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INTRODUCTION

The papers in this volume represent attempts to apply current linguistic theory, in particular the theory of Government and Binding, to South Asian languages. Several of them are updated versions of papers presented at the 1986 SALA (South Asian Languages Analysis Roundtable) at Urbana Champaign and the 1987 SALA held at Cornell and Syracuse Universities. These papers are emerging signs of increased interest in grammatical theory among linguists with South Asian specializations. In the 1950s and 1960s numerous papers and books appeared, in both this country and India, treating South Asian languages in terms of whatever the current theory was at the time. Subsequently, however, the interest turned more to applied fields or to sociolinguistics. While that trend was nothing to be mourned in itself, it did represent a lessening in one vital area of inquiry.

The resurgence of interest in linking current theory to South Asian languages is probably a reflection of the new developments in the generative paradigm since 1980. It is, however, especially promising and timely, because many of the traditional concerns in South Asian linguistics can be linked to GB theory (and to other theories such as GPSG, LFG and RG to the extent that they touch on the same questions) to mutual profit. Current theory provides once more a principled basis for explaining and deepening our observations. In turn, South Asia provides a valuable laboratory for testing current theory, since it includes numerous languages of different families most of which share a number of areal features, but which also differ from each other in interesting ways.

The South Asian languages show apparent differences in the extent to which they appear to be configurational. Christdas’ paper deals with the interaction of phrase structure and phonological rules in a language with relatively free word order such as Tamil. While the majority of the languages have SOV structure, there are differences in the kinds of predicators (defined as the head of a predicate) they allow and the manner in which they assign theta roles and link up argument structure and
syntactic configuration. This is the topic of the paper by Gair and Paoliillo. Davison’s paper deals with another phenomenon exhibited throughout the area, apparent quirky case or oblique subjects as they are reflected in Hindi. As her paper shows they present a problem for case theory and the motivation for move alpha. The South Asian languages differ also in the kinds and distribution of anaphors and empty categories. Yadurajan's paper deals with this for Dravidian, with particular attention to the domains for anaphor binding. Harbert and Srivastav show that the locality conditions for the binding of the Hindi anaphor varies depending on whether it occurs in an argument or an adjunct position. This is a phenomenon that has been observed in German as well. The paper by Lust et al deals with the acquisition of anaphoric elements as it intersects with a directionality parameter. As this paper and associated research shows, those South Asian languages that happen to share the basic SOV pattern of the area nevertheless do vary in directionality in relation to several kinds of phenomena. Srivastav’s paper argues from the point of view of acquisition that the phenomenon known as correlatives must be recognised as two kinds of relativizations that are structurally distinct. Wali's paper shows that the current account of wh movement in terms of ECP does not extend to Marathi and Kashmiri in a straightforward way.

The papers here, along with others that have been published or presented at meetings like SALA, represent a beginning in the revitalization of theoretical interest within Indic linguistics. This is, in a sense a continuation of a concern with theory and abstractness that has been present in Indian linguistics since Panini and we can look forward to interesting developments along these lines in the future.

We would like to thank Wayne Harbert for his advice and help at many points along the route from presentation to print. And Bill McClure for an excellent job of formatting and for coaxing reluctant fonts into copy.

November 22, 1988
Ithaca, New York

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DO DRAVIDIAN LANGUAGES HAVE VP-NODES?

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0. Dravidian languages are generally considered to be free word order languages. Although the unmarked word order in these languages is SOV, scrambling of the constituents of a sentence is quite common, and is often employed for stylistic effect (Masica (1976)). As an illustration, consider the following sentence from Tamil 'Raja beat Appu', which can have at least six different word orders as shown below:

(l) a. raajaa appivA aḍiccāā (SOV)
    Raja Appu-ACC beat-PST-3SG-MASC
b. appivA raajaa aḍiccāā (OSV)
c. aḍiccāā raajaa appivA (VSO)
d. aḍiccāā appivA raajaa (VOS)
e. raajaa aḍiccāā appivA (SVO)
f. appivA aḍiccāā raajaa (OVS)

Typologically, such scrambling of constituents has been considered to be one of the superficial characteristics of non-configurational languages
(Hale (1982)). A non-configurational language may be defined as a language that does not have a hierarchical structure; in other words, the constituents (subject, verb and object) of these sentences are in the same dominance relationship to one another. A configurational language, on the other hand, has a well-defined constituent structure, with the verb and its object forming a level of representation that excludes the subject. Configurational languages have a fairly rigid word order: a typical example of such a language is English. The structures of the two language types are shown below:

(2) a. \[ S \]
   \[ NP \quad NP \quad V \]

b. \[ S \]
   \[ NP \quad VP \]
   \[ NP \quad V \]

Non-configurational languages, as shown in (2a) above, are said to have a 'flat' structure: as the subject, object and verb are immediate daughters of the S(entence)-node. Configurational languages, illustrated in (2b) have two levels of structure, with the S-node dominating the subject NP and the VP, which in turn dominates the V(erb) and its object. The most important difference between the two types is the presence of the VP in configurational languages.

Several studies on the typology of languages along the parameters of configurationality have concluded that free word order languages are non-configurational and do not have a VP at any level of representation. An example is the analysis of Malayalam, a Dravidian language (Mohanan (1982)), where it is categorically stated that Malayalam has no VP, but has a flat structure as in (2a). It is argued that in this language all NPs, whether subject or object, are in the same relationship with the verb—i.e. they are its sisters, and there is no constituent that includes the verb and object, but excludes the subject.

In this paper I will argue that such a claim cannot be maintained for Dravidian languages. I will present evidence, principally from Tamil, to
support the presence of a VP in Dravidian languages and show that although Tamil exhibits all the superficial characteristics of non-configurational languages, it has the structure of a configurational language. This evidence comes from an external sandhi rule of gemination that is sensitive to phrase structure configuration and applies solely across the constituents contained within a VP at S-structure.

The paper is organized as follows. Section 1 presents an overview of the syntax and phonology of Tamil. Section 2 presents the relevant data to support the existence of a VP. In section 3 an alternative analysis is presented and subsequently rejected in favor of the VP analysis proposed. Section 4 discusses the consequences of the VP for Dravidian languages.

1. Tamil exhibits all the superficial characteristics of non-configurational languages. In addition to free word order, illustrated in (1), Tamil has a rich case system. Other characteristics are frequent omission of pronouns, which is illustrated in the examples in (3), the lack of pleonastic NPs such as it and there in English, and il in French, and the absence of NP-movement transformations such as the passive.

The data that are presented below are from the Kanyakumari dialect of Tamil (Christdas (1988)). A brief account of the relevant phonology is given below. The underlying stops are the voiceless /p t ç c k/, which are lenited to [v ð r ç s x] respectively when they occur in non-initial syllables. Word-initially, however, only the non-apical stops /p ç k/ can occur. There are no initial consonant clusters; all the underlying stops above can occur as geminates, but not in initial position. The transcription is for the most part phonetic. An underscore denotes alveolar place of articulation; a subscripted dot indicates retroflexion. [i] and [A] are centralized variants of /u/ and /a/ respectively in non-initial syllables. Nasal vowels occur only word-finally and are the result of the deletion of a final nasal consonant with concomitant nasalization of the preceding vowel.

2. The phonological rule that is crucial for the discussion of the VP is an external sandhi rule of gemination which affects only the stop consonants. This rule triggers the gemination of word-initial /p t ç k/ in certain syntactic environments. The apical stops /t t/ do not occur word-initially,
as noted in the preceding section, and hence are never in the environment of the rule. I will not state the rule formally, but merely refer to it as the rule of gemination.

Consider the examples in (3) below, in which the initial stop of the verbs is geminated. In all three sentences, the verb follows an object NP. The geminate stops cannot be part of the underlying representation of these verbs, as there are no word-initial consonant clusters in Tamil. The citation forms of the verbs are [paattē], [konē] and [tinē] respectively.

(3) a. paambA ppaattē
   snake-ACC see-PST-1SG
   'I saw the snake.'

b. paambA kkonnā
   snake-ACC kill-PST-3SG-MASC
   'He killed the snake.'

c. maṁgaayA-ACC ttinnā
   mango-ACC eat-PST-3SG-MASC
   'He ate the mango.'

However, when these verbs occur immediately following a subject NP, gemination fails to apply as we see in the examples in (4) below. Gemination is not phonologically conditioned, as a comparison of the examples in (3a-c) and (4c) indicate: identical vowels produce gemination in the former, but not in the latter.

(4) a. paambī paattidī *paambī ppaattidī
   snake see-PAST-3NEUT
   'The snake saw.'

b. appīpoonāā *appīppoonāā
   Appu go-PST-3SG-MASC
   'Appu went.'
DO DRAVIDIAN LANGUAGES HAVE VP-NODES?

From the examples considered so far, it can be stated generally that
gemination applies across a verb and its object, but not across a verb and
its subject. This hypothesis is strengthened by the following examples, all of
which contain a subject, object and verb. Notice that gemination applies
across an object and verb, but not across a subject and object:

(5) a. attA paambA ppaattaangA *attA ppaambA
    aunt snake-ACC see-PST-3PL
    'Aunt saw the snake.'

    b. paambi puliyA kkonnti *paambi ppuliyA
    snake tiger-ACC kill-PST-3NEUT
    'The snake killed the tiger.'

Clearly the rule of gemination is sensitive to major phrasal boundaries—in
the examples above, the rule does not apply across the subject and
predicate.

Consider next the following set of examples where the verb takes
two objects, a direct object and an indirect object. Notice that gemination
applies not only across the verb and its object, but also across the two
objects:

(6) a. attA paambA ppulik’k’i kkuñuttaangA
    aunt snake-ACC tiger-DAT give-PST-3PL
    'Aunt gave the snake to the tiger.'

    b. appi teengaayA ttambik’k’i kkuñitttā
    Appu coconut-ACC y.brother-Dat give-PST-3SG-MASC
    'Appu gave the coconut to younger brother.'
c. appi tambik'k:i ppaambA kkaatthinA
   Appu aunt-DAT snake-ACC show-PST-3SG-MASC
   'Appu showed the snake to Aunt.'

d. appi tambik'k:i ccandAyi A kkaatthinA
   Appu y.brother-DAT market-ACC show-PST-3SG-MASC
   'Appu showed the market to his younger brother.'

In the first two sentences (6a-b) the direct object precedes the indirect object, and in the last two sentences (6a-d), the order is reversed. Switching objects thus makes no difference as far as gemination is concerned.

From the examples we have considered so far, we can arrive at the following generalizations. Gemination occurs:

1. across a verb and its object;
2. across two objects.

Gemination fails to apply:

1. across a verb and its subject;
2. across a subject and object.

The facts of gemination can be accounted for in a principled manner if we assume that the verb and its objects form a constituent at S-structure, which is the domain of application of the rule. This analysis would correctly exclude gemination across a subject and verb and across a subject and object, as they do not form a constituent. The flat structure hypothesis, on the other hand, cannot handle the facts of gemination as in this account there is no way of grouping the verb and the object together and excluding the subject. The facts of Tamil thus show conclusively that the VP exists at a concrete level of representation and feeds into the phonology.

3. In this section I will consider an alternative analysis which at first sight seems to account for the facts of gemination. As we will see, this analysis, which I will refer to as the 'case hypothesis' (for reasons that will
become apparent in the following paragraph), must be discarded in favor of
the VP analysis as it fails to handle several instances of the non-application
of the rule.

In traditional grammars of Tamil such as Arden (1942), gemination is
stated as applying between nouns inflected for the accusative or dative
cases and a following verb. This analysis can handle all instances of
gemination we have encountered so far, which include:

1. direct object and verb
2. direct object and indirect object
3. indirect object and verb
4. indirect object and direct object

Gemination, in this account, is triggered by the accusative case suffix
[A] and the dative case marker [kki]. The case hypothesis also accounts
for the non-application of gemination across subjects and verbs (4) as well
as subjects and objects (5).

The case hypothesis seems especially attractive as it accounts for
several other instances where gemination fails to apply. For example,
gemination does not apply across an adjective and following noun, as the
examples below indicate:

(7)  a. nallA pîllA               *nallAAppiillA
     good  child

     b. cinnA payyā               *cinnAppayyā
     little  boy

     c. kārīṭtA karAḍī            *kārīṭtAkkarAḍī
     black  bear

A second argument in support of the case hypothesis is found in the
behavior of preposed verbs. In the examples in (6) we saw that switching
objects did not affect gemination. This could be accounted for by stating
the domain of the rules as the VP. Following this line of argument, one
would expect gemination to apply across a preposed verb and its object. However, as the examples in (8) below show, preposing the verb from its final position blocks gemination:

(8) a.(i) puliyA ppaattaa
tiger-ACC see-PST-3SG-FEM
'She saw the tiger.'
(ii) paattaa puliyA *paattaappuliyA

b.(i) paambA ppilikˈk:i kkuḍuttaa
snake-ACC tiger-DAT give-PST-3SG-FEM
'She gave the snake to the tiger.'
(ii) kuḍuttaa paambA ppilikˈk:i *kuḍuttaappaambA
kuḍuttaa pulikˈk:iipaambA *kuḍuttaappulikˈk:i

The failure of the verb to trigger gemination in the examples above can be explained by the case hypothesis, which states in effect that gemination is triggered only by a case suffix.

Yet another argument in favor of the case hypothesis is seen in the behavior of the so-called caseless objects. Animate object nouns in Tamil are obligatorily inflected for case; such marking is optional for inanimate nouns in object position (Schiffman (1979)). This is illustrated in the following sentences; the object in the first sentence in each pair is inflected for case. The object in the second sentence has no case marking.

(9) a.(i) tuṇiyA ttoocca
cloth-ACC wash-PST-3SG-FEM
'She washed the cloth(es).'
(ii) tuṇi toocca *tuṇittooocca

b.(i) kadA cconnaa
story tell-PST-3SG-FEM
'She told the story.'
(ii) kadA connaa *kadAconnaa
c. (i)  kaadA   kkuttinaa  
   ear-ACC pierce-PST-3SG-FEM  
   'She pierced the ear.'  
(ii)  kaadí  kuttínaa  
    'kaadikkuttínaa'  

Again, the non-application of gemination in the examples (a-c ii) seems to support the case analysis.  

However, a close examination of the pairs of sentences in (9) suggests that the sentences are not exact paraphrases of each other, but differ in phonology, morphology, syntax, and semantics. The phonological and morphological differences between the two sentences in each pair is indicated by the presence of gemination and a case suffix, as opposed to their absence. The difference in syntax is evident when we try to scramble the constituents or insert something between the object and verb. In the following examples, we see the effects of scrambling. As we can see, verbs that follow a case marked object can be preposed, but preposing of verbs is not possible if the preceding noun is uninflected for case.  

