Scalar Implicatures Revisited

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Key words : scalar implicatures; Contrastive Topic, PA and SN conjunctives, descriptive negation; Contrastive Focus, *CT* vs *Exh* operators, polarity

1. Introduction

This paper shows our scalar reasoning by the information structure category of Contrastive Topic（CT）that generates a scalar implicature.[1]

CT is linked to a Potential Topic（real or accommodated）in a prior discourse and generates a conventional scalar implicature denying a stronger/ higher scalar value induced by the Potential Topic. CT projects the 'concessive *But*'（Horn 1989）discourse connector that precedes the generated scalar implicature, in accordance with the meaning of concessive admission in CT in the actual utterance.

A *CT* operator I proposed（Lee 2000）rather than the *Exh* operator recently advocated by many researchers well explains why the concessive *But* discourse connector is required for scalar implicatures and *only*, the source of *Exh*, does not fit the discourse coherence.

In addition, it is shown that CT and the concessive focus markers *even*, *-to*, and *-mo* that generate negative polarity items with a low-end value are semi- dually interwoven on scales.

2. Information Structure, Concessive *But* and Scalar Implicatures
2.1 Overview

This part shows how the information structure categories of Contrastive Topic （CT）vs. Contrastive Focus（CF）are correlated with PA（from *Pero/Aber-*

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concessive *But*) (*Haciman* (K) /*Ga* (J)) vs. SN (*Sondern/Sino*) (*anira* (K) /*naku* (J) conjunctive discourse markers respectively and also with DN (descriptive negation) vs. MN (metalinguistic negation) respectively when negative utterances are involved. More importantly it claims that the CT – PA pattern underlies the phenomenon of scalar implicatures, even when a simple focus falling tone is involved, whereas the CF – SN pattern, which is MN or correction, typically 'blocks' them or is irrelevant to them in speech. Scalar implicatures are conventionalized by CT or conversationalized by covert CT and they cannot be adequately treated by 'only' or its equivalent *Exh* (*austivity*) operator alone, as proposed by Fox (2006), by a hint for disjunction from Sauerland (2004), and many others. Chierchia's (2004) adding SIs to the meaning of an utterance by the coordinate conjunction ∧ 'and' does not sound adequate when we consider the discourse relation between the utterance and the scalar implicature connected by PA.

2.2 CT and Scalarity

If a sentence with a scalar term from numerals, quantifiers, modals, predicates and nominals, and propositions on a (contextual) scale is uttered, a stronger/ higher alternative value in a contextually relevant scale is denied in an unuttered conjunct part connected by a 'concessive' PA *But* (*Haciman, Ga, Danshi* (C), *Nung* (Vietnamese)) (Ducrot 1972, Horn 1989) to generate a scalar implicature by Gricean inference of quantity and quality. CT, partially linked to a potential topic in the prior discourse, is marked by its marker *−nun* (K) /*−wa* (J) /*shi* (with tone 4-Fall) (C) /*-thi* (Vietnamese) or a CT contour, *i.e.*, fall-rise B accent (L+H*LH%) in English (Jackendoff 1972) or C accent in French. CT creates scales with relevant and comparable alternatives in the context. This overt CT generates conventional scalar implicatures, not cancellable, contra Buring (1994, 2003), whereas typical conversational scalar implicatures (contextual, optional) are generated by covert CT without CT marking (typically case-marked). The negation in a negative CT utterance is DN, with CT being descriptive/ denotational, not metalinguistic. CT is correlated with PA and DN. See (1) [principle] and (2) [scales].

    (1)   If p is uttered with overt (or covert) CT-marking in it, it is represented as '*CT*(p).' Then, concessively and contrastively ('But') 'not q' is

conveyed [with the *CT* operator being associated with a CT-marked element (focal and topical - partially linked to a potential topic in the prior discourse) in p and with q having a relevant and comparable stronger/higher element in one and the same scale]. $CT(p)=1$ iff p=1 and for all q in $A(p)$, q=1 iff p implies (entails) q (where $A(p)$ is the alternatives to p).[2] If elements in a scale are negated, simply the scale is reversed and the same principle applies with the effect: if not-q is uttered with CT-marking, its representation '*CT*(not-q)' conveys concessively and contrastively 'p' (a weaker/lower positive element). [For the CT operator, see Lee 2000; the Chierchia 2004 and Horn 2006 controversy over this negative scale whether it is "weak, flimsier" or not arises from lack of CT, see Lee 2006 about this].

