A SEMANTICS FOR PSEUDO INCORPORATION

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ABSTRACT: This paper proposes a semantics for incorporation that does not require the incorporated nominal to form a syntactic or morphological unit with the verb. Such a semantics is needed for languages like Hindi where semantic intuitions suggest the existence of incorporation but the evidence for syntactic fusion is not compelling. A lexical alternation between regular transitive and incorporating transitive verbs is proposed to derive the particular features of Hindi incorporation. The proposed semantics derives existential force without positing existential closure over the incorporated nominal. It also builds in modality into the meaning of the incorporating verb. This proposal is compared to two other recent proposals for the interpretation of incorporated arguments. The cross-linguistic implications of the analysis developed on the basis of Hindi are also discussed.

1. Identifying Incorporation

The primary identification of the phenomenon known as noun incorporation is based on morphological and syntactic evidence about the shape and position of the nominal element involved. Consider the Inuit example in (1a) as well as the more familiar example of English compounding in (1b):

1a. Angunguaq eqalut-tur-p-u-q   *West Greenlandic -Inuit*
     A-ABS   salmon-eat-IND-[-tr]-3S   Van Geenhoven (1998)
     "Angunguaq ate salmon."
  b. Mary went apple-picking.

The thematic object in (1a) occurs inside the verbal complex, and this affects transitivity. The verb has intransitive marking and the subject has absolutive case instead of the expected ergative. The nominal itself is a bare stem. There is no determiner, case marking, plurality or modification. In other words, an incorporated nominal is an N^0, not a DP or an NP.[1] Similar comments apply to the English compound in (1b), though it should be noted that English does not have [$_V$ N+V] compounds. Though the reasons for this are not particularly well-understood at this time, my purpose in introducing English compounds here is for expository purposes only.

       A somewhat less obvious case of noun incorporation is attested in Niuean, discussed by Massam (2001). Niuean is an SVO language with obligatory V fronting. Massam notes that in addition to expect VSO order, there also exist sentences with VOS order in Niuean:

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[1] There can be external modifiers with (a limited set of) determiners, case marking etc. in what is known as the phenomenon of 'doubling'.

2. Ne inu *kofe kono* a   Mele   *Niuean*
   Pst drink coffee bitter Abs Mele
   "Mary drank bitter coffee."

Massam notes that there are restrictions on the shape of the object nominal in VOS structures. As we can see above, they do allow modification but they do not allow the full range of possibilities. There can be no determiners, case marking, relative clause modification or plurality in VOS structures, for example. According to Massam, this distributional fact can be explained by positing a pseudo incorporation structure [$_{V'}$ V NP]. V fronting would then derive the VOS order and the restrictions on the nominals that occur in this position would follow from the limitations imposed by their being NPs, rather than DPs.

So much for syntactic and morphological cues. Noun incorporation also has some semantic properties that have been noted in the literature. For example, Bittner (1994) shows that Inuit incorporated nominals must take obligatory narrow scope. A sentence like (1a) cannot be used to refer to a previously mentioned salmon, or a salmon belonging to a previously mentioned set of salmon. Furthermore, when other operators are present in the sentence, the incorporated nominal takes scope under that operator. (3) shows this for negation:[2]

3. Arnajaraq   aalisaga-si-nngi-l-a-q
    A. ABS   fish-buy-NEG-IND-[-tr]-3SG
    "Arnajaraq didn't buy any fish."

Another semantic property of incorporated nominals is their number neutrality. Although there is no plural morphology on the nominals in (1a), for example, there is no singularity implicature. There could be one or more salmon eaten. This is also evident in compounding. Number neutrality, as far as I am aware, is a feature of incorporated nominals that holds cross-linguistically.

There is a third property of incorporation which is somewhat more difficult to pin down but nevertheless significant. Mithun (1994) describes incorporation as "an intransitive predicate denoting a unitary concept…The compound is…the name of an institutionalized activity or state. The IN loses its individual salience both semantically and syntactically. It no longer refers to a specific entity; instead, it simply narrows the scope of the V". To place it in a more familiar context, consider the intransitive variant of *eat* given in (4a). As Levin (1993) notes, "the verb in this variant is understood to have as object something that qualifies as a typical object of the verb":

4a. The baby ate.   *It was a piece of fruit.
  b. The baby ate something. It was a piece of fruit.

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[2] Baker (1996) notes a wider range of possibilities for the interpretation of incorporated nominals in Mohawk. He essentially allows takes them to be equivalent to non-incorporated nominals. Although it is not possible for me to address this problem seriously, most of the Mohawk data is amenable to the view that the incorporated nominal can be a definite or a narrow scope indefinite. There is no data that shows the possibility of a wide-scope indefinite (see section 2.2 for a diagnostic separating definites and wide scope indefinites).

A final semantic property of incorporated nominals, is their inability to support pronominal discourse anaphora. The relevant property can be demonstrated by (5a), where the nominal inside the compound appears to be in an anaphoric island, in terms of Postal (1969). The anaphora facts are also evident with implicit arguments (5b) and bridging (5c):

5a. Mary went apple-picking. #They/The apples were delicious.
 b. John baked yesterday. #It/The cake was delicious.
 c. John bought a car$_i$. #It$_j$/ The steering wheel is covered with fur.

The status of this feature in incorporation is controversial, as shown by the debate between Sadock (1980, 1986) and Mithun (1984, 1986). Even though resistance to discourse anaphora is not cross-linguistically stable, it does appear to be relevant to incorporation in at least some languages that have noun incorporation.

We have seen above that NI can be identified directly on the basis of syntactic and morphological evidence or indirectly on the basis of its semantics. This distinction will be particularly relevant as we turn our attention to Hindi. In closing this section, let me note that the syntax of NI has been fairly well investigated but its semantics had not received the same attention, at least till very recently. This paper presents a proposal about the semantics of incorporation in languages where there is evidence of semantic incorporation but not syntactic incorporation. In section 2, we will take a close look at reasons for classifying Hindi as an incorporating language. In section 3 we consider aspects of Hindi syntax that argue against a canonical form of incorporation. In section 4, we note problems with adopting a standard semantics for incorporation involving an existentially bound theme argument, as in Bittner (1994) and Van Geenhoven (1998). Instead a proposal for getting existential import without existential binding is proposed that also builds in a covert modality into the semantics of incorporation. This semantics is shown to predict the core features of Hindi incorporation. In section 5, we look at discourse anaphora in the context of incorporation, expanding the empirical understanding of this phenomenon and showing its relevance to various proposals, including two recent proposals, which also do not posit existential binding of the theme argument (Farkas and de Swart 2003, Chung and Ladusaw 2003). Finally, in section 6 we look at some cross-linguistic implications of this approach to the semantics of noun incorporation.

2. The Case for Incorporation in Hindi

2.1. Case-marking on Direct Objects

Mohanan (1995) was the first to explicitly claim that Hindi has incorporation (see also Porterfield and Srivastav 1988, Dayal 1999, Wescoat 2002). In doing so, she drew on morpho-syntactic as well as semantic evidence. The optionality of accusative case-marking on direct objects, for example, argues for incorporation on syntactic as well as semantic grounds. In Hindi, accusative marking is optional on inanimate objects. This is

shown in (6a)-(6b).[3] The situation with animate objects is more nuanced. Case marking is obligatory if the object has a determiner (7a) but optional if there is no determiner (7b):[4]

6a. anu har kitaab/ har kitaab-ko paRhegii
    Anu every book every book-ACC will-read
    "Anu will read every book."
  b. anu kitaab/ kitaab-ko paRhegii
    Anu book book-ACC will-read
    "Anu will read a the book/the book."

7a. anu *har bacca/ har bacce-ko sambhaal rahii hai
    Anu every child every child-ACC is-looking-after
    "Anu is looking after every child."
  b. anu bacca/ bacce-ko sambhaal rahii hai
    Anu child child-ACC is-looking-after
    "Anu is looking after children (one or more)/the child."

Under the claim of incorporation this distribution is readily explained. Assuming that DP's cannot be incorporated, a quantified DP must occur in the normal complementation structure where it is assigned accusative case. In the case of inanimates, of course, one would have to allow accusative case to be optionally null. The practical consequence of this is that we cannot get definitive evidence for incorporation from case-marking on inanimates. Animate objects are a better guide to the phenomenon since we know from (7a) that nominals with determiners must be obligatorily case-marked. Since an animate nominal occurs without case-marking only when it has no determiners, we can say with some certainty that non case-marked animates are an instance of incorporation.

      The semantics associated with these forms is also telling. Accusative-marked direct objects refer to contextually salient/unique entities while non case-marked objects refer more generally (Butt 1993). In the case of animate objects, for example, the case-marked form in (7b) refers to some particular child while the unmarked form can refer to one or more children. Although the nominal is singular, the interpretation is number neutral. This, as we know, is a hallmark of incorporation.

