

FOCUS AND NEGATIVE POLARITY IN HINDI*

This paper presents an analysis of negative polarity items (NPIs) in Hindi. It is noted that NPIs in this language are composed of a (weak) indefinite plus a particle *bhii* meaning ‘even’. It is argued that the compositional semantics of this combination explains their behavior as NPIs as well as their behavior as free choice (FC) items. I assume that weak Hindi indefinites like *ek* and *koi* are to be viewed as a predicate that I call **one**, a predicate that is true of everything that exists. I further assume that *bhii* exhibits association with focus with the indefinite, and that this leads to contradictory implicatures in positive contexts. The behavior of these phrases in a variety of syntactic contexts is discussed, including constructions like correlatives. Finally, I provide a comparison with analyses of English *any*, and discuss the relevance of the analysis presented here for that of *any*.

1. INTRODUCTION

In this paper, I provide an account of negative polarity items (NPIs) in Hindi. I note that NPIs in Hindi are morphologically made up of an indefinite existential or a weak predicate and a particle that means ‘also’ or ‘even’. I argue that the NPI and free-choice-like behavior of these expressions comes about from the way these expressions are made up. I argue that in ‘positive’ contexts the combination of ‘even’ and a weak predicate leads to ‘implicature clash,’ i.e., contradictory implicatures. In downward entailing and generic contexts, there is no implicature clash involved, hence these expressions can occur freely. Combined with the fact that indefinites in generic contexts have generic rather than existential readings, this account explains the distribution of these expressions. The account is explanatory to the extent that instead of just stating the licensing conditions for NPIs in Hindi, it provides an explanation on independent grounds for why the expressions in question are restricted to downward entailing and generic and (some) modal contexts, and it also provides a unified view of the NPI and free-choice behavior of these expressions. The present analysis can be seen to be a development of ideas that can be found in previous work,

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e.g., Heim (1984), Krifka (1994), and more indirectly Kadmon and Landman (1993). This paper is a preliminary report, as the discussion is largely limited to declarative contexts: the appearance of NPI/free-choice expressions in non-declaratives like questions and imperatives is more tentative.¹

2. THE MORPHOLOGY OF HINDI NPIS

Expressions that behave like NPIS in Hindi (see, e.g., Bhatia 1976) are made up of an indefinite or a weak predicate indicating small amounts and a particle *bhii* often described in traditional grammars as an ‘emphatic marker’. The following list, enumerating the NPIS and the corresponding simple existentials, illustrates the point:

(1)	ek bhii	‘any, even one’	ek	‘one’
	koi bhii	‘anyone, any (count)’	koi	‘someone’
	kuch bhii	‘anything, any (mass)’	kuch	‘something, a little’
	zaraa bhii	‘even a little’	zaraa	‘a little’
	kabhii bhii	‘anytime, ever’	kabhii	‘sometime’
	kahiiN ² bhii	‘anywhere’	kahiiN	‘somewhere’

It should be noted that the particle *bhii* can attach to different kinds of phrase. In particular, it can attach to NPs (including proper names), VPs, verbs, etc. (the exact characterization of the relevant class is an issue of Hindi syntax that is not relevant here). What is important for our purposes is that the expressions in (1) are syntactically ‘frozen’, so to speak. Thus, from *ek* ‘one’ we have the NPI *ek bhii* ‘any, even one’, but the particle *bhii* cannot be attached to other numerals like *do* ‘two’, *tiin* ‘three’, etc. to yield **do bhii* ‘even two’, **tiin bhii* ‘even three’, etc., even though it can be attached to phrases containing numerals, for example, *do log bhii* ‘even TWO³ people’, *tiin log bhii* ‘even THREE people’. This is illustrated in the following examples:

¹ At the time of writing of this paper it came to the author’s attention that Young Suk Lee and Larry Horn had independently arrived at an account of the English *any* that is very similar in essentials to the account proposed here for Hindi NPIS (Lee and Horn 1994). A brief discussion of their proposal appears toward the end of this paper.

² I adopt the following conventions that deviate from the IPA for transcribing Hindi sounds, common among South Asian linguists: the symbols *T*, *D* stand for the retroflex voiceless and voiced stops respectively, the symbol *N* indicates nasalization on the preceding vowel, *S* is the alveopalatal voiceless fricative, *c*, *j* are the voiceless and voiced alveopalatal affricates, *R* is the retroflex flap, *y* is the alveopalatal glide, vowel symbols repeated twice indicate long vowels, and aspiration is indicated by adding an extra *h*. The other symbols are just the usual IPA symbols.

³ The uppercase in these examples indicates focus.

- (2) do rasoīye bhii khaanaa bigaaR dete haiN
 two cooks EMPH food spoil AUX
 ‘Even two cooks will spoil the broth.’
- (3) *do bhii rasoīyee khaanaa bigaaR dete haiN
 two EMPH cooks food spoil AUX
 ‘Even two cooks will spoil the broth.’

To summarize, despite the internal structure of these expressions, and despite the compositional analysis of their semantics to be laid out below, expressions such as *ek bhii*, *koi bhii*, *zaraa bhii*, etc. have a special status syntactically, being like idiom chunks in certain respects.

3. THE ‘EMPHATIC’ PARTICLE *BHII*

The particle *bhii* appearing in these expressions is often described as an ‘emphatic marker’ in traditional grammars, with the exact content left unspecified. Even a cursory examination shows, however, that the particle in ordinary contexts means something like the English expression *also*. Thus consider the following example:

- (4) raam bhii aayaa
 Ram EMPH came

(4) asserts (5a) and implicates (5b):

- (5) a. Ram came (Assertion)
 b. $\exists x[x \neq \text{Ram} \wedge x \text{ came}]$ (Implicature)

When the word *raam* is focused, though, we get an additional implicature over and above (5b), viz., (5c):

- c. $\forall x[x \text{ came} \rightarrow \text{likelihood}(\text{that } x \text{ came})$
 $> \text{likelihood}(\text{that Ram came})]$ (Implicature)

What this shows is that the ‘emphatic marker’ *bhii* is really ambiguous between English *also* and *even*, with the ‘even’-meaning showing up in focused contexts and the ‘also’-reading being prominent in non-focused contexts.⁴ It is reasonable to assume then that *bhii* means ‘even’ in focus-affected contexts, and since NPIs in Hindi are focused, *bhii* in these contexts simply corresponds to the English *even*.⁵

⁴ One could argue that *bhii* really means ‘also’, the extra implicature being a contribution of focus. I leave that issue open here.

⁵ A *NALS* reviewer points out that the ‘also’-reading is allowed for expressions like *raam*

4. THE DISTRIBUTION OF NPIS IN HINDI

NPis in Hindi are found in most ‘downward entailing’ (DE) contexts in the sense of Ladusaw (1979). In that respect, Hindi expressions containing an indefinite and *bhii* behave much like English *any*. But unlike English, NPis in Hindi can be subjects when the ‘trigger’ is in the same clause as the subject NPI.⁶ A detailed description of the distribution of Hindi NPis is given below. In general, expressions like *ek bhii* ‘even one, any’, *zaraa bhii* ‘even a little’ are freer in their distribution, in that examples with *koi bhii* ‘anyone’ *kuch bhii* ‘anything’, etc. are slightly less preferred in certain cases where the other NPis are allowed, but the latter are never completely ungrammatical. Let us now consider the usual NPI licensing environments one by one.

4.1. Clausemate Negation

NPis appear freely in the semantic scope of negation, and there is no S-Structure c-command requirement on NPI licensing as one sees in English.⁷ This is illustrated by the next examples.

- (6) a. **koi bhii aayaa*
 anyone came
 ‘Anyone came.’
- b. *koi bhii nahiiN aayaa*
 anyone not came
 ‘No one came.’
- c. **maiN-ne kisii-ko bhii dekhaa*
 I ERG anyone saw
 ‘I saw anyone.’
- d. *maiN-ne kisii-ko bhii nahiiN dekhaa*
 I ERG anyone not saw
 ‘I didn’t see anyone.’

bhii (‘also Ram’), but not for expressions like *koi bhii* (‘any’) and *ek bhii* (‘even one’). See section 6 for a suggestion as to why this is the case.

⁶ See section 6 for a speculation on why this might be so.

⁷ The actual requirement in English is more complex: see Uribe-Etxebarria (1995) for examples of subject NPis in English triggered by negation.

- (7) a. *ek bhii aadmii aayaa
 any man came
 ‘Any man came.’
 b. ek bhii aadmii nahiiN aayaa
 any man not came
 ‘No man came.’
 c. *maiN-ne ek bhii aadmii-ko dekhaa
 I ERG any man saw
 ‘I saw any man.’
 d. maiN-ne ek bhii aadmii-ko nahiiN dekhaa
 I ERG any man not saw
 ‘I didn’t see any men/man.’
- (8) a. *maiN-ne kuch bhii khaayaa
 I ERG anything ate
 ‘I ate anything.’
 b. maiN-ne kuch bhii nahiiN khaayaa
 I ERG anything not ate
 ‘I didn’t eat anything.’
- (9) a. *maiN-ne zaraa bhii khaanaa khaayaa
 I ERG a little even food ate
 ‘I ate any food.’
 b. maiN-ne zaraa bhii khaanaa nahiiN khaayaa
 I ERG a little even food not ate
 ‘I didn’t eat any food.’

4.2. Conditionals

Like English, and unlike languages such as Japanese, Hindi permits NPIs to occur in the protasis of conditionals, but not in the apodosis. This is shown in the following examples; it holds of indicative as well as subjunctive conditionals.

- (10) a. agar raam kisii-ko bhii dekhega to tumheN bataayega
 if Ram anyone see-FUT then you tell-FUT
 ‘If Ram sees anyone, he will inform you.’

- b. agar tum kisii-ko bhii dekho to mujhe bataao
if you anyone see (subj.) then me tell
'If you see anyone, inform me.'
- c.*agar raam aayegaa, to kuch bhii karegaa
if Ram come-FUT then anything do-FUT
'If Ram comes, he will do anything.'⁸
- d. agar raam ek bhii kitaab paRhegaa, to use
if Ram one even book read-FUT then him
sar dard hone lagegaa
headache happen
'If Ram reads even one book, he will get a headache.'
- e. agar raam zaraa bhii paRhegaa, to use sar dard
if Ram a little even read-FUT then him headache
hone lagegaa
happen
'If Ram reads even a little, he will get a headache.'
- f. agar raam kuch bhii paRhegaa, to use sar dard
if Ram anything read-FUT then him headache
hone lagegaa
happen
'If Ram reads even a little/anything, he will get a headache.'
- g.*agar raam-ko sar dard hone lagegaa, to vo ek bhii
if Ram headache happen then he one even
kitaab paRhegaa
book read-FUT
'If Ram gets a headache, he will read even one book.'
- h.*agar raam-ko sar dard hone lagegaa, to vo zaraa
if Ram headache happens then he a little
bhii paRhegaa
even read-FUT
'If Ram gets a headache, he will read even a little.'

⁸ All the starred Hindi sentences in this example have a free-choice reading which is well-formed. The stars are meant only for the NPI reading.

- i.* agar raam-ko sar dard hone lagegaa, to vo kuch bhii
 if Ram headache happens then he anything
 paRhegaa
 read
 'If Ram gets a headache, he will read even some/one thing.'

One can produce similar examples with the other NPIs, but the examples in (10) should suffice to make the point.

4.3. *Restriction of Universal Quantifiers*

Like NPIs in English, but unlike some NPIs in some other languages (e.g., Japanese and Korean), NPIs in Hindi are allowed in the restriction of universal quantifiers but not in the nuclear scope, to be suitably contrasted with the existential quantifier which disallows them in both.

- (11) a. aisaa har chaatr jisne ek bhii kitaab paRhii,
 such every student who one even book read
 paas ho gayaa
 passed
 'Every student who read any book passed.'
- b. aisaa har chaatr jisne koi bhii kitaab paRhii,
 such every student who any book read
 paas ho gayaa
 passed
 'Every student who read any book passed.'
- c.*aisaa har chatr jo paas huua kal kahiiN bhii
 such every student who passed yesterday anywhere
 gayaa
 went
 'Every student who passed went anywhere yesterday.'
- (12) a.*aisaa koi chaatr jisne ek bhii kitaab paRhii,
 such some student who one even book read
 paas ho gayaa
 passed
 'Some student who read any book passed.'

b.*aisaa koi chaatr jisne koi bhii kitaab paRhii,
 such some student who any book read
 paas ho gayaa
 passed
 ‘Some student who read any book passed.’

c.*aisaa koi chaatr jo paas huaa kal kahiiN bhii
 such some student who passed yesterday anywhere
 gayaa
 went
 ‘Some student who passed went anywhere yesterday.’

The above examples have the more common relative clause as the restriction. Hindi also has another relative-clause-like construction called the ‘participial relative’, which shows the same distribution:

(13) a. ek bhii kitaab paRhne vaalaa har chaatr
 one even book reading every student
 paas ho jaayegaa
 pass will
 ‘Every student who reads even one book will pass.’

b.(?)koi bhii kitaab paRhne vaalaa har chaatr
 any book reading every student
 paas ho jaayegaa
 pass will
 ‘Every student who reads any book will pass.’

(14) a.*ek bhii kitaab paRhne vaalaa koi chaatr
 one even book reading some student
 paas ho jaayegaa
 pass will
 ‘Some student who reads even one book will pass.’

b.*koi bhii kitaab paRhne vaalaa koi chaatr
 any book reading some student
 paas ho jaayegaa
 pass will
 ‘Some student who reads any book will pass.’

4.4. *Correlatives*

A construction type in Hindi that is related to universals is the ‘correlative’ construction, which consists of a dislocated relative-like clause that can contain multiple occurrences of relative (*wh*-)elements, followed by a main clause with demonstrative pronouns that are anaphorically related to the relative pronouns in the preceding clause. As an instance, consider the following sentence:

- (15) jis laRke-ne jis laRkii-ko dekhaa, us laRke-ne us
 wh boy wh girl saw that boy that
 laRkii-ko pasand kiya
 girl liked

As noted in Srivastav (1991), (15) has two interpretations (modulo some nuances):

- (16) a. $\exists! \langle x, y \rangle [\text{boy}(x) \wedge \text{girl}(y) \wedge x \text{ saw } y][x \text{ liked } y]$
 b. $\forall x \forall y [\text{boy}(x) \wedge \text{girl}(y) \wedge x \text{ saw } y][x \text{ liked } y]^9$

The fronted relative-like clause is thus a restriction for a definite description or a universal quantifier. Now NPIs are licensed in the first (relative) clause only, but not in the second (demonstrative) clause. Furthermore, NPIs in the first clause disambiguate the sentence, since only the universal reading is available:

- (17) a. jis laRke-ne jis laRkii-ko kahiiN bhii dekhaa, us
 wh boy wh girl anywhere saw that
 laRke-ne us laRkii-ko pasand kiya
 boy that girl liked
 Only: ‘ $\forall x \forall y [\text{boy}(x) \wedge \text{girl}(y) \wedge x \text{ saw } y \text{ anywhere}][x \text{ liked } y]$ ’
 b.*jis laRke-ne jis laRkii-ko dekhaa, us laRke-ne us
 wh boy wh girl saw that boy that
 laRkii-ko kahiiN bhii pasand kiya
 girl anywhere liked
 ‘Every boy who saw a girl liked her anywhere.’

The point to note is that correlatives, when they are interpreted universally, allow NPIs in the restriction of the universal, but not in the nuclear scope.

⁹ (16a) is hard to paraphrase in idiomatic English. (16b) roughly translates as *Every boy who saw a girl liked her*.

At this point it might be worthwhile to go into some detail regarding those aspects of the semantics of correlatives that are relevant to the concerns of this paper (for a more detailed discussion of the behavior of NPIs in definite NPs and correlatives, see Lahiri 1997). Hindi correlatives have been studied in depth by Srivastav (1991) and Dayal (1995b, 1996). The discussion here borrows heavily from these two works (the example sentences below in this section are from Dayal (1995b) unless otherwise noted). Consider the following example from Dayal (1995b):

- (18) jo laRkii khaRii hai vo lambii hai
 rel girl standing is she tall is
 ‘The girl who is standing is tall.’

A correlative with a singular NP is interpreted as a singular definite relative clause, as (18) shows: there is a strong presupposition that there is exactly one girl who is standing there. In a correlative in which the relative is plural, however, there is no such presupposition, as the following example attests:

- (19) jo laRkiyaaN khaRii haiN ve lambii haiN
 rel girls standing are they tall are
 ‘The girls who are standing there are tall.’