(10)  tooocca tůniyA  
   *tooocca tůni  

Consider next the effects of insertion. Constituents such as adverbs can be inserted between a verb and its object. However, insertion is blocked between a caseless object and a verb.  

(11)  tůniyA  cçemmayaay ttooocca  
   cloth-ACC well wash-PST-3SG-FEM  
   'She washed the clothes well.'  
   *tůni  cçemmayaay ttooocca  

It is by now evident that caseless objects do not behave like NPs. The failure of preposing and insertion indicates that these nouns are not object NPs, but part of the verb. The difference between the sentences in (9a–c) is as shown below:
The objects that are inflected for case have the structure in (12a) indicating that they are independent NPs. The so-called caseless objects, on the other hand, have the structure in (12b), which is that of a compound verb. This distinction is along the lines suggested in Baker (1988).

Semantically, the pairs of sentences in (9) are different. The sentences in (9a-c (i)) can be interpreted quite literally, unlike those in (9a-c (ii)), which are not amenable to a literal interpretation. The latter are more like lexicalized phrases, as their meanings indicate:

(13) a. to do the laundry
    b. to tell stories (to children, for example)
    c. to have the ears pierced (for earrings)

While we have shown that the so-called caseless objects are in fact part of the verb, we have yet to show that the case hypothesis is not the correct analysis of the rule of gemination. For the crucial piece of evidence that will decide between the two analyses—the VP and the case hypothesis—we have to consider yet another syntactic environment. Tamil, like other Dravidian languages, has subjects that are marked for the dative case. If the case hypothesis is correct, we would expect gemination to apply across a dative subject and a following constituent. On the other hand, if gemination is sensitive to the syntax and applies only within the VP, we would expect no gemination in this environment. What actually happens is shown in the examples below:

(14) a. attAkkī pasikkīdī *attAkkīppasikkīdī
aunt-DAT hunger-PRES-3NEUT
     'Aunt is hungry.'

     b. attAkkī tanbiyA tteriyū *attAkkīttambiyAtteriyū
       aunt-DAT y.brother-ACC know-PRES-3NEUT
       'Aunt knows younger brother.'
Sridhar (1979) has shown that dative subjects behave like other subjects with respect to binding of reflexives and word order. We can assume, then, that at the relevant level of representation, namely S-structure, the dative subject is not a constituent of the VP. As predicted by the present analysis, the subject, though case marked, does not trigger gemination.

A final argument against the case analysis, pointed out by an anonymous reviewer, is the gemination in the verb in (11), repeated below as (15):

\[(15) \text{ tuniyA ccemmayaa ttooccaa} \]
\[\text{cloth-ACC well wash-PST-3SG-FEM} \]
\[\text{'She washed the clothes well.'} \]

We can see that a VP internal adjunct, though caseless, triggers gemination.

From the failure of gemination across a dative subject and a following constituent and from its application across an adverb and a following verb, we can conclude that that the rule is sensitive to syntactic configuration, and not to case suffixes, which indicates that the VP is well motivated in Tamil.

Before concluding this section, I will reconsider another apparent problem for the VP account. Recall the sentences in (8a-b (iii)) where it was shown that preposing a verb did not induce gemination on a following constituent; recall also that the absence of gemination was a problem for the analysis that gemination was restricted to the constituents of a VP. The failure of gemination in this environment is especially problematical, as switching objects in (6) did not affect the rule. However, this is not a real problem, as the scrambling of objects in (6) and that of the verb in (8) are different operations, as we shall see. In the former set of sentences, we may assume that scrambling of objects is in fact just the result of free ordering within the VP, the internal structure of which is flat. This flat structure correctly predicts that the two NPs are still within the VP and as such trigger gemination on a following constituent, irrespective of their position. On the other hand, it is reasonable to assume that the position of heads within a projection are more rigidly fixed than are non-heads. In particular, if we assume that Tamil is a \(\theta\)-left language, then if a verb were scrambled to the left of its complement, that complement would be unable to
get a $\theta$-role. Accordingly, when the verb does precede its complements, it must be assumed that that order results from a trace-leaving extraction of the head from VP to some adjunction position. The difference between scrambling and extraction is that in the former the constituents are still within the VP, whereas in the latter, the verb has been extracted from its constituent, and is no longer within the VP. Under the present analysis, the failure of gemination in such structures is predicted.\footnote{We have shown in this section that the facts of gemination in the syntax of Tamil can be explained only by referring to the VP. Gemination is sensitive to the syntactic configuration at S-Structure, and applies only across constituents dominated by VP. In addition to accounting for all instances of gemination, the VP analysis also correctly predicts that gemination will not apply across constituents not contained within the VP. This prediction, as we saw, is borne out by the fact that gemination does not apply across a dative subject and a following constituent, an adjective and noun, and across a preposed verb and object. Thus we can conclude that the VP is well motivated in Tamil, as the rule of gemination crucially requires reference to it for the correct statement of its environment.}

4. Having demonstrated the existence of the VP in a free word order language such as Tamil, I will now discuss some of the implications of the VP for syntactic theory as well as its relevance for other Dravidian languages. The defining characteristic of non-configurational languages, according to Hale (1982) is the lack of a VP, which follows from the flat structure representation of these languages. The facts of Tamil show, however, that the flat structure hypothesis cannot be maintained. Recent studies on typologically similar languages show that several of these languages too have a VP. An example is Japanese, an SOV language like Tamil. In spite of its free word order, Japanese is argued to have a VP (Saito (1985)). What is more interesting is the presence of a VP in a VSO language such as Welsh (Sproat (1985)). These facts suggest that the VP is not the property of a certain typology of languages, but is instead a linguistic primitive, and as such is part of universal grammar. A similar proposal is made in Williams (1984), who argues that the VP is necessary to determine the status of grammatical relations and must therefore be a linguistic universal.
Let us now turn to the implications of this proposal for other Dravidian languages. As noted earlier (p. 2), Malayalam is claimed to have a flat structure. Mohanan (1982) categorically states that there is no evidence for a VP node in Malayalam. As such, Malayalam is a counterexample to the proposal that the VP is a universal property of languages. The phonology of Malayalam, however, is quite illuminating, as the following examples from Mohanan (1986) indicate:

(16) a. kalluṇe kuṭṭi kaṭiccū (OSV)
    thief-ACC child-NOM bit
    'The child bit the thief.'

    b. kuṭṭi kalluṇe kkaṭiccū (SOV)
    child-Nom thief-ACC bit
    'The child bit the thief.'

Notice the gemination of the initial stop of the verb in the second sentence. Notice also that gemination occurs only across a verb and object (16b). There is no gemination across the following environments:

1. subject and verb (16a)
2. preposed object and verb (16a)
3. subject and object (16b)

Clearly these facts are comparable to the facts of Tamil discussed above, and a proper analysis of gemination in Malayalam would also need to refer to the VP. We can conclude that in Malayalam, as in Tamil, the VP exists at a concrete level of representation and feeds into the phonology.

As for other Dravidian languages, I have not so far seen any discussion that bears upon this question. However, given the facts of gemination in Tamil and Malayalam, we hypothesize that it must be present in these languages as well.
NOTES

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1. I am indebted to Wayne Harbert for discussion of this issue.

REFERENCES


THE CASE FILTER AS MOTIVATION FOR MOVE-ALPHA*

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This paper is a study of the interaction of case-marking and NP movement in Hindi-Urdu, movement which is not constrained by the filtering action of the Case Filter (Chomsky (1981)). That is, if there is NP movement in this language (and I will argue that there is, though not necessarily at S-structure), then it affects NPs which have already been assigned Case, and Case is carried along with the NP. Hence NPs do not have to move from one syntactic position which lacks Case to another where Case is assigned. NP movement in languages like English is constrained by the standard formulation of the Case Filter which motivates movement of this nature. Yet even though the Case Filter is satisfied in Hindi-Urdu in S-structure, before movement, there are restrictions on which NP may undergo LF movement. These restrictions are analogous to those which follow from the Case Filter. But these restrictions cannot follow from the Case Filter in Hindi-Urdu.
In this paper, I will discuss the Case-marking and grammatical functions of two types of clause structure in Hindi-Urdu. These are passive clauses and sentences with dative experiencer NPs, of the type called Inversion clauses in Relational Grammar (cf. Harris (1983)). These constructions are not identical in every respect, but they have the common property that a dative-marked NP behaves like a subject in certain ways, though its external appearance and other behavior suggest that it is a VP constituent. I will argue that there is NP movement to subject position in the derivation of these clause structures. This movement takes place after Case is assigned, and after the lexical NPs in the clause have been checked to see if they violate the Case Filter. I will assume that passive verbs and experiencer predicates do not absorb Case, either accusative or dative, and that their NP complements retain the Case assigned to VP even when they are moved. Hence there are no possible violations of the Case Filter which guarantee that only passive objects and experiencer NPs get promoted to subject position by movement. I will conclude by speculating about what sort of language-specific conditions hold in Hindi-Urdu, and I will propose that certain features of the lexicon perform a filtering function on NP movement.

I will start by noting the relevant features of the two construction types, passive and inversion clauses. Passive clauses have distinctive morphology, a perfective marker on the main verb and the auxiliary 'go', which effectively makes the verbal phrase syntactically intransitive.

(1) is āḍmī-kō/vah āḍmī jel-mē rakhā gayā
this man-OBL.DA this man-NOM jail-in place-PERF go-PERF
'This man was put in jail.'

In intransitives like (1), the theme or object of the verbal phrase has either the direct case, with no postposition, or else it has the dative-accusative postposition -kō. The assignment of -kō to objects of active transitive sentences is dependent on certain non-syntactic factors, as many writers have noted (e.g. Porizka (1963:91)). These include the specificity and animacy of the referent, perhaps in relation to a discourse situation. The same conditions hold for dative marking of objects in passive clauses.
(though Peter Hook (pc.) notes that passive objects which have animate referents may lack -köy, in clauses making non-specific reference to events).

In dative experiencer constructions such as (2), the predicate consists of an N-V combination, in which the verb is intransitive, or a single verb such as milnā 'obtain', lagnā 'strike', hōnā 'be', or cāhiye 'be necessary' and pārnā 'befall'. The last three are associated with obligation and necessity, the others with lexical combinations denoting physical and emotional states.

(2) Inversion:

laṛkē-kō bhāil-par krōdh āyā
girl-obl-DA brother-on anger come-PERF
'The boy got angry at (his) brother.'

The NP denoting the experiencer is marked with the dative-accusative marker -kō, and in the clause other arguments may occur, such as bhāil-par 'on his brother' in (2). Verb agreement in (2) is within the N-V predicate. The gender of the N element determines agreement (cf. (13) below for a contrast between krōdh (m.) 'anger' in this example and taras (f.) 'pity' in (13)). Single verbs agree with a verb argument not marked by a postposition, in the normal pattern for all finite clauses of Hindi-Urdu. The dative-marked NPs have the morphological properties of VP constituents: for example, both agentive subjects and objects of transitive verbs may have nominative case under certain conditions, and transitive subjects receive ergative case in part because of lexical properties of the main verb. But there is no conclusive surface evidence, from position, casemarking, or verb agreement, that these experiencer NPs are syntactic subjects. I will assume that they are not consistently subjects in S-structure.

Before proceeding to the arguments that these NPs nevertheless are subjects, I want to contrast the Hindi-Urdu constructions with the familiar properties of passives in English, in which the Case Filter does have the effect of distinguishing between well-formed and ill-formed structures.
(3) Passive:
   a. We [saw them]
      NOM       ACC
      (experiencer) (theme)

   b. They [were seen e] by us
      NOM          -CASE OBL
      (theme)     (experiencer)

(4) Inversion
   a. It [surprised me] that they left
      ACC
      (experiencer)

   b. I [was surprised e] that S
      NOM          -CASE
      (experiencer)

(3) and (4) are surface structures illustrating the contrast between accusatives or dative NPs in VP (a) and nominative NPs in subject position but with the same thematic role (b) of theme, patient, or experiencer. In such sentences in English there is a very clear correlation between Case and syntactic position, and it can be maintained that the Case assigned to a constituent comes from an adjacent, C-commanding Case assigner.

Conversely, Case is not assigned to a verb argument by a passive verb in English, and so the NP in argument position in effect has to leave home in order to get a Case and so satisfy the Case Filter (7) below. In principle in the theory proposed by Chomsky (1981), movement as an operation is unconstrained; it is optional and not subject to special conditions. But note the existence of ill-formed sentences like those in (5) and (6):

(5) a. *They/them_i saw e_i

   b. *e [were seen they]
      -theta  -case
(6)  a. "I/me surprised that they left.

   b. *e [was surprised I] that S
      \-theta \-case

They manage to violate general principles of the grammar because movement took place where it shouldn't have (a) or failed to take place where it should have (b). Movement to the 'wrong' place within the language is filtered by several diverse general conditions (7)-(9):

(7) **Case Filter:**
    Every lexical / phonologically realized NP (in an argument position) must be assigned (abstract) Case.
    (Chomsky (1986), Safir (1985))

(8) **Theta Criterion:**
    Only one semantic role (agent, etc.) may be associated at all levels of derivation with a given argument position.
    (Chomsky (1981, 1986)).

(9) **Properties of lexical entries:**
    Lexical entries may specify:
    a. which semantic role, if any, is associated with subject position (as 'external argument').
    b. what case, if any, is assigned to 'internal' arguments.

Lexical entries specify whether the subject position does or does not have a theta role associated with it. If it does, no other NP having a thematic role may be moved to that position, accounting for the ill-formedness of (5a) and (6a), and the well-formedness of (3b) and (4b). Passive verbs in English assign no theta role to subject position, and the same seems to be true of experiencer predicates in Hindi-Urdu of the type shown in (2) (cf. (24)-(25) for lexical contrasts having to do with thematic subject positions). English passive verbs assign no Case to an object position, accounting for the strangeness of they, I in (5b)-(6b), in which NP lacks Case but has not been moved to a position where it would be assigned Case. Passive and experiencer predicates in Hindi-Urdu, in contrast to these examples, do assign Case to their internal arguments.
The contrast between English and Hindi-Urdu is shown in the examples and tree structures below. The tree structures in (10) and (11) illustrate the difference between active and passive clauses in English and similar languages with NP movement in the syntax which is filtered by the Case Filter and constrained by (8) and (9) as well.