      Scope facts further strengthen the claim for incorporation. In (8a) the only possible interpretation is that Anu will not look after any children. The existential intuitively associated with the object must take scope below negation. This is not so in (8b). The overt indefinite form is readily interpreted with the existential taking scope over negation. The case-marked bare singular object has a definite reading indicating that there is a particular contextually salient child that Anu will not look after:

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[3] Although it is possible to have accusative marked inanimate objects, there may be a general preference for leaving them unmarked. There are semantic differences though. Roughly speaking, the unmarked nominal in (6b) can be definite or indefinite but the marked nominal can only be definite. There is no discernible difference in meaning in the case of (6a) though.

[4] A limited set of determiners, namely *kai* 'several' or numerals are possible. Impressionistically speaking, they are the set of weak determiners, those amenable to an adjectival analysis. I might also note here that there are speakers who might even accept strong determiners like *har* 'every' (Surendra Gambhir, p.c.). This would mean that in for them the reliable tests for incorporation in Hindi would be semantic in nature.

8a. anu   bacca nahii samhaalegii
    Anu child not   will-look-after
    "Anu will not look after children."
 b. anu ek bacce-ko   /bacce-ko   nahii samhaalegii
    Anu one child-ACC   child-ACC not   will-look-after
    "Anu will not look after a particular child/the child."

        Similar facts hold for (9) where there is a quantifier in subject position. In (9a)
each woman can be assumed to be looking after different children. The version in (9b)
with a case-marked indefinite can involve narrow or wide scope for the object, the
version with the case-marked bare singular only a definite reading:

9a. har   aurat   bacca sambhaal rahii thii
    every woman child is-looking after
     "Every woman is looking after children."
 b. har   aurat   ek bacce-ko / bacce-ko   sambhaal rahii thii
    every woman one child-ACC child-ACC is-looking-after
    "Every woman is looking after a particular child/the child."

        Although obligatory narrow scope appears to be a stable cross-linguistic property
of incorporation, it is also a stable cross-linguistic property of bare nominals in general.
Before looking for further evidence of incorporation in Hindi, therefore, it might be
worthwhile to discuss the phenomenon of bare nominals and the relationship between
bare plurals and incorporation.

2.2. Bare Nominals and (In)definiteness

        In this section I will present evidence to show that incorporation cannot be
conflated with weak indefinites, contra claims in Van Geenhoven (1998). Before
presenting the evidence for this, I will draw on Dayal (*to appear*) for some background
assumptions about Hindi bare nominals. Like English bare plurals, Hindi bare plurals
can be used with kind level as well as object level predicates:

10a. kutte yehaaN aam   haiN
     dogs here   common are
     "Dogs are common here."
  b. kutte bahut bhauNkte haiN
      dogs lot   bark
      "The dogs/Dogs bark a lot."

        It was noted as early as Verma (1966) and Gambhir (1981) that Hindi bare
nominals can be used as definites and indefinites, a claim that has intuitive appeal since
Hindi does not have definite or indefinite articles. The definite use of bare plurals can be
demonstrated by examining (10b) which can be read as a generic statement about the
properties of the species or a habitual statement about particular entities salient in the

discourse. The ability of bare nominals to function as definites is also illustrated by (11a), where the linguistic context brings out the anaphoric use. The indefinite use can be illustrated by (11b):

11a. kuch bacce   andar aaye. bacce   bahut khush the
        some children inside came children very happy were
        "Some children came in. The children were very happy."
   b. kamre meN cuuhe haiN
       room in   mice   are
      "There are mice in the room."

However, as shown in Dayal (*to appear*) bare nominals cannot be taken as true indefinites. For one thing, they only allow weak indefinite readings. In (12a) the bare plural takes scope under negation and in (12b) under the intensional verb:

12a. kamre meN cuuhe nahiiN haiN
        room in   mice   not   are
        "There are no mice in the room."
   b. mujhe lagtaa hai ki   kamre meN cuuhe ghuum   rahe   haiN
       to-me seems   that room in   mice moving around are
       "It seems to me that there are mice moving around in the room."

In the cases above, a definite interpretation is also possible with certain intonation patterns. It is important to keep this reading separate from a wide scope existential reading where the bare nominal picks out a specific individual or group of individuals out of a set of like individuals. In other words, the only non-narrow interpretation of *mice* picks out the maximal set of mice in the context, a definite reading. It cannot denote a subset of the mice in the context, which is what a wide scope indefinite reading could do.[5] We will not go into the reasons for the absence of a genuine indefinite reading (see Dayal *to appear*). For present purposes it suffices to say that we can take Hindi bare plurals to be ambiguous between definites and kind denoting terms. We can further assume that the weak indefinite interpretation of Hindi bare plurals can be derived from its kind reading, along the lines of a kind-based analysis of English bare plurals (Carlson 1977, Chierchia 1998).

Let us turn now to the behavior of Hindi bare singulars. With respect to the properties discussed so far, they behave like bare plurals but further investigation reveals an interesting difference between them. Examples like (13) suggest that bare singulars can have weak indefinite readings but examples like (14) show that they cannot be considered bona fide indefinites. In (14a) it is not possible to get the bare singular to have a narrow scope indefinite reading. The sentence has only an implausible meaning in which the same child is playing in every place simultaneously. The bare plural in a similar context has the plausible narrow scope indefinite reading:

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[5] The contrast at issue can be demonstrated with the following:
   i. There were five mice in the cage. Some mice were sleeping, some were not.
   ii. *There were five mice in the case. The mice were sleeping and the mice were not.

13. (lagtaa hai) kamre meN cuuhaa hai
     seems   room in   mouse is
     "It seems there's a mouse in the room."

14a.# caroN taraf baccaa khel rahaa thaa
     four   ways child   was-playing
     "The same child was playing everywhere."
  b. caroN taraf bacce   khel rahe the
     four   ways children were-playing
     "Children (different ones) were playing everywhere."

This contrast between bare singulars and plurals can be explained in the following way. We can take the indefinite readings of bare plurals to be kind-based. However, singular kinds are known not to allow object level readings. Thus the relevant interpretations for sentences like (14) would be the following:

15a. $\forall x$ [place(x) $\rightarrow$ play-in-x(ιy[kid(y)/kids(y)]]

  b. $\forall x$ [place(x) $\rightarrow$ $\exists y$ [instantion-of-the-kind-KIDS (y) $\wedge$ play-in-x(y)]]

Consider first the possibility of definite interpretations in (15a), focusing first on the singular case. The *iota* type shift in combination with singular morphology gets us uniqueness and we derive the implausible reading the sentence has. Turning to the plural case in (15a), we see that a similar implausibility arises there since it refers to a group that is in different places at the same time. It is possible to derive the available plausible reading for it, however, by appealing to kind reference, as shown in (15b). Local existential closure is available for the plural kind term, which gives rise to the reading whereby different kids play in different places. As already noted, a similar option is not available for the singular kind term.[6]

      To conclude this point, the apparent conflict between (13) and (14) with respect to indefiniteness can be reconciled by taking Hindi bare nominals to be ambiguous between kinds and definites. A universal difference between plural and singular kinds with respect to object level interpretations accounts for contrasts between bare singulars and plurals in cases like (14). Hindi definites, however, have to be taken as encoding uniqueness but not familiarity to account for their apparent indefinite readings seen in (11)-(13) (see Dayal *to appear* for further discussion of these cases).

2.3. *The Number Neutrality Test for Incorporation*

      With this much background, let us now consider the evidence that shows Hindi incorporation to be a distinct phenomenon from weak indefinites:

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[6] Dayal (*to appear*) entertains the possibility of singular kinds also having instantiation sets with number morphology restricting those sets to singletons. For the cases at hand, allowing this option still derives the distinction between singular and plural. The singular version of (15b) would always pick out the same child even with a narrow scope existential because there would only be member to pick.

16a. puure din kamre meN cuuhaa ghustaa rahaa
       whole day room   in   mouse kept-entering
       "The whole day a mouse (the same one) kept entering the room."
  b. anu   puure din   cuuhaa pakaRtii rahii
       Anu whole day mouse kept-catching
        "Anu kept catching mice (different ones) the whole day."

If we now focus on the ability of a bare singular to have number neutral interpretations, we see this happens in object position but not in subject position. Since objects are the canonical targets for incorporation, and number neutrality is a feature of incorporation, we can conclude that the number neutral interpretation of bare singulars is only possible under incorporation.[7]

Further evidence for keeping incorporation distinct from other weak indefinites can be seen by comparing objects without case marking with case marked objects that don't require definiteness but still encode singularity presuppositions.

As mentioned earlier, accusative marked objects in Hindi are interpreted as familiar (Enc 1991, Butt 1993). (17) is another example showing this fact. The sentences in (18), however, have an instrumental marked direct object. As we can see, such objects are readily interpreted as indefinite:

17. anu   laRkii-ko dekhnaa caahtii hai
      Anu girl-ACC to-see   wants
      'Anu wants to see the girl.'