(19) presupposes that there is more than one girl standing there, and says furthermore that they are (all) tall. Dayal (1995b) argues that the universal and (singular) definite reading of the correlative can be derived by assuming that singular correlative NPs should be taken to allow only atomic individuals in their domain, whereas plural NPs should be taken to allow only non-atomic individuals in their domain. The plural and singular correlatives can thus be given a uniform interpretation, viz., (20a, b) respectively:

- (20) a. $\forall x[x = \mathbf{max} y (\text{girl}(y) \wedge \text{stand}(y))][\text{tall}(x)]$
 b. $\forall x[x = \mathbf{max} y (\text{girls}(y) \wedge \text{stand}(y))][\text{tall}(x)]$

(20a) says roughly that the unique maximal individual that is a girl and is standing is tall, whereas (20b) says that the unique maximal individual that has the property of being girls and is standing, is tall. (20a) picks out a unique atomic individual, hence the definite reading. (20b) picks out a non-atomic individual, hence a quasi-universal reading. Dayal also notes that this approach has the advantage that if the main predicate in the main clause is collective rather than distributive, the plural correlative is not interpreted as a universally quantified sentence but rather as a collective, as in (21):

- (21) jo laRkiyaaN vahaaN khaRii haiN ve bahaneN
 rel girls there standing are they sisters
 haiN
 are
 ‘The girls who are standing there are sisters.’

Sentence (21) should be interpreted as (22):

- (22) $\forall x[x = \mathbf{max} y (\text{girls}(y) \wedge \text{stand}(y))][\text{be-sisters}(x)]$

Since *be-sisters* is a collective predicate, a sentence like (21) cannot be interpreted as a universally quantified sentence but rather as one in which a collective predicate is said to be true of a plural object (the predicate does not distribute over its parts). In multiple correlatives, the situation is a bit more complex. Multiple correlatives in Hindi are adjoined clauses with more than one NP containing relative pronouns, which may be singular or plural, as the following examples show:

- (23) a. jis laRkii-ne jis laRke-ke saath khelaa usne usko
 rel girl rel boy with played she him
 haraayaa
 defeated
 ‘If a girl played with a boy, she defeated him.’
 b. jin laRkiyoN-ne jin laRkoN-ke saath khelaa unhoN-ne
 rel girls rel boys with played they
 unko haraayaa
 them defeated
 ‘Every girl that played with a boy defeated him.’

While both (23a) and (23b) seem to be universally quantified, there is a subtle difference between the two. Whereas (23a) carries a strong presupposition that the mapping between the girls and boys that played with each other is a bijective one, (23b) carries no such presupposition. Dayal argues that this can be captured by giving the following translations to (23a) and (23b) respectively:

- (23) a. $\forall_{xy}[x = \mathbf{max} z (\text{girl}(z) \wedge \text{boy}(y) \wedge \text{played-with}(z, y)) \wedge y = \mathbf{max} z (\text{girl}(x) \wedge \text{boy}(z) \wedge \text{played-with}(x, z))][\text{defeated}(x, y)]$
 b. $\forall_{xy}[x = \mathbf{max} z (\text{girls}(z) \wedge \text{boys}(y) \wedge \text{played-with}(z, y)) \wedge y = \mathbf{max} z (\text{girls}(x) \wedge \text{boys}(z) \wedge \text{played-with}(x, z))][\text{defeated}(x, y)]$

Assuming that singular nouns are predicates that are true only of atomic

individuals and plural nouns are predicates that are true only of non-atomic individuals, it follows that in (23a) the universal quantifier will quantify over only those girl-boy pairs that are in a one-to-one relationship with respect to the predicate *play with*, since the **max** operator is undefined for those girls that play with more than one boy and vice versa. (23b), on the other hand, is simply equivalent to a universally quantified sentence (with the presupposition that the number of girls that played with a boy and the number of boys that a girl played with are at least two). On Dayal's analysis, then, correlatives with a single wh-NP are definites and correlatives with more than one wh-NP are definite-like in that they all involve universal quantification over maximal entities of a certain kind. Multiple correlatives of the type exemplified in (15) are, on this view, not ambiguous, strictly speaking. The 'definite' reading described in (16a) is just a special case of the universal-bijective reading (16b).

It must be noted at this point that the presupposition of uniqueness in correlatives with a single singular wh-NP and of bijectivity in correlatives with more than one wh-NP does not follow directly from the logical formulae in (20a) and (23a) respectively. This is because in a situation where uniqueness is violated, (20a) comes out to be vacuously true, and in cases where bijectivity is violated, the universal quantifier in (23a) will end up quantifying over those pairs of girls and boys in the *play*-relation that are in one-to-one correspondence. Dayal appeals to Gricean principles to explain these examples away: following Kadmon's suggestion on multi-case conditionals, she argues that one would not use the singular forms in those circumstances where uniqueness or bijectivity are violated. The uniqueness and bijectivity presuppositions on this analysis do not follow directly from the semantics of the correlatives themselves, but rather from a combination of the semantics and Gricean conversational principles. I will assume that this account of Hindi correlatives is basically right, and the discussion that follows will take the account outlined above as a given.

The main distinction between correlatives with respect to the distribution of NPIs is as follows: correlatives with a single wh-NP that carries singular morphology disallow NPIs, whereas other correlatives do allow NPIs in them, as seen in (24a–d).

- (24) a. *jo laRkii ek bhii kitaab paRh rahii hai vo
 wh girl one even book reading is she
 pass ho jaayegii
 pass will

'The girl who is reading even one book will pass.'¹⁰

¹⁰ This sentence is ambiguous: the correlative can be interpreted as either an episodic

- b. jo laRkiyaaN ek bhii kitaab paRh rahii haiN vo
 wh girls one even book reading are they
 paas ho jaayeNgii
 pass will
 ‘The girls who are reading even one book will pass.’
- c. jis laRke-ne jis laRkii-ko ek bhii phool dii us
 wh boy wh girl one even flower gave that
 laRkii-ne us laRke-ko pasand kiya
 girl that boy like do
 ‘If a boy gave even one flower to a girl, she liked him.’ (plus
 bijectivity)
- d. jin laRkoN-ne jin laRkiyoN-ko ek bhii phool dii
 wh boys wh girls one even flower gave
 un laRkiyoN-ne un laRkoN-ko pasand kiya
 those girls those boys like
 ‘If a boy gave even one flower to a girl, she liked him.’ (uni-
 versal quantification, no bijectivity presupposition, but a pre-
 supposition that more than one girl and more than one boy were
 involved in the flower-giving activity)

What must be explained in this context is what property of the antecedent of the correlative is responsible for the distinction between (24a) on the one hand and (24b–d) on the other. I will argue that while the restriction of the universal quantifier involved in all cases is a downward entailing environment (in a sense to be explained below), the restriction in (24a) is so only in a trivial fashion, whereas the restriction of the universal in the other cases is downward entailing in a nontrivial way. To see this, note that the general logical form of these sentences can be represented as follows:

- (25) a. $\forall x[x = \mathbf{max} z (\text{girl}(z) \wedge P(z))][Q(x)]$
 b. $\forall x[x = \mathbf{max} z (\text{girls}(z) \wedge P(z))][Q(x)]$
 c. $\forall_{xy}[x = \mathbf{max} z (\text{girl}(z) \wedge P(z, y)) \wedge y = \mathbf{max} z (\text{boy}(z) \wedge P(x, z))][Q(x)]$
 d. $\forall_{xy}[x = \mathbf{max} z (\text{girls}(z) \wedge P(z, y)) \wedge y = \mathbf{max} z (\text{boys}(z) \wedge P(x, z))][Q(x)]$

sentence or as a generic sentence where the correlative is interpreted as an attributive definite in the sense of Donellan. The star only holds for the episodic case. In all the examples in (24), the relevant readings are intended to be episodic rather than generic; for a full discussion, see Lahiri (1997).

I will concentrate on the contrast between (25a) and (25b) – the extension of the discussion to (25c, d) is straightforward and will be left to the reader. To see whether the restriction of the universal is downward entailing or not, compare (25a, b) with (26a, b):

- (26) a. $\forall x[x = \mathbf{max} z (\text{girl}(z) \wedge S(z))][Q(x)]$
 b. $\forall x[x = \mathbf{max} z (\text{girls}(z) \wedge S(z))][Q(x)]$

Here S is a stronger predicate than P ; i.e., the following condition holds:

- (27) $\forall x[S(x) \rightarrow P(x)]$

For the sake of concreteness, one can take the predicate P to be *read at least one book*, the predicate S to be *read at least four books*, and the predicate Q to be *will pass the exam*. Suppose furthermore that we follow a suggestion of Ladusaw (1980) that in order to check whether a context is downward entailing or not, one must only consider cases where the presuppositions of the context are satisfied. We consider only those instances of (25a, 26a) where the uniqueness presupposition is satisfied and only those instances of (25b, 26b) where the presupposition that there are at least two girls with the relevant property is satisfied (and similarly for the singular multiple wh-NP cases, only those where the bijectivity presupposition is satisfied, and so on).¹¹ If we keep this mind, we note that in any situation in which (26a) is true and the uniqueness presuppositions of (25a, 26a) are satisfied, (25a) is true and vice versa. This is because any situation that makes the uniqueness presupposition satisfiable in the restriction of the universal quantifier in both (25a) and (26a) picks the same atomic individual, and hence sentences (25a, 26a) come out simultaneously true or simultaneously false (in the relevant contexts). So if exactly one person read at least one book, and exactly one person read at least four books, (25a) and (25c) are both simultaneously true or simultaneously false depending on whether that person will pass or not.

This is not the case when one compares (25b) and (26b). In all situations where the plurality presupposition is satisfied, if (25b) is true, (26b) is true, but not necessarily vice versa. Thus, suppose there are three girls: Mary, Jane, and Jill. Mary reads one book, and Jane and Jill read four books each. This is a type of situation where the presuppositions of both (25b) and (26b) are satisfied. The universal quantifier in (25b) quantifies over

¹¹ Ladusaw's original suggestion was for the complement clauses of factive affectives like *regret*, *be surprising*, etc. To see whether these are downward entailing or not, one must only consider those stronger propositions that happen to be true (because of the factivity of these predicates).

Mary, Jane, and Jill, and the universal quantifier in (26b) quantifies over Jane and Jill. Now, if furthermore (25b) is true, it must be the case that Mary, Jane, and Jill will all pass, and hence Jane and Jill will pass, and hence (26b) must be true. However, in a situation of the type mentioned above, it is still possible that (26b) is true but (25b) false: that is the case if Jane and Jill pass but Mary does not. What this shows is that (25b) entails (26b), but (26b) does not entail (25b). I would like to attribute the difference between a correlative with one singular wh-NP and one with a plural wh-NP to this difference: although both are, strictly speaking, downward entailing, the former is so only trivially (meaning, it is downward entailing as well as upward entailing), whereas the latter is a genuine downward entailing environment. To use the terminology of Kadmon and Landman (1993), the former is not a strengthening environment, but the latter is. By using an NPI in the former environment, one is not making a stronger statement, but in the latter case, one is. The reason for this distinction is a result of the uniqueness presupposition in the singular definite, and hence correlatives where that presupposition does not exist will be downward entailing in the nontrivial sense; this will include not only correlatives with one plural wh-NP, but also correlatives with multiple wh-NPs, singular or otherwise, as the reader can easily verify. (Bijectivity does not make a difference, since in the bijective case one can still quantify over more than one pair.)

One *NALS* reviewer points out that in Hindi one can find expressions of the type *jo+bhii*, which is a combination of the relative pronoun and the particle *bhii*. The combination roughly means something like ‘whatever’, ‘whichever’, etc.; the behavior of this expression is discussed in Dayal (1995b). It is possible to have this expression in all correlatives, including those with one singular wh-NP (the kind argued above to be only trivially downward entailing and hence one that should not allow NPIs). As an example, consider the following sentence from Dayal (1995b):

- (28) jo bhii laRkii vahaaN khaRii hai vo ravi kii dost
 rel even girl there standing is she Ravi’s friend
 hai
 is
 ‘The girl who is standing there, whoever she may be, is Ravi’s friend.’

The sentence is an instance of the attributive-definite use of the correlative. It also implicates that the identity of the girl who is standing there is either unknown to the speaker or irrelevant for the purposes of the speaker.

Dayal (1995b), following Davison (1978), analyzes such sentences as instances of NPI licensing in singular definite correlatives, the NPI being the particle *bhii*. From the perspective of this paper, however, the particle *bhii* is not an NPI in itself; only the combinations *ek bhii*, *koi bhii*, *zaraa bhii*, etc. are. Hence the observation about *jo+bhii* is not strictly relevant to the concerns of this paper. Of course, the behavior of *jo+bhii* is an interesting topic in itself; for a suggestion about the peculiar semantics of *jo+bhii* that is compatible with the general approach outlined in this paper, I refer the reader to Lahiri (1997).

4.5. Adversative Predicates

Hindi NPIs are possible in the complements of some adversative predicates. Examples with *ek bhii* ‘even one’ and *zaraa bhii* ‘even a little’ are perfect; examples with *koi bhii* ‘anyone’ and *kuch bhii* ‘anything (mass)’ are slightly degraded sometimes, but still allowed.

- (29) a. mujhe is baat par aaScarya huaa ki ek bhii
 me this fact on surprise be that one even
 aadmii tumhaare ghar gayaa
 person your house went
 ‘I am surprised that anyone went to your house.’
- b. mujhe is baat par aaScarya huaa ki koi bhii
 me this fact on surprise be that anyone
 tumhaare ghar gayaa
 your house went
 ‘I am surprised that anyone went to your house.’
- c. maiN-ne rameS-ko kisii-se bhii baat-ciit karne-se
 I Rames anyone talk
 manaa kiyaa/(?)rokaa
 prohibited/prevented
 ‘I prohibited/prevented Rames from talking to anyone.’
- d.*maiN-ne kisii-ko bhii rameS-se baat-ciit karne-se
 me anyone Rames talk
 manaa kiyaa/rokaa
 prohibited/prevented
 ‘I prohibited/prevented anyone from talking to Rames.’

- e. *maiN-ne ek bhii aadmii-ko rameS-se baat-ciit karne-se
 I one even man Rames talk
 manaa kiyaa/rokaa
 prevented
 'I prohibited/prevented even one person from talking to Rames.'
- f. maiN-ne rameS-ko ek bhii aadmii-se baat-ciit karne-se
 I Rames one even man talk
 manaa kiyaa/rokaa
 prohibited/prevented
 'I prohibited/prevented Rames from talking to even one person.'

It has been noted that in English the verb *be glad* normally doesn't allow NPIs, but that on a special interpretation, viz., what Kadmon and Landman (1993) call the 'settle for less' interpretation, NPIs like *any* are allowed:

- (30) a. *John is glad he saw Bill anywhere.
 b. John should be glad he got ANY tickets!

In Hindi, the predicate *glad* on the interpretation 'be happy' and on the 'settle for less' interpretation are expressed by adding different aspectual light verbs to the predicate meaning 'happy'; the former doesn't allow NPIs, whereas the latter does, as the following examples show:

- (31) a. *maiN is baat par khuS huuN ki koi bhii mere
 I this fact on happy be that anyone my
 ghar aayaa
 house came
 'I am glad that anyone came to my place.'
- b. tum is baat se khuS raho ki koi bhii tumhaare
 you this fact with happy stay that anyone your
 ghar aayaa
 house came
 'Be glad that ANYONE came to your place.'

4.6. Before-Clauses

As in English, Hindi NPIs are licensed in indicative and subjunctive (counterfactual) *before*-clauses, but not in *after*-clauses:

- (32) a. kisiike bhii aane-se pahle raam ghar calaa gayaa
 anyone's coming before Ram home went
 'Ram went home before anyone came.'
- b. is-se pahle ki koi bhii aataa, raam ghar
 it before that anyone come-SUBJ, Ram home
 calaa gayaa
 went
 'Ram went home before anyone would come home.'
- (33) a.*kisiike bhii aane-ke baad raam ghar calaa gayaa
 anyone's coming after Ram home went
 'Ram went home after anyone came.'

4.7. *Interrogatives*

A last class of environments where NPIs are found in Hindi is interrogatives (yes-no questions as well as constituent questions), as one might expect.

- (34) a. tumheN koi bhii kitaab pasand aayii kyaa?
 you any book like Q
 'Did you like any book?'
- b. tumheN ek bhii kitaab pasand aayii kyaa? (gloss as above)
- c. tumheN kuch bhii pasand aayii kyaa?
 you anything like Q
 'Did you like anything?'
- d. tumheN zaraa bhii Saram hai kyaa?
 you a little even shame be Q
 'Do you have any shame?'
- e. yahaaN kis-ne ek bhii kitaab paRhii hai?
 here who any book read has
 'Who here has ready any book(s)?'
- f. yahaaN kis-ne koi bhii kitaab paRhii hai? (gloss as in (e))
 here who any book read has

I have some remarks to make about interrogatives toward the end of this paper.