(10) Active:

```
S
 /\  
 NP  I'
  /\  
 we  nom
 (theta role)
```

```
INFL
 /\  
past
 V
   /\  
 see  NP

them
accusative
(theme)
```

(11) Passive:

```
S
 /\  
 NP  I'
  /\  
 e  nom
 -theta
```

```
INFL
 /\  
past
 V
   /\  
 be-seen  NP

they
-case
```

Only in (11) are the theta- and Case-assigning properties of the verb such that movement is allowed, in fact required. The counterpart of (11) is illustrated by the passive sentence in (12):

(12) cōr-sē yah ādmi / is ādmi-kō / e lūṭā gayā] thief-by this man (NOM) this man (DA) rob-PERF go-PERF

'This man [was robbed e by the thief].'
The structure of (12) at D-structure is exactly analogous to (11)—assuming only a difference of head-argument order, and the presence of Case on the object in the second option. The experiencer construction illustrated by sentence (13) has a similar structure shown as (14):

(13) pitā-kō₁ [e₁ beṭe-par taras ā₁]
    father-DA son-on pity come-PERF (f.)
    'The father felt pity for the son.'

(14)

I propose that the experiencer construction in Hindi-Urdu has the initial syntactic structure shown in (14), with a null element in subject position which lacks a theta role, and arguments within VP which are assigned Case. The arrow in (11) indicates movement which is well-formed and in fact obligatory in English. Is such an arrow justified for the Hindi passive and experiencer constructions, as in (14)?

I will argue that it is justified to assume syntactic movement to subject position, in order to explain the subject behavior of these particular dative NPs, as opposed to other NPs with similar marking. There are dative NPs which are also VP constituents in S-structure, but do not have subject properties. In fairness, however it has to be noted that the evidence is
indirect, and subject to some disagreement among speakers. In examples (15)-(21), several types of construction are illustrated which single out syntactic subjects in some way, and whose subject requirements are met by passive direct objects or dative experiencers.

Two classic types of subject requirement were discussed in papers in Verma (1976), as well as Davison (1969) and Pandharipande and Kachru (1976). The antecedents of reflexive lexical anaphors (apnā, apne āp 'self's, oneself') must be subjects, as in (15)-(16). The controller of the PRO null subject of the bracketed subordinate clause in (15)-(16) also must be a subject.

(15) [PROi is bāt-kō sun-kar] pitā-kō apneī this matter-DA hear-CP father-DA self’s
beṭe-par taras āī
son-on pity (f) come-PERF (f)

'[PROi having heard this (matter)] the fatheri took pity on hisi son.'

(16) [PROij apni太阳 sarāk-par ā-kar] us cōrī-ū kōī ādmī self’s street-on come-CP this thief-by some man
lūtā nahi jātā
rob-PERF not go-IMPF

i) This thiefsi can’t bear to rob anyoniej who comes
on hisi street.

ii) [PROj walking on hisi own street, this thiefi can’t bear
to rob anyoniej.

pitā-kō in (15) is a well-formed antecedent, a dative experiencer. Both reflexive and PRO have an antecedent in (16) which is the passive agent us cōr-se. The null subject may also be coindexed with the passive object as well, kōī ādmī.

Another construction which mentions subjects is illustrated in (17) and (18). The bracketed clause must have a dative-marked subject.

Ordinary subjects with agentive thematic role appear in complement subject
position with dative marking, and other sentence constituents with dative
marking, such as goals and time expressions, do not meet the subject
requirement of this construction. As Subbarao (1984) has pointed out, a
passive theme kisi kō also satisfies the subject requirement (17):

(17) padma-sē [kisi-kō mārē jātē hue] dekhā
    Padma-by some-DA beat-PERF go-IMPF be-IMPF see-PERF
    nahi jātā
    not go-IMPF
    'Padma cannot bear to see [anyone being beaten].'
    (Subbarao (1984))

(18) PRO₁ [bacce-kō buxār āte] dekh-kar mā-kō
    child-DA fever come-IMPF see-CP mother-DA
    ār huā
    fear be-PERF
    'PRO seeing [the child getting a fever] the mother was
    frightened.'

The construction illustrated in the subordinate clause of (18) is a bit more
problematic. The requirement of a dative-marked subject in the bracketed
clause is met by a dative experiencer bacce-kō. Not every sentence of this
type is acceptable to every speaker. But every speaker I have consulted
accepts some sentence of this type.

Passive themes, patients, etc. are particularly subject-like. The
participial relative construction is illustrated in (19). Participles functioning
as modifier clauses have null objects if the verb is perfective and (lexically)
intransitive, marking the subject with the ergative postposition -ne.
Otherwise they have null subjects. The missing constituent corresponds to
the NP head which the participial clause modifies.

(19) a. [pulis-ke hāthō-se PRO₁ jēl-mē rakhā gayā] ādmī
    police-of hands-by jail-in place-PERF go-PERF man
    lāpatā nahi hōgā
    absconded not be-FUT
    'The manī [who, the police put e₁ in jail] will not escape.'
b. *[PRO₁ krōdh āyā ū fullam]... anger came be-PERF man
'The man [who [ e got angry]]..."

The participle rakhā gayā in (19a) modifies the head NP ādmī, which corresponds to PRO. Since (19a) is grammatical, PRO corresponds to either the object of a perfective transitive verb or the subject of an intransitive verb; both conditions are met in the passive form of a transitive verb. Note, however, that the equivalent modifier clause formed with a dative subject construction in (19b) is ill-formed, suggesting that PRO is neither a subject of an intransitive verb nor the object of a perfective transitive verb. For the purposes of NP-PRO coindexing, the experiencer NP is a syntactic indirect object, its S-structure role.

The infinitive complement of V or NP has a PRO null subject. If this null subject does not have to be referential, both passive objects and dative experiencers occur, though perhaps not as syntactic subjects:

(20) a. yah [earb pītne / ?pite jāne] -kā mauqā hai this be-beaten-INF beaten go-INF of opportunity is 'This is an opportunity [e to be beaten up].'

b. [earb krōdh āne] -kā kyā fāydā hōgā? anger come-INF of what benefit be-FUT 'What use is it [(for anyone) to get angry]?'

Controlled PRO requires a referential subject NP, as in (21a):

(21) a. māi [PRO wahā jānā] nahī căhtā hū I there go-INF not want-IMPF am 'I don't want [PRO to go there].'

b. māi [PRO pulis-se pakrā jānā] nahī căhtā hū I police-by seized go-INF not want-IMPF am 'I don't want [PRO to be arrested by the police].'
c. *māi [PRO sirdard hōnā] nahī cāhtā hū
   I headache be-INF not want-IMPF am
   'I don't want [PRO to get a headache].'

d. mujhe sirdard hai
   I-DAT headache is
   'I have a headache.'

The passive complement clause in (21b) usually is not accepted immediately
by speakers, but on reflection many people find it acceptable, especially as
there is no intransitive pakarnā 'to seize', unlike pitnā in (21a). But
sentences like (21c) with an experiencer predicate are categorically
rejected in the reading corresponding to (21d).

We have seen instances above in (15) and (16) where both passive
objects and dative experiencers behave like subjects and control null or
lexical anaphors. The contrasts in (19) and (21) show that while passive
objects might be syntactic subjects, dative experiencers are definitely not
subjects at whatever is the relevant level of syntactic description. To
explain the inconsistent properties of passive objects and dative
experiencers, I propose that these NPs must undergo movement in Logical
Form (LF) (cf. Hermon (1984)) if they have not previously undergone
movement. Passive objects may move in S-structure, dative experiencers
may not.

After receiving Case as a V or V' complementizer, a NP with
patient/theme or experiencer thematic role moves to an empty subject
position which lacks a thematic role. This movement operation is not
reflected in word order or Case in S-structure. The evidence has been
indirect, through constructions which mention subjects and whose subject
requirements are met by these dative-marked NPs. It appears that only
these NPs move. For example, only one NP in (15) assumes subject
properties:
(15) [PRO$_i$ is bāt-kō sun-kar] pitā-kō apne$_i$
   this matter-DA hear-CP father-DA self's
   beṭe-par taras āī
   son-on pity (f) come-PERF f.

   '[PRO$_i$ having heard this (matter)] the father$_i$ took pity on his$_i$ son.'

This NP is pitā-kō. We know that it cannot be beṭe-par, because there is only one possible antecedent for PRO, the subject of the conjunctive participle. This participle has the property of being obligatorily controlled by a subject. The non-dative NP is not a possible antecedent, and the sentence in (15) does not have the reading 'The father took pity on the son when the son heard this (news).

The question is, why not? If every NP has morphological or structural Case, satisfying the Case Filter at S-structure, why doesn't every NP have a chance to move to a subject position, assuming this position is empty and has no theta role, satisfying the Theta Criterion? Somehow, not every NP with Case moves; only certain ones. But there is in the repertory of general conditions on grammar nothing which would single out just the right NPs. Case is not absorbed by passive or other verbs in just those instances$^3$ in which an NP is allowed to move (cf. note 1).

Whatever the condition is, it is not the Theta Criterion nor the Case Filter in its standard formulation. The Theta Criterion is a very general and presumably universal condition on the assignment of thematic roles to argument positions, and the mapping of one syntactic level into another. Its role is to prevent movement into positions with a theta role already assigned, and the Hindi-Urdu passive and experiencer constructions are merely analogues of similar sentences in other languages, accounted for by assuming a null subject position without a theta role. The Case Filter also performs a filtering function in S-structure, in that Case marking in Hindi-Urdu is determined by specific Case assigners, and is not in any sense optional (except for the pragmatic aspects of -kō). The Case Filter therefore need not be relaxed, if it guarantees that every lexical NP (in argument position) receives Case from a governing adjacent element, at least in S-structure. It should hold (vacuously) in LF, unless we want to
assume that Case absorption takes place in LF, requiring movement and reassignment of some sort of LF nominative case reflected in no way at S-structure. Rather, the description of these sentences should be that dative NPs have subject properties at some level of description because they occupy a syntactic subject position, at variance with their surface dative marking.

The possibilities are therefore narrowed to lexical conditions. The lexical entry for experiencer predicates, and for passive verbs will have to make two stipulations. One is the normal one that the subject, or external argument position, has no theta role assigned to it. The other is that the assignment of Case to the arguments in VP encode thematic roles in just the same way as for active or agentive verbs. That is, experiencers are obligatorily dative, while patient/themes are marked (Ø) or -kō depending on the humanness of the referent and its specificity in discourse. There is a third specification, to which I will return after discussing some lexical properties which are its basis.

The dative experiencer constructions discussed so far have counterparts with the same thematic roles expressed, but with different syntactic structure and Case.

(22) a. pitā-kō gussā āyā
    father-DA anger come-PERF
    'Father got angry.'

    b. pitā gussē-mē āyā
    father-NOM anger-OBL-in come-PERF
    'Father got angry.'

(23) a. pitā-kō taras āī
    father-DA pity come-PERF
    'Father felt pity.'

    b. pitā-ne taras khāī
    father-ERG pity eat-PPERF
    'Father felt/showed pity.'
The sentences in (22a)-(23a) have dative marking on the experiencer NP, as in previous examples. These sentences have counterparts in (22b)-(23b), with nominative NPs having S-structure subject properties as well as those just discussed in connection with (15)-(21). These nominative NPs have counterparts in sentences such as (24a), in which the patient/theme always has nominative Case and syntactic subject properties. These correspond to passive sentences like (24b):

(24) a. māli-se per kāṭ gayā
gardener-by tree be-cut go-PERF
'The gardener cut the tree.'

b. māli-se per kāṭa gayā
gardener-by tree cut-PERF go-PERF
'The tree was cut by the gardener.'

While many such pairs exist, it is not the case that for every experiencer or passive predicate, there is also an equivalent or nearly equivalent predicate with an external argument with a theta role and nominative case. There is no productive lexical formation rule or syntactic rules relating forms (22a)-(24a) to the nominative constructions (22b)-(24b). Note that there are unpredictable lexical differences between the experiencer forms. The postposition -mē in (22b) and the verb khā- in (23b) do not appear in the dative versions, and are specific to these predicates. The normal experiencer verbs are hō- 'be' and ā- 'come'. The transitive verb kāṭ- 'cut' is related historically to the intransitive kāṭ- 'be-cut' but this relationship is no longer productive, unlike the passive morphology which relates active and passive verbs. Nevertheless the contrasts shown in these examples are suggestive.

The nominative subject predicates of (22b)-(24b) are the usual or unmarked type of subject, similar in form to non-experiencer, agentive subjects in non-perfective clauses in Hindi-Urdu. These subjects, and probably the subjects of (22b)-(24b) also, receive nominative Case from INFL. The NPs in (22a)-(24a) represent a non-typical or marked kind of subjects, which occur in clauses having verbs with passive morphology on the verb, or an experiencer predicate. These predicates have no external
argument in D- or S-structure, and the subject position of the clause therefore has no thematic role assigned to it. In Hindi-Urdu, this subject position must be coindexed with one of the verb arguments (which then moves later, in the derivation of LF, to the position bearing its index. \(^5\) (See also notes 4 and 6.) The presence of the index in S-structure (25a) allows the position to be referential, unlike the empty expletive of true impersonal constructions like (25b):

\[(25)\text{ a. } e_1 \text{ [pita}_i\text{-kô bête-par taras aî]}\]
\[\text{father-to son-on pity come-PERF} \]
\[\text{The father felt pity for (his) son.'} \]

\[\text{b. } e \text{ mez-par kitab hai.} \]
\[\text{table-on book is} \]
\[\text{There is a book on the table.'} \]

The index alone on subject position is not sufficient. If it were, then indexing of the subject position should create a chain in S-structure which links the subject position with a referential NP having a theta role (and Case), and there would be no instances of experiencer NPs behaving unlike subjects, as in (19)–(21). (The differences of subject properties between these NPs and passive objects remains unexplained.) I propose that indexing of null subject positions requires two factors: a lexical condition associated with predicates like the one in (22a), (23a), and (24a), and a governor. Positions in which PRO occurs are ungoverned, and in these positions dative experiencers do not occur. Hence control constructions fail because the PRO subject has no index, while non-control constructions simply fail to have a subject, with no syntactic consequences. Dative experiencers have subject properties in finite clauses, where the subject position is governed by INFL, and in Exceptional Case Marking complements, where the complement subject position is governed by the matrix verb.

