CONTRASTIVES AND GRICEAN PRINCIPLE

YURIE HARA

Department of Linguistics
University of Delaware/University of Massachusetts, Amherst
yhara@udel.edu

It has been observed that contrastive-markings in various languages are associated with uncertainty implicatures. However, a sentence can be contrastive-marked even when the speaker has a complete answer to the question, as long as one of the alternatives have an opposite value from the rest. Following the analyses by Spector 2003 and Schulz and van Rooij (in press) on exhaustivity and the Gricean Principle, this paper claims that Contrastive-marking presupposes that the speaker's knowledge is not maximal.

1. Introduction

Contrastive meaning can be represented by prosody as in German (Topic-Focus contour) and English (B-accent) and also by prosody and morphology as in Japanese (*-wa*) and Korean (*-nun*). Previous analyses claim that their contrastive meanings come from an *uncertainty* implicature as witnessed in (1-a) and (2-b). However, uncertainty alone does not correctly characterize all the properties of Contrastives. This paper elaborates an analysis that connects the phenomena to a more general pragmatic principle, i.e. the Griean principle, rather than stipulating that Contrastives induce a certain implicature.

(1) /ALLE Politiker sind NICHT\ korrupt
all politicians are not currupt
a. 'It is not the case that all politicians are corrupt.'($\neg\forall$)
(Possibly, some are corrupt.)
b. *'No politicians are corrupt.' (*$\forall\neg$)
(No implicature: unavailable reading for (1)) (German; Büring 1997)

(2) a. Who passed the exam?
b. MARY-wa ukat-ta
Mary-Con pass-Past
'[Mary]$_{Con}$ passed.'
c. MARY-ga ukat-ta.
Mary-Nom pass-Past
'Mary passed.' (exhaustive answer) (Japanese)

2. Büring 1997 and Hara 2004

Büring 1997 claims that a contrastive-marked sentence implicates there exist some unanswered questions: "If a sentence S with a Topic accent is uttered given some Context CX, and there is no disputable Residual Topic the sentence establishes, the utterance of S in CX is infelicitous." Similarly to Büring, Hara 2004 claims that a contrastive-marked sentence presupposes that there exist some stronger scalar alternative to the assertion, and it implicates that it is possible that the stronger alternative is false.

(3) CONTRASTIVE(w)(x)(B)(F) (w: world variable, x: speaker or attitude-bearer, F: contrastive-marked element, B: background, C: common ground)
   a. asserts: B(F)(w)
   b. presupposes: $\exists$F′[[F′ $\in$ ALT_C(F)] & [B(F′) $\Rightarrow$ B(F)]& [B(F) $\not\Rightarrow$B(F′)]]
   c. implicates: $\exists w' \in \min_w[w' \in \text{Dox}_x(w)]$: $\forall$F′[[F′ $\in$ ALT_C(F)] & [B(F′) $\Rightarrow$ B(F)]& [B(F) $\not\Rightarrow$B(F′)]][B(F′)(w')=0]

3. Contrastives can be used with a complete answer

However, questions can be completely resolved as in (4-a) and (4-c). What is prohibited is to have positive answers for **all** the alternatives as in (4-b) and (4-d).

(4) Among John, Mary and Bill, who came to the party?
   a. /JOHN und MARIA\ sind gegangen, (aber) /BILL ist NICHT\ gegangen.
      John and Maria are gone, but Bill is not gone
   b. */JOHN und MARIA\ sind gegangen, (aber) /BILL ist GEGANGEN\.
   c. John-to Mary-**wa** ki-te/takedo, Bill-**wa** ko-nakat-ta.
      John-and Mary-Contrastive come-and/Past.but, Bill-Contrastive come-Neg-Past
   d. *John-to Mary-**wa** ki-te/takedo, Bill-**wa** ki-ta.

4. Exhaustivity (Spector, 2003; Schulz and van Rooij, (in press))

Notice that the induced implicatures are very similar to conversational scalar implicatures of Grice. In recent literature of Gricean framework, scalar implicatures are derived in two steps. Especially, Spector 2003 and Schulz and van Rooij (in press) derive scalar implicatures from exhaustivity. For example, as the first step, Schulz and van Rooij define the order of knowledge as follows: "a speaker has more knowledge about P if she knows of more individuals that they have property P." In other words, the crucial assumption here is that in the case where the speaker

knows of some individuals **not** having property P, it is not counted as the speaker's knowledge with respect to P, as they note in their footnote 45 [p. 41]. Given this assumption, Schulz and van Rooij (in press) formulates the Gricean Principle:[1]

(5) Interpreting according to the Gricean Principle (Schulz and van Rooij (in press))
Let A be an answer given to a question with question-predicate P in context $C =< W, R >$. We define the pragmatic interpretation $grice^C(A, P)$ of A with respect to P and C as follows:
$grice^C(A, P) =_{def} \{w \in [\mathbf{K}A]^C | \forall w' \in [\mathbf{K}A]^C : w \preceq_{P,A} w'\}$

Hence, the Gricean Principle gives a primary (weak) implicature, the speaker does not have knowledge whether the property in question holds for the rest of the alternative individuals.