5. NPIs IN GENERIC AND MODAL CONTEXTS (FREE CHOICE)

The expressions being discussed here also behave as ‘free-choice’ items. Applied in the context of Hindi the term is a bit of a misnomer, because the relevant interpretation for some of these expressions is not the same as that of the free-choice reading one finds in English; however, the free-choice reading is in fact expressed by some of these expressions in generic and modal contexts. The environments in which one finds the ‘free-choice’ reading are: generics, the modals of possibility (in both epistemic and deontic senses) but not of necessity, the future tense at least when used in a generic or modal sense, and also imperatives. The relevant cases are listed below.

5.1. *Generics*

Hindi NPIs appear freely in generic contexts, as the following examples show. Many of them correspond to the free-choice readings one finds in English.

- (35) a. koi bhii aadmii is mez-ko uThaa letaa hai
 any man this table lifts
 ‘Any man lifts this table.’
- b. koi bhii ulluu cuuhoN-kaa Sikaar karta hai
 any owl mice hunts
 ‘Any owl hunts mice.’
- c. tum to kuch bhii kah dete ho
 you PRT anything say
 ‘You say anything.’ (i.e., ‘You don’t know what to say when’)
- d. ek bhii cingaarii ghar-ko jalaa detii hai
 one even spark house burns
 ‘Even one spark burns/will burn the house.’
- e. zaraa bhii zahar khaane-ko bigaaR detii hai
 a little even poison food spoils
 ‘Even a little poison spoils the food.’

5.2. *Modals of Possibility*

Hindi NPIs are allowed with modals of possibility (in the deontic, epistemic, and ability senses) but not with modals of necessity, as shown in the following examples.

- (36) a. ek bhii aadmii is mez-ko uThaa saktaa hai
 one even man this table lift can
 ‘Even one person can lift this table.’
- b. koi bhii aadmii is mez-ko uThaa saktaa hai
 any man this table lift can
 ‘Anyone can lift this table.’
- c. tum kabhii bhii ghar jaa sakte ho
 you anytime home go may
 ‘You may go home anytime.’
- d. *kisii-ko bhii ghar jaanaa caahiye
 anyone home go must
 ‘Anyone must go home.’
- e. *ek bhii aadmii-ko ghar jaanaa caahiye
 one even man home go must
 ‘Even one person must go home.’

One must remark at this point that even when modals of possibility are present, NPIs can appear only when the sentences in questions are interpreted generically; crucially, they may not have an episodic reading. Thus, when a modal of possibility is interpreted as the modal of ability and the sentence is episodic, the result is degraded:

- (37) a. ??kal raam koi bhii mez uThaa sakaa
 yesterday Ram any table lift could
 ‘Yesterday Ram was able to lift any table.’

What this shows is that the relevant licensing factor even in these cases is really genericity rather than the modal per se.

5.3. *Future Tense*

The future tense allows NPIs to appear when it is interpreted generically, but not when it is interpreted episodically:

- (38) a. *ek bhii aadmii is mez-ko uThaa legaa*
 one even man this table lift will
 ‘Even one person will lift this table.’
- b. *koi bhii aadmii is mez-ko uThaa legaa*
 any man this table lift will
 ‘Any person will lift this table.’
- c. *zaraa bhii zahar paanii-ko bigaaR degii*
 a little even poison water spoil will
 ‘Even a little poison will spoil the water.’
- d. *tum to kuch bhii kah doge*
 you anything say will
 ‘You will say anything.’
- e. *??kal tiin bajee koi bhii aadmii is mez-ko uThaa legaa*
 tom. 3 o’clock any man this table lift will
 ‘Anyone will lift this table at 3 o’clock tomorrow.’

As before, the crucial feature of these examples seems to be genericity, not the future tense per se.

5.4. Imperatives

As in English, one non-declarative sentence type where free-choice reading of NPIs is found is the imperative, as the following examples show:

- (39) a. *kuchh bhii khaa lo*
 anything eat
 ‘Eat anything.’
- b. *koi bhii seb uThaa lo*
 any apple pick
 ‘Pick any apple.’

The phrases *ek bhii* ‘even one’ and *zaraa bhii* ‘even a little’ seem odd in the imperative, however.

- (40) a. **?zaraa bhii khaa lo*
 a little even eat
 ‘Eat even a little.’

- b.*?ek bhii seb uThaa to
 one even apple pick
 ‘Pick even one apple.’

I will have some remarks to make about imperatives toward the end of this paper. Unfortunately, the semantics of imperatives is too poorly understood for me to say anything that is not very tentative.

6. LICENSING OF NPIS IN THE SUBJECT POSITION

So far the properties of Hindi NPIS that we have encountered are the same as those that are familiar from English. There is one respect, however, in which Hindi NPIS differ from English NPIS. Whereas NPIS in English cannot be normally licensed in the subject position (except in a certain restricted set of circumstances, see below), NPIS in Hindi are licensed freely in the subject position, as the following sentences show:¹²

- (41) a. koi bhii aadmii nahiiN aayaa
 any man not came
 ‘No one came.’
 b. ek bhii aadmii nahiiN aayaa
 one even man not came
 ‘No one came.’
 c. kisii bhii laRkii-ne raam-ko pasand nahiiN kiya
 any girl Ram like not do
 ‘No girl liked Ram.’
 d. ek bhii laRkii-ne raam-ko pasand nahiiN kiya
 one even girl Ram like not do
 ‘No girl liked Ram.’

These examples contrast with the following English sentences, which are all ungrammatical:

- (42) a.* Anyone didn’t come.
 b.* Even one person didn’t come.
 c.* Any girl didn’t like John.
 d.* Even one girl didn’t like John.

¹² I am indebted to an anonymous *NALS* reviewer for the discussion in this section.

Languages like Hindi that allow NPis freely in the subject position include Basque (Laka 1990), Japanese, Korean (Lee 1993). Laka (1990) has argued, following Progovac (1988), that NPI licensing requires c-command by NegP at S-Structure. This means that languages that license NPis in the subject position must have the NegP c-commanding the IP (or TP, depending on one's assumptions about functional projections). The difference between English-type languages and Basque/Japanese/Korean/Hindi-type languages must then be a difference in their respective phrase structures with respect to the order of NegP and IP. The former must have a S-Structure of the type shown in (43a), whereas the latter must have a S-Structure of the type shown in (43b):

- (43) a. [IP [NegP [VP]]]
 b. [NegP [IP [VP]]]

I have been unable to find independent evidence in Hindi that supports the idea that the ordering of NegP and IP is indeed as shown in (43b).¹³ The more important point, however, is that Laka's assumption that NegP must c-command the NPI at S-Structure for the latter to be licensed is itself problematic, as noted in recent work by Uribe-Etxebarria (Uribe-Etxebarria 1995, following some observations in Linebarger 1980). Uribe-Etxebarria points out that under certain circumstances NPis can be licensed in the subject position in English, viz., when the NPI is embedded in an indefinite relative clause, as long as the matrix verb (or predicate) is of a certain special kind that she calls 'bleached' predicate, following work on Hungarian by Anna Szabolcsi. These predicates tend to be predicates like *be available*, *appear*, etc., which describe existence or coming into existence. Examples of the relevant kind are the following (Uribe-Etxebarria 1995):

- (44) a. A doctor who knew anything about acupuncture was not available.
 b. A solution to any of these problems doesn't exist.
 c.(?) A doctor with any knowledge of cancer didn't appear in the hospital yesterday.
 d.(?) A Messiah who would bring any hope didn't appear to the Jews.

Uribe-Etxebarria argues that the relevant condition on NPI licensing is c-command of the NPI by NegP at LF. In English-type languages a subject

¹³ The only recent syntactic study of NPI licensing in Hindi I am aware of is Mahajan (1990), which assumes that negative elements in Hindi are part of IP and that the relevant conditions on NPI licensing are LF conditions, not S-Structure conditions.

NPI is normally outside the scope of NegP at LF, but under a restricted set of circumstances it can ‘reconstruct’ to a position within the scope of NegP. In languages that allow subject NPIs, the NPI subject can be in the scope of NegP at LF. While I am not committed to the details of Uribe-Etxebarria’s analysis, I will assume that something along the lines of her analysis must be right, at least to the extent that the conditions on NPI licensing be stateable as LF conditions, involving c-command of the NPI by the negative element at LF.¹⁴

7. A UNIFIED ANALYSIS OF HINDI NPIs AND FREE-CHOICE NPS: A FIRST APPROXIMATION

As in English, and as the glosses in the examples cited in sections 4 and 5 show, Hindi NPIs are interpreted as existentials in certain contexts, and as generics (universal-like) in other contexts. The existential interpretation is found in contexts that are ‘downward entailing’ (DE) in Ladusaw’s sense (or close enough to being downward-entailing, as argued in section 4.4). The generic interpretation is found in generic habitual, modal, and future contexts. In other episodic non-DE environments, these expressions are simply disallowed. In this section I provide an account of the distribution of these expressions. The analysis unifies NPI and free-choice interpretations as instances of a more general phenomenon of the way indefinites are interpreted in languages, and the internal composition of these expressions is used to explain the ill-formedness of structures in which these expressions are disallowed.

7.1. *Generic vs. Existential Interpretation of Indefinites*

It has been long observed that in languages like English, indefinite expressions like *a man*, *men*, *women*, etc. can be interpreted existentially or generically depending on the nature of the predicates that they appear as arguments of (Lewis 1975, Kamp 1981, Heim 1982, Carlson 1977, Wilkinson 1986, Diesing 1990, 1992). The two kinds of readings are illustrated in the following English sentences:

- (45) An owl hunts mice.
Interp.: $\text{Gen}_{x,s} [x \text{ is an owl in situation } s][x \text{ hunts mice in an extension of situation } s]$

¹⁴ More accurately, c-command of the trace of *bhii*+indefinite by the negative element at LF.

- In English *a/an* indefinites and bare plurals show the alternation between existentials and generics, but indefinites with *some* don't. The situation in Hindi is a bit more complicated. Indefinites with *koi*, *kabhii*, *kuchh*, etc. tend to favor an existential interpretation, but can be interpreted generically when they are stressed (the most common way of expressing the generic reading in Hindi is the bare singular; see Porterfield and Srivastava (1988), Verma (1971)):

- I will assume, as has been argued for English *any* in Kadmon and Landman (1993), that the NPIs and the free-choice items are the same thing, with the existential vs. generic interpretation being just a general property of (some) indefinites, supported by facts independent of negative polarity. The existential vs. generic interpretation of indefinites (and the more general quantificational variability shown by indefinites in the presence of adverbs of quantification) can be accounted for in different ways. For simplicity, I will adopt the popular Kamp/Heim view, according to which indefinites are free variables with a restriction that can be bound by a generic operator or adverbs of quantification; the existential interpretation comes about by an operation of Existential Closure that acts on a certain syntactic domain (for one implementation of the exact syntactic conditions under which this operation takes place, see Diesing (1992)). One must bear in mind, however, that this is not entirely crucial – accounts like those of Chierchia (1992) and

¹⁵ A *NALS* reviewer points out that some native speakers do not get a generic reading with a bare *koi* 'a/some'. I do not know why this is the case. The crucial point is that is that the generic reading is at least marginally available when the indefinite is emphasized.

De Swart (1991), which assume that indefinites are uniformly existential, will do as well.

7.2. Cardinality/Measure Predicates

I will assume that indefinites are cardinality predicates (in the count cases) and measure predicates (in the mass cases). This claim has often been put forward for indefinites containing determiners like *two*, *three*, *less than n*, *more than n*, etc., particularly in connection with *there*-insertion but also on independent grounds (see, e.g., Milsark 1977, Partee 1988, Higginbotham 1987). I will assume that simple existential indefinites are also cardinality predicates. Thus Hindi *ek* ‘one’ corresponds to a predicate **one** that is true of anything that contains at least one atomic part. For instance, (48a) can be translated as (48b), which has the same truth conditions as (48c):

- (48) a. *ek ullu cuuhoN-kaa Sikaar kar rahaa hai*
 an owl mice hunt-progressive
 ‘An owl is hunting mice.’
 b. $\exists x[\mathbf{one}(x) \wedge \text{owl}(x)][\text{be-hunting-mice}(x)]$
 c. $\exists x[\text{owl}(x)][\text{be-hunting-mice}(x)]$

For mass indefinites, one can similarly propose measure predicates that are isomorphic to the set of positive reals, corresponding to measures of amounts.

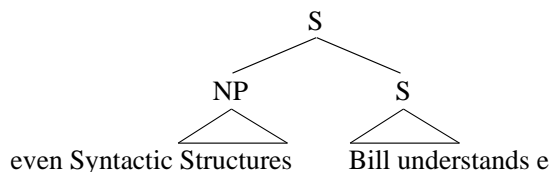
7.3. Association with Focus Involving *bhii*

I will also assume that like English *even*, Hindi *bhii* exhibits ‘association with focus’ (cf. Rooth 1985, Krifka 1994) with the indefinites, the alternatives being other cardinality (or measure) predicates. Thus the alternatives to **one** are **two**, **three**, etc. I will assume a version of the Karttunen-Peters theory defended in Wilkinson (1966), according to which *even*- (in this case, *bhii*-) phrases move at LF by an operation resembling QR (it is *like* QR, but not the same as it, because the moved phrases in this case are not NPs, but more like determiners). This theory is designed to account for the fact that sentences involving certain negative polarity licensing expressions like *it is hard for me to believe that* which precede an embedded clause containing an *even*-phrase are ambiguous, as shown in the following examples (from Karttunen & Peters 1979 and Wilkinson 1996, respectively):

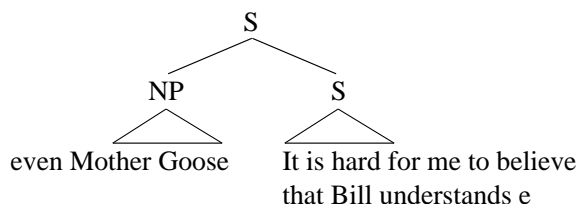
- (49) a. It is hard for me to believe that Bill understands [_{NP} even
[_{NP} SYNTACTIC STRUCTURES]].
b. It is hard for me to believe that Bill understands [_{NP} even
[_{NP} MOTHER GOOSE]].

In (49a) the implicature is that *Syntactic Structures* is hard to read, whereas in (49b) the implicature is that *Mother Goose* is easy to read. Karttunen and Peters (henceforth K&P) analyze this ambiguity as a scope ambiguity. They propose that the NP containing *even* can take scope either over the embedded clause or over the matrix clause, yielding two readings. The two readings on the scope theory can be said to correspond to the two LFs shown below, if we translate K&P's insight into the syntactic framework assumed here:

- (50) a. It is hard for me to believe that



b.



(50a) and (50b) are responsible for the two sets of implicatures given in (51):

- (51) a. *Narrow Scope Interpretation:*
(i) There is something other than Syntactic Structures that Bill understands.
(ii) Syntactic Structures is the least likely thing for Bill to understand.
b. *Wide Scope Interpretation:*
(i) There is something other than Mother goose that it is hard for me to believe that Bill understands.
(ii) Mother Goose is the least likely thing that it is hard for me to believe that Bill understands. (I.e., Mother Goose should be easy for Bill to understand.) (Wilkinson 1996)

This is essentially the theory assumed also by Rooth (1985), although Rooth thinks that the Karttunen-Peters theory is incomplete in that there is an extra reading associated with *even* in negative-polarity contexts. Rooth's argument is based on examples like (52) below:

- (52) The censorship committee kept John from reading even
SYNTACTIC STRUCTURES.

According to the traditional scope theory of *even* of K&P, (52) should have the implicatures indicated in (53):

- (53) a. There is some book other than Syntactic Structures that the
censorship committee kept John from reading.
b. In the given context, Syntactic Structures is the least likely thing
for the censorship committee to keep John from reading.

While the implicature (53b) is unproblematic, Rooth argues that in certain contexts, (53a) does not seem to be required. One such scenario would be that in (54) (Rooth 1985, pp. 157–158), where the implicature (53a) is not guaranteed, but the sentence (52) is acceptable:

- (54) Because they had been stolen from the library, John couldn't
read 'The Logical Structure of Linguistic Theory' or 'Cartesian
Linguistics.' Because it was always checked out, John didn't
read 'Current Issues in Linguistic Theory.'

To account for the lack of the existential implicature predicted by the scope theory, Rooth proposes that *even* is lexically ambiguous between two forms, one of which is an NPI. The NPI *even*, on Rooth's account, has the implicatures indicated as follows:

- (55) a. $\exists p[C(p) \wedge \text{not}(\sim p) \wedge p \neq \hat{a}]$
b. $\forall p[[C(p) \wedge p \neq \hat{a}] \rightarrow \text{likelihood}(\hat{a}) > \text{likelihood}(p)]$

In (55), *a* is the assertion made by the sentence, and *C* is the set of contextually determined alternatives to *a*. The implicatures of (52) on Rooth's theory come out to be something like (56):

- (56) a. There is something other than Syntactic Structures that John
did not read.
b. Syntactic Structures is the most likely thing for John to read.

