatives are affirmed, it denotes the set containing both of these alternative propositions. The last two cases are against the speaker's expectation and the hearer's felicitous responsiveness that exactly one (one and only one) alternative holds/is true. This cannot easily be treated model-theoretically (Karttunen 1977). However, relying on the presupposition-like conventional meaning attached to the linguistic device of ALT-Q, we can go ahead with CF (see Gutzmann 2014 for conventional semantics possibility).

3 Concluding Remarks

A conjunctively conceived CT is distinct from CF, conveying an un-cancelable conventional scalar implicature, due to the unresolved partial information (except a list CT). The meaning a CT denotes is partial because Potential Topic in a sub-QUD is typically total. CF and ALT-Q with disjunction are correlated in exhaustivity effects. (Particularly, ALT-Q seems better characterized in InqSem, where question–answer and connectors such as disjunction are explored in terms of proposed possibilities in dynamic exchange.¹¹) We showed how CT is distinct from CF consistently cross-linguistically. CT implicatures pose the question of certainty in answerhood, although CT and CF are, as I argue, linguistically universal phenomena to be explored further. Our discussion alluded to the speaker—addressee public beliefs to be incorporated into the Common Ground, which is a far way to go. CF, in parallelism with ALT-Q, may shed light on the problematic exceptions to suspension of scalar implicatures in DE contexts such as antecedents of conditionals, and similar problems as well.

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¹¹The core ideas such as exclusively disjoining relevant interrogative sentences are seminal in Lee (2003).

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