 18a. anu Daktar-se   baat karnaa caahtii hai
       Anu doctor-INSTR talk to-do   wants
       'Anu wants to talk to the/a doctor."
   b. anu Daktar-se   shaadi   karnaa caahtii hai
       Anu doctor-INSTR marriage to-do   wants
       'Anu wants to marry the/a doctor."

Applying the number neutrality test, however, reveals that the objects in (18) are not incorporated. The sentences in (19) carry singularity implicatures, just like bare singulars in subject position:

19a. pradhaan mantrii vidyarthii-se   miliiN
       prime   minister student-INSTR meet-PAST
       'The prime minister met with the student.'
  b. anu   puure din Daktar-se   baat kartii rahii
       Anu whole day doctor-INSTR talk kept-doing
        "Anu kept talking to the (same) doctor the whole day."

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[7] This is a simplification. It is possible to get number neutral interpretation for some subjects, as pointed out by Ozturk (2003). Translating into Hindi, one can get an incorporated reading for the following:
i. puure   raat   mujhe machchaR kaaTtaa rahaa
    whole night I-DAT mosquito kept-biting
    "Mosquitoes kept biting me all night."
These cases are quite limited. See also Farkas and de Swart (2003).

The observed difference between accusative and instrumental case marking with respect to definiteness can be accounted for if we flesh out the intuition that case markers carry semantic content. The accusative case, we can say, following Enc (1991) and Butt (1993), imposes a familiarity requirement on its argument, *λx [in-common-ground(x)]*, for example. The bare singular in (17), as we have argued, can pick out the unique individual in the context who is a girl. This individual must be included in the set denoted by the accusative case, namely the set of entities that are familiar, forcing a definite interpretation that includes both uniqueness and familiarity. Instrumental case, on the other hand, we can take to be semantically inert, introducing a simple requirement of existence, *λx[exist(x)]*. The bare singular in (19) can felicitously combine with instrumental case and denote a unique entity that may or may not be familiar in the discourse. This leaves the third case to be explained. When no case marking is present we lose uniqueness effects. We conclude that this loss of uniqueness, what we have been calling the number neutral interpretation, is due to incorporation. We will propose a semantic account for this in section 4. What I hope to have done here is to establish the need for a semantics for incorporation, independent from other weak indefinites.

2.4. (In)animacy, Gaps and Non-compositionality

A final argument for incorporation in Hindi is that certain claims about the frequency and interpretation of incorporated nominals has resonance in Hindi as well. As noted by Mithun (1984) and others, incorporated inanimates tend to be more common than incorporated animates. This is probably also true of compounding in English and, impressionistically speaking, it seems true of Hindi as well (see the list in Mohanan 1995).

A second property that has been noted is that there are gaps in possible N+V combinations, one of the reasons for the debate about incorporation being a lexical vs. a syntactic process. Similar idiosyncrasies can be seen in Hindi. Thus the verb *dekhnaa* 'see' can combine with *laRkii* 'girl' but not with *aurat* 'woman'; the noun *baccaa* 'child' can combine with the *khilaanaa* 'look-after' but not with *maarnaa* 'beat':

20a. laRkii-dekhnaa,   laRkii DhuunDhnaa, baccaa-khilaanaa,   baccaa-samhaalnaa
      girl/seeing   girl/finding   child-looking-after   child-looking-after
  b. *baccaa-maarnaa, *laRkii-sulaanaa   *aurat-dekhnaa,   *laRkii-khilaanaa
      child-beating   girl-putting-to-sleep woman-seeing   girl-looking-after

Finally, the meanings of incorporated structures are often non-compositional. *laRkii-dekhnaa*, for example, cannot be used to describe a situation in which someone just happens to see some girl while looking out of the window. It refers to the viewing of girls as prospective brides. Similarly, *makkhii-maarnaa* 'fly-kill' means wasting time rather than actual physical killing of flies.

We have seen in this section, then, several reasons to treat Hindi as having noun incorporation. In the next section we turn to reasons for classifying Hindi as a pseudo-incorporation language rather than a true incorporation language.

3. The Case for Pseudo Incorporation in Hindi

3.1. *The Incorporated Nominal as Syntactic Complement*

We will begin by showing that the incorporated nominal in Hindi behaves like a syntactic complement of the verb. The incorporation structure, therefore, does not involve the shift in valency that we notice in the Inuit example in (1a). As discussed in Mohanan (1995), among others, Hindi is a split ergative language which shows absolutive agreement pattern with imperfective aspect and an ergative pattern with perfective aspect. In (21) we see that agreement changes with the subject, masculine in (21a) and feminine in (21b). In (22), however, the subject has ergative case. The verb in (22a) agrees with the non-case marked object. In (22b), both the subject and the object are case marked and the verb shows default masculine singular agreement:

21a. raam macchlii pakaR rahaa hai
  Ram(masc) fish(fem) is-catching-masc-singular
 b. siitaa   macchlii pakaR rahii hai
  Sita(fem) fish(fem) is-catching-fem-singular
  "Ram/Sita is catching fish."

22a. raam-ne /siitaa-ne (ek) macchlii pakaRii
  Ram-ERG Sita-ERG (one) fish(fem) caught-fem-singular
  "Ram/Sita caught a fish."
 b. raam-ne /siitaa-ne macchlii-ko pakaRaa
  Ram-ERG Sita-ERG fish-(fem)ACC caught-masc-singular
  "Ram/Sita caught the fish."

The descriptive generalization about Hindi agreement, then, is that the verb agrees with the highest non case-marked argument if there is one, or has default masculine singular agreement. What is surprising, given what we know about canonical incorporation, is that even incorporated nominals can trigger agreement in Hindi, showing that the verb remains transitive.

Of course, in the previous section, we noted that bare nominals may or may not be incorporated so one might wonder if the sentences in which a non-case marked direct object triggers agreement is truly incorporated or is simply an instance of a (non-familiar) definite. To control for that possibility, let us consider the following context:[8]

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[8] Thanks to Elena Bashir for raising this question. As she reminded me, Hook (1979) has noted that there is a contrast in definiteness in cases of optional long-distance agreement of the following kind:

i. anu-ne kursiyaaN   toRnaa   caahaa
  Anu-erg chairs-fem-plural to-break-masc wanted-masc sing
ii. anu-ne kursiyaaN   toRnii   caahiiN
  Anu-erg chairs-fem-plural to-break-fem wanted-fem-pl
 "Anu wanted to break chairs."

The version with long-distance agreement in (ii) seems to refer to a specific set of chairs, while the one with default agreement in (i) suggests a more generic activity. Although I do not have an explanation for

23. Speaker A: lanDan meN tumne kya-kya kiya?
       "What all did you do in London?"
     Speaker B: pahle din maiN sahar me ghuumi, dusre din dostoN ke saath guzaari.
       Akhri din main bahut thak gayii thii.
       "The first day I spent in the town, the second day I spent with friends. The last
       day I was very tired.
       puure din maiN-ne (apne   kamre meN) kitaab   paRhii
       whole day I-erg   self's room   in   book-fem read-fem-sing.
       "The whole day I read books in my room."

The context here makes it clear that the act of reading spans an interval and there is no
particular book in the common ground. Thus a familiar definite reading of the bare plural
is ruled out. Furthermore, this is not simply a weak indefinite reading. The singular
object has a number neutral interpretation, which we have taken to be a determining
factor in identifying incorporation. We can safely conclude that the incorporated nominal
in Hindi is syntactically visible and functions like a regular complement as far as
agreement is concerned.

3.2. Incorporated Nominals as NP's

        We now turn to evidence establishing that the Hindi incorporated nominal cannot
be an N^0 but must be an NP. That is, we show Hindi incorporation to be like Niuean in
this respect. Consider (24) which has modified nominals and (25) which has conjoined
nominals in incorporated position:

24a. anu sirf   puraanii kitaab becegii
      A.   only old   book   will-sell
      "Anu will only sell old books"
  b. anu   apne beTe ke-liye bahut sundar   /paRhii-likhii laRkii DhuunDh rahii hai
      Anu self's son   for   very beautiful educated   girl   is-searching
      "Anu is looking for a very beautiful/educated girl for her son."

25a. anu   apne beTe ke-liye sundar   aur paRhii-likhii laRkii DhuunDh rahii hai
      Anu self's son   for   beautiful and educated   girl   is-searching
      "Anu is looking for a beautiful and educated girl for her son."
  b. anu kutta aur billi paaltii hai
      Anu dog   and cat   breeds
      "Anu breeds cats and dogs."

        Of course, there are certain types of modification and conjunction that are not
acceptable in incorporation. For example, (24a) cannot have a modifier like *bhaarii*
'heavy'. This is because modification must preserve prototypicality, and while *old books*

can enter into a prototypical relation with *sell*, *heavy books* cannot. Similar constraints would apply to conjunction.

I should note that the facts discussed in this subsection and the next contradict claims in Mohanan (1995) but are consistent with Wescoat (2002) who took an extensive survey of native speakers. Interestingly, Mohanan herself mentions in a footnote that her data are not accepted by all Hindi speakers.