The implicatures in (56) are consistent with the situation described in (54). In contrast to Rooth, Wilkinson (1996) argues in favor of the scope theory and in favor of the thesis that there is only one *even*. She argues that the reason why the expected existential implicature doesn't seem to arise in

these cases is that in an example like (52), the NP *the censorship committee* is new information and hence carries focus, albeit one not associated with *even*. In other words, the correct representation for (52) is (57):

- (57) [The censorship committee]_F kept John from reading [_{NP} even
[_{NP} SYNTACTIC STRUCTURES]]_F

Wilkinson modifies the semantics of *even* slightly (while keeping the scope theory intact) to accommodate cases with more than one focus, predicting that the implicatures associated with (57) turn out to be those in (58a, b):

- (58) a. There is something other than Syntactic Structures that John was kept from reading (by someone or something).
b. Syntactic Structures is the least likely thing for someone (or something) to keep John from reading.

These implicatures are consistent with the situation described by Rooth, viz., (54). (The reason why the implicatures are as in (58) rather than as in (53) is the focus on the NP *the censorship committee*.) Wilkinson provides additional evidence from the behavior of *even*-phrases in the complements of adversative predicates that favors the scope theory over Rooth's account. I won't review the arguments here, but just note that Rooth's objections to the scope theory of *even* seem to be answerable in principle. For my purposes, it is crucial that something like Wilkinson's account be right for Hindi *bhii*, because, as will become clear, I am interested in deriving the distribution of Hindi NPIs from independent properties of *bhii*. Assuming a second *bhii* which itself is an NPI would make the argument circular: the properties of NPI expressions would then be reduced to the properties of (the NPI) *bhii*, whose behavior would remain mysterious.

7.4. Indefinite+*bhii* Phrases in Downward Entailing and Upward Entailing Non-Generic Contexts

The assumptions made in sections 6.1–6.3 predict that phrases like *ek bhii* will be licensed in downward entailing non-generic contexts but not in upward entailing non-generic contexts. To see why this is so, consider the simple case of association of *bhii* mentioned in example (4):

- (59) RAAM bhii aayaa
[Ram]_F even came

In (59), *raam* is focused, and hence the alternatives to it will consist of a set of contextually determined proper names like {*raam*, *siitaa*, *mohan*, . . .}. The proposition asserted by (59) is the proposition 'that

Raam came'. The focus-induced alternatives to this proposition are a set of the form { 'that Raam came', 'that Siitaa came', 'that Mohan came', . . . }. In general, in a structure which exhibits association with focus involving *bhii*, if the assertion is *a* and *C* is the set of the focus-induced alternatives to *a*, the following two implicatures result:

- (60) a. $\exists p[C(p) \wedge \neg p \wedge p \neq \hat{a}]$.
 b. $\forall p[[C(p) \wedge p \neq \hat{a}] \rightarrow \text{likelihood}(p) > \text{likelihood}(\hat{a})]$.

Now consider sentence (61), which is ill-formed:

- (61) **koi bhii aayaa*
 'Anyone came.'

I assume that the logical form of (62) is something like (63), using a hybrid of Karttunen-Peters and Heim (1982)-style LFs:

- (63) $[_{IP1} [_{Det} \text{ koi bhii}]_i [_{IP2} [_{NP} [_{Det} t_i]_F \phi]_j [_{IP3} t_j \text{ aayaa}]]]$

Following Heim (1982), I assume that IP2 (via the operation of Existential Closure) translates as (64):

- (64) $\lambda P[\exists x[P(x) \wedge x \text{ came}]]$

The 'focal closure' of (64), following Rooth, is (65):

- (65) $\lambda p[\exists P[p = \hat{\exists x}[P(x) \wedge x \text{ came}]]]$

(61) asserts (66), as one gets immediately by applying the translation of *koi*, viz., **one**, to (64):

- (66) $\exists x[\text{one}(x) \wedge x \text{ came}]$

(66) corresponds to *a* in (60), and $C = \{\hat{\exists x}[\text{one}(x) \wedge x \text{ came}], \hat{\exists x}[\text{two}(x) \wedge x \text{ came}], \hat{\exists x}[\text{three}(x) \wedge x \text{ came}] \dots\}$. The resulting implicatures are, therefore, as follows:

- (67) For some cardinality predicate other than **one**, say *Z*, $\exists x[Z(x) \wedge x \text{ came}]$.
 (68) For every cardinality predicate other than one, say *U*, if $\exists x[U(x) \wedge x \text{ came}]$, then $\text{likelihood}(\hat{\exists x}[U(x) \wedge x \text{ came}]) > \text{likelihood}(\hat{\exists x}[\text{one}(x) \wedge x \text{ came}])$.

From (67) and (68) it follows that:

- (69) $\text{likelihood}(\hat{\exists x}[Z(x) \wedge x \text{ came}]) > \text{likelihood}(\hat{\exists x}[\text{one}(x) \wedge x \text{ came}])$

However, given the nature of the alternatives to **one**, it is the case that:

$$(70) \quad \exists x[Z(x) \wedge x \text{ came}] \rightarrow \exists x[\mathbf{one}(x) \wedge x \text{ came}]$$

(This is so because **one** is the weakest possible predicate, and true of everything that exists.) From (70) it follows that:

$$(71) \quad \text{likelihood}(\wedge \exists x[Z(x) \wedge x \text{ came}]) \leq \\ \text{likelihood}(\wedge \exists x[\mathbf{one}(x) \wedge x \text{ came}])$$

(71) contradicts (69). What this shows is that in upward entailing contexts like in (61), indefinite+*bhii* phrases will always systematically produce contradictory implicatures, leading to the oddity of sentences like (61). However, this situation does not obtain in, say, the scope of negation. To see this, consider a sentence like (72), which is well-formed:

$$(72) \quad \begin{array}{l} \text{koi bhii nahiiN aayaa} \\ \text{anyone didn't come} \\ \text{'No one came.'} \end{array}$$

(72) has the LF shown in (73), again assuming the scope theory of *bhii*:

$$(73) \quad [_{IP1} [_{Det} \text{koi bhii}]_i [_{IP2} [_{Neg} \text{nahiiN}] [_{IP2'} [_{NP} [_{Det} t_i]_F \phi]_j [_{IP3} t_j \text{aayaa}]]]]]$$

As before, IP2 translates as (74):

$$(74) \quad \lambda P[\neg \exists x[P(x) \wedge x \text{ came}]]$$

The ‘focal closure’ of (74), following Rooth, is (75):

$$(75) \quad \lambda p[\exists P[p = \wedge \neg \exists x[P(x) \wedge x \text{ came}]]]$$

(73) asserts (75') and implicates (76a, b), as one can readily see:

$$(75') \quad \neg \exists x[\mathbf{one}(x) \wedge x \text{ came}]$$

- (76) a. For some cardinality predicate other than one, say Z, $\neg \exists x[Z(x) \wedge x \text{ came}]$.
 b. For every cardinality predicate other than one, say U, if $\neg \exists x[U(x) \wedge x \text{ came}]$, then $\text{likelihood}(\wedge \neg \exists x[U(x) \wedge x \text{ came}]) > \text{likelihood}(\wedge \neg \exists x[\mathbf{one}(x) \wedge x \text{ came}])$.

To see that (76a, b) are not contradictory, note that (76a, b) imply (77):

$$(77) \quad \text{likelihood}(\wedge \neg \exists x[Z(x) \wedge x \text{ came}]) > \\ \text{likelihood}(\wedge \neg \exists x[\mathbf{one}(x) \wedge x \text{ came}])$$

From (70) one obtains (78), by the law of contraposition:

$$(78) \quad \neg \exists x[\mathbf{one}(x) \wedge x \text{ came}] \rightarrow \neg \exists x[Z(x) \wedge x \text{ came}]$$

Hence (79) follows, which does not contradict (77):

$$(79) \quad \text{likelihood}(\neg \exists x[\text{one}(x) \wedge x \text{ came}] \leq \text{likelihood}(\neg \exists x[Z(x) \wedge x \text{ came}])$$

The above point generalizes to all downward entailing operators, since if Q is any downward entailing operator, one can repeat the steps shown in (75) through (79), replacing ‘ \neg ’ with Q , and all the steps go through (because if Q is DE it follows from (70) that $Q(\neg \exists x[\text{one}(x) \wedge x \text{ came}]) \rightarrow Q(\neg \exists x[Z(x) \wedge x \text{ came}])$). The morphology of indefinite+*bhii* phrases combined with the meaning of these items predicts that these phrases will be well-formed in downward entailing or ‘negative’ contexts but ill-formed in upward entailing or ‘positive’ contexts.¹⁶

7.5. Licensing of NPIs in the Subject Position in Hindi Revisited

We are now in a position to provide a partial explanation for the observation made in section 6, viz., the fact that in Hindi, NPIs can be licensed in the subject position by clausemate negation. This contrasts with English, as can be seen from the fact that the English sentence (80) is ill-formed, but the Hindi (72) is not:

(80) *Anyone didn’t come.

Given the discussion in this section, one can produce a reasonable hypothesis as to why this is so. In English, unlike in Hindi, subject indefinites generally don’t allow clausemate negation to take wide scope over the existential quantifier (again, *pace* Uribe-Etxebarria’s bleached predicates; see the discussion below). Thus (81a) can be interpreted as (81b) but not (81c):

- (81) a. A man didn’t come
- b. $\exists x[\text{man}(x)][\neg \text{came}(x)]$
- c. $(*)\neg \exists x[\text{man}(x)][\text{came}(x)]$

(81) can be contrasted with (82), where both scopes are possible:

¹⁶ A *NALS* reviewer asks why *bhii* loses the ‘also’-reading when it associates with predicates like *koi* (‘some’) or *ek* (‘one’). The discussion in this section should provide an answer. If the ‘also’-reading were to exist in a sentence like **ek bhii aadmii aayaa* (*‘Also one person came’), one would have a situation where the sentence asserted that at least one person came, but implicated that there is some number other than 1, say n , such that at least n people came, which is a stronger claim than the assertion. This would violate the Gricean principle that one must make the strongest possible assertion that one has evidence for.

- (82) a. I didn't see a man
 b. $\exists x[\text{man}(x)][\neg \text{see}(\text{I}, x)]$
 c. $\neg \exists x[\text{man}(x)][\text{see}(\text{I}, x)]$

Moreover, (81) is to be contrasted with the Hindi (83), which unlike the English sentence allows both scopes:

- (83) a. koi aadmii nahiiN aayaa
 a man not come
 lit.: 'A man did not come.'
 b. $\exists x[\text{man}(x)][\neg \text{came}(x)]$ (in our terms, $\exists x[\text{one}(x) \wedge \text{man}(x)][\neg \text{came}(x)]$)
 c. $\neg \exists x[\text{man}(x)][\text{came}(x)]$ (in our terms, $\neg \exists x[\text{one}(x) \wedge \text{man}(x)][\text{came}(x)]$)

(83c) shows that at LF, the negative element must be allowed to have scope over the domain on which Existential Closure takes place. Given that negation in Hindi can have wide scope over an indefinite in the subject position, there is no reason *ceteris paribus* for the existence of a subject-object asymmetry in Hindi with respect to NPI licensing. At this point, one might wonder whether the distinction between Hindi and English with respect to NPI licensing in the subject position can be made to follow entirely from the contrast between English (81) and Hindi (83). That will be the case if the analysis of English *any* turns out to be exactly parallel to that of Hindi NPIs, i.e., if English *any* turns out to be just like Hindi NPIs in being *even* plus indefinite. I will discuss this general issue in section 10 and note various problems in extending the analysis presented here to English *any*. One potential problem peculiarly relevant to the issue of NPI licensing in the English case will still remain, however. Consider the examples discussed in Uribe-Etxebarria (1995), one of which I reproduce as (84) for convenience:

- (84) A doctor who knew anything about acupuncture was not available.

In (84), the indefinite subject must have narrow scope with respect to negation, given that (84) means something like (85):

- (85) $\neg \exists x[\text{doctor}(x) \wedge \text{knew anything about acupuncture}(x)][\text{available}(x)]$

This is also what Uribe-Etxebarria argues from the fact that NPIs are licensed in the relative clause complement of the definite subject. However,

if English *any* were simply *even* plus indefinite, one would expect (86) to be a fine sentence; but in fact it is significantly worse than (84):

- (86) */?? Any doctor who knew anything about acupuncture was not available.

It seems that the restriction against *any* in subject position in English is more general than what one would expect from the account of Hindi NPIs given here, even if it could be extended to English.¹⁷

One way to resolve the issues involved might be to concentrate on English NPIs that more overtly resemble Hindi NPIs, e.g., *even a single*. While one might raise questions about whether *any* is really *even* plus indefinite or not, it is reasonable to assume that *even a single* should have the same semantics/pragmatics as Hindi *ek bhii*. *Even a single* shows the same subject-object asymmetry as *any*, as one can see from the following examples:

- (87) a. *Even a single student didn't show up at the party.
b. I didn't see even a single student.

The contrast between (87a) and (87b) is expected from the discussion above. Moving attention to Uribe-Etxebarria's cases, one must first note that (88) is not an acceptable sentence either, according to the informants I consulted:

- (88) */? Even a single doctor wasn't available.

This is not surprising if one notes that the counterpart of (88) with a simple indefinite subject is not an acceptable sentence either (on the reading where the indefinite subject has narrow scope with respect to negation):

- (89) */? A doctor wasn't available.

(It seems that for indefinites to have narrow scope with respect to negation, they must contain a relative clause. Why this should be so is a separate issue, and I have no suggestions to offer at this point.) The interesting fact is that if one replaces *any* in (86) with *even a single*, the result is significantly better:

- (90) a. (?) Even a single doctor who knew anything about acupuncture was not available.

¹⁷ It is not clear that Uribe-Etxebarria's syntactic solution works for cases like (86) either, having the flavor of a scope paradox. Of course, it is problematic for all syntactic theories of NPI licensing, irrespective of whether they assume that licensing conditions apply at S-structure or LF.

- b. A doctor who knew anything about acupuncture was not available.

(90a) is a context where we knew the indefinite subject can have narrow scope with respect to negation, as seen from (90b). This is also a context where *even a single* is allowed, and that cannot be accidental.

To conclude this section, the subject-object asymmetry displayed by English NPIs in the presence of clausemate negation can be said to follow from the independent fact that English doesn't usually allow a subject indefinite NP to have narrow scope with respect to clausemate negation, and this is in direct contrast to Hindi. The behavior of English *any*, however, must take into account certain lexical idiosyncrasies that don't follow simply from the account of Hindi NPIs given here and independently motivated distinctions between the grammars of English and Hindi.

7.6. Indefinite+bhii Phrases in Generic Contexts

In the last section we saw that the meanings of the component parts of Hindi NPIs correctly predict their behavior in non-generic contexts. I next examine generic contexts. Consider a sentence like (91):

- (91) ek bhii aadmii is mez-ko uThaa saktaa hai
 one even man this table lift can
 'Even one man can lift this table.'

Given what we have assumed about the generic interpretation of indefinites so far, viz., the Kamp/Heim theory and its various offshoots, the assertion corresponding to (91) is something like (92) (where C is a contextual variable):

- (92) $\text{GEN}_{x,s}[\text{one}(x) \wedge C(x, s)][\exists s' \geq s: x \text{ can lift this table in } s']$

The focus-induced alternatives to this assertion are propositions of the form:

- (93) $\text{^GEN}_{x,s}[P(x) \wedge C(x, s)][\exists s' \geq s: x \text{ can lift this table in } s']$

where $P = \text{one, two, three, etc.}$ The implicatures will be the following:

- (94) a. For some cardinality predicate other than **one**, say Z , $\text{GEN}_{x,s}[Z(x) \wedge C(x, s)][\exists s' \geq s: x \text{ can lift this table in } s']$.
 b. For every cardinality predicate other than **one**, say U , if $\text{GEN}_{x,s}[\text{one}(x) \wedge C(x, s)][\exists s' \geq s: x \text{ can lift this table in } s']$, then $\text{likelihood}(\text{^GEN}_{x,s}[\text{one}(x) \wedge C(x, s)][\exists s' \geq s: x \text{ can lift this table in } s']) < \text{likelihood}(\text{^GEN}_{x,s}[U(x) \wedge C(x, s)][\exists s' \geq s: x \text{ can lift this table in } s'])$.