In this paper I have contrasted the role of the standard version of the Case Filter in English with its role in Hindi-Urdu, where it is satisfied vacuously with respect to NP movement. In English and similar languages, there is evidence in S-structure for NP movement from Caseless A-positions to an A-position without a theta role where Case is assigned. Passive verbs
in English fail to assign Case to their arguments, so that an NP receiving a theta role in that position must move to another position to receive case and satisfy the Case Filter. Contrasts of word order and morphological case in active versus passive sentences provide positive evidence for movement. Passive clauses and experiencer clauses in Hindi-Urdu have quite different properties from English passives. The 'moved' NP does not have surface subject properties. Experiencers are assigned dative case, while passive objects are marked Nominative (Ø) or –kō according to the same largely pragmatic conditions by which Case is assigned in active transitive clauses. The Case Filter is met at S-structure regardless of verb type, as passive verbs, etc. do not absorb Case. Because verbs are final in unmarked word order, the verb does not serve as a point of reference in distinguishing subject (subject-verb) from object (verb-object) as it would in verb medial languages like English. So there are no word-order contrasts in Hindi-Urdu between active (subj-obj-verb) and passive sentences (sub/obj-passive verb).

In English, verbs like 'fear' lexically specify the external argument as the NP having the experiencer role. It is automatically marked with nominative case. Passive verbs in English are assumed to have the property of Case absorption, so that the VP-internal argument must move to subject position to receive Case, in order to satisfy the Case Filter as standardly defined. In Hindi-Urdu, S-structure movement does not appear to be motivated by the absence of Case on either experiencer or patient/theme arguments. The lexicon specifies two different possibilities. In one, these arguments are external arguments, as in (22b) and (24a), with subject case (nominative/ergative). In the other possible combination, experiencers and themes are VP constituents, with the expected Case for these constituents: invariant dative marking for experiencers, dative or nominative Case of objects, just as in active transitive clauses.

Yet there is indirect evidence that VP constituents assume subject properties, after assignment or checking of Case. A referential subject is required in various clause types in order to satisfy the requirements of anaphoric elements, which need an antecedent, or other conditions on the subject position of non-finite clauses. These requirements are the consequences of government or government in conjunction with the binding
conditions. These subject requirements are met by agentic, nominative, or ergative subjects, or by passive themes and dative experiencers.  

Experiencer NPs in particular show a mixture of subject and non-subject properties, unlike a language such as Icelandic, in which experiencers are non-nominative, but are consistently subject-like (cf. Andrews (1982)). Experiencers in Hindi-Urdu meet the subject requirement for antecedents of PRO and lexical anaphors, but cannot occur as controlled PRO and for some speakers, they do not occur as Exceptionally Case-Marked subjects. The inconsistencies may be explained if experiencer NPs originate in the VP, and move to subject position, where they may be coindexed with PRO and lexical anaphors. There is some reason to believe that this movement does not take place in the derivation of S-structure. If it did, we would expect sentences with experiencers as controlled PRO to be grammatical (e.g. (19b) and (21b)).

Second, we would not be able to explain why it is not only dative experiencers which assume subject properties. The constructions in note 4 have NP-internal genitive experiencers which control lexical and null anaphors. The genitive NPs seem to index the entire NP, as well as subject position. The use of indices is extended, then, to be a lexical property of predicates in Hindi-Urdu. It prevents the movement of arbitrary constituents with specific theta roles, independently of their surface morphological form. (Hence not all inherently case-marked datives assume subject properties, and not all experiencers have dative case.) Some predicates like lexical intransitives designate a patient or experiencer as the external argument, while others mark the empty subject position with the index of a NP which will have subject properties.

This coindexation ultimately results in movement so that a well-formed theta chain is made up of a lexical NP C-commanding its theta-marked empty position in LF. Some sort of government condition is necessary for indexing of subject marking, as coindexation is the analogue of NP movement in Wh-in-situ languages with little if any constituent movement in the derivation of S-structure.
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1. In earlier analyses of Nepali and Hindi-Urdu, where the object marking of passive themes is retained, and resembles the casemarking of active clauses, it has been proposed that passive verbs optionally absorb Case (Wallace (1985), Davison (1985)). In this analysis, Move-Alpha is partly constrained by the Case Filter. It applies to those instances where Case is absorbed, and NP moves in S-structure. But the subject criteria discussed in this paper identify a much larger group of NPs as subjects, accounted for by Move-Alpha in Logical Form. These instances of movement are not motivated by the Case Filter or Case absorption. I will leave open the question of whether any movement is involved in the derivation of S-structure. Even if such movement does take place, the fact that movement is also a possibility at LF means that the Case Filter has a different status in Hindi-Urdu than in other languages like English.

One other construction exists in Hindi-Urdu where Move-Alpha might be assumed to apply in S-structure. This is the class of sentences with non-finite complements, analogous to Raising to Subject sentences in English:

(i) They$_1$ seem [e$_1$ to be here].

In Hindi-Urdu these sentences are expressed with main verbs jān par- 'seem', dikhāī dē- 'be-seen', etc. as well as the oblique complement of the verb lag- 'begin'.
(ii) wō thakī huī jān partī
3PSG tired (f) be (f) seem-IMPF (f)
'She seems tired.'

These sentences are not discussed in this paper. If they are instances of Move-Alpha, then Move-Alpha must apply in the derivation of S-structure. Movement would be obligatory and motivated by the Case Filter. There are some complications with this analysis, however, in that the movement analysis motivated by the Case filter assumes that the moved NP gets nominative Case from the matrix finite INFL. Complements with dative NPs which are raised retain the Case which was assigned by the complement verb. If movement takes place in these instances in LF, then movement cannot be motivated by the Case Filter applying to S-structures. Sentences like (ii) may have an alternate account, by 'long-distance' verb agreement over clause boundaries. But there are problems also with assuming this kind of agreement as a general option in Hindi-Urdu, and for this reason I have confined the discussion in this paper to passive and experiencer clauses.

2. I have represented the null element of participial relatives as an instance of controlled PRO, a null pronominal anaphor. Some evidence for this analysis is provided by the fact that both lexical reflexives and PRO may have antecedents in a matrix clause (cf. Manzini (1983)). This analysis is tentative, however, and leaves open the difference in syntactic structure between lexically transitive, intransitive, and 'ambiguous' predicates.

3. According to Safir (1985), German may provide an instance of syntactic movement of NP with Case which is not absorbed:

(i) Johann hat dem Mann geholfen.
(dative)
'John helped the man.'

(ii) Dem Mann wurde (von Johann) geholfen
'The man was helped (by John).'

Safir takes (ii) to be an instance of Move-Alpha to a Cased NP, assuming that passive verbs absorb only Accusative Case, not the Dative Case.
assigned by helfen 'help'. Wayne Harbert comments that the dative NP in (ii) does not have subject properties, such as the ability to control reflexives, PRO, etc. He suggests that the NP is topicalized, and is moved to Spec position of CP. If so, the passive verb does not absorb Dative, and the NP does not have to move to subject position in order to get Case.

4. M. K. Verma has called my attention to the fact that agent expressions associated with 'theme-prominent' intransitives also control reflexives and PRO (cf. example (24a)). If the subject or external argument position is already occupied by the theme, as I propose, then the subject properties of the agent cannot be explained by movement of a VP argument to a subject position (see also note 6 for a structural explanation). In addition, it may be that the extent of LF movement is greater than suggested in the main body of this paper. Lakshmi Bai notes that the genitive NP within NP-mē 'in' phrases also controls PRO and serves as an antecedent for reflexives:

(i) \[\text{[PRO}_i \text{ is bāt-kō sun-kar] u}_x \text{ ke dil-mē ape āp}_i \text{-par \linebreak ghrnā hu \linebreak hatred be-PERF \linebreak 'Hearing this, 3PSG hated self.' \]

(ii) \[\text{[PRO}_i \text{ bacpan kī saheliyō-se mil-kar] u}_x \text{ kā man prasann \linebreak childhood-of friends-with meet-CP 3PSG of mind happy \linebreak hō gayā \linebreak be go-PERF \linebreak 'Meeting friends from childhood, she was happy.' \]

(Kachru (1980:84))

Kachru (1980) has noted genitive phrases within subject expressions which control PRO (ii). The whole subject phrase behaves for coreference as though its index were identical to the index of the internal genitive NP. Some restricted reindexing procedure must apply, in cases of 'part for whole' interpretations. This reindexing would apply in both (i) and (ii). In addition, the oblique phrase of (i) would be indexed with the subject position in (i).
5. The indexing of subject position analysis is due to a suggestion by Probal Dasgupta, who is hereby thanked for helpful discussion of these constructions.

6. It is well known that both the theme and the agent NP in passive clauses are possible controllers of anaphoric elements. I propose to account for this without making reference to thematic roles, and hierarchies of thematic roles, or by calling experiencers Agents. I propose that the explanation lies in the syntactic ambiguity of subject. Safir (1985) defines subject as 'sister of VP', which refers to a set of configurations rather than a single unique one. I propose to define subjects, possible controllers of anaphors, as '(NP) daughter of S', as in (i):

(i)

```
  S
 /\   /
 NP-se S
 |   |
 NP nom/dat INFL'
 |   |
 VP INFL
```

Either NP in (i) counts as a possible controller. Certain NPs marked -se are excluded from 'daughter of S' position as they are subcategorized arguments of certain verbs: NP-**se kah-**, mil- 'speak, meet with NP', and these are not possible controllers.

REFERENCES


SINHALA NON-VERBAL SENTENCES AND ARGUMENT STRUCTURE

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0.00 Sinhala, like other languages, has sentences with predicative phrases that are verb headed. As shown by the examples in (1), it is basically an SOV language.¹

(1) a. ᶇ mahattaya koluṁbeṭa yanəwa
    that gentleman to Colombo goes
    'That gentleman is going to Colombo.' (SXV)

b. mame gunəpāləwa dækka
    I       Gunapala-ACC saw
    'I saw Gunapala.' (SOV)

However, there is also a wide range of sentences lacking any overt verbal form, in which what appears to be the predicate may be headed by a member of any of the other major categories, as in (2).² (P in Sinhala is a postposition.)
(2) AP:  ᆀ  ᓑ ᐈ ᓄ [bohomə alut]  
that book  very  new  
'That book is very new.'

NP:  gunasiri mahattaya [apē iskôle muŋ  guruwaraya]  
Gunasiri gentleman  our  school head teacher  
'Mr. Gunasiri is the head teacher of/in our school.'

PP:  ᆀ  ᓑ ᓄ ᓆ ᓄ ᓄ [apè kāmarē  tiyena  mēse uđa]  
that book  our  room-LOC  be-REL  table  upon  
'That book is on the table which is in our room.'

Interestingly, all of these categories may occur as predicates in English as well. Thus, to take examples from Williams' basic (1980) analysis of predication:

(3) AP:  John made Bill  sick.  
NP:  John made Bill  a doctor.  
PP:  John kept it  near him.  
VP:  John  died.  
(Williams (1980:206))

In English, however, only verbs may occur as predicates in independent sentences. When phrases headed by categories other than verbs occur in a main predicative relation, they do so as complements of a verb such as the copula be: i.e., Bill is sick/a doctor; It is near him; etc. In Spoken Sinhala, however, there is no obvious equivalent to the copula, and there is considerable evidence that non-verbal forms as well can be main predicators in independent sentences. (For terminological convenience, we will use the term predicator to designate the head, of whatever category, of a predicative phrase.)

Here, we will first sketch in some of the fundamental properties of Sinhala verbal sentences and then propose a uniform basic tree structure for both verbal and non-verbal sentences followed by a review of the evidence for this structure, involving primarily focus, negation, and case assignment. Finally, we will consider a type of nominal predicator sentence,
the Action Nominal Sentence, that appears so far to be peculiar to Sinhala, and on that basis suggest some modifications in the specification of external arguments as presented in Williams (1981).

1.00 Verbal Predicator Sentences and Focus

Sinhala, as said earlier, is fundamentally an SOV language, but it also exhibits very free constituent order, a feature that will not concern us here. Verbs in spoken Sinhala do not show agreement, but do show tense (present and past), mode, and several other categories. Among the tensed forms are two which occur as main predicators in root clauses and are of special interest here. One, the Basic Form (sometimes called the Simple Form), is the most 'neutral' one and is the one that appears in the sentences in (1). It is also the form commonly cited in dictionaries. The other, the Emphatic Form (EMPH), occurs in focused, or cleft, sentences, which are of very common occurrence in discourse. The Basic and Emphatic forms of two verbs are illustrated in (4).

(4) For \textit{ya-} 'go' / \textit{kara-} 'do'

<table>
<thead>
<tr>
<th></th>
<th>Present</th>
<th>Past</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Form:</td>
<td>yangwa/karanga</td>
<td>giya/keruwa</td>
</tr>
<tr>
<td>Emphatic Form:</td>
<td>yanne/karanne</td>
<td>giye/kerewe</td>
</tr>
</tbody>
</table>

Their endings are relatively transparent. The unmarked position for focus is rightward, as shown in (5a), to be compared with its unfocused counterpart in (1). However, here as elsewhere order is relatively free, as shown in (5b). The Focused element is in boldface:

(5) a. \textit{ē mahattaya yanne kolambəṭa (-y) (SVX)}
    that gentleman go-EMPH Colombo (emph)
    'It is Colombo that that gentleman is going to.'
b. ē mahattaya kolambəṭay yanne (SXV)
kolambəṭay ē mahattaya yanne (XSV)
yanne ē mahattaya kolambəṭay (V SX)
yanne kolambəṭay ē mahattaya (VXS)
kolambəṭay yanne ē mahattaya (XVS)

'It is Colombo that that gentleman is going to.'

Note that the verb marking remains constant. The -y (underlyingly -yi) glossed as emph, is a form that helps mark the focus and will be discussed shortly.

There is strong evidence for a FOCUS position based in part on the unbounded cyclic nature of focusing as discussed in Gair (1983). The tree that was argued for there for Sinhala verbal sentences is shown in (6a), converted to a representation more consonant with recent developments in (6b) (As for example, in Chomsky (1986:161)). We assume here without discussion that focus movement involves Chomsky-adjunction to INF double-bar (− S).

\[(6a)\]

\[\begin{array}{c}
S \\
\text{FOCUS} \quad \text{COMP} \\
\text{NP} \quad \text{VP} \quad \text{INF}\n\end{array}\]

(Gair (1983) augmented)
(6b)

```
       COMP'
         /
        INFL*  COMP
          /
         INFL*  XP
          /    (FOCUS)
         NP    INFL'
          /
         VP    INFL
```

INFL does not contain AGR, since there is no agreement, but does contain $[^\pm{\text{TNS}}]$, and probably other features that do not concern us here. This is expressed in (7):

(7) \[
\text{AUX} \longrightarrow \text{INFL (aux)} \quad [^\pm{\text{TNS}}]
\]

2.00 Non-Verbal Sentences

If we assume the maximum parallelism between verbal and non-verbal sentences, which is clearly desirable theoretically, the tree in (6b) could be simply converted to (8), where $X$ is any major category.