Second, the assumption that the speaker is competent gives a secondary (strong) implicature, the speaker knows that the property does not hold for the alternative individuals.[2] Hence, we obtain a welcome exhaustive interpretation by maximizing the speaker's competence.

(6) Adding Competence to the Gricean Principle (Schulz and van Rooij (in press))
$eps^C(A, P) =_{def} \{w \in grice^C(A, P) | \forall w' \in grice^C(A, P) : w \not\sqsubset_{P,A} w'\}$
$= \{w \in [\mathbf{K}A]^C | \forall w' \in [\mathbf{K}A]^C :$
$w \preceq_{P,A} w' \wedge (w \cong_{P,A} w' \rightarrow w \not\sqsubset_{P,A} w')\}$

5. Contrastives Necessarily Limit Competence

As mentioned earlier, primary weak implicatures are very similar to the implicatures associated with Contrastive-marking. In (2), (2-b) indicates the speaker is not sure about others.

Hence, I propose that the function of Contrastive is to indicate that the speaker has a limited competence with respect to the question predicate.[3] Now, I posit the following interpretation of Contrastive. Here, I go back to the notations in structure meaning approach I used in Hara 2004. The background B and the assertion B(F)

[1] $w_1 \preceq_{P,A} w_2$ means that the speaker in w_2 is more or equally knowledgeable compared to the speaker in w_1. See Schulz and van Rooij (in press) for a more precise definition.

[2] $w_1 \sqsubseteq_{P.A} w_2$ roughly means that the speaker in w_2 is more or equally competent than the speaker in w_1. $w \cong_{P,A} w'$ roughly that means the knowledge of the speaker in w is equal to that in w'. See Schulz and van Rooij (in press) for more precise definitions.

[3] Schulz and van Rooij (in press) also mentions this intuition at the end of their section 7 [p. 49]: "the answerer can cancel this additional assumption by either mentioning that she is not competent or simply deviating from the standard form of answering a question (by using negation, special intonation, etc.). In this way we can correctly predict the weakening of exhaustive interpretation to 'limited-competence' inferences for such answers."

correspond to the question predicate P and the answer A respectively in Schulz and van Rooij (in press):

(7) Interpreting a sentence with Contrastive-marking
CONTRASTIVE(B(F))
presupposes: eps^C(B(F), B) $\neq$ $grice^C$(B(F), B)
implicates: $grice^C$(B(F), B) $= \{w \in [\mathbf{K}(\text{B(F)})]^C | \forall w' \in [\mathbf{K}(\text{B(F)})]^C : w \preceq_{\text{B,B(F)}} w'\}$

Contrastive lexically specifies that the speaker's competence is minimal and prevents the interpreter to draw the exhaustive interpretation (i.e. the secondary strong implicature). To illustrate, let us take the example (2) assuming that there are only two individuals, Peter and Mary. (9) is the interpretation of (2-b).

(8) a. B= $\lambda x.\mathbf{passed}(x)$
b. F= m

(9) CONTRASTIVE($\mathbf{passed}(m)$):
implicates:$grice^C(\mathbf{passed}(m), [\lambda x.\mathbf{passed}(x)])$
$= \{w \in [\mathbf{K}(\mathbf{passed}(m))]^C | \forall w' \in [\mathbf{K}(\mathbf{passed}(m))]^C : w \preceq_{[\lambda x.\mathbf{passed}(x)],\mathbf{passed}(m)} w'\}$
$\models \neg\mathbf{K}(\mathbf{passed}(p))$

Just like the primary implicature computation, the result of (9) entails that the speaker considers both the possibility where Peter passed and the possibility where Peter didn't pass. Hence, it entails that the speaker doesn't know that Peter passed, which seems to be a desired interpretation for (2-b).

Moreover, Contrastive-marking not only generates implicatures when possible, but **always** generate implicatures. Therefore, Contrastive-marking is possible only in the environment that the speaker's knowledge is limited. Namely, there must be an effect by limiting the competence (the presuppositional requirement in (7)). This explains the infelicity of (10).

(10) #ZEN'IN-wa kita.
Everyone-Con came
'[Everyone]$_{Con}$ came.'

Knowing that 'Everyone came.' is true entails knowing that all the individuals are in the extension of the property $\lambda x \in D_e.x$ came. Applying eps^C does not affect the interpretation since the assertion itself implies that the speaker has a maximal knowledge with respect to the property; hence the speaker is maximally competent, which is not compatible with the presupposition of Contrastive-marking.

Now, how does (7) overcome the problem presented in section 3.? Let us illustrate with the following simplified examples assuming again that we are only considering two individuals, Peter and Mary.