(2) a. Horn entailment scale: (a) numerals <1, 2, 3, - > (b) quantifiers <some, half, most, most, all>, (c) modals <may (possible), must (necessary)>, (d) connectives (<*p* or *q*, {*p*, *q*}, *p* and *q*>) (Y. Lee 1995 and Sauerland 2004), (e) predicates <warm, hot>, <happy, ecstatic>, <like, love>, <good, excellent>, <pretty, beautiful>

   b. Hirschberg scale: <dating, engagement, marriage> pre-stages; nominals of ranking <assistant professor, associate professor>,

   c. New: *e.g.* <touch, push, beat, hurt, kill> abstract degrees
       < S1, S2, S3, S4, S5> Severity of attack
       < 1, 2, 3, 4, 5>
       Sm ← Sn for each m<n

   d. New: scale of propositions = likelihood <Korea beats Togo, Japan beats Brazil>, etc; complements of attitude/emotive verbs.

For my scale (2c), the logical structure of all the relevant and comparable alternative predicates (processes or events) at a more "abstract" level[3] is not different from that of Horn's entailment scales in generating scalar implicatures. For example, if we take S1, ... , S5 to abbreviate "the severity of my attack was no higher than level 1, 2, ... 5, where the severity of a mere touch is level 1 and

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2 I thank Keshet for making this part a bit explicit but I still need to incorporate a link to Potential Topic and some contrast logic to explain the 'concessive *But.*'

3 I owe Jerry Seligman for the possibility of this level via e-mail 5/2/06.

that of killing is level 5, then Sn implies (=entails) Sm for each m<n. The scalar implicature of the CT-marked sentence

(3)   I PUSHED$_{CT}$ her.

in a suitable scalarity context, is that the (overall) severity of my attack was no higher than that of the push (Rooth 1996 only has Focus laternatives on predicates). If the severity of a push is at level 2, say, then this would entail S2, which in turn scalarly implicates that I didn't beat, hurt or kill her, with the aid of the PA connective despite the fact that none of these processes entails pushing. No right side predicate entails the left side predicate for that matter. In severity the prototypical maximal element is killing, which behaves like universal quantifier, e.g.,

(4)   a.???I KILLED$_{CT}$ her.

        Cf. b. ?*ALL$_{CT}$ came.   (Lee 2000)

If, however, a context accommodates an extended scale including *maim*, S6, then (4a) can become appropriate with the implicature of [but I didn't maim her]. This way, a scale of property degree ranking (along with information strength degree entailment) evokes scalar implicatures. In another context, a meta-action comment such as 'It serves her' can be a higher value. Further, we can think of a higher mental value of 'deprive (her) of honor' and 'I killed her$_{CT}$. ~> But I couldn't deprive her of her honor.'[4] We can add to (2a) (f) adjuncts <~(know) well, ~(know) (even) a little>, a negative scale.

A naturally emerging principle is: *CT* cannot apply to a highest extreme value of a scale. This constraint is natural because *CT* must generate a scalar implicature denying a still higher value of the scale, which is not contextually provided if a highest value is CT-marked.

The scale of whole propositions I propose in (2d) is a likelihood scale. It has been known for a while in the context of negative polarity item *even* (Y-S Lee et al. 1994, Lee 1996) but somehow it has not been treated in the categories of scalar terms. But propositions with distinct subjects and objects can be on a scale. Observe (5):

(5)   I believe [Korea will beat Togo] $_{CT}$ ~> But I don't believe [Japan will beat Brazil].

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4   I owe the observation of this possibility to Jaeyoung Lee.

This scale of propositions is witnessed in an idiomatic scalar negative polarity construction in (6). A crucial claim here is that if a weaker value on a scale is modified by *even* or its equivalent *–to* (K) or *–mo* (J) it becomes an NPI and requires a negative or downward-entailing context. If a weaker value on a scale takes a CT marker, it generates a scalar implicature in accordance with principle (1).

(6)   Korea didn't even beat Togo, let alone Japan beat Brazil.

The reading goes: it is more likely that Korea would beat Togo than Japan would beat Brazil, as in the scale, but neither actually happened.[5] Formally: likelihood(beat(K, T)) > likelihood(beat(J, B)). This kind of CT propositions can be embedded in attitude and emotive predicates such as *believe* and *hate* and the complement clause can take a CT marker in K/J. A *when* clause has been claimed to be a CT in *When his /colleague snores, Peter HATES it* (Hinterwimmer 2009). A lower alternative may be his kids' making noise being in a scalar implicature.

