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Deriving Negative Polarity

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1 Outline

- A recharacterization of Lahiri (1998)'s analysis of Hindi NPIs is presented using *also* in place of *even*.
- It is shown that Lahiri (1998)'s analysis involves certain movements that are not independently attested.
- Further, the analysis fails to exclude NPIs from environments that are neither upward nor downward entailing.

2 Lahiri's Proposal

2.1 The Ingredients of Hindi NPis

Hindi NPis:

a weak predicate (*one, some*)

and

a particle *bhii* 'also/even'.

weak predicate, the particle: no NPI properties by themselves.

Together though, they can only appear in a Downward Entailing environment.

2.2 A Compositional Treatment

Lahiri's proposal goes beyond a characterization of the environments where NPis may or may not occur.

The relevant restrictions are derived compositionally from the constituents of the NPI.

Failure of licensing = conventional implicatures that are incompatible with the assertion.

2.3 Some Details

Hindi NPIs = a weak predicate **one/some** (=WP)
+ *bhii* ‘also/even’.

The predicate **one** is entailed by all of its contextual alternatives:

$$(1) \quad \forall(x)[\mathbf{two}(x) \rightarrow \mathbf{one}(x)],$$

$$\forall(x)[\mathbf{three}(x) \rightarrow \mathbf{one}(x)], \text{ etc.}$$

(2) Implicatures of ‘*bhii(a)*’:

a. Existential Implicature:

$$\exists p[C(p) \wedge p \neq a]$$

b. Scalar Implicature:

$$\begin{aligned} \forall p[[C(p) \wedge p \neq a] \\ \rightarrow \text{likelihood}(p) > \text{likelihood}(a)] \end{aligned}$$

a is the assertion and *C* is the set of focus-induced alternatives to *a*.

WP+*bhii* in an upward entailing environment:

(3) WP+*bhii* came.

Assertion: WP came.

Entailment: ‘WP came’ is entailed by all the propositions that result from substituting WP by alternative predicates.

Together with

if $p \rightarrow q$, then $\text{likelihood}(q) \geq \text{likelihood}(p)$,
we derive:

For all alternatives to ‘WP came’,

$\text{likelihood}(\text{‘WP came’}) \geq \text{likelihood}(\text{Alternative})$

Implicature of *bhii*:

For all alternatives to ‘WP came’,

$\text{likelihood}(\text{‘WP came’}) < \text{likelihood}(\text{Alternative})$

Clash between entailment and implicature

→ **Ungrammaticality**

WP+*bhii* in a downward entailing environment:

(4) WP+*bhii* Neg came.

Assertion: $\neg(\text{WP came})$.

Entailment: ‘WP came’ is entailed by all the propositions that result from substituting WP by alternative predicates. Hence $\neg(\text{WP came})$ entails the negations of the alternative propositions.

Together with

if $p \rightarrow q$, then $\text{likelihood}(q) \geq \text{likelihood}(p)$,
we derive:

For all alternatives to ‘ $\neg(\text{WP came})$ ’,

$\text{likelihood}(\neg(\text{WP came})) \leq \text{likelihood}(\text{Alternative})$

Implicature of *bhii*:

For all alternatives to ‘ $\neg(\text{WP came})$ ’,

$\text{likelihood}(\neg(\text{WP came})) < \text{likelihood}(\text{Alternative})$

No clash between the entailment and the implicature.

3 *also* and *even*

Lahiri's proposal can be simplified by assigning *bhii* the same semantics as *also* (cf. Sundaresan and Arunachalam (2003)).

3.1 *bhii* as 'also'

In non-negative contexts, *bhii* does not seem to contribute an *even* meaning.

- (5) Ram-bhii aa-yaa thaa
Ram-BHII come-Pfv.MSg be.Pst.MSg
'Ram also came.'

Stress on the associate of *bhii* seems to produce a reading that is close to that found with *even*.

- (6) [RAM]-bhii aa-yaa thaa
Ram-BHII come-Pfv.MSg be.Pst.MSg
'Ram also came and this was in some way surprising.'

But this added meaning seems to be related to stress and is independent of *bhii*.

- (7) [RAM] aa-yaa thaa
Ram come-Pfv.MSg be.Pst.MSg
'Ram came and this was in some way surprising.'

The universal quantification that is part of the semantics of *even* is not found with *bhii*. Instead it is found with *-tak/* ‘till’.

- (8) Ram-tak aa-yaa thaa
 Ram-TAK come-Pfv.MSg be.Pst.MSg
 ‘Even Ram came.’
 (Ram’s coming was less likely than anyone else’s.)

3.2 *bhii* as ‘also’: syntax and semantics

- (9) $bhii_C(p)$
 a. Assertion: p
 b. Presupposition: $\exists q [q \in C \wedge q \neq p \wedge q]$
 (C is the set of focus-alternatives of p)

bhii is a PPI:

- (10) John-*bhii* Neg came
 a. LF1: Neg > *also*, **Not Attested**
 Neg(*bhii*([John]_F came))

Assertion: Neg(John came)

Presupposition: Someone other than John came.

b. LF2: *bhii* > Neg, **Attested**

bhii(Neg([John]_F came))

Assertion: Neg(John came)

Presupposition: Someone other than John
didn't come.