(8)

```
       COMP'
         /
        INFL*  COMP
          /
         INFL*  XP
          /    (FOCUS)
         NP    INFL'
          /
         XP    INFL
```

In justifying this representation for non-verbal as well as verbal sentences, several questions immediately arise:
(9) a. What is the content of INFL?
b. Is the FOCUS node justified for non-verbal Ss?
c. Is XP in fact the (syntactic) predicative phrase, or is it the complement of a verb (such as a copula), and hence within a VP, as in English?

The last two in particular are interrelated, and in considering (9c) we will invoke evidence from focusing as well as from negation and case assignment.

2.10 Content of INFL

At present we have nothing further to say on the content of INFL, particularly since that has not been worked out for verbal sentences either. However, if the tree in (8) is to hold, it is clear that INFL in non-verbal sentences has a minus value for TNS, since only verbs have tense. One possible candidate for INFL will surface later in connection with adjectival predicative sentences.

2.20 FOCUS

2.21 FOCUS Marking

To make the discussion of focus clearer, we first note that a number of forms in Sinhala have the property that they are restricted in occurrence to a position immediately following one of the following:

a. Predicator of a non-focused S
b. Focus of a focused S.

They may thus be regarded as 'FOCUS-marking forms'. The list includes the question marker ḍe, the reportative lu, the conjunction nan 'if', and the emphatics tāmā, tamay, and -vi. (It is the latter that occurs on the focus in (5).) Examples paralleling (5), but with the question marker ḍe are given in (10); (10a) is an unfocused question, and (10b) has a focused Dative NP. As before, order is variable, but marking is constant, as shown in (10c). Again, the focused element is in boldface.
(10) a. ē mahattaya kolăm批判 yanawa de
that gentleman to Colombo goes QUES
'Is that gentleman going to Colombo?'

b. ē mahattaya yanne kolăm批判 de
that gentleman go-EMPH Colombo QUES
'Is it to Colombo that that gentleman is going?'

ē mahattaya kolăm批判 de yanne
kolăm批判 de ē mahattaya yanne
yanne ē mahattaya kolăm批判 de
yanne kolăm批判 de ē mahattaya
kolăm批判 de yanne ē mahattaya
'Is it to Colombo that that gentleman is going?'

Note that the sentences in (11) are not possible. In (11a) and (b), the focus-marking form de does not directly follow the focused item, which must be other than the verb as shown by the verb marking. In (c) and (d), it follows an item other than the verb but the sentence is not focused; i.e., the verb is in the basic rather than the emphatic form.

(11) a. *ē mahattaya yanne de kolăm批判
that gentleman go-EMPH QUES Colombo

b. *ē mahattaya kolăm批判 yanne de

c. *ē mahattaya yanawa kolăm批判 de

d. *ē mahattaya kolăm批判 de yanawa

2.22 Focus in Non-Verbal Sentences

It is the case in Sinhala that non-verbal predicative sentences behave precisely like verbal ones in regard to focusing, with the single exception that, since the basic/emphatic affixes are for the most part tense-linked, there is commonly no change in predicative form between non-focused and focused Ss.8 (12), (13), and (14) give examples; (12) with adjectival; (13) with nominal; and (14) with postpositional predications. The (a) members of
each set are non-focused non-interrogative; (b) are non-focused interrogative; (c) are focused non-interrogative; and (d) are focused interrogative (recall that tamay 'indeed' is like the interrogative də, a focus-marking form).

(12) Adjectival Predicator:
   a. mē potə alut
      this book new
      'This book is new.'
   b. mē potə alut də
      this book new QUES
      'Is this book new?'
   c. mē potə tamay alut
      this book indēd new
      'It is indeed this book which is new'
   d. mē potə də alut
      this book QUES new
      'Is it this book which is new?'

(13) Nominal Predicator:
   a. mēkə alut potə
      this-one new book
      'This is the new book.'
   b. mēkə alut potə də
      this-one new book-INDEF QUES
      'Is this the new book?'
   c. mēkə tamay alut potə
      this-one indeed new book
      or
      alut potə mēkə tamay
      new book this-one indeed
      'This is indeed (the one that is) the new book'
d. mēke də alut potə  
   this-one QUES new book

or

   alut potə mēke də  
   new book this-one QUES

   'Is it this one that is the new book?'

(14) Postpositional Phrase Predicator:
   a. ē potə mēse uḍə  
      that book table upon  
      'That book is on the table.'

   b. ē potə mēse uḍə də  
      that book table upon QUES
      'Is that book on the table?'

   c. mēse uḍə ē potə tamay  
      table upon that book indeed

or

   ē potə tamay mēse uḍə  
   that book indeed table upon  
   'It is indeed that book which is on the table.'

   d. mēse uḍə ē potə də  
      table upon that book QUES

or

   ē potə də mēse uḍə  
   that book QUES table upon  
   'Is it that book which is on the table?'

A still clearer indication of the verbal-nonverbal parallel is furnished by vowel-ending adjectives such as hoṇda 'good', rasa 'tasty', etc. When these are predicators in non-focused sentences, they appear with an affixed -yi (surfacing as -y or -i) referred to as the Assertion Marker (ASN). Examples are given in (15). The associated unfocused questions are shown in (16) with də following the adjective. (The assertion marker usually drops before də.)
(15) mē potə hoňday
this book good-ASN
'This book is good.' (hoňda 'good')

mē kæma rasay
this food tasty-ASN
'This food is tasty.' (rasa 'tasty')

(16) mē potə hoňda de
this book good QUES
'Is this book good?'

mē kæma rasa de
this food tasty QUES
'Is this food tasty?'

The focused counterparts of the sentences in (16) are shown in (17). Note that the question marker follows the focus and that the assertion marker never appears on the adjective in such focused structures.

(17) a. hoňda mē potə de
      good this book QUES

or

mē potə de hoňda
this book QUES good
'Is it this book which is good?'

b. rasa mē kæma de
   tasty this food QUES

or

mē kæma de rasa
This food QUES tasty
'Is it this food which is tasty?'

There is thus a precise parallel to the verbal forms, with the adjective+assertion marker as the functional equivalent of the simple form, and the bare adjective serving as the emphatic form. The assertion marker
-vi is a clear candidate for INF, but whether or not it belongs there depends in part on how we treat the verbal affixes relating to focus.

To sum up: not only is a FOCUS node justified for non-verbal sentences as it is for verbal ones, but adjectival predicates behave like verbs with regard to visible marking. Note particularly that no copula or other verb surfaced in either the focused or the unfocused sentences.

2.30 Predictor Category and Negation

Sinhala has a number of negators, affixing and not, but only the two main non-affixing ones nā and neme will concern us here (neme has numerous dialectal variants, including nevi, neve, nevey, and nemē).¹⁰

nā has two main functions. First, it serves as an existential negative, i.e. as the negative of the existential verbs tiyenawa 'be, exist (inanimate)' and innawa 'be, exist, stay (animate)', which it generally replaces.¹¹ (18) furnishes an example.

(18) mehē alut pot tiyenawa
    here  new books be
   'There are new books here.'

mehē alut pot nā
here  new books not
'There aren't new books here.'

Secondly, nā serves as the 'neutral' negator for non-focused verbal sentences, and generally follows the verb. (The verb appears with the emphatic affix, but that is irrelevant here.)¹² (19) gives examples. Note that these are the negatives of the sentences in (1).

(19) a. ē mahattaya kolambaṭa yanne nā
 that gentleman Colombo-DAT go-EMP nā
 'That gentleman is not going to Colombo.'
b. mamə gunapaləwə dəkke nə
   I   Gunapala-ACC saw-EMPH nə
    'I didn’t see Gunapala.'

nə serves the same function for adjectival predicator as for verbal sentences as shown in (20), the negatives of the unfocused sentences in (12) and (15).

(20) a. mə potə alut nə
      this book new nə
      'This book is not new.'

b. mə potə hońdə nə
   this book good nə
   'This book is not good.'

c. mə kämə rasa nə
   this food tasty nə
   'This food is not tasty.'

neney serves as a focus negator, for sentences with predicates of all classes. Examples are given in (21) for verbal sentences and in 22 for non-verbal. (22a) and (22b) are adjectival, (22c) is nominal, and (22d) is postpositional (c.f. the focused non-negative counterparts (5), (12), (13c), and (17)).

(21) a. mahattəya yanne koləmbətə nene
      gentleman go-pres-EMPH Colombo-DAT nene
      'It is not Colombo to which he is going.'

b. mamə dəkke gunapaləwə nene
   I   saw-EMPH Gunapala-ACC nene
    'It wasn’t Gunapala that I saw.'
(22) a. hoñde mē pota neme
    good this book neme
or
    mē pota neme hoñde
    this book neme good
    'It isn't this book which is good.'

b. rase mē kāmā neme
    tasty this food neme
or
    mē kāmā neme rase
    This food neme tasty
    'It isn't this food which is tasty.'

c. mēkā neme alut pota
    this neme new book
or
    alut pota mēkā neme
    new book this neme
    'It isn't this one that is a new book.'

d. mēse udo ē pota neme
    table upon that book neme
    'It isn't that book which is on the table.'

In its function as focus negator, neme may also follow the
predicate of a non-focused verbal or adjectival sentence which would
normally negate with nae. That is, it behaves like focus-marking forms such
as da. Examples are given in (23a) and (b), which are negations of (1) and
(15). Note that there is no change in predicate form, except for the usual
loss of -yi on adjectives when another form follows.
(23) a. ᶇ mahattəya koləmbəta yanəwa nemeɣ
    that gentleman Colombo-DAT goes nemeɣ
    'That gentleman is not going to Colombo.
    (but somewhere else)'

    mamə guməpələwə dækka nemeɣ
    I Gunapala-ACC saw nemeɣ
    'I did not see Gunapala.'

    b. mē potə ho̱ṇə nemeɣ
       this book good nemeɣ
       'This book is not good.'

    mē kæmə rasə nemeɣ
    this food tasty-EMPH nemeɣ
    'It's not so that that food is tasty'

Effectively, what is happening here is that the VP or AP predicator, or some stretch within it including the head, or possibly the entire sentence, is being focused. Interestingly, in this function, nemeɣ may also occur on a sentence already negated with næ, as in (24):

(24) a. miniha aṭa wenakan nægitte næ.
    man eight become–until awake not
    'The fellow did not awake until 8.'

    b. miniha aṭa wenakan nægitte næ nemeɣ.
    man eight become–until awake not nemeɣ
    'It isn’t the case that the fellow did not awake until 8.'

    (De Abrew (1981:61))

Nominal and postpositional predicator sentences pose special problems with regard to the distribution of the two negators. For nominal predicator sentences, nemeɣ is the only negator, and næ cannot appear, as shown in (25).
(25) a. mēkə alut potak nemeyp
    this new book-INDEF nemeyp
    'This isn't a new book.'

    *mēkə alut potak nā
    this new book-INDEF neg

b. gunəsiri mahattaya apē isköle mul guruvəraya nemeyp
    Gunasiri gentleman our school head teacher nemeyp
    'Mr. Gunasiri is not the head teacher of/in our school.'

    *gunəsiri mahattaya apē iskoole mul guruvəraya nā
    Gunasiri gentleman our school head teacher nā

In much previous work, this has been considered a second use of nemeyp. However, one attractive solution that allows us to unite them follows if we say that nā occurs only with forms that are [*V] (assuming a common feature analysis by which verbs are [-N,+V] and adjectives [+N,+V]). Nominal sentences, which then have the features [+N,-V], have only the nemeyp negation available.15

Postpositional sentences appear to pose a problem for this analysis, since they are [-N,-V], but appear to negate with either nā or nemeyp, as shown in (26). The focused variant, however, occurs only with nemeyp, as we would expect, as shown in (27a), and nā cannot appear, as shown in (27b).16

(26) a. ē potə mēse uḍə nemeyp
    That book is not upon the table.'

    but also:
    b. ē potə mēse uḍə nā
    That book is not upon the table.'

(27) a. ē potə nemeyp mēse uḍə
    that book nemeyp table upon
    'It is not that book that is upon the table.'
b. *ē poṭa nē mēse uḍa
    that book nē table upon

The problem, then, is to account for the negation of the unfocused sentences with nē, which should occur only with [-V] forms under the proposed analysis. There is actually a simple and straightforward explanation. Recall that nē is also an existential negator. Postpositional sentences with nē do have a negative existential sense, and their non-negated counterparts have alternates with existential verbs innēwa (animate) or tiyenēwa (inanimate), as in (28).

(28) a. ē poṭa mēse uḍa
    that book table upon
    'That book is on the table.'

b. ē poṭa mēse uḍa tiyenēwa
    that book table upon be
    'That book is on the table.'

Thus the sentences with nē in question represent it in its existential function in which it replaces those verbs. (26b) is thus the negative of (28b), and the negative of (28a) is (26a). Further confirmation comes from sentences with inflected adverbs as apparent predicators, which also negate with nē only when they have an existential sense. Examples are given in (29) and (30).\footnote{17}

(29) a. ēkē lalī ta kalāwēta tiyenēwa
    that fine art-DAT be
    'That (museum) is for fine art.'

ēkē lalī ta kalāwēta nē
    that fine art-DAT nē
    'That (museum) is not for fine art.'

b. ēkē lalī ta kalāwēta
    that fine art-DAT
    'That (museum) is for fine art.'
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ēkə lalitə kalawətə neme
that fine art-DAT neme
'That (museum) is not for fine art (but for something else)._'

(30) a. tätə dæŋ apə gamē inna wa
father now our village be (ANIM)
'Father is in our village now._'

tätə dæŋ apə gamē nə
father now our village nə
'Father is not in our village now.'_n

b. tätə dæŋ apə gamē
father now our village
'Father is in our village now._'

tätə dæŋ apə gamē neme
father now our village neme
'Father is not in our village now (but somewhere else)._'

What emerges clearly from this discussion of negation is that the choice of negator is dependent on the interaction of two factors: (i) the category of the predicator and (ii) focusing. In regard to the latter, neme is the focus negator in all types of sentences, and that does not affect our argument. In regard to the former, however, it is clear that both verbal and non-verbal predicators determine negator selection on an equal basis, with the type of negation dependent on the category of the predicator, so that only adjective and verb predicators may appear with nə. Note that non-verbal sentences do not sprout verbs under negation, nor do they negate like verbal ones, which might be the case if non verbal predicators were in fact contained in verb phrases headed by null verbs of some kind.