3.3. *Hindi Incorporation and Adjacency*

In this section we show that Hindi incorporation not only involves NP's, it does not even require strict adjacency between the nominal and the verb. In this respect, it seems to be more permissive than Niuean. Consider the possibility of negation in (26) and the possibility of scrambling/topicalization in (27):

26a. anu   bacca nahii samhaalegii
    Anu child not   will-look-after

    "Anu will not look after children." $\neg\exists$ *only*

  b. (baRii   hokar)   anu   macclii nahiiN becegii
     grown-up after-becoming Anu   fish   not   will-sell

   "Anu will not sell fish when she grows up." $\neg\exists$ *only*

27a. kitaab anu becegii, akbaar   nahiiN
    book A.   will-sell, newspaper not
    "Anu will sell books, not newspapers."
  b. kitaab Anu bhii becegii
    book, Anu also will-sell
    "Anu will also sell books."
  c. kitaab Anu zaroor   becegii
    book Anu definitely will-sell
    "Anu will definitely sell books."
  d. faislaa   ham roz   kartee haiN   *from Gambhir 1981*
    decision we   everyday make
    "We make decisions everyday."

A negation between NP and V is the only way to negate the incorporated reading. That we are indeed dealing with an incorporated reading is particularly clear in (26b) which refers explicitly to a future generic activity. The examples in (27) show that it is possible to get a non-specific number neutral interpretation even when the bare nominal is moved leftward. This flies in the face of a generalization often mentioned in the literature that non-specific NP's cannot be scrambled. As discussed at length in Dayal (2003), this is not quite accurate. There are certain discourse requirements on scrambling that have to be fulfilled, which can typically be fulfilled by definite/specific NPs. But special contexts make it possible for non-specific indefinites to fulfill those requirements as well. The data here show that once these conditions are fulfilled, scrambling of weak indefinites, in fact incorporated nominals, becomes possible.

To conclude this section, there is clear empirical evidence that incorporation in Hindi involves a normal transitive structure with a syntactically visible complement, that the complement is an NP not an N^0 and, finally, that it is allowed the same freedom of movement that other arguments in Hindi enjoy.

The question we might ask at this point is whether there is anything to be gained by trying to establish that Hindi incorporation involves the canonical $[_V \text{ N V}]$ structure, as claimed by Mohanan (1995). We have seen that the primary evidence for incorporation in Hindi is semantic. If Hindi incorporation could be classified as canonical incorporation, I suppose, the semantic effects associated with incorporation could be expected to follow. As we will see in the next section, however, the belief that one could cash in on the semantics of incorporation to explain those effects is not well-founded. The standard semantics for incorporation does not deliver the relevant properties of incorporation so there is little to be gained in compromising the syntactic conclusion that the empirical evidence has led us to. We will therefore assume that the syntactic structure of Hindi pseudo incorporation is $[_{VP} \text{ NP V}]$ and take it as a challenge for the semantics to deliver the right interpretive properties.

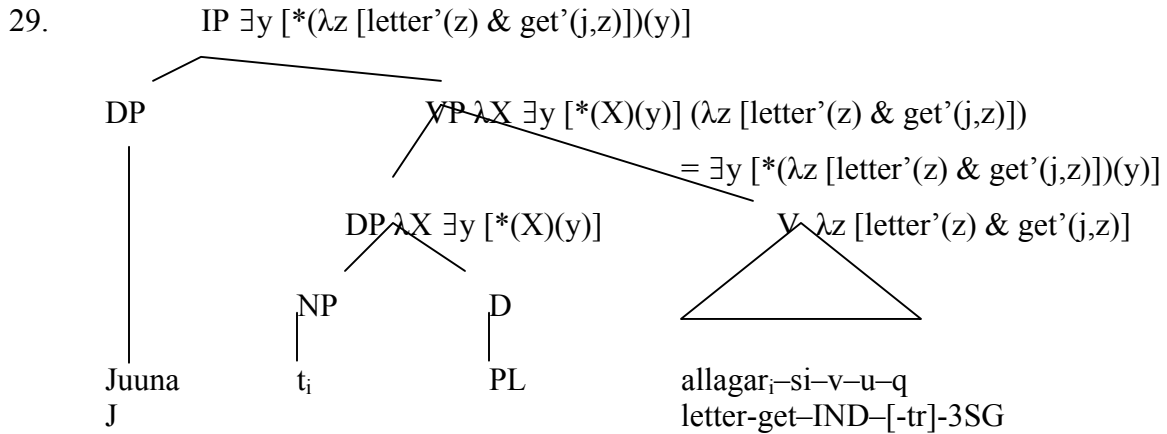## 4. The Semantics of Pseudo Incorporation

4.1. *Against Existential Quantification*

Although the syntax of incorporation has been well analyzed, till very recently, there were only two explicit formal proposals for their semantics. Bittner (1984) and Van Geenhoven (1998) both provide detailed discussions of incorporation in Inuit. Differences in detail notwithstanding, their accounts share certain features. The final truth conditions assigned to incorporated sentences like (1a) in both versions end up being the same as for its transitive counterpart because the incorporated nominal has existential force:

28a. Angunguaq eqalut-tur-p-u-q
     A-ABS   salmon-eat-IND-[-tr]-3S
     "Angunguaq ate salmon."
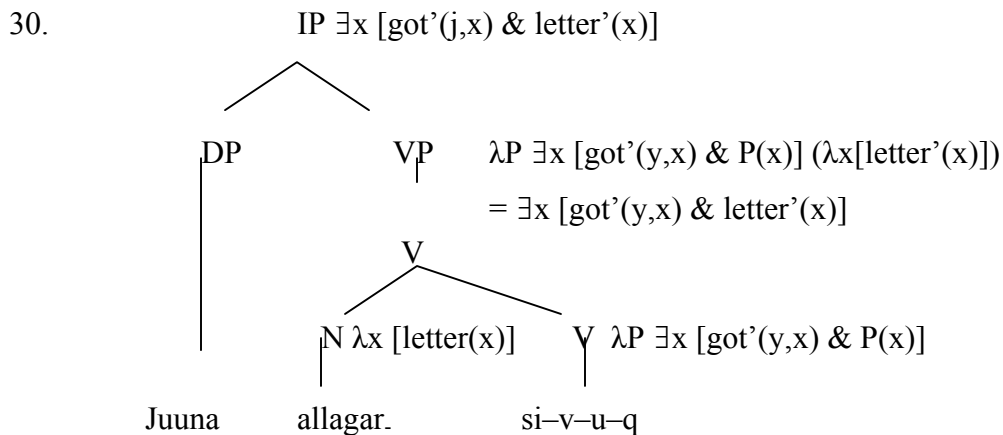 b. $\exists x$ [salmon(x) & ate(a,x)]

Bittner and Van Geenhoven, in different ways, also derive obligatory narrow scope for incorporated nominals as well as number neutrality for the incorporated stem.

The question we would ask is whether a similar account that imputes existential force to the incorporated nominal in Hindi is possible. The primary problem I see in adopting this approach is with deriving a number neutral interpretation of the incorporated nominal. Bittner adopts Baker's (1988) approach to incorporation as head movement and treats the incorporated N^0 as denoting a set of atoms. She posits covert plurality on the residual NP ensuring that the singular common noun is pluralized in the course of the derivation. The general approach can be seen in the somewhat simplified version of Bittner's analysis given in (29):

29.   IP ∃y [*(λz [letter'(z) & get'(j,z)])(y)]

DP   VP λX ∃y [*(X)(y)] (λz [letter'(z) & get'(j,z)])

                                              = ∃y [*(λz [letter'(z) & get'(j,z)])(y)]

              DP λX ∃y [*(X)(y)]   V λz [letter'(z) & get'(j,z)]

        NP   D

Juuna t_i PL   allagar$_i$–si–v–u–q
J   letter-get–IND–[-tr]-3SG

The verbal complex denotes the set of entities that are atomic letters that some x got. The residual DP, however, denotes the set of properties of pluralities, represented by the pluralization operator (Link 1983). When the two combine, pluralization applies to the set of letters gotten by x and we get the number neutral interpretation. There are cases when the residual NP actually has overt material specifying number, which would fix the interpretation to singular or plural in analogous fashion.