One can check that the implicatures in (94) are not contradictory. To see this, compare (95a) and (95b) (where U is an arbitrary cardinality predicate):

- (95) a. $\text{GEN}_{x,s}[\mathbf{one}(x) \wedge C(x, s)][\exists s' \geq s: x \text{ can lift this table in } s']$
 b. $\text{GEN}_{x,s}[U(x) \wedge C(x, s)][\exists s' \geq s: x \text{ can lift this table in } s']$

While the exact semantics of generic sentences is a complicated issue that is beyond the scope of this paper, one might note that in (95b), the objects that satisfy the restriction of the generic operator, viz., $U(x) \wedge C(x, s)$, also satisfy the restriction of the generic operator, viz., $\mathbf{one}(x) \wedge C(x, s)$. (This is so because \mathbf{one} is the weakest possible predicate, and hence $U(x) \wedge C(x, s) \rightarrow \mathbf{one}(x) \wedge C(x, s)$ for all predicates U and all x and s .) For this reason, (96a) below clearly entails (96b):

- (96) a. $\forall_{x,s}[\mathbf{one}(x) \wedge C(x, s)][\exists s' \geq s: x \text{ can lift this table in } s']$
 b. $\forall_{x,s}[U(x) \wedge C(x, s)][\exists s' \geq s: x \text{ can lift this table in } s']$

If one shifts attention from the pair in (96), where there is a true universal quantifier, to the pair in (95), where the operator is generic, a note of caution is in order. As is well known, the restriction of a generic operator is not, strictly speaking, a downward entailing environment (unlike the restriction of a true universal quantifier). Thus if one considers the English sentences in (97), (97a) does not entail (97b) even though the restriction of the generic operator in (97a) is a superset of the restriction of the generic operator in (97b):

- (97) a. Dogs give live birth. (I.e., $\text{GEN}_x[\text{dog}(x)][\text{gives live birth}(x)]$)
 b. Male dogs give live birth. (I.e., $\text{GEN}_x[\text{dog}(x) \wedge \text{male}(x)][\text{gives live birth}(x)]$)
 c. Black dogs give live birth. (I.e., $\text{GEN}_x[\text{dog}(x) \wedge \text{black}(x)][\text{gives live birth}(x)]$)

This is because generics are not true universals, and they allow for ‘legitimate’ exceptions. In (97), male dogs are viewed as legitimate exceptions, and so (97a) does not entail (97b). On the other hand, (97a) still entails (97c), since black dogs are not considered to be legitimate exceptions to the generalization expressed in (97a). If one reconsiders the pair (95a, b), one notes that the entailment from (95a) to (95b) does indeed go through, at least when evaluated with respect to the background assumption that it is easier for more people to lift a table than for fewer people to lift a table. In other words, there are contexts (arguably most natural contexts), in which the objects that satisfy the restriction of the generic operator in (95b) are not legitimate exceptions to the generalization expressed in (95a). Moreover,

the restriction of the generic operator in (95a) can be satisfied by some objects that don't satisfy the restriction of the generic operator in (95b), and hence (95b) does not entail (95a). This means that in most natural contexts, (98) is true:

- (98) $\text{likelihood}(\text{GEN}_{x,s}[\text{one}(x) \wedge C(x, s)][\exists s' \geq s: x \text{ can lift this table in } s']) < \text{likelihood}(\text{GEN}_{x,s}[U(x) \wedge C(x, s)][\exists s' \geq s: x \text{ can lift this table in } s'])$

Hence the implicatures in (94) are satisfiable. Crucially, the notion of 'likelihood' needs to be relativized to contexts (viewed here as sets of background assumptions), and the scale of likelihood taken to correspond to a scale of entailment in context rather than purely logical entailment.

The account developed so far thus seems to explain (i) the 'free-choice' reading of what otherwise are NPIs, and (ii) the well-formedness of these expressions despite the lack of downward entailing operators.

8. PROBLEMS WITH THE ABOVE ACCOUNT AND A REFORMULATION

Elegant as the account presented in section 7 is, it isn't quite right. To see why this is so, note that we assumed that, for example, *koi bhii* 'anyone' and *ek bhii* 'even one' are essentially the same semantically: they are both simple existential cardinality predicates, and the alternatives they introduce are other cardinality predicates. While this assumption does not lead to problems in non-generic contexts, the two forms do need to be distinguished in the 'free-choice' or generic cases. Compare the two sentences in (99):

- (99) a. *ek bhii aadmii is mez-ko uThaa saktaa hai*
 one even man this table lift can
 'Even one person can lift this table.'
- b. *koi bhii aadmii is mez-ko uThaa saktaa hai*
 any man this table lift can
 'Anyone can lift this table.'

While the assertions in (99a) and (99b) are pretty much the same, the implicatures in the two cases are very different. (99a) implicates that the likelihood that some number of people greater than one can lift this table is greater than the likelihood that just one man can lift this table. (99b), by contrast, does not carry any such implicature. There is a certain intu-

ition that cardinality is not as relevant in evaluating the implicatures in (99b) as it is in (99a). Furthermore, in generic contexts, *koi* *bhii* can appear with numerals, but *ek* *bhii* cannot:

- (100) a. *koi* *bhii* *tiin* *log* *is* *mez-ko* *uThaa* *sakte haiN*
 Any three people this table lift can
 ‘Any three people can lift this table.’
- b. **ek* *bhii* *tiin* *log* *is* *mez-ko* *uThaa* *sakte haiN*
 one even three people this table lift can
 ‘Even one three people can lift this table.’

The contrast between (100a) and (100b) cannot be simply a matter of morphological number clash or anything like that, since both *koi* and *ek* are morphologically singular, at least in the standard dialects of Hindi (though in some dialects *koi* can take plural nouns), and the only case of *koi* co-occurring with a plural N’ is when it occurs with numeral phrases.

We can conclude from the above that while phrases like *koi* and *ek* are both cardinality predicates, they introduce different alternatives. (Similar remarks apply to the pairs *zaraa* ‘little’ and *kuch* ‘any (mass)’ in the mass indefinites.) It is reasonable to assume that whereas the alternatives introduced with *ek* (and *zaraa*) are other cardinality (and measure) predicates, the alternatives introduced with *koi* and *kuch* are a contextually specified set of properties. To see why this is so, consider the following dialogue between speakers A, B, and C, modeled on examples in Kadmon and Landman (1993), for Hindi:

- (101) A: An owl hunts mice. (*ulluu cuuhoN-kaa Sikaar kartaa hai*)
 B: Wrong. A sick owl doesn’t hunt mice. (*galat. rogiu ulluu cuuhoN-kaa Sikaar nahiiN kartaa*)
 C: Wrong. ANY owl hunts mice. (*galat. KOII BHII ulluu cuuhoN-kaa Sikaar kartaa hai*)

The dialogue could take place in a situation imagined as follows. Speaker A makes a generic statement, assuming full well that there are principled exceptions; in particular, she has in mind old and sick owls. Speaker B assumes that while old owls do indeed hunt mice, sick owls don’t. Speaker C assumes that even sick owls don’t count as exceptions. Simplifying somewhat, one could assume that the generics taken to be true by the three speakers involve universal quantification where the restrictions to the universal quantifier are of the form ‘ $P(x) \wedge owl(x)$ ’, where $P = P_A, P_B, P_C$ for the speakers A, B, and C respectively:

- (102) $P_A(x) \leftrightarrow \neg \text{sick}(x) \wedge \neg \text{old}(x)$
 $P_B(x) \leftrightarrow \neg \text{sick}(x)$
 $P_C(x) \leftrightarrow \mathbf{one}(x)$

In this situation, the focus-induced alternatives that make C's statement comprehensible are P_A , P_B , and P_C . A universal that has P_C as its restriction is the strongest statement and thus has the least likelihood, and hence the implicatures are satisfied. Furthermore, for any property P it is the case that:

- (103) $\forall x(P(x) \rightarrow \mathbf{one}(x))$

since **one** is the weakest possible predicate, being true of everything that exists. As one can easily verify, the results of section 7, viz, the demonstration that association of *bhii* with focus leads to NPIs being disallowed in upward entailing contexts and allowed in downward entailing contexts, does not depend upon the alternatives being **two**, **three**, etc., but will work for any set of alternatives $\{P_1, P_2, P_3, \dots\}$, given (103). To see this, consider again the unacceptable (104):

- (104) *koi bhii aayaa
 anyone came
 'Anyone came.'

Sentence (104) asserts (105):

- (105) $\exists x[\mathbf{one}(x) \wedge \text{person}(x)][\text{came}(x)]$

The *bhii*-induced alternatives to (105) are propositions of the form (106), where P is one of a set of pragmatically salient predicates (not necessarily cardinality predicates):

- (106) $\exists x[P(x) \wedge \text{person}(x)][\text{came}(x)]$

Given (103), it follows that (106) entails (105), and hence (107):

- (107) $\text{likelihood}(\wedge \exists x[P(x) \wedge \text{person}(x)][\text{came}(x)]) \leq$
 $\text{likelihood}(\wedge \exists x[\mathbf{one}(x) \wedge \text{person}(x)][\text{came}(x)])$

The scalar implicature introduced by *bhii* requires that (108) be true, contradicting (107):

- (108) $\text{likelihood}(\wedge \exists x[\mathbf{one}(x) \wedge \text{person}(x)][\text{came}(x)]) <$
 $\text{likelihood}(\wedge \exists x[P(x) \wedge \text{person}(x)][\text{came}(x)])$

This explains the unacceptability of (104). In the presence of downward

entailing operators, this is not the case. Consider again the acceptable counterpart of (104), viz., (109):

- (109) koi bhii nahiiN aayaa
 any one not came
 ‘No one came.’

Sentence (109) asserts (110):

- (110) $\neg \exists x[\text{one}(x) \wedge \text{person}(x)][\text{came}(x)]$

The *bhii*-induced alternatives to (110) are propositions of the form (111), where P is one of a set of pragmatically salient predicates (not necessarily cardinality predicates):

- (111) $\neg \exists x[P(x) \wedge \text{person}(x)][\text{came}(x)]$

Given (103), it follows that (110) entails (111), and hence (112):

- (112) $\text{likelihood}(\neg \exists x[\text{one}(x) \wedge \text{person}(x)][\text{came}(x)]) \leq$
 $\text{likelihood}(\neg \exists x[P(x) \wedge \text{person}(x)][\text{came}(x)])$

The scalar implicature introduced by *bhii* requires that (113) be true, which does not contradict (112):

- (113) $\text{likelihood}(\neg \exists x[\text{one}(x) \wedge \text{person}(x)][\text{came}(x)]) <$
 $\text{likelihood}(\neg \exists x[P(x) \wedge \text{person}(x)][\text{came}(x)])$

(109) is thus correctly predicted to be acceptable. Finally, consider the following sentence where *koi bhii* is used in a generic context, giving rise to the so-called free-choice reading:

- (114) koi bhii ulluu cuuhoN-ka Sikaar kartaa hai
 any owl mice hunt do
 ‘Any owl hunts mice.’

Given the assumptions of this paper, (114) will assert (115):

- (115) $\text{GEN}_{x,s}[\text{one}(x) \wedge \text{owl}(x) \wedge C(x, s)][\exists s' \geq s: x \text{ hunts mice in } s']$

The alternatives induced by *bhii* will be propositions of the form (116):

- (116) $\text{GEN}_{x,s}[P(x) \wedge \text{owl}(x) \wedge C(x, s)][\exists s' \geq s: x \text{ hunts mice in } s']$

where the P's are some contextually specified properties. In the dialogue cited in (101), the relevant P in the context is the property of not being sick. The scalar implicature introduced by *bhii* says that all propositions of the type exemplified in (116) that are true are such that (117) must hold:

- (117) $\text{likelihood}(\wedge \text{GEN}_{x,s}[\mathbf{one}(x) \wedge \text{owl}(x) \wedge C(x, s)][\exists s' \geq s: x \text{ hunts mice in } s']]) \leq \text{likelihood}(\wedge \text{GEN}_{x,s}[P(x) \wedge \text{owl}(x) \wedge C(x, s)][\exists s' \geq s: x \text{ hunts mice in } s']])$

The implicature in (117) can be satisfied if under background assumptions, (115) entails (116). Given the condition in (113), viz., the fact that any object that has the property *P* also has the property **one**, it follows that the objects that satisfy the restriction of the generic operator in (116) also satisfy the restriction of the generic operator in (115) (but not vice versa). As argued in section 7, this means that if one takes the generic operator to be a universal quantifier with a vague restriction (and the condition that principled exceptions, if any, to the generalization expressed by (115) are also principled exceptions to the generalization expressed by (116), thus ensuring that the restriction of the universal in (115) is a superset of that of (116)), (115) will entail (116), but not vice versa. This makes the implicature in (117) true. *Koi bhii* is thus predicted to be acceptable in generic contexts.

Phrases like *ek-bhii* ‘even one’, on the other hand, come with cardinality predicates as their set of alternatives. (I assume that information of this type, i.e., the kind of alternatives a lexical item allows, is present in the lexicon.) Thus, replacing *KOII BHII* with *EK BHII* in (101c) will sound very odd, even though the assertion would be roughly the same. On the other hand, in a similar dialogue (again modeled after an example in Kadmon and Landman (1993)) between two speakers A and B, where B is a cook who is cooking for 50 people, one must use *ek bhii* and not *koi bhii*:

- (118) A: Will there be French fries tonight? (aaj french frai hogaa kyaa?)
 B: No, I don’t have potatoes. (nahiiN, mere paas aaluu (potatoes) nahiiN haiN)
 A: Not even just a few potatoes that I can fry in my room? (thoRe/koi do-tiin bhii nahiiN jo maiN apne kamre meN tal sakuuN?)
 B: Sorry, I don’t have any potatoes. (na, mere-pass ek bhii/??koi bhii aaluu nahiiN hai)

In this dialogue, speaker B interprets speaker A’s denial of the existence of potatoes as a denial of enough potatoes for 50 people, and then asks if A has at least a few (two or three). Speaker B replies by denying the existence of any potatoes in his possession. The point is that the alternatives to **one** in this case are cardinality predicates P_1 , P_2 , and **one**, where $P_1 =$

enough for 50 people and P_2 = a few. In a situation like this the use of *koi* instead of *ek* sounds odd, to say the least: *ek bhii* is strongly preferred to *koi bhii*, even though they both deny existence.

To sum up the discussion in this section, what gives rise to the behavior of indefinite+*bhii* phrases as NPIs and free-choice items in Hindi is the combination of a weak predicate and *even*, making the structures good in downward entailing contexts and the restriction of generics but not in upward entailing contexts. The differences between numeral NPIs and other NPIs follow from the difference in the nature of the alternatives they allow when focused, resulting in different sets of implicatures.

9. INDEFINITE+*BHII* PHRASES IN INTERROGATIVES

As in English, in Hindi NPIs are allowed in yes-no questions as well as constituent questions. Consider again the examples in (34), repeated here as (119):

- (119) a. tumheN koi bhii kitaab pasand aayii kyaa?
 you any book like Q
 ‘Did you like any book?’
- b. tumheN ek bhii kitaab pasand aayii kyaa? (gloss as above)
- c. tumheN kuch bhii pasand aayii kyaa?
 you anything like Q
 ‘Did you like anything?’
- d. tumheN zaraa bhii Saram hai kyaa?
 you a little even shame be Q
 ‘Do you have any shame?’
- e. yahaaN kisne ek bhii kitaab paRhii hai?
 here who any book read has
 ‘Who here has read any book(s)?’
- f. yahaaN kisne koi bhii kitaab paRhii hai?
 here who any book read has
 ‘Who here has read any book?’

In the examples in (119), the interrogatives allow NPIs. These examples have a ‘rhetorical’ flavor to them, in the sense that even when they are used as information questions, the speaker clearly expects a ‘negative’ answer (which means the negation of the questioned proposition in

yes-no questions, and the answer that the extension of the questioned predicate is empty, in the constituent question cases). Thus, in uttering (119a), the speaker expects that the correct answer will be that the hearer didn't like any books, and in (119f), the speaker expects it to be the case that no one read any books. Given the general approach to Hindi NPIs adopted in this paper, one would expect the distribution of NPIs in interrogatives to be reducible to the behavior of ordinary *bhii*-phrases in interrogatives. In order to see the behavior of *bhii*-phrases in yes-no questions, consider first a simple sentence containing a *bhii*-phrase that is not an NPI, like the following example:

- (120) raam bhii aayaa kyaa
 Ram even came Q
 'Did even Ram come?'

Like its English counterpart, this sentence has two possible sets of implicatures depending on whether it is uttered neutrally or with a negative expectation for the answer. The two sets of implicatures are as follows:

- (121) a. Someone other than Ram among the alternatives came. The likelihood of Ram coming is less than that of any of the alternatives.
 b. Someone other than Ram among the alternatives did not come. The likelihood of Ram coming is more than that of any of the alternatives.

Now compare (120) with the example where *ram bhii* is replaced with the NPI *koi bhii* 'anyone':

- (121) koi bhii aayaa kyaa?
 any one came Q
 'Did anyone come?'