3.00 The 'Hidden Verb' Solution

The mention of null verbs leads directly to the possibility that there is in the non-verbal sentences, some form, say a copula, which simply lacks phonological form in some tense or tense-mode categories. If this were to be identified with some existent verb, i.e. one which is spelled out


phonologically elsewhere, the only reasonable candidate would be *wenawa*, 'be, become'. But there is little reason to believe that *wenawa* does exist in some underlying fashion here, and several reasons for not assuming so.

It is true that for most NP AP and NP NP sentences there is a corresponding sentence with *wenawa*, as in (31). However, there is always a semantic loading of 'become'. Also, such sentences occur in all tenses, modes, etc, including the present, so that one cannot say that in the verbless sentences there is a zero form of *wenawa* that occurs in some specific tense. it would thus have to be a tenseless variant, existing only for that verb.\(^{18}\)

(31) miris dãnawa naŋ kãmɛ rase wenawa
chillies put if food tasty become-PRES
'When you put in chillies, the food becomes tasty.'

gunasiri mahattaya apẽ iskõle mul guruwařeya unã
Gunasiri gentleman our school head teacher become-PAST
'Mr. Gunasiri became the head teacher of our school.'

Even if the distinction between the sentences with overt *wenawa* and those without it could be overcome, so that the latter could be regarded as present tense variants of some sort, under a 'zero variant' analysis such as that proposed for 'zero copula' sentences in early generative studies of other languages, (as implied for Russian, for example, in Babby (1975)), one would expect that the verb would emerge in straightforward semantically past tense nominal or adjectival sentences, as it appears to in Russian.

In Sinhala, however nothing of the sort happens. The verbless nominal or adjectival sentence does duty for all tenses (again, unless the 'become' sense is required. The underlying *wenawa* solution would also not work for postpositional predicator sentences, in which that verb cannot occur unless strongly required by the sense. Thus (32) is extremely strange, if not downright ungrammatical.
(32) ??ē potē mēse uɗa wenawa/unā
    that book table upon wenawa-PRES/PAST
    'That book becomes/became on the table'

Furthermore, there are situations in which verbal sentences, with additional verb inflection, can be embedded, but non-verbal sentences cannot be, and we do not find a hidden wenawa surfacing to make them possible. Instead, we find the same 'become' sense as in the independent sentences with wenawa. For example, the form kāmōti 'like' can take a complement sentence with a basic (tensed) verb marked with the dative case, as in (33Aa). However, non verbal predicator sentences cannot so occur, and complement sentences with wenawa, as in (33Ab), do not represent a way of making it possible for them to do so but have a clear 'become' sense, as indicated.

(33A) a. demawpiyo duwa igenegannawa’ta kāmōti
    parents daughter study-PRES-DAT like-ASN
    'The parents like their daughter studying'

    b. demawpiyo putā guruwəreyek wenawa’ta
    parents son teacher-INDEF become-PRES-DAT
    kāmōti
    like-ASN
    'The parents like their son becoming a teacher.'
    (Not 'The parents like their son being a teacher. ')

Similarly, relativization of adjectival sentences occurs in a straightforward fashion without any verb, as we might expect, in (33Ba), but NP NP sentences are not relativizable, as shown in (33Bb). Again, NP wenawa relatives, as in (33Bc,d,e), are relativizations of 'become' sentences like those in (31).

(33B) a. nikaŋ kanne maţe rasə kāmə
    plain eat-INF I-DAT tasty food
    'Food which is tasty for me to eat plain'
b. *guruwərəyək mahattəya āwa
teacher-INDEF (become-ADJ) gentleman come-PAST
'The man who is a teacher came'

c. miris dānəwa nan rase wene kəmə
peppers put-PRES if tasty become-ADJ food
'Food which becomes (not 'is') good when you put in chillies'

d. guruwərəyək wena mahattəya
teacher-INDEF become-ADJ gentleman
'The man who is becoming a teacher'

e. apē iskôle mul guruwərəya uno
our school head teacher become-PAST-ADJ
mahattəya
gentleman
'The gentleman who became (not 'is') the head teacher in our school.'

There are, however, three types of embedded clauses in which a form of wenəwa does not necessarily have a clear 'become' sense: conditional, concessive, and 'dative-although' clauses. The first two are formed with verbal affixes; the third with dative marking on the finite tensed verb (as in the kəmətə complement clauses above). Examples for content verb clauses are in (33Ca,b,c), and for wenəwa clauses in (33Cd,e,f).

(33C) a. ē minihə giyot mama yanne nā
that man go-COND I go-EMPH nā
'If he goes I am not going.'

b. ē minihə giyat mama yanne nā
that man go-CONC I go-EMPH nā
'Even if he goes I am not going.'
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c. ē minih a giyātē mamē yanne nā
that man go-PAST-DAT I go-EMPH nā
'Even though he is going I am not going.'

d. mahattēya kæmēti unot mamē yanne nā
gentleman like become-COND I go-EMPH nā
'If you like, I will not go.'

e. kæmē rasa unat maṭē ehēŋ kanna
food tasty become-CONC I-DAT there-ABL eat-INF
bā
can't
'Even if the food is tasty, I can't eat there.'

f. kæmē rasa unātā maṭē dæŋ kanna bā
food tasty became-DAT I-DAT now eat-INF can't
'Even though the food is tasty, I can't eat now.'

Here wenēwa does seem to occur so as to make embedding possible, but it is not clear that these three types justify that it is there underlyingly in all non-verbal clauses, as it only surfaces in these special circumstances. Moreover, there is good reason to assume that at least unat (concessive) and unātā are not real verb forms in these usages, but rather occur in COMP. First, they occur with single sentence constituents as well as with entire sentences as in (34):

(34) a. kohē unat mamē ē minihat ekkē yanne nā
where unat I that man-ALSO with go-EMPH nā
'Wherever it is, I don't go with that guy!'

b. ē unātē maṭē yanne puluwan
that wenēwa-PAST-DAT I-DAT go-INF can
'Nevertheless (i.e., 'even that being the case'), I can go.'

They also occur in the same way with other kinds of sentences, such as negative ones with the negator nā, for which there would otherwise be no reason for supposing an underlying copula, as in (35):
(35) ę gamana yanne næti unāțe/unat
that trip go-EMPH not unāțe/unat
(wæđə aq̄uak wennə næ)
(work a lessening become not)
‘Even if you don’t go on that trip, the work won’t get less.’

The most convincing evidence is that they may occur following finite verbs, as in (36a) and (b)

(36) a. ę gamənə giyā unat/unāțe
that trip go-PAST unat/unāțe
(loku wæđək unē næ.)
(usefulness become not)
‘Even though (you) took that trip, nothing useful came of it’

b. ę gamənə yanəwa unat/unāțe
(loku wæđək wennə næ.)
that trip go-PRESENT unat / unāțe usefulness become not
‘Even if (you) take that trip, nothing useful comes of it.’

There is thus considerable reason to assume that these forms of wenəwa are unitary and added to the entire sentence, just as they are to single constituents, rather than representing the spelling out of an underlying verb form. Though they may follow either past or present forms, as in (36), they are themselves fixed in tense, lending further support to the view that they are frozen forms. The most likely position for them would then be in COMP. In this context, we might note that the negative næ takes the form næti before either wenəwa or forms in COMP (see example (35)).

Thus wenəwa does not appear to be a good candidate for the hidden copula. A possible solution would be a verb with neither semantic content or phonetic representation, but this is essentially vacuous, since there is no function that it would perform not simply attributable to INFL. Moreover, and most important, it would be transparent to negation selection and focus marking, as we have seen. The simplest solution is thus to assume that XP in (8) need not be verb-headed.
4.00 **Case Marking**

Case marking offers further evidence for the syntactic main
predicator status of at least adjectival and nominal phrases in non-verbal
sentences. We will review it briefly.

Sinhala has both Direct (i.e., Nominative) case and Dative subject
verbs, both transitive and intransitive, as exemplified in (37).\(^{19}\) Clearly this
must involve lexical properties of the verbs

(37) a. **məțə ę katəwə təruna**
    I-DAT that story understand-PRES
    'I understand that story.'

b. **sindu ahenəwa nan ɬaməyətə nətənəwa**
    music hear-PRES if child-DAT dance(involuntarily)-PRES
    'If the child hears music, he gets to dancing.'

The important fact for our purpose here is that there are also Dative
subject adjectives and nouns, as shown in (38). Since that case assignment
must also involve lexical properties,\(^{20}\) it is another basic characteristic
shared by verbal and non-verbal predicators, and in the case of the non-
verbal ones, is clearly not mediated by verbs, null or otherwise.

(38) **Dative Subject Adjectives:**
    a. **apə ɬaməyətə țikək asənəpəy**
        our child-DAT a-bit sick-ASN
        'Our child is a bit ill.'

b. **minihətə harıyətə kəntiy**
    man-DAT really angry-ASN
    'The fellow is really angry.'

**Dative Subject Nouns:**

c. **məțə mələriaawə**
    I-DAT malaria
    'I have malaria.'
5.00 Action Nominal Sentences

The predicative phrases in the Sinhala non-verbal sentences dealt with so far have English counterparts in terms of their predication relations with the subject, even though they may be syntactic predicates in the full sense and not complements of VPs. One type of Sinhala noun predicator sentence, however, does exhibit interesting properties making it unusual if not unique. These action nominal sentences are illustrated in (39).

They have a noun signifying an action as predicator, which is not necessarily derived in any direct way from a verb (in fact, in most of the examples the authors have seen, they are not so derived). Both subject and predicator are in the direct case.

(39) a. andarē enakoṭa gowiyō kātāwə
    Andare come-when farmers talk-DEF(noun)
    'When Andare came the farmers were (really) talking.'

b. ē sārē andarē hita aētuleŋ hinaha
    that time Andare mind inside-INST laughter
    'Then Andare was really laughing with the inside of his mind.' (i.e. He was laughing to himself.)

c. nēwə gillunat bān cūn
    boat sink-CONC band tune
    'Even if the boat sinks the band still plays on busily.'

d. lamay pādəmə
    children lesson
    'The children were/are busily doing their lessons.'

e. māmə kantōruwətə āwāmə okkome minissu wəpe
    I office-DAT come-when all people work
    'When I came to the office all the people were really working.'
These clearly differ from the more familiar type of nominal equational sentence in at least two important respects:

1. There is no co-reference, identity or class inclusion relation between subject and predicate. Put simply, there is no 'is' relation.
2. The interpretation is 'do' rather than 'is', i.e., 'NP do the action of N'.

The subjects in all examples that we have seen are animate (usually human) and in the role of Agent (or Actor, depending on what set of thematic roles we choose). The predators seem also to have the referential characteristics of verbs rather than nouns.

There is typically an implication of intensity or repetition of the act. These sentences, to be felicitous, require a strong context of time and/or specificity, and thus commonly include time adverbs or adverbial clauses, as most of the examples in (39) show. It is difficult to say what nouns are permitted as predicates of this type, though it appears that there must be a sufficiently strong 'pragmatic' connection with the subject to allow interpretability. A list of nouns for which we have data showing their appearance in such sentences, beyond those in the examples, appears in (40).

(40) Action Nominal Predicators:
wagāwa 'cultivation'
welēndāma 'trade, commerce'
ranu 'fighting,'
gosāwa 'noise, racket'
vinōda 'pleasure, enjoyment'
gamana 'trip, journey'
carikāwa 'wandering, strolling'
sakmana, hakmana 'promenade'
sellāma 'playing'

An analysis of these that assumes a null verb variant of some existent verb is also inappropriate here, since there is no verb with the relevant subcategorization frame and semantic interpretation. Sometimes a
paraphrase is possible with a compound verb formed with karanawa 'do', as in (41a) for (39a). For (39b), however, the proper verb would be wenawa 'be(come)' as in (39b). These compound verbs are existent forms, but for other nominals here there are none, and no basis for assuming any specific verb.

(41) a. gowiyo katā karanawa
farmers talk do-PRES
'The farmers are talking.'

b. andarē hinahā unā
Andare laughter become-PAST
'Andare laughed.'

That the predicative phrases here are true NPs is shown by the ability of at least some of them to include nominal modifiers, as in (42), where the form tamatamange 'each his own' is genitive. Generally, however, they occur unadorned.

(42) ëgollē tamatamange waëḍa
those-people their-own work
'Those people were doing their own work.'

It is interesting that in English a relation of this type is possible within NPs as in 'John's laughter', 'Tom's objection to the theory', 'Mary's talk about the problem', etc. However, when such a relation holds, the subject NP may not be the external argument of the predicative N, where external argument is defined as occurring outside the maximal projection of the predicative (Williams (1980, 1981), and subsequent work). Note that this parallels in a suggestive way the syntactic difference between English and Sinhala which we have established. That is, structures possible only as parts of sentences in English may be full sentences in Sinhala. This is an important point to which we will shortly return.

There is, however, a difference between NPs in both English and Sinhala on the one hand, and Sinhala action nominal sentences on the other, in the looseness or variability of the relation between subject and head. In
both languages genitive specifiers of NPs are less fixed in role than sentence subjects, including those of the action nominal sentences. Thus in the following:

(43) a. lamayinge  pādēmē
children–GEN lesson
'the children's lesson'

or in the English translation, the relation could be possession or even goal, whereas in the corresponding Sinhala sentence (39d) the children must be engaged in the lesson. Similarly, in

(43) b. lamainge  wædā
children–GEN work
'The children's work'

the work could be the result of the activity as well as the action, but that is not possible in (39e).

These sentences thus seem to require some modification in Williams' (1981) theory concerning the external arguments of nominal predicators. Here we will adopt Williams' view that the external argument of a lexical item (i.e., of our 'predicator') is the one that is assigned (by predication) to some NP appearing outside of the maximal projection of that lexical item, as stated in (44).

(44) Argument Structures (Williams (1981:84))

'...the external argument of a lexical item is the one that corresponds to the NP in a sentence of which a phrase with that item as head is predicated. [There is set] an upper bound (of one) on the number of external arguments that a phrase can have, but no lower bound.'

We will also adopt Williams' convention of underlining the external argument in the representation of argument structures, as exemplified in (45).
(45) hit: (actor, theme)
    seems: (theme, goal)

For Williams, it is a 'fairly clear universal' (1981:85) that when verbs have both an external argument and an Actor, the Actor is the external argument. However, regarding the argument structure of nouns, he then goes on to say:

'So, if Ns have external arguments they are not Actors. But do Ns have external arguments? I believe that we want to say they do, at least when they occur as head of a phrase that is used predicatively, as in 'John is a fool' We might say that fool had an external Theme (that is, it has the argument structure (Theme)). Then we could say that when fool appeared as the head of a NP used predicatively, the subject of that predication corresponded to the theme of fool. But we can show that this will not do generally, because we can show that this would require some nouns to have both internal and external Themes. Consider the following, for example:

(9) I consider that [destruction of a city by evil forces].