Van Geenhoven's approach, on the other hand, takes Inuit incorporated nominals to be syntactically base-generated inside the verbal complex. She treats the nominal stem to include singular and plural entities in its denotation. That is, the N^0 category itself that is taken to be number neutral. The interpretation is set to singular or plural only if external modifiers which are weak noun phrases are present. (29), on her account would be interpreted as (30):

30.   IP ∃x [got'(j,x) & letter'(x)]

        DP   VP   λP ∃x [got'(y,x) & P(x)] (λx[letter'(x)])

                                = ∃x [got'(y,x) & letter'(x)]

                     V

              N λx [letter(x)]   V λP ∃x [got'(y,x) & P(x)]

        Juuna   allagar.   si–v–u–q

Neither approach is straightforwardly applicable to Hindi. Since the Hindi incorporated nominal is syntactically visible and mobile, we must take it to be a phrasal rather than a lexical category. When a singular noun phrase occurs in a non-incorporation structure, we have already seen in section 2.2, it obligatorily denotes a unique atomic individual. One way to get the number neutral interpretation for incorporation, then, would be to stipulate morphologically null pluralization in the

incorporation structure. This fix, however, will not work since there are contexts in which a difference with respect to number implicatures between singular and plural is manifested:

31a. anu   apne   beTe ke-liye laRkii/laRkiyaaN dekh rahii hai
      Anu self's son   for   girl   girls   is-looking-at
       "Anu is looking at prospective brides for her son."
  b. anu apne beTe ke liye laRkii/#laRkiyaaN DhuunDh rahii hai
      Anu self's son   for   girl   girls   is-searching
       "Anu is searching for a bride/brides for her son."

(31a) and (31b) differ only in the choice of the verb. In the case of the verb *dekhnaa* 'look at', no appreciable difference in meaning arises between an incorporated singular or plural. In the case of the verb *DhuunDhnaa* 'look for', the two differ in the same way that the English translations suggest. The paradigm in (31) shows that the singular form does not give rise to singularity implicatures but the plural form does have plurality implicatures. The line we are considering derives, in effect, Bittner's semantics which does not distinguish between incorporated nominals and other weak indefinite plurals.

An alternative way to derive the results would be to treat the Hindi incorporated nominal as morphologically singular but semantically neutral, along the lines of Van Geenhoven's account. To get the distinction between (31a)-(31b), however, we would have to assume that pluralization does not just yield the closure under sum formation of a set of atoms, it actually eliminates atoms from a set of atoms and sums. Furthermore, we would have to posit null singular morphology to ensure that pluralities are removed from the common noun denotation when singular terms occur bare as regular arguments or as complements of singular determiners. All of this might have been acceptable if we could have treated the Hindi incorporated nominal as a lexical category but we have seen strong evidence that it is not. There is, therefore, no independent motivation for adopting Van Geenhoven's explanation for number neutrality.

We have not directly addressed the issue of whether plural forms can be incorporated but the facts we are now considering highlights the relevance of taking a stand on this. We know from the discussion in section 2.2 that bare plurals in Hindi can have narrow scope indefinite readings that are very similar to incorporation. Although we have rejected the possibility of taking the Hindi incorporated numeral to be number neutral, it is worth pointing out a further consequence of that move. It would preclude the possibility of incorporating bare plurals due to number morphology.[9] An alternative account for bare plurals in these structures would be needed. This, of course, is not problematic. The bare plural would be interpreted as a kind term in a normal complementation structure and the weak indefinite reading so derived would carry plurality implicatures as a consequence of plural morphology. The incorporated singular would allow for a number neutral interpretation. This would be compatible with contexts like (31b) where our world knowledge biases the interpretation towards a single individual as well as with contexts like (31a) where there is a bias towards a plural

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[9] Note that the semantics in Van Geenhoven's system does not rule out overt plurals from being incorporated. The restriction to stems, therefore, must be morphological.

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interpretation. The problem, as noted earlier, is the implausibility of treating a syntactically visible and mobile nominal as N^0.

Giving up the idea of treating the incorporated nominal itself as number neutral allows for a different stand on bare plurals. Both singulars and plurals could be incorporated but the semantics of incorporation would have to be defined in such as way that singular terms would end up being compatible with contexts that required singular or plural individuals but plural terms would carry plurality implicatures and be compatible only with the latter. This is the challenge I take on in the next subsection. Before doing so, let me note two other points that bear on the discussion here. One, the Bittner-Van Geenhoven approaches to noun incorporation do not capture two of the semantic properties discussed in section 1. They do not provide an explanation for the absence of pronominal anaphora to incorporated nominals and they do not enforce prototypicality. While these properties may not be relevant to Inuit incorporation, they are important aspects of the semantics of Hindi pseudo-incorporation.

4.2. Theme Suppression: Existential Import without Existential Quantification

The proposal I would like to make is that Hindi incorporation does not involve an existentially bound theme, but rather a suppression of the theme argument. The proposed alternation between transitive and incorporating verbs is given below:

32a. $\lambda x \, \lambda y \, \lambda e \, [V(e) \, \& \, Ag(e) = y \, \& \, Th(e) = x]$

    b. $\lambda P_{<e,t>} \, \lambda y \, \lambda e \, [P\text{-}V(e) \, \& \, Ag(e) = y \, \& \, \textit{Appropriately-Classificatory(e)}]$

    c. An event denoted by a predicate δ that incorporates a property γ is *appropriately classificatory* iff

      $\Diamond_{\text{probable}}(\exists e \, [\delta \, (e) \, \& \, \exists y \, [Ag(e) = y] \, \& \, \exists x \, [\gamma \, (x) \, \& \, Th(e) = x]])$ *(extensional verbs)*

      $\Diamond_{\text{probable}}(\exists e \, [\delta \, (e) \, \& \, \exists y \, [Ag(e) = y] \, \& \, Th(e) = \gamma])$ *(intensional verbs)*

There are three key pieces to this proposal. One, there is no difference in valency between ordinary transitives and incorporating verbs. (32a), the type of meaning associated with regular transitive verbs, expresses relations between individuals. (32b), the incorporating alternant, expresses relations between individuals and properties. They are both transitive. Two, the property argument does not correspond to a theme but is instead interpreted as a modification of the verb. If there is a shift to intransitivity it is in the semantics of the resulting combination. Finally, the incorporating alternant must satisfy a requirement that the resulting event be *appropriately classificatory*, a term I borrow from Dowty (1979). Its intended import is to introduce an element of modality into the meaning, as shown in (32c). Let us consider these three features of the proposal in turn.

The idea that there are transitive verbs that take properties as their first argument is not particularly radical. Zimmermann (1993) has, for example, argued that intensional verbs in English should be analyzed in this way: $\lambda P \lambda x \, [imagine'(x,P)]$, for example. There is a crucial difference between intensional verbs and incorporating verbs that has to do with existential import. With perfective aspect yielding an episodic interpretation, an incorporated structure licenses existential entailments, unlike an intensional verb. The

inference is lost, of course, with imperfective aspect which allows for a non-episodic interpretation. It would also be lost if the verb itself were intensional or occurred in a modal context:[10]

33a. anu-ne   kitaab paRhii
       Anu-erg book   read

     "Anu read a book."   => ∃x[book(x) & read(a,x)]

   b. Anu imagined a unicorn.   ≠> ∃x[unicorn(x) & imagined(a,x)]

The novel aspect of the proposal for incorporation, therefore, is the role that the property plays in the internal semantics.[11] As (33) shows, it cannot be the theme argument in the same sense that a property is the theme of an intensional verb since we would then lose an explanation for differences in existential entailment.[12]

        Here I take the property to be a sort of verb modifier. The idea, informally, is that the relation between *read* and *book-read* is akin to the difference between *cook* and *boil* (or any manner-of-cooking verb), for example. While every event of cooking involves some manner of cooking, a restricted manner-of-cooking verb suppresses the manner argument of the event: *John cooked the potatoes by boiling them in water* vs. *John boiled the potatoes by boiling them in water*. The claim is that although an incorporating verb takes two arguments, the first argument plays the role that lexicalization plays in combinations of (cooking) *event + manner*.

        We now come to the third novel aspect of the proposal, namely the restriction imposed by the requirement of *appropriate classification*. The idea, again drawing on the analogy with manner-of-cooking verbs, is that lexicalization targets only those combinations of cooking events and manners that have some cultural stability. Therefore, *cooking by stirring in a hot pan with a little oil* has become lexicalized into *stir-fry* but while we can easily conceptualize an event of cooking an egg by putting it in a pan and placing it on a hot car engine we would not expect to see a lexical manner of verb for such events. An event + manner combination has to have some relative frequency and perhaps some defining characteristics that sets it apart from other similar activities in order for it to become lexicalized. The same, I am claiming, holds true of incorporation. A predicate + property combination is possible only if events in which that property is a theme of that predicate are relatively frequent and sufficiently distinct from other similar activities. The modality introduced via the requirement of *appropriate classification* is indirect and, in that sense, distinct from the modality of the more familiar

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[10] Thanks to Cleo Condoravdi, Anastasia Giannikidou and Chris Kennedy for bringing up the relation between incorporating and intensional verbs.

[11] This was, in fact, already suggested in Porterfield and Srivastav (1988) in the sense that the final truth conditions for a sentence like (33a) was argued to be BOOK-read(a), with BOOK denoting the singular kind. Crucially, there was no discourse referent corresponding to the theme of the verb. This was used crucially to derive the anaphora facts to be discussed in section 5.1.