The question and answer pair 'Do you speak Portuguese?' 'My husband does' (Hirschberg 1985) may be a bit different; if the domain is widened to my close relatives it may be easier to get help from than my own speaking it. So, my speaking Portuguese must be higher on the scale of propositions and my more direct answer may be 'I_{CT} don't' with the CT intonation (or *–nun/-wa* marking) on 'I'. But I cannot be sure that the interviewer has a Potential Topic domain sharing with me and cannot simply scalarly implicate 'But my husband does.' I must utter it: 'my husband does' (here a Potential Topic 'you and your close relatives' can be accommodated). However, I want to avoid a negative utterance in my answer and my choice is to strategically utter the more positive, though weaker, part on the scale, leaving 'But I don't' as a scalar implicature. The answer utterance was potentially a product of scalar implcature in my thesis, to explain the indirect answer. It may be viewed such that my speaking Portuguese is more expected for the job and informative/relevant than my husband's speaking Portuguese, which is just the 'next-best' answer (Winterstein 2008). Similarly, Merin(1999) proposed a probability function to explain this situation game-theoretically: Speaker's claim, when asserting *p*, is the set of propositions that

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5   Ezra Keshet and most natives accept (6).

are *at least* as relevant to Goal, as is *p* (*upward relevance cone* of *p*), whereas what Hearer is willing to concede is *at most* as relevant to Goal as is *p* (*downward relevance cone* of *p*), with the net (or interpreted) meaning being the intersection of the two cones. Merin adopts Ducrot's (1972) argumentative analysis with a posited Goal of discourse. 'At least' is part of the meaning of CT. Exhaustification is proposed to replace the intersection of the two upward and downward cones by van Rooij (2004). However, some adequate game-theoretic approach may well fit my CT analysis.

An interesting dual-like relationship between CT and *even* (or *–to/-mo*) exists. Consider: (a) *She lifted her FINGER$_{CT}$* (*but was not very helpful*), (b) *She lifted her finger*, (c) *She didn't* (*even*) *lift her finger*, (d) *It is not the case that she didn't* (*even*) *lift her finger* ⟹ (a) [semi-duality relation]. (d) does not entail (b), which is ungrammatical, but it entails the CT-marked positive S, (a). However, the other way around does not seem to work nicely. A low-end value + *even* = NPI. (See Oshima 2002 for the relationship between the additive *–mo* and the topical *–wa*.)

Many entailment scales are fairly semantic but many other scales are contextually evoked and variable; a positive scale in one context can be reversed in another context without polarity reversal, e.g.

(7) a. <cwuk(K)/kayu(J) 'porridge or gruel,' pap/gohan 'rice or meal'>

     b. <gohan, kayu> (J) [with *kayu* being nutritious and special].

In ordinary contexts, if someone says 'I *kayu-wa* ate' it scalarly implicates that she didn't eat *gohan*. But in a limited context where *kayu* is nutritiously and specially prepared and is more expensive than the common hospital meal, scale (7b) can be evoked by 'I *gohan-wa* ate,' which scalarly implicates she didn't eat *kayu*. The presence of CT *–nun* or *–wa* forces us to look for a higher alternative value to be denied on a contextually relevant scale. On the other hand, for scale (7a), if we attach *even* or *–mo* to the lower end value *kayu*, it requires a negative/downward context, becoming an NPI. For scale (7b), *gohan-wa* functions as an NPI. Such variability of scales does not imply their non-existence. Likewise, scales either way are necessary. The operator *CT* requires such contextually relevant scales, not just alternatives. The actual utterance with CT is concessively admitted in argumentation and the generated scalar implicature is often crucially

conveyed, with no need to further consider the Goal of discourse, which is required by Ducrot and Merin's argumentation theory.