Given the behavior of ordinary *bhii*-phrases in interrogative contexts (and the semantics of Hindi NPIs outlined earlier), the expected (sets of) implicatures for the sentence in (121) will be either (122a) or (122b):

- (122) a. (i) For some predicate P that is an alternative to **one**, $\exists x[P(x) \wedge \text{came}(x)]$.
 (ii) For all predicates P that are alternatives to **one** (that satisfy the formula in (122a.i)), $\text{likelihood}(\neg \exists x[\text{one}(x) \wedge \text{came}(x)]) < \text{likelihood}(\neg \exists x[P(x) \wedge \text{came}(x)])$.
 b. (i) For some predicate P that is an alternative to **one**, $\neg \exists x[P(x) \wedge \text{came}(x)]$.

- (ii) For all predicates P that are alternatives to **one** (that satisfy the formula in (122b.i)), $\text{likelihood}(\neg\exists x[\mathbf{one}(x) \wedge \text{came}(x)]) < \text{likelihood}(\neg\exists x[P(x) \wedge \text{came}(x)])$.

By the reasoning of the earlier sections, it is easy to see that the set of implicatures in (122a) is contradictory, whereas the one in (122b) is satisfiable. NPIs are thus expected to be licensed in the context of a yes-no interrogative, as indeed they are. And sentences like (121) carry the implicatures in (122b). Similarly, consider a constituent question like (123):

- (123) yahaan kisnee raam-ko bhii dekhaa hai?
 here who Ram even see
 ‘Who here has seen even Ram?’

(123) has the implicatures shown in (124):

- (124) (i) $\exists x[x \neq \text{Ram} \wedge \exists y[\text{person}(y) \wedge y \text{ has seen } x]]$.
 (ii) $\forall x((x \text{ is a contextually salient alternative to Ram} \wedge \exists y[\text{person}(y) \wedge y \text{ has seen } x]) \rightarrow \text{likelihood}(\neg\exists y[\text{person}(y) \wedge y \text{ has seen Ram}]) \leq \text{likelihood}(\neg\exists y[\text{person}(y) \wedge y \text{ has seen } x]))$

(124) says essentially that someone has seen someone other than Ram, and that Ram is the least likely (of all the contextually relevant alternatives) to have been seen by anyone. (123) can also marginally have another set of implicatures, especially if the sentence is interpreted rhetorically or at least the utterer expects a ‘negative’ answer to the question:

- (125) (i) $\exists x[x \neq \text{Ram} \wedge \neg\exists y[\text{person}(y) \wedge y \text{ has seen } x]]$.
 (ii) $\forall x((x \text{ is a contextually salient alternative to Ram} \wedge \neg\exists y[\text{person}(y) \wedge y \text{ has seen } x]) \rightarrow \text{likelihood}(\neg\exists y[\text{person}(y) \wedge y \text{ has seen Ram}]) \leq \text{likelihood}(\neg\exists y[\text{person}(y) \wedge y \text{ has seen } x]))$.

(125) says that there is someone other than Ram in the set of contextually salient alternatives to Ram that no one has seen, and that Ram is the least likely to have not been seen by anyone (that is, Ram is the most likely to have been seen by someone).¹⁸ Now consider a constituent question with an NPI, e.g., (119e), repeated as (126):

¹⁸ Karttunen and Karttunen (1977) claim that in English, neutral as well as rhetorical yes-no questions allow *even*-phrases to give rise to the ‘negative’ implicatures mentioned above, whereas in constituent questions, the negative implicature is available only when the question is interpreted rhetorically. Wilkinson (1996) points out, on the basis of examples like *Who here has even taken Logic One?* (attributed to Hans Kamp), uttered in a context

- (126) yahaaN kis-ne ek bhii kitaab paRhii hai?
 here who one even book read has
 ‘Who here has read even one book?’

The expected implicatures of (126) are (127a) and (127b):

- (127) a. (i) For some predicate P that is an alternative to **one**, $\exists x[P(x) \wedge \text{book}(x) \wedge \exists y[y \text{ has read } x]]$.
 (ii) For all predicates P that are alternatives to **one** that satisfy the formula in (127a.i), $\text{likelihood}(\wedge \exists x[\text{one}(x) \wedge \text{book}(x) \wedge \exists y[y \text{ has read } x]]) < \text{likelihood}(\wedge \exists x[P(x) \wedge \text{book}(x) \wedge \exists y[y \text{ has read } x]])$.
 b. (i) For some predicate P that is an alternative to **one**, $\exists x[P(x) \wedge \text{book}(x) \wedge \neg \exists y[y \text{ has read } x]]$.
 (ii) For all predicates P that are alternatives to **one** that satisfy the condition in (127b.i), $\text{likelihood}(\wedge \neg \exists x[\text{one}(x) \wedge \text{book}(x) \wedge \exists y[y \text{ has read } x]]) < \text{likelihood}(\wedge \neg \exists x[P(x) \wedge \text{book}(x) \wedge \exists y[y \text{ has read } x]])$.

As before, one can check that the implicatures in (127a) are contradictory, whereas those in (127b) are satisfiable. NPIs are, therefore, predicted to be acceptable in constituent questions that allow ‘negative’ implicatures, i.e., those cases where the answer is expected to be negative. And when allowed, NPIs make the constituent questions carry implicatures like (127b).

The behavior of NPIs in interrogatives can thus be shown to be a result of the behavior of *bhii*-phrases in general in interrogative contexts. It must be pointed out, however, that this is not the end of the story. This is because the behavior of *even/bhii* in interrogative contexts is still somewhat of a mystery. For one, there is no satisfactory account available yet of why the two sets of implicatures should arise in the first place. The examples given in this section pose somewhat of a problem for the scope theory of *even/bhii*, as was observed by Karttunen and Karttunen (1977). This is because there is no way to fiddle around with the scope to get the two sets of implicatures: the two sets of implicatures in (121) do not come about due to a scope ambiguity. Karttunen and Karttunen (1977) in fact do suggest a solution to the problem. Their solution is to allow interrogatives to be derived from underlying ‘negative’ sentences as well as ‘positive’ declarative sentences. They state (Karttunen & Karttunen 1977, p. 130):

where a teacher is trying to gauge the level of a logic class she is teaching, that the negative implicature is available whenever the speaker expects a (default) negative answer, even though the request for information may be genuine rather than rhetorical. The relevant facts in Hindi parallel those of English in these respects.

- (i) Neutral yes/no questions are always affirmative in form but we assume that the underlying declarative sentence can be either affirmative or negative. (This only affects the implicatures, not the meaning expressed by the resulting question.) . . .
- (iii) Rhetorical yes/no questions can be either affirmative or negative in form and they are derived from declarative sentences which have the opposite polarity (affirmative becomes negative and vice versa). Such questions implicate that the speaker is confident that the input sentence is true.
- (iv) Regular search questions are derived from open sentences by quantifying in a WH-phrase . . .
- (v) Rhetorical search questions are derived in the same manner as regular search questions except that there is the same fake polarity switch as in rhetorical yes/no questions. Such questions implicate a universally quantified statement formed from the input sentence.

The idea behind Karttunen and Karttunen's suggestion seems to be that a yes-no question, e.g., *Did John come?*, is derived from an underlying *John came* or *John NEG came*; the former contributes 'positive' implicatures in the presence of particles like *even*, the latter contributes 'negative' implicatures. In either case, the *even*-phrase takes scope over the underlying declarative. Since the denotation of a yes-no question (on Karttunen's analysis) comes out the same (in this case, $\lambda p[\sim p \wedge [p = \hat{\text{John came}} \vee p = \hat{\neg \text{John came}}]]$), irrespective of whether the underlying declarative is 'positive' or 'negative,' the underlying ambiguity does not lead to a difference in meaning, but only a difference in implicatures in the presence of particles like *even*. This suggestion, though attractive, is also problematic for a variety of reasons. First, it requires an underlying negative in structures where the negative does not surface – an analysis that might have been workable in the particular version of Montague Grammar that Karttunen and Karttunen were working with, but is hard to replicate in most modern syntactic frameworks. The latter would all require that an underlying negative morpheme, even a phonologically unrealized one, be present at surface structure, and at the very least one would want some independent evidence for an abstract negative marker, if one chose to postulate one. Secondly, even if the analysis were made to work for yes-no questions, it is unclear how it would work for constituent questions. (Despite their points (iii) and (iv) in the quotation above, Karttunen and Karttunen do not actually give rules for deriving rhetorical wh-questions from underlying negative statements in the text of the paper under discussion.) The basic problem, therefore, remains.

One could think of various alternatives to Karttunen and Karttunen's approach. Rooth (1985), for example, can get around the aforementioned problem since he assumes that a sentence like (120) will have a set of implicatures like (121b) in negative polarity contexts. However, since there is no good account of why interrogatives are NPI licensors, Rooth's account

doesn't tell much either. Moreover, the fact that the implicatures in (121b) are correlated with a negative expectation for the answer is something that Rooth cannot account for either (see Wilkinson (1996) for a discussion of the matter). Taking a position quite different from that of Rooth, Wilkinson (1996) discusses an attempt to quantify-in *even*-phrases in interrogatives, without much success (as she notes).

At this point I will simply conclude that the behavior of *even/bhii* in interrogative contexts is not satisfactorily explained by any theory; I don't have anything to add to that discussion at this point. If one takes the behavior of *even/bhii* as given, however, the behavior of Hindi NPIs is exactly as predicted by the account developed in this paper.

10. INDEFINITE+*BHII* PHRASES IN IMPERATIVES

As with English any, indefinite+*bhii* phrases in imperatives are well-formed in Hindi, as one saw in (39), which I reproduce here as (128):

- (128) a. kuchh bhii khaa lo
 anything eat
 'Eat anything.'
- b. koi bhii seb uThaa lo
 any apple pick
 'Pick any apple.'

As to why these examples are fine, I will not provide a definite answer at this point, but only some preliminary remarks. This is partly because the semantics of natural language imperatives is not very well studied, and hence any remark one makes is necessarily speculative. I will assume, following Kamp (1973), that the imperatives in (128) are permission statements, and that permissions consist essentially in the removal of prohibitions. (As opposed to real commands, which have more of a flavor of deontic necessity. One could view permissions as deontic possibility instead; for a discussion, see Chellas (1963), Lewis (1979).) On this assumption, indefinite+*bhii*-phrases are expected to be licensed in permission-type imperatives (what Kamp calls 'free-choice permission'). To see this, consider an example with an ordinary *bhii*-NP:

- (129) raam ko bhii dekho
 Ram ACC even see
 'See even Ram.' (I.e., 'I permit you to even see Ram')

The implicatures associated with (129) are pretty much what one would expect with declaratives, viz. (130):

- (130) a. I permit you to see someone besides Ram (in the relevant context).
- b. The likelihood of me permitting you to see Ram is less than the likelihood of me permitting you to see anyone else in the relevant context.

(130) also makes the speaker of the utterance permit the hearer to see Ram. In other words, if one treats imperatives of this type as involving a performative ‘I permit you to . . .’ then *bhii* affects permission statements pretty much the same as declaratives. (129) can thus be analyzed as the permission in (131) and the implicatures in (132):

- (131) I permit you to achieve a state such that $\exists x[\text{one}(x) \wedge \text{apple}(x) \wedge \text{you pick } x]$.
- (132) a. For some property P in the context, I permit you to achieve a state such that $\exists x[\text{one}(x) \wedge \text{apple}(x) \wedge \text{you pick } x]$.
- b. For every property Q in the context, the likelihood that I permit you to achieve a state such that $\exists x[\text{one}(x) \wedge \text{apple}(x) \wedge \text{you pick } x]$ is less than the likelihood that I permit you to achieve a state such that $\exists x[Q(x) \wedge \text{apple}(x) \wedge \text{you pick } x]$.

If one treats permissions as consisting of lifting (possibly implicit) prohibitions, it is easy to verify that the implicatures in (132) are satisfied. Imagine a situation in which P is the property of being fresh. I ask the hearer to pick a fresh apple, maybe because I am concerned about her health and think that it would be a good idea for her to eat an apple. The hearer, however, can’t find any fresh apples, and so I ask her to pick *any* apple, meaning fresh or otherwise (in my terms, any apple that has the property **one**), thinking that even a non-fresh apple is better than no apple at all. On the view of Kamp, the first statement removes prohibitions on the set of fresh apples, and the second one removes prohibitions on the set of all apples, fresh as well as non-fresh. Since the latter permission removes prohibitions on a set that contains the former, in every situation in which I permit the latter state to obtain, I automatically permit the former state to obtain (but not vice versa), and hence the implicature in (132b) is satisfied.

This seems to be a straightforward explanation of why indefinite+*bhii* phrases should be allowed in imperative statement of a certain kind. Unfortunately, problems remain. NPIs with numeral and measure phrases

seem to be disallowed in imperative contexts, as one can see in the examples in (40), reproduced here as (133):

- (133) a.*?zaraa bhii khaa lo
 a little even eat
 ‘Eat even a little.’
 b.*?ek bhii seb uThaa lo
 one even apple pick
 ‘Pick even one apple.’

The reasoning used above predicts that these examples should be good, but they are not. If the general approach to NPIs in Hindi outlined in this paper is on the right track, the ill-formedness of these expressions must be due to independent factors. For example, it is possible that the kinds of context where these examples would make sense are hard to obtain, unlike generic examples with NPs containing *ek bhii* (‘even one’). That is, the relevant ‘number scale’ for *bhii* might be hard to construct in normal situations. At this point I will leave this as a puzzle for further work.¹⁹

11. COMPARISON WITH OTHER RECENT THEORIES OF NEGATIVE POLARITY

11.1. *Introduction*

In this section, I provide a comparison of the account of Hindi NPIs developed in this paper with some recent accounts of Negative Polarity, concentrating on Kadmon and Landman (1993), Krifka (1995) and Lee and Horn (1994). Since these are accounts of English *any* (even though Lee and Horn place their investigation in a more general setting), in each case I will discuss the accounts as they apply to English *any*, as well as the accounts as they would be if they were to be applied to Hindi NPIs.

11.2. *Kadmon and Landman (1993)*

One of the most influential recent analyses of English *any* is that of Kadmon and Landman (1993). Kadmon and Landman (henceforth, K&L) derive

¹⁹ A NALS reviewer points out examples in English like *Make even one move and I’ll shoot*, *Offer even a suggestion for improvement and he’ll balk*, *Make even a nod in her direction and she’ll start screaming*. These are examples where *even one* is allowed in contexts that are grammatically imperative. These examples are probably not true permission statements, however, as the reviewer notes. One could view these as (covert) negative *or*-statements of some kind.

the distribution of English *any* by appealing to two properties of *any*, viz., the requirement that *any* induces pragmatic widening of the domain of restriction and the requirement that after pragmatic widening the resultant statement be stronger than without widening. The basic ingredients of their analysis can be summed up as follows (K&L, p. 373):

- (A) *any* CN = the corresponding NP a CN
with
additional semantic/pragmatic characteristics (widening, strengthening)
contributed by *any*
- FC The sole difference between PS *any* and FC *any* lies in the interpretation of the indefinite NP: in the case of FC *any*, it is an indefinite INTERPRETED GENERICALLY.
- (B) WIDENING
In an NP of the form *any* CN, *any* widens the interpretation of the common noun phrase (CN) along a contextual dimension.
- (C) STRENGTHENING
Any is licensed only if the widening that it induces creates a stronger statement, i.e., only if the statement on the wide interpretation \Rightarrow the statement on the narrow interpretation . . .

By widening, K&L mean that the function of *any* is to widen the interpretation of the common noun phrase along a contextual dimension. To illustrate widening, they provide the following imagined dialogue between the speaker and the hearer (K&L, p. 360), uttered in a context where the speaker (me) is the cook for a group of 50 people:

- (134) YOU: Will there be French fries tonight?
. . . ME: No, I don't have potatoes.
YOU: Maybe you have just a couple of potatoes that I
could take and fry in my room?
. . . ME: Sorry, I don't have ANY potatoes.

If one compares the two responses by the speaker – *I don't have potatoes* vs. *I don't have ANY potatoes* – one notes that there is a subtle difference between them. When I said *I don't have potatoes* I might have only considered those groups of potatoes that are enough for 50 people (excluding smaller groups of potatoes from the domain of quantification). It is possible for me to have had three or four potatoes, and for the hearer to conclude that despite that, I uttered the truth. When I say *I don't have ANY potatoes*, however, I am claiming that I don't even have three or four potatoes, thus extending the domain of the common noun *potatoes* to smaller groups of potatoes, not just those that are enough for 50 people. The other property of *any* is the requirement that it be used to make a statement that is stronger than the one without *any* (strengthening), i.e., it must be the case that the

statement with *any* entails the statement without *any*. Thus, in (134), the statement *I don't have any potatoes* entails *I don't have potatoes*, but not vice versa. K&L note that the two requirements of widening and strengthening can be simultaneously satisfied in DE and generic contexts, but usually not in positive contexts, thus providing an elegant account of the distribution of *any*.