[12] Van Geenhoven's proposal, which we discussed above, has the incorporating verb take a property as its first argument. While it ensures existential entailment it does so by making the property restrict an existentially bound theme of the verb. There are non-trivial differences between this way of using the property argument and the one proposed here. We have already noted that Van Geenhoven's system cannot deliver prototypicality and anaphoric restrictions.

intensional verbs. More could and should be said, of course, about the type of modality involved and the best way to model it but I leave that for the future. What I am claiming here is that some form of hidden modality will be needed to capture the intuition about prototypicality voiced by Mithun (1984) and mentioned in section 1.

4.3. *Deriving the Properties of Hindi Pseudo-Incorporation*

In discussing the core features of the proposal I have already indicated how some of the properties of Hindi pseudo incorporation would be accounted for. Let us now look at the empirical coverage provided by the proposed semantics in more detail. We noted at the very beginning that incorporated nominals are not case-marked and cannot have determiners. Since the first argument of the incorporating verb is property denoting, this is to be expected. NP's, are generally taken to denote properties while DP's are thought to denote generalized quantifiers or individuals. Assuming that case assignment is to DP's, we also predict the absence of case, accusative or instrumental, on the incorporated nominal.   The restriction to properties further predicts that modification and conjunction will be acceptable. Finally, the semantics also allows plurals to be incorporated since they too denote properties.

It was also noted that the incorporated object is syntactically visible and mobile. The visibility follows from the classification of the incorporating alternant as transitive. The agreement rule in Hindi, which says that the verb agrees in number and gender with the highest non case-marked argument, need not refer to DP's. Incorporated NP's because they are non case-marked would qualify as triggers as long as there is no other non marked argument above it in the hierarchy. Mobility simply follows from the fact that Hindi is a language with relatively free word order. Again, the requirement merely is that arguments, DP's or NP's, can occur in any order as long as they satisfy the relevant discourse conditions. The lack of adjacency does not pose a problem for semantic interpretation. The trace of the incorporated nominal is interpreted as a property variable that restricts the meaning of the verb. When the displaced object is encountered, lambda conversion ensures an interpretation truth conditionally equivalent to the non-scrambled version:

34. λP_i is-P_i-reading(a) (book)
                                = is-book-reading(a)

                        is-P_i-reading(a)
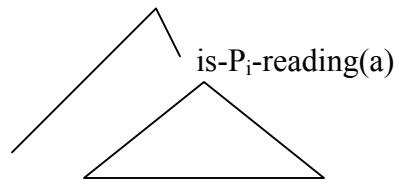
kitaab$_i$ anu t$_i$ paRh rahii hai
book   Anu   is-reading
"Anu is reading a book/books."

It should be obvious enough that incorporated nominals will end up "taking scope" under other operators. More accurately, they will not take scope over any other operator since they are not scope bearing elements at all. Regardless of where they occur in the

sentence the interpretation procedure guarantees that they will be interpreted as verb modifiers.

It may also be worth discussing explicitly the case of negation, which we have seen intervenes between the incorporated nominal and the verb. In this case, it does not seem plausible to argue that the nominal has moved up from a position lower than negation so we cannot appeal to semantic procedures for interpreting displaced arguments. Note that the problem is not restricted to incorporation but to any direct object that takes scope lower than negation. (35) shows one way of dealing with the problem:

35a. anu kitaab nahiiN becegii
     Anu book   not   sell
     "Anu will not sell books."
  b. [$_{IP}$ not [$_{IP}$ anu book sell]]

If we assume that negation moves and adjoins to IP at LF, the interpretation of incorporated nominals ceases to be problematic. Regular quantificational arguments can take scope above or below negation, depending on where they QR to. Incorporated nominals, being non-scopal, will necessarily be interpreted inside negation.

We come now to the puzzle of the number neutrality of incorporated singulars and the plural implicatures of plurals. Note that since there is no existential associated with the theme argument. Even in the episodic, there is no reference to

$\exists x[P_{SING/PLURAL}(x)$ & Theme$(e) = x]$ so there are no number implicatures that arise directly. The requirement of *appropriate classification* does check the probability of

$\exists x[P_{SING}$ & Theme$(e) =x]$ but this does not mean that the particular event described has a singularity restriction. In (36), for example, the adverbial forces several sub-events of book-reading. Note, though, that even without there being two separate events of book-reading, one would not be restricted to a single book since the requirement simply checks the probability of single books being themes of reading events. It does not require the theme of the particular event itself to be singular. Number neutrality follows:

36a. anu   puure din kitaab paRhtii rahii
     Anu whole day book   kept-reading
     "Anu kept reading books the whole day."
  b. $\forall t$ [in-the-day(t) $\rightarrow$ $\exists e$ [book-read(e) & Agent (e) = anu & A-C(e)]

Now, let us see how the plurality implicatures with plural direct objects can arise in this system. If we assume that plurals incorporate, we have the following:

37a. anu apne   beTe ke-liye laRkiyaaN DhuunDh rahii hai
     Anu self's son   for   girls   is-searching
     "Anu is looking for girls for her son."
  b. $\exists e$ [girls-searching(e) & Agent(e) = Anu & goal(e)=Anu's son & A-C(e)]

The requirement of *appropriate classification* now checks probability of a plural individual, in the extension of *girls*, being the theme of searching events. This is the source of the plural implicature under the current incorporation analysis.

Alternatively, we can interpret the bare plural as a regular complement whose weak indefinite reading is dependent on kind reference:

38. $\exists e$ [searching(e) & Agent(e) = Anu & Goal(e)=Anu's son &

   $\exists x$ [instantiation-of-girls(x) & Theme(e) = x]]

Here the implicatures arise in the same way that they arise for bare plurals in English. The discussion here establishes that number neutrality of a morphologically singular but syntactically visible/mobile phrasal category entails an incorporation analysis of the kind we have seen. The existence of plural implicatures with non case-marked plural objects is compatible with an incorporation analysis of the kind presented here but does not entail it.

   Finally, let us consider the fact that the combinations of verbs and nouns that can incorporate appear to be somewhat idiosyncratic, a property that has typically been associated with lexical rather than syntactic processes. Dowty (1979), however, pointing to paradigms like *John hammered the metal flat* vs. **John hammered the metal beautiful*, noted that there is no principled reason for separating out lexical and syntactic processes on this basis. As we can see, positing a productive variant of regular transitive verbs does not rule out the possibility of having this alternant apply selectively to some cases. The important point here is that it not be a lexical property of a class of verbs or nouns that they can undergo or not undergo incorporation. It is their combination that must pass muster. The requirement of *appropriate classification* does precisely that.

5. Theme Suppression and Discourse Anaphora

5.1. Hindi Incorporation and Anaphora

   We noted in section 1 the inability of incorporated nominals to support anaphora as a possible semantic cue. The move to eliminate overt existential quantification from the semantics of incorporation makes some clear predictions in this domain. An incorporated nominal that is existentially bound can be expected to support discourse anaphora but if incorporated nominals are, in effect, predicate modifiers they would not be expected to do so. In fact, the proposal made here fleshes out the suggestion in Porterfield and Srivastav (1988). As far as I know, they were the first to claim that in sentences like (39a) there is no discourse referent introduced by the direct object, which is an atomic kind term. They used this to explain the infelicity of discourse anaphora:

39a. anu-ne kitaab paRhii. #vo/ kitaab/ i bahut acchii thii
    Anu book read   it book e very good was
    "Anu read a book. It / The book / [pro] was very good."
  b.
    ┌─────────────────────┐
    │ x   │
    │ anu(x)   │
    │ BOOK-read(x)   │
    └─────────────────────┘

One can create examples to show the awkwardness of a pronoun referring back to incorporated nominals in dialogues too:

40. Speaker A: maiN kal   film   dekne gayii thii.
                I   yesterday movie to-see had-gone
                "I had gone to see a movie yesterday."
    Speaker B: #vo /film / i   kaisii lagii?
                 it   movie pro how   seemed
                 "How did you like it/the movie/[pro]?"

The problem with this generalization is that there may be a general preference to have null anaphora or full nominals, at least with inanimate objects. The versions with the pronoun do not, in my view, improve sufficiently with an overt indefinite *ek kitaab* 'one book' or *ek film* "one film" as antecedents. Similarly, it seems to me that even with a definite reading of the object in the antecedent sentence, made salient by stressing the subject, pronominal anaphora does not substantially change the judgement.

        Clearer confirmation of the predictions of the present proposal is provided by examples like (41), from Dayal (1999) in which the antecedent is animate and the anaphor a possessive. Null anaphora is obviously not possible because of the need for possessive morphology. Between the two available options, the judgement is sharp and clear:

41a. anu apne   beTe ke-liye laRkii dekh rahii hai
      Anu self's son   for   girl   is-looking-at
      "Anu is looking at prospective brides for her son."
   b. vo #uskaa/laRkii-kaa swabhaav jaanaa   caahtii hai
      she her   girl's   nature   to-know wants
      "She wants to know #her/the girl's temperament."