Movement of *bhii* is clause bound:

- (11) mujhe nahĩ: lagtaa ki [[Ram]_F-*bhii* aa-egaa]
I.Dat Neg seems that Ram-also come-will
'I don't think that Ram will also come.'

a. LF1: local movement of *also*, **Attested**

Neg(I think that (also(Ram_F will come)))

Presupposition: I think that someone other than
Ram will come.

b. LF2: non-local movement of *also*, **Not Attested**

also(Neg(I think that (Ram_F will come)))

Presupposition: There is someone other than Ram
s.t. I don't think he will come.

3.3 Deriving Negative Polarity with *also*

The bad case:

(12) *[one]-also man came.

LF: also [[one]_F man came]

Assertion: one man came.

Presupposition: there is a number not equal to one s.t.
that many people came.

Presupposition $\rightarrow$ Assertion, **illformedness**

The good case:

(13) [one]-also man Neg came.

LF: also Neg[[[one]_F man came]]

Assertion: Neg(one man came)
(i.e. No one came.).

Presupposition: there is a number not equal to one s.t.
that many people did not come.

Presupposition $\nrightarrow$ Assertion, **no illformedness**

Illformedness results from redundancy caused when the Pre-supposition entails the Assertion (cf. Barwise and Cooper (1981)).

The results of Lahiri's proposal, formulated with *even*, carry over to this reformulation with *also*.

But as we will see, the problems faced by the original proposal also carry over to this reformulation.

4 Problems of Scope

Lahiri adopts the scopal theory of *even* (cf. Karttunen and Peters (1979), Kay (1990), Wilkinson (1996), Guerzoni (2003)).

In order to derive the appropriate entailments, Lahiri proposes that *bhii* take scope over the DE-Operator.

Well motivated for cases like (4):

- finite clause-bound like covert movement in Hindi
- forced by its PPI-nature

However, as Lahiri notes, NPIs in Hindi are also licensed across clauses.

- (14) a. restrictor of every:
Every student [who read [[one]_F-*bhii* book]] passed.
- b. complements of certain negated predicates:
I don't think that [[[one]_F-*bhii* student] will come]

- (15) LFs needed by Lahiri for (14):
- a. *bhii* [every student [who read [[one]_F book]] passed]
- b. *bhii* [I don't think that [[[one]_F student] will come]]

- Lahiri needs covert movement of *bhii* out of finite clauses.
- But covert movement of *bhii* out of finite clause is otherwise unattested (cf. Rullmann (1997), Herburger (2003)):

- (16) a. Every student [who read *Emma*-also] passed.

LF with long movement:

also [[every student [who read *Emma*_F]] passed]

Presupposition: There is a book other than *Emma*
s.t. every student who read that book passed. (**unattested**)

b. I don't think that [[John]_F-also came].

LF with long movement:

also [I don't think that [John_F came]]

Presupposition: There is a person other than John
s.t. I don't think that that person came. (**unat-
tested**)

- The movement theory has to concede that long (potentially island escaping) movement of *bhii* takes place only when needed for semantic convergence.
- An alternative to the scopal theory : *bhii* is systematically ambiguous between an NPI and a PPI *even*, movement of *bhii* not needed. (cf. Rooth (1985), Herburger (2000), Herburger (2003)).
- But since it appeals to the ambiguity of *bhii* between an NPI and a PPI, it cannot be used to independently derive the Negative Polarity nature of Hindi NPIs, a point noted by Lahiri.

5 Neither Downward Nor Upward

- (17) **NPI Generalization for Hindi:** NPIs in Hindi are restricted to Downward Entailing environments. (see Lahiri (1998)).

But Lahiri's proposal does not actually capture (17).

- Lahiri's proposal (modulo problems with scope) explains why Hindi NPIs **can** appear in **DE environments**.

- (18) Downward Entailing environments:

- a. with *bhii_{even}*: assertion and presupposition compatible
- b. with *bhii_{also}*: presupposition does not entail assertion.

no violation → NPI acceptable

- It also explains why Hindi NPIs **cannot** appear in **UE environments**.

- (19) Upward Entailing environments:

- a. with *bhii_{even}*: assertion and presupposition incompatible
- b. with *bhii_{also}*: presupposition entails assertion, redundant

violation → NPI unacceptable

- . But it fails to exclude NPIs from environments that are neither DE nor UE.

NPI in non-UE non-DE environment:

(20) Exactly two people read [one_F-*bhii* book].

a. with *bhii*_{even}:

i. **Assertion:** Exactly two people read (at least one) book.

ii. **Entailment:** Alternative propositions do not entail and are also not entailed by ‘Exactly two people read one book’ because *exactly two* is neither upward nor downward entailing.

iii. **Implicature of *bhii*:**

For all alternatives to ‘Exactly two people saw WP’,
likelihood(‘Exactly two people saw WP’)
< likelihood(Alternative)

No clash between the entailment and the implicature.

b. with *bhii*_{also}:

- i. **Assertion:** Exactly two people read (at least) one book.
- ii. **Presupposition:** There is a number other than one s.t. exactly two people read (at least) that many books.

Assertion and Presupposition are logically independent.

no violation **predicts** NPI acceptable

This prediction is not borne out.

- (21) *ṭhiik paanc logõ-ne **ek-bhii** kitaab parḥii
exactly 5 people-Erg one-BHII book.f read-Pfv.f
'*Exactly five people read any book.'

To conclude, we note that for the Lahirian analysis to be a successful compositional derivation of the NPI properties of WP+*bhii* sequences in Hindi, it needs to:

- motivate the exceptional and otherwise unattested movement of *bhii*
- explain why NPIs are not possible in environments that are non-UE and non-DE.

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