(11) Who passed the exam?

a. MARY-wa ukat-te/takedo, PETER-wa ukara-nakat-ta
Mary-Con pass-and/Past.but, Peter-Con pass-Neg-Past
'[Mary]$_{Con}$ passed and/but [Peter]$_{Con}$ didn't pass.'

b. *MARY-wa ukat-te/takedo, PETER-wa ukat-ta
Mary-Con pass-and/Past.but, Peter-Con pass–Past
'[Mary]$_{Con}$ passed and/but [Peter]$_{Con}$ passed.'

As we have seen earlier, the first conjunct of (11-a) '[Mary]$_{Con}$ passed.' implicates that $\neg$**K**$B_1(p)$ 'the speaker doesn't know that Peter passed.' This is compatible with the assertion of the second conjunct. Remember that knowing that an individual does not have a property B does not count as knowledge.

(12) a. B_1= λx.**passed**(x)
b. F_1= m

(13) a. Assertion of the first conjunct of (11-a) entails:
K(B_1(F_1)) (=**K**(**passed**(m)))
b. Interpretation of CONTRASTIVE(B_1(F_1)): $\neg$ **K** B_1(p)
c. Assertion of the second conjunct of (11-a) (in terms of B_1) entails:
K($\neg B_1(p)$) (**K**(=$\neg$**passed**(p)))
d. $\neg$ **K** B_1(p) and **K**($\neg B_1(p)$) are compatible.

Similarly, the second conjunct '[Peter]$_{Con}$ didn't pass.' has the following values for B_2 and F_2.

(14) a. B_2= $\lambda x.\neg$**passed**(x)
b. F_2= p

Hence, CONTRASTIVE($\neg$**passed**(p)) brings an interpretation 'the speaker doesn't know that Mary didn't pass.' Again, this is compatible with the assertion of the first conjunct, which can be translated into 'Mary does not have the property of B_2 (non-passing).'

(15) a. Assertion of the second conjunct of (11-a) entails:
K(B_2(F_2)) (=**K**($\neg$**passed**(p)))
b. Interpretation of CONTRASTIVE(B_2(F_2)): $\neg$ **K** B_2(m)
c. Assertion of the first conjunct of (11-a) (in terms of B_2) entails:
K($\neg B_2(m)$) (=**K**($\neg\neg$**passed**(m)))
d. $\neg$ **K** B_2(m) and **K**($\neg B_2(m)$) are compatible.

On the other hand, (11-b) raises incompatibility between the contrastive interpretation of the first conjunct and the assertion of the second conjunct. Unlike the case of (11-a), the second conjunct of (11-b) tells that the speaker knows that p has the property B_1, which contradicts the interpretation of the CONTRASTIVE(B_1(F_1)). The

same result comes out for the second conjunct (omitted for space reasons).

(16) a. Assertion of the first conjunct of (11-b) entails:
K($B_1(F_1)$) (=**K**(**passed**(m)))
b. Interpretation of CONTRASTIVE($B_1(F_1)$): $\neg$ **K** $B_1(p)$
c. Assertion of the second conjunct of (11-b) (in terms of B_1) entails:
K($B_1(p)$) (=**K**(**passed**(p)))
d. $\neg$ **K** $B_1(p)$ and **K**($B_1(p)$) are incompatible!

In summary, in order to account for the contrast between (11-a) and (11-b), it is necessary to assume the order of knowledge proposed by Schulz and van Rooij (in press), i.e. to exclude from the speaker's knowledge the case where the speaker knows of an individual **not** having the property.

6. Conclusion

Contrastive-marking a sentence indicates that the speaker has a limited competence with respect to the property in question; and therefore, it lexically induces Gricean primary implicatures. Also, the order of knowledge proposed by Schulz and van Rooij (in press) is crucial to make the correct predictions. Especially, the speaker can use Contrastive-marking even when the speaker has answers for all the individuals as long as there is a contrast among them.

Acknowledgements

I am grateful for comments and discussions from Jan Anderssen, David Beaver, Benjamin Bruening, Daniel Büring, Gennaro Chierchia, Kai von Fintel, Danny Fox, Pauline Jacobson, Angelika Kratzer, David Oshima, Anna Papafragou, Paul Portner, Chris Potts, Maribel Romero, Florian Schwarz, Satoshi Tomioka, Katsuhiko Yabushita and anonymous reviewers. All errors are my own responsibility.

Bibliography

Büring, D.: 1997, The great scope inversion conspiracy, *Linguistics and Philosophy* 20, 175–194

Hara, Y.: 2004, Scope inversion in Japanese: Contrastive topic require implicatures, in *Japanese/Korean Linguistics 13*, CSLI Publication

Schulz, K. and van Rooij, R.: in press, Pragmatic meaning and non-monotonic reasoning: The case of exhaustive interpretation, *Linguistics and Philosophy*

Spector, B.: 2003, Scalar implicatures: exhaustivity and gricean reasoning, in B. ten Cate (ed.), *Proceedings of the ESSLLI'03 student session*