The reason we cannot immediately take this as confirmation of the analysis, however, is because the contrast between pronominals and full nominals disappears in the plural case. We know from (5) that the singular-plural distinction should not play an ameliorating role in accommodation:

42a. anu apne   beTe ke-liye laRkiyaaN dekh rahii hai
      Anu self's son   for   girls   is-looking-at
      "Anu is looking at prospective brides for her son."

   b. vo   unkaa/laRkiyoN-kaa swabhaav jaanaa   caahtii hai
      she   her   girl's   nature   to-know wants
      "She wants to know their/the girls' temperament."

Although this contrast between singular and plural noted by Dayal (1999) is robust, there appears to be a further complicating factor. In some cases even singular pronominal anaphora seems acceptable:[13]

43a. anu-ne apne   beTe ke-liye laRkii cun lii.
     Anu   self's son   for   girl   has-chosen
     "Anu has chosen a bride for her son."
  b. us-ne us-ko ek   sone-ka cen   diyaa hai
      she   her   one gold   necklace has-given
      "She has given her a gold necklace."

This new piece of data is significant and clearly more empirical work is needed before we can come to definitive conclusions. For the moment, however, I will outline one way in which the facts that we see here can be handled. Let us start with (41) and (42). Taking the impossibility of pronominal anaphora in the singular case as our starting point, and assuming that the antecedent, though syntactically visible, does not introduce a discourse referent we can explain the unavailability of discourse anaphora, following in essence Porterfield and Srivastav (1988). We can also say that the plural antecedent behaves the same way under incorporation. That is, the data here is consistent with the findings in English in connection with compounding, implicit arguments and bridging. If anaphora requires accommodation, full nominal anaphora providing the descriptive content is needed, regardless of number specification. The apparent amelioration in the plural case comes about because of an alternative derivation that is available in Hindi. A kind-based non-incorporated reading of the sort illustrated in (38) would provide the requisite antecedent for the pronoun. Recall that the bare singular kind term would not have a similar instantiation set that the non-incorporated reading could draw on. This is what Dayal (1999) says.

Turning to the contrast between (41) and (43), however, we see that something different is needed.[14] (43) is minimally different from (41) in that it is episodic rather than stative and this seems to be critical in allowing for pronominal anaphora. To account for this, we must give up our premise that the incorporated nominal is in an anaphoric island of some kind. We have seen, after all, that it is a syntactically robust argument so it does not seem implausible to suggest that even though it does not provide a discourse referent to directly bind the pronoun, it does provide the formal link that has been argued to be relevant for deriving E-type anaphora (Heim 1990, Chierchia 1992).[15] But now we must find an alternative explanation for the infelicity of (40). I suggest that this is because of a clash in presuppositions between the uniqueness requirements of the pronoun and the aspectual interpretation of the antecedent sentence. To clarify this point, note that the antecedent sentence suggests that the act of looking at brides is on-going, which implies a plurality of girls seen. The pronoun looks for an individual in the discourse that matches the requirements imposed on it by number morphology, namely a

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[13] It is customary to give a prospective bride a piece of jewelry to signal that the proposal of marriage has been accepted.

[14] Thanks to Chris Barker for helpful discussion of these issues.

[15] Note that the formal link condition would rule out the possibility of a singular incorporated nominal as antecedent and a plural pronoun as anaphor. This, indeed, seems to be the case in Hindi.

unique atomic individual and fails to find one. Some support for this approach comes from the fact that the full nominal does not force the interpretation towards a unique salient individual. Rather, its interpretation has the feel of modal subordination. Though it is not immediately clear why full nominals can lend themselves to this reading while singular pronouns cannot, I conjecture that it might follow from the fact that common nouns, but not pronouns, have a temporal index that can be bound. This apparently is what allows for the relevant subordination.

Note that allowing the anaphor to formally link with the incorporated nominal and having the singular pronoun ruled out on the basis of clashing number requirements, opens up once again the possibility of plurals being incorporated. If so, they could support anaphora without recourse to kind reference. We have come full circle as far as the possibility of incorporating plurals is concerned. There is nothing empirically or theoretically that helps us decide one way or another. Leaving that to explore on a future occasion, let us turn now to some discussion of the importance of the anaphora facts for theories of noun incorporation.

5.2. *Other Accounts and Discourse Anaphora*

It is obvious that accounts positing existential quantification for incorporated nominals straightforwardly predict the availability of discourse anaphora. Bittner and Van Geenhoven both take this to be desirable, given Inuit examples like the following:

44. Aani   qimmi-qar-p-u-q.   Miki-mik ati-qar-p-u-q
    A-ABS dog-have-IND-[-tr]-3SG.   M-INST   name-have-IND-[-tr]-3SG
    "Aani has a dog. It is called Miki."

That is, they side with Sadock (1980, 1986), and against Mithun (1984, 1986), who argued for discourse anaphora to incorporated nominals. At the heart of that debate was the view that syntactic processes should support pronominal anaphora while lexical processes would not. The determination of the anaphora facts, therefore, were crucial in settling whether incorporation was to be understood as a process of word formation or as a process of sentence construction.

It is worth noting that many of the examples of anaphora in the incorporation literature involve null pronouns and it might be useful to ensure that they are also available with overt singular pronouns. At any rate, even if discourse anaphora is possible in some incorporation languages we have seen evidence that it is not straightforwardly available in Hindi. In fact, similar observations have been made for other languages. Ramchand (1997) notes the impossibility of pronominal anaphora to singular incorporated nominals in the related language Bengali. And Farkas and de Swart (2003) pick up on the distinction between singular and plural incorporation with respect to discourse anaphora discussed in Dayal (1999) and show that a similar pattern of behavior exists in Hungarian. Similar observations for Hungarian have also been made by Kamp and Bende-Farkas (2001). In various ways all of these approaches rule out anaphora by eliminating a discourse referent for the incorporated nominal. The problem, of course, is not simply why discourse binding is not possible but why accommodation is

not. I have presented one proposal showing how theme suppression interacts with principles of accommodation. Let me present Farkas and de Swart's account here.

Consider the following familiar incorporation sentence and its associated DRS where no discourse referent is entered for the incorporated nominal. Briefly put, the verb read has two thematic arguments, u and z, only one of which is fully instantiated. The other remains an uninstantiated thematic argument. The interpretation procedure needed here is given in (45c) which guarantees existential entailment in the episodic case. It should be fairly easy to see that obligatory narrow scope for the incorporated nominal is also ensured. Furthermore, they note that thematic arguments are number neutral because it is only discourse referents that must be specified as singular or plural:

45a. anu-ne kitaab paRhii
     Anu   book   read

b.

$$\boxed{\begin{array}{l} u \\ anu(u) \\ book(z) \\ read(a,z) \end{array}}$$

c. Unification: DRS is verified if there is a sequence $<e_1,e_2>$ such that
    i. $<e_1,e_2>$ is in read
    ii. $f(u) = e_1$
    iii. $f(u) = N(anu)$
    iv. $e_2 \in I(book)$

If we abstract away from differences due to frameworks, we can see various similarities between this account and the one I am proposing but there are also some non-trivial differences. Take anaphora, for instance. Taking the difference between singulars and plurals with respect to anaphora to be absolute, Farkas and de Swart treat the plurality feature as introducing a plural discourse referent. The plural pronoun therefore can be bound by this discourse referent and the need for accommodation does not arise. In this paper, I have actually presented data, namely the case in (43), where anaphora to a singular incorporated nominal is possible. While the factors that reconcile the interpretation of the incorporated sentence with the uniqueness requirements of a singular pronoun are admittedly insufficiently explored, it does suggest that an explanation based on an absolute difference like the one proposed by Farkas and de Swart may not be optimal.

There is also a potential problem that I see with at the treatment of proto-typicality and the related issue of existential entailments. Although Farkas and de Swart discuss Mithun's view that incorporation refers to 'institutional' activities, it is not clear how exactly this is built into their system. They mention that any aspectual operators
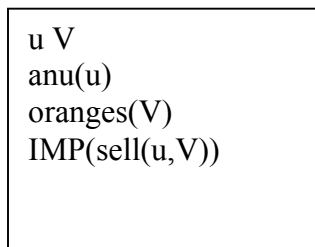
would take scope over the thematic argument but they do not give explicit DRS's to show how this would work. The following case is worth thinking about.[16]

There is a difference between perfective and imperfective aspect with respect to existential entailments, which shows up most clearly when we take a plural object and a verb like *becnaa* "to sell" in imperfective aspect. It was noted by Mohanan (1995), that there is no existential implicature in such cases. Let us see what the two theories predict:
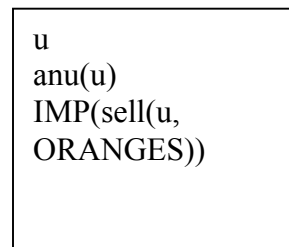
46a. anu aaj kal   santare bectii hai
      anu these-days oranges sells
      "Anu sells oranges these days."

  b.   ∃e [IMP(oranges-selling)(e) & Agent(e) = anu & A-C(e)]

  c.   c'.

  | u V |
  | anu(u) |
  | oranges(V) |
  | IMP(sell(u,V)) |

  | u |
  | anu(u) |
  | IMP(sell(u, ORANGES)) |

In (46b), the representation assigned the sentence in the current account, there is no existential entailment generated. The activity of oranges-selling simply requires certain types of moves. Setting up a shop, determining some prices for different types of oranges, entering into a contract with a supplier might be enough to qualify as engaging in oranges-selling. And if no oranges get delivered, the sentence would still be true. Note that the requirement of *appropriate classification* would be the locus for determining that there exist particular moves for the activity that do not entail the existence of a thematic object. It is possible that a sentence like *Anu is reading books these days* may not have moves which are independent of the existence of books.