Matsumoto (1985) contributed to the discussion of scales by examining the specificity level of scalar expressions and their monotonicity requirement on the basis of Horn (1989). Monotonicity excludes *if and only if* and *exactly n*, which have a negative component contributing to their non-monotonicity, from Horn scales. Katzir (2008) argued against the requirement of monotonicity, and proposed 'structurally-defined' alternatives, eventually disposing scales. He said that a sentence with *some but not all*, also more informative than a sentence with *some*, leads the speaker to be ignorant between a sentence with *all* and a 'symmetric' one with *some but not all*, resulting in a conflict with the hearer's other beliefs. Fixing a subset, entailment, and in turn scalarity relation will necessitate exclusion of a sentence with *some but not all* from scales in Katzir's view. But he excludes it for the different reason that the alternatives of a *some* sentence are "only [parse tree] structures that are at most as complex as the *some* sentence" and the *some but not all* sentence is not such a structure. He also gives a 'puzzle' of (a) 'If we meet John but not Mary it will be strange' (b) 'If we meet John it will be strange,' observing that (a) seems to imply that (b) is unassertable. But his structurally strictly simpler examples of alternatives do not necessarily seem to work his way. Observe:

(8) ϕ = A tall man came to the party

    ϕ' = A man came to the party

Although ϕ is stronger than ϕ', he thinks ϕ' does not implicate the negation of ϕ in any situation. But ϕ' may scalarly implicate the negation of ϕ (suppose a question, "Did a tall man come?"), just as in the relation between 'Mary ate an apple' and 'Mary ate a fruit' in a limited context where a sort of fruit (say, apricot) was eaten and 'a fruit' is CT-marked with intonation (Lee 2006). A scalar implicature does not arise the other way around. 'I ate an apple$_{CT}$ ~/~> 'I didn't eat a fruit'. A parallel applies to (8): 'A man$_{CT}$ came to the party' ~> 'A tall man didn't come to the party' but 'A tall man$_{CT}$ came to the party' ~/~> 'A man didn't come to the party.' Consider: 'He is a cook$_{CT}$' ~> 'He is not a good cook'. Katzir's structure-defined alternatives approach, thus viewed, is not a clear-cut

alternative. However, Keshet (2009), Alonso-Ovalle (2006), and others resort to alternatives with the *Exh* operator (see Kratzer et al. 2002). They still seem to benefit from the scalar *only* rather than the logical *only* in practice for scalar implicatures. Let me return to the problems of *only* shortly.

2.3 CT Requires PA Conjunction

Because CT has the function of concessively admitting the mother or actual utterance, it forces the connector to be the PA 'concessive' *but/But* linking the utterance to the next conjunct utterance or implicature. It cannot be the coordinate conjunction marker *and/And* or the SN *but/But*. Observe:

(9) Q: You have many friends, don't you?

A: ses myeng-UN   iss-e. (K)

3-   CL-CT   exist-DEC

'I have THREE$_{CT}$' ~> (**conventionally** implicates) (Lee et al. 2002)

[*Haciman* (??kuriko) *te-nun eps-e*]

'*But* (??and) not more than three.'

B: san-nin-WA   imasu. (J) ~> [Ga san-nin yori ooku-wa   arimasen]

3-CL-CT   exist-DEC   But 3-CL   than more-CT not-be

'I have THREE$_{CT}$.' ~> [But I don't have more than three.]

B': I have THREE$_{CT}$. ?*((In fact, four.)) ~> '*But* (??and) not more than three.' (The above implicature not cancelable.)

C: a. manh-ci anh-e (K)

ooku   nai-desu/arimasen (J)

many   not

'I don't have many.' ~> [But I have a few or no friends.]

b. manh-ci-NUN   anh-e (K)

ooku-WA   nai-desu/arimasen (J)

many-CT   not-exist/not-exist (POLITE)

'I don't have many$_{CT}$.' ~> [But I have a few]

If the utterance has CT-marking as in K, J, and E (9 A, B, B"), the concessive PA *But* (with the meaning of 'although'), as opposed to the SN *But* (with the meaning of rectification), is followed. A coordinate conjunction discourse marker

'And' is not appropriate, either; the two connected propositions are not on equal standing. As in (9C), without CT on the scalar term (a), the implicature has the weaker positive meaning of 'but a few' down to 'no (friends).' The negative force reaches down to zero. With CT, however, the delimitation by a scalar implicature is clear and a weaker (than 'many') but positive scalar alternative 'but a few' is evoked. Other examples show a CT on a predicate. Various grammatical categories including adverbs and aspects/modals but not tense can get CT-marked in Korean and Japanese (see Lee 2006). The negation involved here with CT is about real world facts and descriptive or denotational as DN (Lee 1999).