Problems with this approach have been noted. The first (and on the present author's view, less serious) problem has to do with widening. Krifka (1994) notes cases where the use of *any* arguably does not induce any pragmatic widening (e.g., in mathematical statements that are very precise and hence in which pragmatic widening does not arise), as in statements like (135), taken from Krifka (1994):

(135) This set doesn't contain any prime numbers.

As Krifka points out, it seems implausible that *any prime numbers* induces a pragmatic widening of the precise concept *prime number*, or a contextual widening of any kind. A related problem with the K&L approach is that strictly speaking, (136) and (137) turn out to be non-contradictory:

(136) I read a book.

(137) I didn't read any book.

Because *any* is said to widen the domain of the common noun, it is in principle possible that sentences like (137) be vague in that they allow some (pragmatically non-important) books to have been read by me, thus making (137) compatible with (136) in certain situations. The problem is that while K&L's account relies on *any* widening the domain of the common noun, they leave the question of what the widening domain will be largely to pragmatic factors. The sentences in (136)–(137) and their Hindi counterparts are, however, clearly felt to be contradictory. This is because *any* widens the domain of the common noun to the entire extension of the common noun. (K&L do note that widening is 'sometimes' total rather than partial, particularly when there is no salient dimension given by the context, and when expressions like *absolutely any* or *any . . . whatsoever* are used. However, it seems to the present author that total widening is the default rather than the exception.)

The other, more serious conceptual problem with K&L's account is their strengthening requirement. The strengthening requirement says that *any* must appear in an environment which creates a stronger statement because of the widening induced by it. This is a global property of the environments that license *any* rather than some local property of *any* itself. It makes

K&L's account inherently non-compositional, even if it encodes an adequate descriptive generalization.

The account of Hindi NPIs developed in this paper shares certain features of K&L's analysis, and it derives some of their generalizations indirectly. In particular, I assume point (A) of K&L's analysis, viz., that Hindi NPIs (and their FC counterparts) are simply indefinites with some other semantic/pragmatic characteristics added on (the presence of the particle *bhii*). Recall that on the account developed here, the distribution of Hindi NPIs is a consequence of the fact that these are simple indefinites that exhibit association with focus because of the presence of *bhii* 'even'. The indefinite corresponds to a predicate **one** that is a 'weak' predicate in the sense that it is true of an object in the universe of discourse (possibly relativized to count/mass domains, a complication that I am ignoring here). The Hindi counterparts of (136)–(137) thus have the logical forms (138)–(139), respectively, and are clearly contradictory:

$$(138) \quad \exists x[\text{book}(x) \wedge \text{I read } x]$$

$$(139) \quad \neg \exists x[\text{one}(x) \wedge \text{book}(x) \wedge \text{I read } x] \leftrightarrow \neg \exists x[\text{book}(x) \wedge \text{I read } x]$$

Of course, K&L's account captures important intuitions, and it is easy to see how they are to be explained on the present account. While the present account does not rely on widening as an explanatory primitive, the most important ingredient in the current analysis is the fact that indefinites are the weakest possible predicates, whose alternatives in focused contexts are stronger predicates (**one**, contrasted with P_1, P_2, P_3 , etc.), and hence when NPI expressions appear with common nouns, the extension of the domain of **one**+CN will be wider than the contrast sets, viz., the domains of P_1 +CN, P_2 +CN, P_3 +CN, etc. This is the counterpart of K&L's widening on the current account. In a given context, an NPI of the form *koi bhii* + CN might be used to contrast **one**+CN with a simple CN which might be taken to correspond to some P_1 +CN, P_1 being implicit. This gives the effect of widening. In other words, widening does not have to be stipulated: it is simply a consequence of the meaning of these NPIs and general properties of focus. Similarly, strengthening does not need to be stipulated separately: it is a consequence of the meaning of indefinites and the implicatures of *bhii*. This is because the scalar implicature induced by *bhii* in association with a weak predicate is only satisfiable in a strengthening context (as demonstrated in earlier sections), not otherwise. (Note that the likelihood scale essentially corresponds to implication – possibly with respect to some background assumptions – in the sense that 'likelihood(A) < likelihood(B)' is simply equivalent to ' $A \Rightarrow B$ ' but not ' $B \Rightarrow A$ '.) Thus

the problem of non-compositionality involved in taking strengthening to be an explanatory primitive is avoided.

To conclude, some of the problems involved in K&L's analysis of *any* are avoided in the present analysis, and K&L's basic intuitions are captured indirectly as a *consequence* of the semantics/pragmatics of these expressions.

11.3. Krifka (1994, 1995)

In a series of papers, Krifka presents an analysis of English *any* that is close to the analysis of Hindi NPIs developed here (cf. Krifka 1994, 1995 for the most recent versions). Krifka distinguishes stressed *any* from unstressed *any*, analyzing the two in similar but distinct ways (unstressed *any* is argued to be a *weak* NPI and stressed *ANY* is argued to be a strong NPI, in the sense of Zwarts (1993)). I discuss the two cases in turn (for the purposes of this paper, Krifka's discussion of stressed *ANY* is more relevant, as will become clear below). The essential idea behind Krifka's analysis is that NPIs (and, to be more general, PPIs as well) are associated with a Background Focus Structure (BFS, for short) that governs certain felicity conditions on how they might be asserted. It is assumed that an NPI introduces alternatives, and that the alternatives induce an ordering relation of semantic specificity. The BFS for an NPI can be taken to be a triplet $\langle B, F, A \rangle$, where B stands for the background, F for the foreground (the polarity item or the item in focus), and A for the set of alternatives to F. A contains expressions of the same semantic type as F, but not F itself (for weak NPIs like unstressed *any* there is an additional exhaustivity requirement, viz., $\cup A = F$; for strong NPIs like unstressed *any* there is a nonexhaustivity requirement, viz., $\cup A \subset F$). Moreover, when B is applied to F, we get a standard meaning $B(F)$. The NP *anything* (in its stressed and non-stressed versions, respectively), for example, has the following BFSs (Krifka 1994).

- (140) a. *anything*: $\langle B, \mathbf{thing}, \{P \subset \mathbf{thing}\} \rangle$
 b. *ANYthing*: $\langle B, \mathbf{thing}, \{P \subset \mathbf{thing} \wedge \neg \mathbf{min}(P)\} \rangle$

(In (140b), **min** is a second order property that identifies properties that hold of objects of 'minor' entities of a certain dimension; here Krifka follows K&L.) The sentences *Mary didn't see anything* and (the unacceptable) *Mary saw anything* are assumed to have the following BFSs:

- (141) a. *Mary saw anything* (weak *any*):
 $\langle \lambda Q \lambda i \exists y [Q_i(y) \wedge \text{saw}_i(m, y)], \mathbf{thing}, \{P \subset \mathbf{thing}\} \rangle^{20}$

²⁰ The variable *i* here ranges over possible worlds.

- a. *Mary saw ANYthing* (strong *any*):
 $\langle \lambda Q \lambda i \exists y [Q_i(y) \wedge \text{saw}_i(m, y)], \mathbf{thing}, \{P \subset \mathbf{thing} \wedge \neg \mathbf{min}(P)\} \rangle$
- b. *Mary didn't see anything*:
 $\langle \lambda Q \lambda i \neg \exists y [Q_i(y) \wedge \text{saw}_i(m, y)], \mathbf{thing}, \{P \subset \mathbf{thing}\} \rangle$
- b. *Mary didn't see ANYthing* (strong *any*):
 $\langle \lambda Q \lambda i \neg \exists y [Q_i(y) \wedge \text{saw}_i(m, y)], \mathbf{thing}, \{P \subset \mathbf{thing} \wedge \neg \mathbf{min}(P)\} \rangle$

B applied to F gives the standard meaning of the sentences in question, and B applied to every member of A yields the set of alternative propositions to B(F) (this is the set $\{z | \exists x \in A \ z = B(x)\}$). Krifka argues that the reason why (141a, a') are bad whereas (141b, b') are good has to do with the pragmatics of assertion, i.e., the felicity conditions on sentences that have an associated BFS. The felicity conditions for weak NPIs are slightly different from those for strong NPIs: the former correlate with what Krifka calls 'Scalar Assertion', the latter with what he calls 'Emphatic Assertion'. Krifka builds his theory on earlier work on assertion by Stalnaker, assuming that in usual situations, the effect of asserting a proposition is to modify the common ground (viewed as a set of possible worlds) by taking the intersection of the common ground c with the proposition asserted p , formalized as the **Assert** operator in (142a):

- (142) a. **Assert**(p)(c) = $c \cap p$
 b. **Assert**($\langle B, F, A \rangle$)(c) = $c \cap B(F)$

(142b) is the usual case of asserting a proposition with an associated BFS, since $B(F)$ is simply the proposition asserted by it. Krifka also argues that (142b) does not always hold, and that if certain conditions of quality and quantity are not met, '**Assert**($\langle B, F, A \rangle$)(c)' may be undefined. The two special cases of assertion **ScalAssert** and **EmphAssert** that are relevant for the distribution of weak and strong NPIs have the effect described as follows (Krifka 1994, pp. 201, 204):

- (143) a. **Assert**($\langle B, F, A \rangle$)(c) = **ScalAssert**($\langle B, F, A \rangle$)(c),
 if for all $F' \in A$: $[c \subset B(F)] \subseteq [c \cap B(F')]$
 or $[c \subset B(F')] \subseteq [c \cap B(F)]$
- b. **ScaleAssert**($\langle B, F, A \rangle$)(c) =
 $\{i \in c | i \in B(F) \wedge \neg \exists F' A [c \cap B(F')] \subseteq [c \cap B(F)] \wedge i \in B(F')\}$
- c. **EmphAssert**($\langle B, F, A \rangle$)(c) = $c \cap B(F)$, iff
 (i) For all $F' \in A$: $c \cap B(F) <_c c \cap B(F')$
 (ii) $c \cap B(F) <_c \cap \{c \cap B(F') | F' \in A\}$, where $<_c$ is the likelihood relation w.r.t. the common ground c .

The **ScalAssert** operator is one kind of Assertion operator, the one that is

used in sentences with weak NPIs, on this view. In plain English, (143a) says that the effect of asserting a proposition with a BFS is equivalent to making a scalar assertion if the alternatives are informationally ordered with respect to one another (this is the case with the BFSs for NPIs, as can be easily checked). (143b) says that the effect of making a scalar assertion is to assert the proposition expressed by the standard meaning of the sentence and negate all the stronger propositions that are the alternatives. Krifka shows that if one assumes BFSs like the ones in (141) for weak NPIs, one necessarily gets the empty resulting ground if the weak NPI is embedded in a positive context, but generally non-empty grounds when embedded in a DE context. To see this, consider the sentence *Mary saw anything*. The standard meaning for this sentence is (144a), and the alternatives are all the propositions of the form (144b), where $P \subset \mathbf{thing}$:

- (144) *Mary saw anything*
 (a) $\exists y[\mathbf{thing}(y) \wedge \text{saw}_i(\text{mary}, y)]$
 (b) $\exists y[P_i(y) \wedge \text{saw}_i(\text{mary}, y)]$

Note that statements of the type (144b) are all at least as strong as (144a), and hence applying the **ScalAssert** operator will yield the conjunction of (144a) and the negations of all propositions of the form (144b), in effect asserting that Mary saw something and denying for every particular thing that they saw that thing, a condition that is never satisfiable. In a DE context, however, the alternative propositions are all weaker propositions, and hence the **ScalAssert** operator simply asserts the standard meaning. On this account, the reason why a sentence like (144) is bad is that ‘it expresses a sentence in which what is said systematically contradicts what is implicated.’ Asserting a sentence without an NPI, for example, *Mary saw something*, leads to no such problems, because *something* does not have an associated BFS.

The **EmphAssert** operator, on Krifka’s view, is the other assertion operator, used in statements with strong NPIs to make emphatic assertions. To assert emphatically a statement with a BFS is to implicate that the standard meaning is less likely than any of the alternative propositions and also less likely than the conjunction of all the alternatives taken together (with respect to the common ground). That is, the statement asserted is extreme in its unlikelihood, relative to its alternatives. So a sentence like (145), *Mary saw ANYthing*, asserts (145a), and its alternatives are all the propositions of the type (145b):

- (145) *Mary saw ANYthing*
 (a) $\exists y[\mathbf{thing}(y) \wedge \text{saw}_i(\text{mary}, y)]$
 (b) $\exists y[P_i(y) \wedge \text{saw}_i(\text{mary}, y)]$, where $\neg \mathbf{min}(P)$

(144a) is a weaker proposition than (144b) and hence cannot be less likely than (144b), thus violating the scalar implicature associated with the **EmphAssert** operator (143c.ii). This makes *Mary saw ANYthing* an unacceptable sentence. In the scope of negation, e.g., in a sentence like (146), *Mary didn't see ANYthing*, the implicatures can be satisfied since the assertion is stronger than the alternatives (and hence is less likely):

- (146) *Mary didn't see ANYthing*
 (a) $\neg\exists y[\mathbf{thing}_i(y) \wedge \text{saw}_i(\text{mary}, y)]$
 (b) $\neg\exists y[P_i(y) \wedge \text{saw}_i(\text{mary}, y)]$, where $\neg\mathbf{min}(P)$

Krifka claims that his pragmatics for emphatic assertion predicts that the right algebraic property that is required by emphatic assertion is ‘strict decrease’: if $X \subset Y$, then $f(Y) \subset f(X)$.²¹ In this respect, Krifka’s theory departs from that of Zwarts, who identified anti-additivity as the defining property of strong NPIs: $f(X \subset Y) = f(X) \cap f(Y)$. (Krifka does not provide a general proof, however. He shows that the implicatures (143c.i, ii) cannot be satisfied in one DE environment that is not anti-additive, viz., the nuclear scope of the determiner *less than n*. For details I again refer the reader to Krifka (1994, 1995).

A couple of points are to be noted here. As a *NALS* reviewer points out, Krifka’s account for unstressed *any* has been criticized by K&L. Recall that Krifka appeals to Gricean maxims to arrive at a contradiction between what is said and what is implicated. K&L object to this as an explanation for the ‘ungrammaticality’ of *Mary saw anything*. They state that a ‘violation of Gricean maxims does not, in general, lead to ill-formedness – it does not render a sentence as hopelessly deviant as *I saw anything is*’ (K&L 1993, p. 372). To answer this objection, Krifka must interpret the implicatures associated with the **ScalAssert** operator to be *conventional* rather than conversational, despite the fact that they are modeled on Gricean maxims of quality and quantity. Note that this objection does not carry over to Krifka’s account of strong NPIs (or to the account of Hindi NPIs presented in this paper), since the implicatures associated with **EmphAssert** are undeniably conventional, making them unviolable. On Krifka’s account of English strong NPIs (as well as my account of Hindi NPIs), statements made with these lexical items in non-negative contexts are not, strictly speaking, *ungrammatical* (since they don’t violate any syntactic constraints), but rather *unusable*, because of systematic presupposition failure in certain (pragmatico-semantically defined) contexts.

It should be obvious by now that Krifka’s account of strong NPIs is

²¹ Krifka (1995) expresses some skepticism about whether this is true or not.

very close to the account of Hindi NPIs presented in this paper. Hindi NPIs are always focused (as shown by the fact that they are uniformly stressed) and used to make emphatic assertions, and hence are strong NPIs in Krifka's sense. Moreover, both accounts rely on the intuition that the unacceptability of sentences with these NPIs is a result of the systematic violation of a scalar implicature in certain contexts; in fact, (143c.ii) in the definition of **EmphAssert** is simply the scalar implicature associated with *even*. Krifka himself recognizes this. As he puts it, "the function of emphatic focus is to indicate that the proposition that is actually asserted is *prima facie* a particularly unlikely one with respect to the alternatives. This meaning component can be made explicit with particles like *even*" (Krifka 1994, p. 204). The account presented here takes the conventional implicatures of *even/bhii* as given and shows that the combination of the predicate **one** plus *even/bhii* leads to contradictory implicatures in non-negative contexts. The resulting account of Hindi NPIs provided in this paper is somewhat **simpler than Krifka's account of strong English NPIs**. The implicatures of *even* that Krifka's account seems to presuppose have been independently criticized by Wilkinson (Wilkinson 1996, p. 205); in particular, Krifka's account ignores the existential implicature associated with *even*. While this may not be problematic for the account of NPIs, it is problematic for a general account of *even*. Moreover, Krifka takes the set of alternatives to an NPI like *ANYthing* to be $\{P \subset \textbf{thing} \wedge \neg \textbf{min}(P)\}$, whereas my account of the corresponding Hindi expression *kuch bhii* assumes that the contrasting set is any set of pragmatically identifiable properties that is a proper subset of **thing**. As is noted in the literature on *even* (e.g., Kay 1990), sometimes just one contrasting member is enough to license the use of *even*. And finally, some of Krifka's assumptions are geared toward explaining the differences in the distribution of stressed vs. unstressed *any* in English, a problem I do not deal with here in any depth.