Here, 'destruction of a city by evil forces' is predicated of 'that'. But the predicate NP has internal Theme and Actor—thus to what argument of destruction does that correspond; i.e., what is the external argument of destruction if not Theme or Actor? Clearly the external argument of such a noun has no counterpart in the verbal system [Emphasis ours—JWG]. Suppose we invent the label to name that argument of the noun which is external. then we would assign destruction the argument structure (R, Actor, Theme). The label R is meant to suggest 'referential', since it is this argument position R that is involved in referential uses of NPs as well. Thus, for example, if fool has the argument structure (R), we might assign the following logical representations for the predicative and referential uses respectively: John and the variable x is in the position of R:

(10) John is a fool
    The fool left
    fool (John)  ⋄x (fool (x) & left (x))'  (Ibid)
For subjects of Sinhala Action Nominal Sentences, however, this cannot hold, since the subjects of such sentences are not only Actors (or Agents), but their being so is a defining property of the construction. It also seems clear that the possibility of occurring in such sentences is a lexical property. However, those same nouns also have the property that they can occur in 'ordinary' equational sentences as well, where the external argument is in fact Williams' R (or its equivalent in whatever theory of predication we choose; what counts for our purposes is the contrast between the potential roles in the same syntactic configuration.) Thus katāwa 'talk, speech' occurs as an action predicator in (46a), but as head of subject and predicate in the equational (46b).

(46) a. Action Nominal:
   minissu [NP katāwa]  
   people talk-DEF
   'The people are talking.'

   b. 'Ordinary' Equational:
   itāma hoṇda katāwa [NP gunasinhage katāwa]  
   most good talk-def Gunasinha's talk-DEF
   'The best talk was Gunasinha's talk.'

Thus that noun would appear to require a dual specification of argument structure such as (47). The R in (47a) is to allow for Williams' referential indexing, but since nouns in this use seem to have the referential properties of verbs, it is not clear that this is necessary. The internal Actor argument in (47b) is there for an obvious reason; it accounts for the actor internal to the NP in NPs like (48) or its English counterpart.

(47) a. katāwa: (Actor, R) SPEECH (action)  
   b. katāwa: (R, Actor) SPEECH (event/result/locus)
(48) gunəpāləge gas kæpɨmə
gunapala-GEN trees cutting
'Gunapala’s cutting (of) trees' (NP)

kæpɨmə (Actor, Theme, R )

Earlier, we noted that Sinhala has Dative subject adjectives and nouns as well as verbs, and that subject case commonly reflects subject theta role. Thus adjectives and nouns also require specification of roles in their argument structures (in addition to that just discussed for Action nouns) as in (49). Note that hořída ‘good, well’ like katāwa ‘talk, speech’ requires a dual representation. We have no examples of adjectives with agent roles, however.

(49) Nouns:
    mațə maľəriyāwa
    I-DAT malaria (Noun)
    'I have malaria.'
    mațə niwādu
    I-DAT leave (pl.)
    'I'm on vacation.'

    maľəriyāwa: (Experiencer, R)
    niwādu (pl): (Experiencer, R)

Adjectives:
    apē laməyațə țikak așənipay
    our child-DAT a-bit ill-ASN
    'Our child is a bit sick.'

    laməya hoľiday
    child good-ASN
    'The child is good.'
Non-verbal Sentences and Argument Structure

laməyaː hoːnday
child-DAT good-ASN
'The child is well/in a good state'

asənīpə (Experiencer, R) ILL
hoːndə (Theme) (R?) GOOD (NATURE)
hoːndə (Experiencer) GOOD (STATE)

6.00 Conclusions
We see, then:

(A) Sinhala forms of non-verbal major categories (i.e., adjectives, nouns, and postpositions), as well as verbs, may serve as predicates of root sentences. Thus a common tree representation, as in (8), is possible for all predicate categories.

(B) Sinhala nouns may have external arguments that are not simply referential (Williams' R) but may be (perhaps among others) Agent and Experiencer.

We can account for (A) in a way more linked to general predication theory, by generalizing, for Sinhala, Williams' predication environment #1 as stated in (50) to the form in (50).

(50) Environments of Predication (Williams (1980:212))

1. NP VP
2. NP VP X
3. NP be X

1. John died
2. John left nude/singing/PRO thinking he was safe.
3. John is sick/near Larry/PRO to leave.

(51) Generalization of (50 #1):

(IG) NP XP (X a major category)
Notice that this automatically leads to the correct syntactic result as well, since it allows for the non-copula non-verbal sentences. This suggests a possible parameter: something like '± Restrict XP to VP in NP XP' but obviously it is too early to tell whether this is valid on the basis of the languages studied. One might also ask whether Williams' #3 was then rendered unnecessary given a minus value for Environment (IG), but that seems not necessarily to be the case, since Sinhala does have verbs like wenawa 'become' which might require it.

The suggested generalization of Environment I does not, however, account for our point B, since if a language had the generalized version, it would not necessarily have action nominal Ss or something like them. However, it might serve to allow such a development. As one intriguing possibility along this line: since the predication relation in NP NP sentences is not mediated by the copula with its 'is-ness', the elevation of NP (among others) to full predicate status allows a more direct projection of theta role to the subject, without the intervening compositionality of 'be NP'. This then makes sentences of the Action Nominal kind possible. The empirical prediction is that languages with Action Nominal sentences will have 'no copula' equational sentences, but as yet we have only the evidence of Sinhala before us.

NOTES

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1. What is said in this paper is intended to apply only to Spoken Sinhala, and cannot be projected directly into the Literary variety, which is
used for virtually all written materials. Sinhala is a diglossic language, and
the Literary variety differs sharply in very fundamental respects from the
variety generally used in face-to-face communication, at whatever level of
formality. For further particulars, Gair (1968, 1968b) and De Silva (1979),
which includes an extensive bibliography.

2. Here we deal only with predicates headed by members of the
major categories, although adverbal predicates are dealt with glancingly.
There are also sentences with numeral phrases (Gair (1970:101 ff)) which
pose special problems and are not considered here.

3. This usage is fundamentally consistent with the use of that term in
Gair (1970), although there a flat structure was assumed for S in Sinhala, an
assumption not carried into the present paper.

4. For the free word order and non-configurational properties of
Sinhala, see especially De Abrew (1981) and Gair (1983).

5. Some optative and imperative forms may appear to constitute
minor exceptions by showing a kind of agreement, but this is not 'standard'
subject-verb agreement and appears to be explainable on semantic and

6. Focused (sometimes called 'Emphatic') sentences are dealt with in
some detail in Fernanando (1972), and Gair (1970, 1983, 1986a) (the last of
which gives an historical account) and particularly (1983).

7. It is not yet clear whether the affixes related to focus belong
here, nor is it clear whether a rule such as (7) is called for, with AUX
represented by auxiliary verbs or other forms. For arguments that
Colloquial Sinhala lacks AGR, see Gair and Wali (1988).

8. As we will see, there is a change in the form of adjectives. Also,
there is a class of forms called Quasi-verbs (Gair (1970) that do not have
tense, but do have distinct Basic and Emphatic forms. These include eti
'might (be)' and the negator næ.
9. Whether this yi- is to be identified with the homonymous focus marking -yi- will not be considered here, but they do have distinct ranges of functions.

10. See De Abrew (1981) for detailed explanation of the various negation strategies available in Sinhala.

11. na does not replace tiyena or innawa when they occur in the sense of 'remain' or 'reside, live, stay', but then occurs following them as with other verbs. This is more common, understandably, with innawa than it is with tiyena.

12. See De Abrew (1981) for details on the separability of na from the verb.

13. Whether there is movement to FOC in this case is a special problem for which as yet there is no compelling solution and which we will consequently not discuss here. What is important here is that there is no difference between sentences headed by different categories in this regard.

14. One class of sentences, negative indefinite sentences, pose a special problem since they are exceptional in terms of both case marking and negation. An example is mē kēma kisimē rasak na 'this food at-all taste-INDEF na' - 'This food isn't tasty at all'. These constitute a special case not dealt with here. For discussion see Gair (1970), Perera (1976), De Abrew (1981). A still different analysis is suggested in Paolillo (1986).

15. The semantics of these sentences seem to us to lend support to this view, since they are compatible with either the partial or whole sentence focused reading mentioned for verbal and adjectival sentences with nemy. De Abrew (1980:61), however, claims that these N+N nemy sentences are 'neutral'. The judgements here are understandably slippery, but syntactically the solution suggested here appears clearly to be consistent with all of the data.

16. (27b) is in fact possible, but not with the relevant structure. Rather, it represents a non-focused sentence with scrambled or 'front
shifted' na, a possibility that exists also for verbal sentences. The
difference in structure corresponds also to a difference in interpretation,
and the reading in which (27b) is ungrammatical is the one in which mēse
uda 'on the table' is outside the scope of the negation, i.e. in which there is
a presupposition of the existence of something on the table, and the negation
applies only to the suggested identity of that item. The reading in (26b)
is possible for (27b), where the identity is presupposed, and its suggested
location is negated. Either na or the constituent mēse uda in this reading
has been scrambled, and neither the PP nor the NP subject are focused. See
De Abrew (1981) for further details on the the scrambling of na, etc.

17. There are other post-positional and adverbial sentences which do
not take na but always neme. These do not have existential readings and
have all the characteristics of focused sentences. Their analysis would take
us too far afield here, but a number of interesting problems are involved.
See De Abrew (1981) for one promising analysis, carried forth by Paolillo
(1986).

18. For verbless sentences, there are no distinct tense forms, as we
would expect. However, all verbless sentences may have past, present, or
future time reference, when an appropriate time adverb is employed. Thus
verbless sentences are indeed tenseless, though this must be distinguished
from time reference. See Paolillo (1986) for further details.

19. Colloquial Sinhala also has accusative verbs, always intransitive,
as the example below:

mawa bima watewi
I-ACC ground fall-OPTATIVE
'I might fall down.'

These have led Gunasinghe (1985) to claim that Sinhala has ergative
properties. While a number of interesting issues are involved here, we do
not consider such verbs in the present context. Though they might give
further evidence for case assignment, it is also possible that they are
'unaccusative' or 'ergative' verbs (Perlmutter (1978), Burzio (1986)), in
which event case assignment would still be involved, but initially within VP
(the accusative marker could also be considered an 'inherent' case marker, as in Beletti (1988)). Lexical properties would still be a factor, however, since not all intransitives behave in this way.

20. Although there is an obvious connection between participant role and Theta marking, the specific case is not predictable on that basis alone for verbs, nouns, or adjectives. Perception and 'knowledge' verbs such as tērenēwa 'understand' and pēnēwa 'see, be visible' take dative subjects, but dannēwa 'know' does not. (Although it does in some dialects, and there is no reason for thinking that the dialect distinction is a function of different semantics.) Similarly, many adjectives such as kēnti 'angry' take dative, but santōsa 'pleased' does not. One could always construct a semantic difference for such on a case-by-case basis, but finding independent justification for it is difficult, to say the least. For the general connection between case, verb marking, and volitionality, see Gair (1971, 1976).

21. These were described first in Gair, Karunatillake, and Paolillo (1987) as 'activity-equational sentences' and treated under the same name in Paolillo (1986).

22. One might hold that the experiencer arguments originate within the predicative NP or AP and thus that they are not true external arguments but moved elements that bind a trace in an internal argument position (c.f. Williams (1981:92 ff)). One could then attempt to extend this to the Agent ones in a mechanical manner, but this would not only be intuitively quite unconvincing, it would overlook the fact that nouns do not subcategorize for direct case Agent nouns within NP, except, circularly, here if that tack were taken.

23. A general descriptive account of some facts relating to these characteristics may be found in Gair (1971).
REFERENCES


A COMPLEMENT/ADJUNCT BINDING ASYMMETRY IN HINDI
AND OTHER LANGUAGES

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0. Our primary purpose in this paper is to report a previously unobserved asymmetry in Hindi between the binding of anaphors contained in adjunct phrases in infinitive complements and the binding of anaphors contained in argument phrases in such complements, and to point out a parallel between this asymmetry and strikingly similar ones occurring in Verb-Raising constructions in two other languages—French and German. It will be seen that in each of these languages, anaphors contained in non-argument phrases within complements of the type in question behave differently with respect to Binding from anaphors contained in argument phrases.

The asymmetry in question has received a fair amount of attention in recent literature on French and German, but none of the analyses proposed seems to us to provide a particularly satisfactory, nonstipulative account of it. It will be seen that the facts of Hindi contribute to that discussion at
least in constituting a limiting case, since the Hindi constructions have properties which preclude the extension of some of the analyses proposed for French or German. We will conclude by proposing an account of the phenomenon which makes crucial use of a multidimensional analysis of Verb Raising constructions, in which propositional structure and 'surface' constituent structure are separately represented.

1. Hindi āpnā is an anaphor, which must be subject-bound within a local domain. This property is represented in the examples in (1), where we adopt the convention of using underscores to indicate intended coreference. We should also note that the binding requirement on āpnā is suspended in certain syntactic contexts, as in (2), in which āpnā has arbitrary reference. These cases are discussed in Harbert and Srivastav (1987), where it is demonstrated that they are amenable to an analysis consistent with the claim that āpnā functions in these contexts too as an anaphor, given certain ideas proposed in Manzini (1983). (Please note that in examples taken from other sources the transcription has been modified for the sake of uniformity.)

(1) a. maric-ne āpne-ko svarṇmrig kā rūp diyā
   Marich-erg self-dat golden-deer of form gave
   'Marich gave self the form of a golden deer.'
   (Kachru & Bhatia, 1977)

b. "indirā-ne kahā ki [āp sab kām kar legi] 
   Indirā-erg said that self all work will get done
   'Indirā said that self would get all the work done.'
   (Kachru & Bhatia, 1977)

(2) [āpnī zindagi] kīmtī hotī hai
   self's life valuable is
   'One's life is valuable.'
   (Harbert and Srivastav, 1987)

However, it has been recognized since the earliest studies of reflexivization in Hindi, including Subbarao (1971), Verma (1972), Cohen (1973), Gupta (1974), and Kachru and Bhatia (1977), that āpnā is allowed
under certain circumstances to be bound to an antecedent other than a clause-mate subject. In particular it can sometimes be bound to an antecedent outside of an infinitive complement containing it, across the subject of that complement, in apparent violation of the SSC effect of Principle A. Representative examples illustrating this property are cited in (3). For the sake of brevity, we will refer to binding of this sort as 'long binding'.