(10) (J) watashi-wa   kanozo-ga   suki-deWA   aru
　　　 I-TOP   her-NOM   like-CT   be

　~> [*Ga   ai-shi-te-wa   inai*]
　　　 But   love-do-CON-CT   not

　　　 'I LIKE$_{CT}$ her' ~> [**But** I don't LOVE$_{CT}$ her.]

(11) (K) na-nun   hwangholha-ci-NUN   anh-a. ~>   [coh-ki-nun hay.]
　　　　 I-TOP   ecstatic-CI-CT   not   happy-NMN-CT do

　　　　 'I am not ECSTATIC $_{CT}$.' ~>[**But** I am happy.]

(12) (K) emma-**nun**   an   o-ko   emeni-kkese-**nun**   o-shi-ess-ta
　　　　 mom-CT   not   came-and   mother-HON-CT   came-HON

　　　　 'Mom (own) didn't come but Mother (in-law) honorably came.'

In (12), two different kinds of mother (one's own and in-law) are referred to initially by the CT-marked DPs but in a parasitic word-play use in a special remote context of instruction/rebuke, the two CTs can refer to one referent, with the negation here used metalinguistically.

　　The operator *CT* can theoretically bind multiple elements in a single proposition, as follows, but the output is not so easy to understand and its acceptability can degrade as the number of CTs grows. If adjuncts are inserted between the CTs, the result gets better. Because of this bindability, there is no problem in my original *CT* as operator proposal (Lee 2000), contra Yabushita (to appear). If his partition semantic analysis a la Groenendijk and Stokhof(1984) is adequate, it must be at least weakly equivalent to my CT analysis, for which some notion of partitions has been introduced (Lee 2006).

(13) ? emeni-**nun**   hyeng-hanthey-**nun**   netbook-**un**   sa-cwu-shi-ess-ta
mother-CT   brother-to-CT   netbook-CT   bought
'Mother$_{CT}$ bought a netbook$_{CT}$ to my brother$_{CT.}$'
$CT_{x, y, z}$ (DP$_x$ DP-to$_y$ DP$_z$ V)

In (13), all the CT-marked terms, Mother, brother, and netbook, induce their alternatives, respectively, Mother and Father, brother and me, netbook and notebook. If adjuncts are between CTs, acceptability increases. Those sets of alternatives are linked to the Potential Topics in the prior discourse, which may cause an unnatural adjusted assumption about Topics and Potential Topics.

If CT interacts with negation and the negation appears at the end of a clause, CT can be ambiguously associated with any focused expression in the clause. Observe:

(14)   emeni-ka   hyeng-hanthey netbook-ul   sa-cwu-shi-ci-**nun** anh-ass-ta
mother-NOM brother-to   netbook-ACC buy-give-HON-CT   not-PAST
'Mother$_{(CT)}$ didn't buy$_{(CT)}$ a netbook$_{(CT)}$ to my brother$_{(CT)}$.'

CT here can be focally, ambiguously associated with a V alternative 'lend', with an Obj alternative 'organizer', with an IO alternative 'me', and with a Subj alternative 'father,' for a scalar implicature (Lee 2006). If CT occurs at the end of a positive clause, a similar (but a little weaker kind of) ambiguity arises, depending on where focus is assigned.

2.4 CT vs CF and DN vs MN

Contrastive Focus (CF), on the other hand, is based on a preceding alternative (disjunctive) question (at times accommodated) and requires heavily stressed exhaustive answers and forms a metalinguistic or correction frame with SN (MN *but*) (*anira* K, *naku* J, *er-si* C, *ma* V), denying the other party's alternative (on "whatever grounds"-Horn 1985) with its echoic nature and affirming the speaker's alternative. Focusing here is heavier than information focus, though not felt by some. Therefore, its negation is addressed to the target expression directly first as MN, unlike DN. A posited CF operator under MN negation can block scalar implicature but Sauerland (2004) posits an abstract 'only' for this purpose. Fox's (2006) adoption of *only*-like *Exh* operator is different: it is actually

for overt and covert CT contexts that generate scalar implicatures. Crucially, however, CF contexts do not generate implicatures but MN ellipsis. CF arises when an (accommodated) alternative question precedes the utterance. Consider:

(15)   A: He is the biggest fool in Japan.

B: In the WHOLE WORLD$_{CF}$ perhaps.–In Japan or in the whole world?