A full-length comparison of Krifka's account and the one presented here is beyond the scope of this paper. I would like to end the discussion in this section by noting that Krifka's idea that the semantics/pragmatics of *even* is a special case of the pragmatics of emphatic assertion is an idea that is worth exploring, but one that will require more work on the semantics/pragmatics of emphasis than currently available.

11.4. *Lee and Horn (1994)*

In an unpublished manuscript, Lee and Horn (Lee and Horn 1994, henceforth L&H) argue that English *any* is simply an indefinite plus *even*. (They also provide examples from a wide variety of languages showing that the

indefinite-plus-*even* combination is a very common form of NPI cross-linguistically.) When suitably formalized, their analysis of English *any* is almost identical to that of Hindi NPIs presented here. Hence a discussion of their work in the present context is simply a discussion of the extent to which the analysis of Hindi NPIs presented here carries over to English *any*. Various putative problems for analyzing *any* along these lines have been pointed out by two anonymous *NALS* reviewers. I will consider these problems below.

One *NALS* reviewer points out the observation (attributed to C. Collins and R. Kayne) that while *any* can co-occur with *whatsoever*, *even a* or *even one* cannot, as the following pair shows:

- (147) a. John doesn't have any idea whatsoever.
 b.*John doesn't have even one idea whatsoever.

It is unclear to the author at this point how strong the force of this observation is. An analysis of English *any* as being (semantically composed of) an indefinite plus *even* need not commit us to the idea that all collocational restrictions on the English word *any* are identical to those of *even* plus (an actual) indefinite – in this case, there does seem to be an ad hoc collocational restriction on the distribution of *whatsoever* (this is noted in L&H, fn. 25). This is particularly so because it is hard to provide an exact characterization of the environments that allow *whatsoever*. Thus L&H suggest that *whatsoever* modifies an expression 'which denotes the absolute lowest value for which a proposition schema holds' (this is their interpretation of some remarks in K&L), supported by the fact that *whatsoever* co-occurs with *any* but not the indefinite article *a* on the kind interpretation (examples from L&H):

- (148) a. Anybody whatsoever can come to the party.
 b.*A person whatsoever can come to the party.

L&H also point out that *whatsoever* can co-occur with NPI as well as free-choice *any*, but not with a regular quantifier like *every*:

- (149) a. I didn't see anybody whatsoever.
 b. Anybody whatsoever can come to the party.
 (150) a.*I didn't see everybody whatsoever.
 b.*Everybody whatsoever come to the party.

L&H remark that "*any* points to the absolute lowest value on the scale, while there is no notion of scale for the elements contained in the domain of quantification for *every/some*" (L&H, p. 26). The problem with this suggestion

is that *whatsoever* can co-occur with the quantifier *no*, and arguably there is no notion of scale for the elements contained in the domain of quantification for *no* either:

- (151) a. I saw no one whatsoever.
b. No one whatsoever came to the party.

For some reason, *whatsoever* seems not to co-occur with *even*, as can also be seen from the following pair:

- (152) a. I don't have a single pen whatsoever to write with. (L&H, ex. (96a)).
b. */?I don't have even a single pen whatsoever to write with.

L&H give the example in (152a) in support of their account of the distribution of *whatsoever*, contrasting it with (148b) (*a* vs. *a single*). At this point, I have nothing more to add to the discussion, beyond noting that the ban on the co-occurrence of *whatsoever* with *even* is probably an ad hoc collocational restriction, and so is not necessarily an argument against the idea that English *any* is indefinite plus *even*. (At the same time, one has to be cautious about using the facts relating to the distribution of *whatsoever* to argue for the position that *any* is indefinite plus *even*, as L&H do.)

A second problem pointed out by the reviewer is that the distribution of English *any* is slightly different from NPI containing *even* (and this also relates to the issue of stressed vs. unstressed *any* in English). First, as noted by Krifka, stressed *any* in English cannot occur in certain contexts in which unstressed *any* is allowed, as in the scope of some determiners like *less than three*, which are DE but not anti-additive in the sense of Zwarts (1993), as the following examples show:

- (153) a. Less than three students handed in any homework.
b. *Less than three students handed in ANY homework.

In this particular context, English NPIs containing an explicit *even* pattern with stressed *any*, as the following example shows:²²

²² The judgment reported is the reviewer's. The author and his informants find them to be at least marginally acceptable. The same reviewer points out, however, that when *homework* is stressed instead of *one*, the example becomes much better:

(i) ?Less than three students handed in even a HOMEWORK.

Sentence (i) is strictly speaking irrelevant to the concerns of this paper, since L&H's claim relies on *even* associating with the indefinite *a/one* rather than other elements of an indefinite.

- (154) *Less than three students handed in even ONE homework.

The contrast between (153a) on the one hand and (153b) and (154) on the other is expected on Krifka's account, which treats NPIs with an explicit *even* and stressed *any* as one natural class opposed to unstressed *any*. Secondly, as point out in Heim (1984), there is also a major distributional difference between English NPIs that she analyzes as containing *even* (sometime invisible), on the one hand, and *any* (and also *ever*), on the other hand. In the restriction of a universal quantifier like *every*, an NPI based on *even* is acceptable if the generalization so expressed establishes a causal relation between the things that satisfy the restriction of the quantifier and the things that satisfy the nuclear scope; if the generalization expressed is merely accidental, the examples are degraded. This is shown in the following examples from Heim:

- (155) a. Every restaurant that charges so much as a dime for iceberg lettuce ought to be closed down.
 b. ??Every restaurant that charges so much as a dime for iceberg lettuce actually has four stars in its handbook.

Heim argues that NPIs like *so much as* contain an implicit *even* (the contrast between (155a) and (155b) stays if *so much as a* is replaced with *even a*) *Any* and *ever*, on the other hand, exhibit no such contrast as the one shown above, as attested in the following examples:

- (156) a. Every restaurant that I have ever gone to happens to have four stars in the handbook.
 b. Every restaurant that advertises in any of these papers happens to have four stars in the handbook.

Heim's explanation of the difference between (155) and (156) relies on the assumption that the implicatures associated with *even* are more naturally satisfiable in generalizations where there is a causal relationship between the restriction and the nuclear scope than in accidental generalizations. *Any* and *ever*, on the other hand, can simply appear in the restriction of a universal quantifier, since that is a DE environment and there are no *even*-type implicatures to be satisfied. If Heim's account is right, there does seem to be a distinction to be made between *any* and *even*-incorporated NPIs in English, and so these facts pose a problem for L&H, one for which I see no obvious way out at this point.²³

²³ The reviewer points out that if Krifka is right, stressed *any* should behave like *even*-incorporated NPIs, since on Krifka's account only stressed *any* gives rise to *even*-type scalar implicatures. This means that one should expect a contrast between (i) and (ii):

A last, more serious problem pointed out by an anonymous *NALS* reviewer has to do with contexts where *any* is licensed in English in non-negative non-modal contexts, a phenomenon that Dayal (1995a), following Legrand (1975), calls ‘subtriggering’. The reviewer notes that modals are divided as to whether they licence FC *any* or not: modals of possibility allow it, modals of necessity do not (a fact also noted earlier in Davison (1980)). As is well known, a subject indefinite can get a generic/universal interpretation in the scope of a modal (necessity as well as possibility), as one can see in the following examples:

- (157) a. A student must/has to work hard.
 b. A diligent person can move mountains.

Both (157a, b) can be interpreted as generalizations about students and diligent people, respectively. One can, however, find examples like (158) where the universal/generic reading of an indefinite is not possible:

- (158) a. You can take an apple.
 b. You must take an apple.

Neither (158a) nor (158b) can be interpreted as generalizations about apples, and they can only have existential readings. And yet FC *any* is possible in the object position in sentences with a modal of possibility, and impossible in the subject position with modals of necessity, as the following examples show:

- (159) a. ??Any student must work hard to do well.
 b. Anyone can move mountains.
 (160) a. You can take any apple.
 b. *You must take any apple.

(Excursus. A note of caution is in order here. The examples in (158) might be slightly misleading, given the fact that the most natural interpretation of the sentence in (158a) is as a statement of permission. In an earlier section, (Hindi) permission statements like those in (160a) were analyzed as involving an existential rather than a universal quantifier. In this respect

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- (i) * Every restaurant that advertises in any of these papers happens to have four stars.
 (ii) * Every restaurant that advertises in [ANY]_F of these papers happens to have four stars.

The reviewer says that (s)he is ‘not sure about the ungrammaticality of’ (ii). My informants and I find (ii) acceptable. This of course complicates the problem for Krifka as well as L&H.

I followed Davison (1980), as well as Kamp (1973), at least my interpretation of the latter. The ‘FC’ reading of that sentence on this view is a fallout of *even*-style implicatures associated with *koi bhii*. On this analysis, (160a) means roughly something like ‘You can take an apple (whatever other properties it might have, even one you might have earlier thought I would prohibit you from taking)’. If one analyzes permission statements as involving removal of prohibitions, they can be viewed as strengthening environments, as I argued. The problem with the modal *must* is more general, in that it does not allow a bare *any*-phrase in any position. End of excursus.)

The ban on the appearance of FC *any* in the context of a modal of necessity can be overridden if the *any*-phrase contains a relative clause:

- (161) a. You must take an apple that’s on Mary’s plate. (not \forall)
- b. You must take any apple that’s on Mary’s plate.

(161b), moreover, is a special case of the more general phenomenon of subtriggering, i.e., the appearance of FC *any* in contexts that are neither negative nor necessarily modal; this happens when the FC *any* is the determiner of a relative clause. This can be seen in the examples below, taken from Dayal (1995a):

- (162) a. Anybody who is in Mary’s semantics seminar is writing a paper on polarity items.
- b. At the end of his speech, the President thanked any soldier who had fought in the gulf war.

The exact discourse conditions under which examples like (162) are acceptable are complex, and their full discussion is outside the scope of this paper; I refer the reader to Dayal (1995a). The facts relating to subtriggering lead to two questions, viz., (i) the discrepancy between the conditions under which FC *any* is licensed and the conditions under which ordinary indefinites may get generic interpretations (this includes the discrepancy between modals of necessity and modals of possibility in licensing FC *any*), and (ii) the role of relative clauses in overriding the ban on appearance of FC *any* in contexts that are neither DE nor generic or modals of possibility. The reviewer notes that (i) is a problem for all accounts of NPI licensing that try to give a unified account of NPIs and FC items by analyzing them as indefinites that can get existential or generic readings depending on the syntactic environment in which they appear, a la Kamp-Heim. This would include the analysis of Hindi NPIs presented in this paper, as well as those of K&L, Krifka, and L&H.

While I don’t have a solution to these problems pointed out by the

reviewer, at least as they apply to English, I will make some remarks. First, it is not true, strictly speaking, that modals of necessity uniformly disallow FC *any*: the modal *will* in English, for example, is arguably a (future-oriented) necessity-type modal, and yet it allows FC *any*:

- (163) a. Any student will work hard.
 b. John will do anything (to get a job).

The modal *must* (and maybe *shall/should* as well) seems to be peculiar in not allowing *any*, for reasons unknown to the author. In Hindi, necessity is expressed by the combination of the verb *caahiye* meaning ‘to want’, plus infinitive, with the verb meaning *to want* taking a dative subject. This configuration seems to disallow generic interpretation of indefinites altogether, as in the following example:

- (164) ulluu-ko Sikaar karnaa caahiye
 owl-DAT hunt do-inf. want

‘A (specific) owl must hunt’, not ‘An owl (generic) must hunt.’

As pointed out in Porterfield and Srivastav (1988), a singular bare noun in Hindi can be interpreted either generically or as a specific NP. In the construction in (164), only the specific interpretation is possible, not the generic one. At least in Hindi, the reasons for not allowing *koi bhii* seem to be syntactic rather than semantic, having to do with the particular construction used to express necessity.²⁴

The subtriggering facts of Hindi are also interesting. It appears that neither *koi bhii* nor *ek bhii* can appear in subtriggering environments by themselves. The following sentences with *ek bhii* and *koi bhii* are all unacceptable:

- (165) a. *ek bhii aadmii jo mere ghar meN hai is
 one even man who my house in is this
 piano-ko uThaa rahaa hai
 piano lifting is
 ‘Even one person who is in my house is lifting this piano.’

²⁴ One possibility worth exploring is that the dative subject might be required to be lower in the tree than other subjects. This would mean that it would always be within the domain of Existential Closure and could not raise high enough to be in the scope of the generic operator.

- b. *koi bhii chatr jo meri-ke semantics seminar meN
 any student who Mary's semantics seminar in
 hai NPIs par pepar likh rahaa hai
 is NPIs on paper write is
 'Any student who is in Mary's semantics seminar is writing a
 paper on NPIs.'
- c. *bhaaSan ke baad raaStrapati-ne yuddh meN laRne vaale
 speech after president war in fight
 kisii bhii sainik ko dhanyavaad diyaa.
 any soldier thank gave
 'After the speech, the President thanked any soldier who fought
 in the war.'

The way to express subtriggering-type readings in Hindi is to attach *bhii* to the relative pronoun (optionally in combination with the indefinite *koi*) in the correlative construction:

- (166) a. jo (koi) bhii laRkii meri ke semantics seminar meN hai
 which bhii girl Mary's semantics seminar in is
 vo NPIs par pepar likh rahii hai
 she NPIs on paper writing is
 'Anyone who is in Mary's semantics seminar is writing a paper
 on NPIs.'
- b. jo (koi) bhii sainik yuddh meN laR rahaa hai,
 which bhii soldier war in fighting is
 raaStrapati unheN dhanyavaad de rahe haiN
 the president him thank giving is
 'The President is thanking any soldier who is fighting in the
 war.'

In Lahiri (1997) I have argued that the contribution of *bhii* in these examples can be explained if we follow some suggestions in Dayal (1995b, 1996). The **essential idea is that the correlative clause of this construction can be taken to be a universal quantifier**, and that the relative pronoun is simply the predicate **one**. The assertion associated with (166a) can be represented as (167):

- (167) $\forall x[\text{one}(x) \wedge \text{girl}(x) \wedge x \text{ is in Mary's semantics seminar}][x \text{ is writing a paper on NPIs}]$

(A detailed compositional analysis can be found in Lahiri 1997.) Another essential idea is that the universal quantifier is *constructional* (following Dayal (1996) I assume that it comes from the relative Comp), and so the particle *bhii* is the restriction of a universal quantifier, a well-known strengthening environment. The alternatives to (167) induced by *bhii* are propositions of the form (168):

- (168) $\forall x[P(x) \wedge \text{girl}(x) \wedge x \text{ is in Mary's semantics seminar}][x \text{ is writing a paper on NPIs}]$.

These are weaker propositions than (167) if the predicate P is stronger (in real world examples, the predicate P is usually the predicate ‘identity known to the speaker or relevant’), and so the implicatures associated with *bhii* are satisfied.

Are these Hindi examples relevant to the analysis of English subtriggering? I am not sure. If one were to extend the analysis of the Hindi examples to the cases of English subtriggering, one would have to argue that the English sentence (169a) receives the translation (169b):

- (169) a. Any girl who is in Mary’s semantics seminar is writing a paper on NPIs.
 b. $\forall x[\text{one}(x) \wedge \text{girl}(x) \wedge x \text{ is in Mary's semantics seminar}][x \text{ is writing a paper on NPIs}]$.

For this to happen, the universal quantifier in (169b) must come from the relative clause rather than *any*; this is arguably the case with Hindi cor-relatives, but not prima facie plausible for English relative clauses.

Given the problems facing the analysis of *any* as *even* plus indefinite mentioned in this section, I will leave it as an open question whether the analysis of Hindi presented in this paper can be extended to the analysis of *any*.

12. CONCLUSIONS AND PROBLEMS FOR FURTHER RESEARCH

In this preliminary report on NPIs in Hindi, I have attempted to show that the meaning of NPIs in Hindi and the reasons for their behavior as NPIs and free-choice elements is predictable from the internal structure of these elements. The basic idea is that the implicatures associated with the particle *bhii*, meaning ‘even’, are satisfiable in certain contexts but not in others, making sentences containing these expressions unusable. Some open problems remain, e.g., the fact that *ek bhii* seems to have a slightly wider distribution than *koi bhii*. Examples with *koi bhii* are best in the scope of overt negation, in conditionals, DE prepositions, interrogatives, correl-

atives, and permission statements, but not as good in certain other contexts, e.g., in the restriction of universal quantifiers and some adversative predicates. This may well have to do with the syntax of scope of these indefinites (*ek* in general allows for wide scope more freely than *koi*) or with the unavailability of the proper scale (numerical vs. other). Details of the syntactic constraints on NPI licensing are another topic not touched upon here, in particular with respect to mass indefinites. I will leave these issues for further research.

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