Now the DRS in (46c), as it stands, does not deliver the same result. It encodes the same information as the sentence *Anu is selling some oranges*. That is, it entails the existence of oranges. Of course, one could remedy this problem by appealing to kinds in order to interpret bare plurals in Hindi or English, as was done in Dayal (1999). This is shown in (46c') where the kind-denoting entity is a direct argument of the verb and does not generate any presuppositions that can escape the imperfective operator. As we will see in the next section, while the move to kinds in the interpretation of Hindi bare plurals is not problematic it is not as plausible for Hungarian. Unless the facts are different in that language, data like this would argue against the approach of Farkas and de Swart. To sum up this point, either we take incorporated plurals to denote kinds, or some other appropriately intensional entity, or we ensure that there is no discourse referent introduced by the incorporated plural. The latter move, as we have seen in the case of the

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[16] Thanks to Chris Barker for raising questions about existential entailments. From what I understand, the problem with existential entailments with plural terms would also be there in Kamp and Bende-Farkas's approach.

present proposal, requires a different approach to the anaphora facts than the one in Farkas and de Swart.

Before turning to the cross-linguistic implications of the present proposal, I would like to briefly mention one other recent proposal about incorporation that can also be classified as a theme-suppression account of the phenomenon. Chung and Ladusaw (2003), focusing on Maori and Chamorro, argue that along with normal modes of composition, a function Restrict is needed to account for incorporation, which would provide the following logical form for (45a):

47a. [$_V$ read']= λyλxλe [read'(y)(x)(e)]
    [$_{NP}$ book'] = λy [book'(y)]
    Restrict ([$_{VP}$ book read]) = λy λx λe [read'(y) (x) (e) & book'(y)]

  b. ∃y ∃e [read'(y) (a) (e) & book'(y)]

In (47a), Restrict takes a two-place predicate and restricts its inner argument without saturating it. The question is what happens to the inner argument in the final derivation. As Chung and Ladusaw have it, the inner argument ends up existentially closed also, making it virtually equivalent to Van Geenhoven's account for incorporation. This may be a welcome result since they take incorporation to allow for discourse anaphora. But the problems for its applicability to Hindi would be the same as for Van Geenhoven's account. If, on the other hand, existential binding on the inner argument is given up, their analysis would move in the direction of Farkas and de Swart and the comments made above would apply.

5. Some Cross-linguistic Implications

Incorporation, we know, is not a uniform syntactic phenomenon. Traditionally, two types of incorporation has been recognized, word-level compounding and the polysynthetic type. In this paper I have focused on Hindi incorporation, which seems not to fit neatly into either category. In separating the syntactic and the semantic features, I noted that the only syntactic evidence for incorporation lies in the fact that the incorporated nominal cannot carry case marking, strong determiners and perhaps full clausal modification. In other respects, namely the ability to control verb agreement and the ability to move, it behaves just like other arguments. Taking the syntax at face value, I posited a pseudo-incorporation structure involving an NP complement of a transitive verb. I have also provided clear semantic diagnostics for identifying incorporation in the absence of morphological or syntactic evidence. I have also argued that these semantic features can only be adequately accounted for in a semantics that we can classify as involving theme suppression. Crucial to this proposal is the view that in an incorporated sentence, the NP complement of the verb restricts the meaning of the verb and not the meaning of a theme argument. Incorporation also includes a hidden modality so existential entailments are governed by various factors. Finally, I have compared my proposal to traditional semantic accounts imputing existential quantification over the incorporated nominal and to other accounts that do not posit such quantification. In

concluding this paper, I'd like to bring in some data from two other pseudo incorporation languages to see if the present proposal could be applicable to them.[17]

As already indicated in the previous subsection, pseudo incorporation is also manifested in Hungarian. Hungarian is and SVO language but allows SOV with bare singulars and plurals. Bare plurals, but not bare singulars, in SOV structures can support anaphora:

48a. Mari verset olvasott
     poem-ACC read "M read a poem/poems."
  b. Mari ujsagokat   olvasott ma delutan
     newspapers-PL-ACC read this afternoon

49a. Janos <u>beteget</u>   vizsgalt   a rendeloben
    J.   patient-ACC   examined the office in
    ??O Tul sulyosnak   talalta   <u>oet</u>   es beutaltatta   O a korhazba
     too severe-DAT find-PAST 3-ACC & intern-CAUSE-PAST the hospital in
    "J patient-examined in the office. He found him too sick and sent him to hospital."
  b. Janos <u>betegeket</u>   vizsgalt   a rendeloben
    J.   patient-PL-ACC   examined the office in
    O Tul sulyosnak   talalta   <u>oeket</u>   es beutaltatta   O a korhazba
    too severe-DAT find-PAST 3-PL-ACC & intern-CAUSE-PAST the hosp in
    "J patients-examined in the office. He found them too sick and sent them to
    hospital."

Farkas and de Swart, following earlier work by Szabolcsi (1997) and also Kamp and Bende-Farkas, take the preverbal position to be reserved for incorporated nominals. An interesting point to note is that these nominals carry accusative case. Although the fact that accusative case is compatible with incorporated meaning shows that its semantics must be different from that typically associated with accusative marking, it does establish that we are not dealing with word-level compounding and that Hungarian qualifies as a pseudo-incorporation language. The other point to note is that bare plurals do not denote kinds in this language. A generic or kind-level statement requires the definite article. This means that the data in (46) would be crucial in deciding what the right semantics for Hungarian pseudo-incorporation should be.

Another language that is interesting in this connection is Danish, which Asudeh and Mikkelsen (2000) establish as a pseudo-incorporating language.   Bare singulars in this language too have a restricted distribution. They can only occur as direct objects, suggesting the relevance of an incorporation analysis. Furthermore, the bare singular

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[17] There are also constructions in English where something like pseudo-incorporation may be at play. Although bare singulars are not generally allowed in English, they are sometimes acceptable as complements of prepositions. They show some of the properties we have seen associated with pseudo-incorporation:

i. John is in prison. #It/The prison is very far from here.   *pronominal anaphora*
ii. Everyone is in prison.   *∀ > incorporated nominal*

To what extent the current semantics applies is something that I have not had time to explore.

argument is a phrase, not a word. Danish differs from Hungarian and sides with Hindi is not imposing an adjacency requirement between the nominal and the incorporating verb:

50a. Min nabo   ki bte nyt hus   sidste ar
      my neighbor bought new house last   year
  b. Min nabo   ki bte (bade) hus   og bil sidste ar
      my neighbor bought both   house and car last   year

An interesting point Asudeh and Mikkelsen make is about the type of restriction on noun-verb combinations involved. While (51a) shows that modification cannot involve a full phrasal category, (51b) shows that there can be no doubling of the argument. That is, the incorporated nominal is the true complement of the verb. The example in (51c) crucially shows that frequency is not enough to justify incorporation. As noted in section 4.2, the modality involved in incorporation cannot simply refer to frequency since the frequency of buying a pencil is certainly going to exceed that of buying a house. The former fails the test of *appropriate classification* because there are no routines associated with pencil buying that sufficiently distinguishes a pencil-buying event from other events of buying:

51a. * Min nabo   ki bte hus   som   kostede over en million sidste ar
        my neighbor bought house which cost   over one million last   year
  b. *Min nabo   ki bte hus   villa sidste ar
      my neighbor bought house villa last   year
  c. # Min nabo   ki bte blyant igar
        my neighbor bought pencil yesterday

Finally, Asudeh and Mikkelsen show that Danish incorporation is resistant to singular discourse anaphora but they note that the ban is not absolute:

52a. Vita ki bte hus   sidste ar.   Det ligger i Hals.
      Vita bought house last   year. It lies   in Hals.
  b. # Mikkel holdt forelaesing. # Den var   spaendende
        Mikkel held lecture.   It   was interesting

While it is clear that pseudo-incorporating languages differ in various details, there also appears to be a substantive overlap in behavior. The proposal I have made in this paper I believe is relevant to other languages, though it would have to be tweaked to make room for language specific variation. Syntactically and morphology driven variation would obviously have to be included but variation in semantics may also be called for.

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