B': ***In Tokyo$_{CT}$ maybe. Tokyo-ni-wa** so-desu. 'Tokyo-in-CT he is.'*

In (B), the MN part *not (just) in Japan* has elided. If a nominal or PP is (contrastively) focused, it is case-marked (structural or oblique), not CT (*-nun or –wa-*)-marked. 'The whole world' is in contrast with 'Japan.' If (15A) is answered by B': ***In Tokyo$_{CT}$ maybe***, then, it becomes a CT and **–nun** or **–wa**-marked, as in *Tokyo-ni-wa* – 'Tokyo-in-CT –', scalarly implicating 'But not in Japan.' .

CF, MN, and SN are correlated. Observe examples (16)-(20).

(16)   na-nun   cohu-n$_{CF}$ kes-i/-*un *ani-i-ra$_{SN}$/**ani-i-ciman* hwangholhay$_{CF}$.
I-TOP   happy-N COMP-NOM/-*TOP not-be-CONJ/*not-but ecstatic
' I am not happy but ecstatic.'

(17) a.   kanojo-wa otoko-o san-nin$_{CF}$ futta-no-de-**wa** *naku$_{SN}$* yo-nin$_{CF}$ futta
she-TOP   boy-ACC 3-CL   dump-WA   MN   4-CL   dumped
'She dumped not three boys but four.'   (J, N. Sugita, pc)

   b.   Kore-wa A-de(-wa/*-ga)   naku   B-da   (Matt Shibatni, pc)
this-TOP A-be(-TOP/*-NOM) not-and B-be
'This is not A but B.'

(18)   They didn't play MANY$_{CF}$ of Beethoven's symphonies. They played ALL$_{CF}$ of them (Sauerland 2005 does not appreciate the discourse metalinguistic level, which he now came to adopt).

(19)   Anyone who saw Elvis OR$_{CF}$ Bobby Fischer must be blind. But those who saw BOTH$_{CF}$ of them must have good eyes.

(20)   khong phai la   de$_{CF}$ nhin   *ma$_{SN}$* la   dep$_{CF}$ (Vietnamese)
not   right be   plain look but   be   beautiful
'(She) does not look plain but beautiful.'   (Lee 2006)

It is interesting to see *-wa* instead of *-ga* attached to the alternative to be metalinguistically negated, unlike in Korean. But natives feel the difference between this MN *-wa* and the DN CT *-wa*. The use of the NOM *-ga* instead might

have given an impression of polemic opposition. Some remnant of 'concessive' attitude might have been desired by *-wa* for politeness strategy. Together with the coordinate conjuction *-ku* in *naku*, opposition may be mitigated. Sauerland's (2004) treatment of (18) and (19) is by postulating a silent ONLY, projected right below negation. He gives a formal model-theoretic definition of the lexical entry following Groenendijk & Stokhof (1984) and van Rooij & Schulz (2004). But this is to 'block' scalar implicatures, not to **evoke** them, as adopted by Fox (2006). In (20), the MN *But ma* (V) but not the concessive *nung* is used.

In *only* (p), *p* is presupposed (or conventionally implicated) and the denial of the entire alternatives is entailed or asserted (Horn 2002). The *Exh* operator in this sense is not compatible with scalar implicatures that follow the concessive discourse connector *But*. In any language, *only* (p) and the following implicature with *But* are not discourse-coherent:

(21) ?* I *only* met the secretary. ~>**But** I didn't meet the president.

A CT-marked 'secretary' has the expected implicature. Therefore, even those utterances with no CT marking but simple focus marking must have a covert *CT* operator to evoke a scalar implicature.

PA and SN connectives are not exchangeable in use cross-linguistically, although English *but* and French *mais* have no distinction in form. We have examined how they are correlated with CT and CF respectively and how the CT (overt/covert) – PA pattern is responsible for scalar implicatures. Thus viewed, the DN and MN distinction is also naturally explained in information structure frames.

3. Concluding Remarks

Fortunately the Korean and Japanese languages have clear CT (*-nun*, *-wa*) and Concessive markers (*-to*, *-mo*), including strong and weak NPI forms and we can look into facts more clearly and contribute to cross-linguistic generalizations and hopefully more fruitful analyses related to contrastive information structure categories, *But*-like connectors, scalarity and polarity. The simple focus falling tone also evokes covert *CT* by accommodation of CT and Potential Topic in order to generate scalar implicature properly. Scalar reasoning is deeply

rooted in human mind and language. Discourse-based grammar, semantics and pragmatics are needed.

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