(3) a. ashok-ne lalitā-se apne liye cāy banāne-ko kahā
   Ashok₁-ERG Lalita-DAT self₁ for tea to-make-PRT asked
   'Ashok₁ asked Lalita to make tea for self₁.'
   (Subbarao 1971)

b. sita-ne rādhā-ko apni bahan ke-sāth khelne-ke-liye
   Sita₁-ERG Radha-DAT self₁_sister with to-play-PRT
   kahā asked
   'Sita₁ asked Radha to play with self₁_sister.'
   (Kachru & Bhatia 1975)

c. jon-ne merī-ko [PRO₁ apne liye kamīz lāne-ko] kahā
   John₁-ERG Mary-DAT self₁ for shirt to-bring-PRT said
   'John₁ asked Mary to bring a shirt for self₁.'
   (Gurtu 1985)

(Note by the way that in each of these examples, the anaphor in question is contained in an adjunct postpositional phrase within the complement. The significance of this will be pointed out below.) The possibility of such apparent non-clause-mate binding in infinitive complement constructions led the investigators cited to posit declausealization operations—for example, S-pruning operating in the wake of EQUI, as in Subbarao (1971:193) or similar devices to insure that the underscored positions in such sentences would be relatable to each other by a presumed clause-bounded reflexivization rule.

Studies within the more recent framework of EST/GB, have similarly taken examples like (3) to reflect a generally available possibility for 'long binding' of apnā, and have accommodated this possibility by positing a
parametrized characterization of Binding Domains in UG. So, for instance, it was claimed in Harbert (1983) that Hindi numbers among the languages which observe the PIC effect of Principle A of the Binding Theory but not the SSC effect. A similar idea has been expressed by Gurtu (1985), who states that the SSC effect does not hold for the reflexive apnā in Hindi; rather, apnā is required only to be bound in its anaphoric domain, as defined in (4)—roughly, the domain of the minimal tensed clause containing it.

(4) The Anaphoric Domain of A is the minimal S containing A, a governor of A, and a subject of tensed S which c-commands A. (Gurtu 1985:63). [Emphasis added]

As we will demonstrate below, however, these characterizations of the Binding Domain for apnā are not accurate, since it is under certain circumstances subject to the SSC effect.

A claim has been made recently for German by Kluender (1986) which is generally comparable to the above-mentioned claims about Hindi, on the basis of sentences like (5a), in which the anaphor sich, contained in an Accusative with Infinitive complement, is similarly long-distance-bound to the matrix subject, again, across the embedded subject.

(5) a. weil Hans [Peter für sich /(ihn) arbeiten] läßt/sah
  because Hans Peter for self/him to-work lets/saw
  'because Hans let/saw Peter work for self'

 b. *weil Hans Peter [PRO fur sich zu arbeiten] bat
  because Hans Peter for self to work asked
  'because Hans asked Peter to work for self'

Kluender's claim is that only the minimal domain of INFL constitutes the domain for anaphor binding in German (whether that INFL contains tense/Agr features or not). A.C.I. complements like the one in (5a) are, he claims, Ss without INFL, and are therefore not binding domains, whereas control complements like the one in (5b) contain INFL, realized as the prepositional zu, and accordingly do constitute binding domains.
While Kluender’s observation that the SSC effect does not hold in sentences like (5a) is correct, he is mistaken in generalizing from those cases to the claim that complements of lassen ‘let’ and sehen ‘see’ are generally transparent to binding. As has been pointed out in Reis (1976) and in much subsequent literature, including Everaert (1980), Harbert (1983), Grewendorf (1984) as well as in such traditional grammars as Duden (1972), the accessibility of reflexives in such complements to long binding depends on the grammatical role of those reflexives within the complement. Thus, unlike (5a), example (6), in which the anaphor occupies the direct object position within the complement, is ill-formed.

\[
\text{(6) } \textit{weil } \text{Hans} [\text{Maria } \text{sich töten}] \text{ließ} \\
\text{because Hans$_1$ Maria self$_1$ kill } \text{let} \\
\text{‘because Hans$_1$ let Maria kill self$_1$’}
\]

That is, such complements seem to function as binding domains for sich when it occurs in certain positions, but not when it occurs in others, though the nature of the relevant difference is a disputed question, to which we will return.

It turns out, similarly, that one cannot in fact generalize from examples like the ones in (3) to the conclusion that apnā is never subject to the SSC effect. That effect must be assumed to hold in order to account for the ill-formedness of such sentences as (7) in the indicated interpretation. In these cases, the anaphor, contained within a direct object NP, was judged uniformly by our six informants to have only the lower subject as a possible antecedent. Compare (7) with (3):

\[
\text{(7) a. } \textit{*Ashok-ne } \text{Lalitāj-ko [PRO$_j$ apnā/uskā vādā} \\
\text{Ashok$_1$-ERG Lalitaj$_1$-DAT self$_s$/his$_s$ promise} \\
yād karne-ko]} \text{ kahā} \\
to-remember-PRT said \\
\text{‘Ashok$_1$ asked Lalita to remember self$_s$ promise.’}
\]
b. *Ashok-ne Lalitāj-ko [PROj apnā/uskā khayāl
Ashokj-ERG Lalitaj-DAT self'sj/hisj thought
rakhne-ko] kahā
to-keep-PRT said
' Ashokj told Lalita to take care of selfj.'

We should also point out the existence of divergent claims in the literature about the well-formedness of such sentences. Gurtu (1985) cites (8), structurally similar to (7), as a well-formed sentence. Our opinion is, however, that this sentence too is at least questionable on the indicated reading, though we aren't certain why it is not entirely as bad as (7).

(8) (??:)jón-ne merī-ko apnī kitāb pārhne-ko kahā
Johnj-ERG Mary-DAT self'sj book to-read-PRT said
'Johnj told Mary to read self'sj book.'
(Gurtu 1985)

Thus, granting that Gurtu has correctly represented the judgments of certain native speakers, there are still apparently many speakers of Hindi for whom there is an asymmetry in binding across the boundaries of certain types of infinitive complements, including infinitival complements of kahnā 'say', bolnā 'say', and denā 'let' (cf. 10b); reflexives contained in direct object NPs are not bindable in this way for such speakers, while reflexives contained in adjunct prepositional phrases are so bindable.¹ In this respect, Hindi patterns in the same way as German. The two languages differ, however, in that in German sentences like (5a) a pronoun may also be used in place of the reflexive with intended coreference to the higher clause subject, while in Hindi sentences like those in (3) a pronoun is not possible:

(3') a. *ashok-ne lalitā-se uske liye căy banāne-ko kahā
Ashokj-ERG Lalita-DAT himj for tea to-make-PRT said
' Ashokj asked Lalita to make tea for himj.'
b. "sita-ne rādhā-ko uski bahan ke-sāth khelne-ke-liye
   Sita₁-ERG Radha-DAT her₁ sister with to-play-PRT
   kahā
   said
   'Sita₁ asked Radha to play with her sister₁.'

c. "jon-ne merīj-ko [PRO₁ uske liye kamiz lāne-ko] kahā
   John₁-ERG Mary-DAT him₁ for shirt to-bring-PRT said
   'John asked Mary to bring a shirt for him.'

Pronouns are also allowed with intended reference to the matrix subject in such constructions as (6) in German, where the reflexive is not allowed. Interestingly, however, in Hindi sentences like (7) pronouns in the positions in question are again incapable of referring to the higher clause subject.²

2. Among the descriptive questions to be answered is whether it is the
categorial nature of the containing phrase--NP versus PP--or its argument
status--argument versus adjunct--which is relevant in determining the
possibility of long binding in these cases. Though in principle this question
should be easily decidable, uncertainty of judgments in a fair number of
cases seem to make it difficult to decide in fact. Everaert (1986) has
suggested for German (and for Dutch) that it is the PP vs. NP distinction
which is of importance. That is, he claims that anaphors contained in PPs
within complements of the relevant type are generally accessible to long
binding, whether or not those PPs are adjunct PPs. However, this decision
seems to be based more on the requirements of his analysis than on fact,
and it appears to represent a minority position; Reis (1976) and, following
her, Harbert (1983) and Grewendorf (1984) claim that the relevant
difference in the German cases is between arguments and adjuncts, on the
basis of such examples as those in (9), in which a reflexive in a complement
PP, subcategorized for by the verb, is seen to be relatively inaccessible to
long binding (though as Reis notes, some such examples are better than
others).
(9) a. *Emma ließ Fritz lange und ungeädlig um sich werben...  
   Emma$_i$ let Fritz long and impatiently for self$_i$ sue  
   'Emma let Fritz court her long and impatiently.'  
   (Reis 1976)

b. *Nur mit Unbehagen ließ Fritz [den Reporter aus sich  
   Only with uneasiness let Fritz$_i$ the reporter out-of self$_i$  
   einen Helden machen]  
   a hero make  
   'Only with uneasiness did Fritz let the reporter make a  
   hero of him.'  
   (Reis 1976)

Similarly, it appears to us that in Hindi, anaphors contained in  
subcategorized phrases are also relatively inaccessible to long binding in the  
constructions in question even when those subcategorized phrases are of the  
category PP. Compare example (10a), which was judged by all of our  
informants not to have the interpretation represented by the underscores,  
with example (3).

(10) a. *Ashok-ne Lalitāj-ko [5 PRO$_j$ [apne bāre-mē]  
   Ashok$_i$-ERG Lalit$_j$-DAT self$_i$ about  
   batāne-ko] kahā  
   to-tell-PRT said  
   'Ashok asked Lalita to tell about self.'

Thus, we conclude as a descriptive generalization that in German and  
Hindi infinitive complements of certain types, there is a difference in the  
accessibility of anaphors within adjunct phrases and anaphors within  
argument phrases to long binding—i.e., binding to a complement–external  
antecedent, across the complement subject. Adjunct anaphors allow it,  
while complement anaphors do not. (This constitutes an interesting contrast  
with the facts of long-binding into subjunctive complements in Icelandic;  
reflexives in complement clauses, but not adjunct clauses are accessible to  
the latter process.) Notice that this is not a pragmatic effect since the  
unavailable reading is actually the pragmatically favored one in (9a). This  
can also be demonstrated for Hindi. In the following example, coreference  
of the anaphor with ravi, though plausible, is not possible.$^3$
(10) b. "bařī utsuktā ke-sāth ravi-ne patrakār-koj
great eagerness with  Ravi-ERG reporter-ACC
[PROj āpne-āp-ko mahāpuruṣ ghosīt karne] diyā
self-ACC saint to-declare let
'With great eagerness Ravi let the reporter declare
him a saint.'

We should also note that another property of these constructions in
both Hindi and German is that beyond some more or less prototypical
contrasts of the sort we have represented in the above examples, judgments
about the availability of the higher subject as an antecedent for reflexives
contained in the infinitive clause become somewhat uncertain and variable.
This point is emphasized for German by Reis (1976). We are not sure
whether this property of fuzziness is to be listed among the explicanda for
which an adequate analysis of these constructions must ultimately be
responsible, or whether it is simply a consequence of the generally
indeterminate nature of the precise boundary between adjuncts and
complements, or of interference of pragmatic factors. Consideration of
Reis' examples inclines us toward the last two of these possibilities. In any
case, for examples of the sort we have provided, the judgments of relative
well-formedness by our informants were quite sharp.

Further evidence supporting at least indirectly the correctness of our
descriptive generalization is provided by the third set of data which we
would like to introduce. These data involve restrictions on prepositional
clitic climbing in French Verb-Raising constructions. The facts were first
pointed out, we believe, by Rouveret and Vergnaud (1981), though they have
been discussed extensively by other investigators and have been connected
explicitly with the above-mentioned facts of German by Harbert (1983b) and
Evers (1986).

The examples in (11) show that the relationship in French between
clitics and the empty categories associated with them is subject to some
sort of locality condition, which we will assume to be Principle A of the
Binding Theory.
(11) a. Marie les_{i} a lus [t_{i}]
    Marie them Aux read
    'Marie read them.'

    b. Marie a laissé [§ Paul lire ces romans dans la cuisine]
    Marie Aux let Paul read the novels in the kitchen
    'Marie let Paul read the novels in the kitchen.'
    (Aoun, 1982)

    c. 'Marie y_{i} a laissé [§ Paul lire ces romans [t_{i}]]
    Marie there Aux let Paul read the novels
    'Marie let Paul read the novels there.'
    (Aoun, 1982)

As shown in (12a), French has a process of V'-Preposing which appears to have the effect of moving the verb and its direct object to the front of the complement clause, leaving other constituents of VP behind. (12b) demonstrates that in the wake of V'-preposing it is possible to 'extract' a prepositional clitic, represented here by y, from the complement, across the complement subject. Compare (12b) with the ungrammatical (11c), where V'-Preposing has not applied.4

(12) a. Marie a laissé [y_{i} lire ces romans] [§ à Paul [y_{i} e]
    Marie Aux let read the novels (to) Paul
dans la cuisine]
in the kitchen
    'Marie let Paul read the novels in the kitchen.'

    b. Marie y_{i} a laissé [y lire ces romans] [§ à Paul [y e [t_{i}]]
    'Marie let Paul read the novels there.'

Now, significantly, such extraction is possible only for prepositional clitics which correspond to adjuncts in the complement, as in (12b). It is impossible with clitics representing subcategorized PP arguments of the lower verb, as illustrated in the examples in (13), from Aoun (1982).5 (Compare (12b) with (13b).
(13) a. Jean fera [\(\forall\) mettre ce livre] [s à Pierre [\(\forall\) e]
jean will-make put this book (to) Pierre
sur l'étagère]
on the shelf
'Jean will make Pierre put this book on the shelf.'

(13) b. *Jean ye fera [\(\forall\) mettre ce livre] [s à Paul [\(\forall\) e] \(\forall\)]
'Jean will-make Paul put the book there.'

Thus, we see that in French, as well as in Hindi and German, there is an asymmetry between complement phrases and adjunct phrases with respect to locality conditions. In each case, a 'looser' locality requirement obtains when the dependent member of a pair of elements occurs in an adjunct phrase within the infinitive construction than when it occurs in a complement phrase. Given the clear similarity of the three cases, considerations of parsimony dictate that one should attempt to regard them as individual manifestations of a single phenomenon, rather than attributing them to separate causes—at least as an initial hypothesis. This consideration leads us to hypothesize first of all that the locality condition regulating the clitic-empty category relationship in clitic constructions is in fact the same as the one that restricts the relationship between lexical anaphors and their antecedents, i.e., that clitic-bound empty categories are subject to Principle A. Second, it leads us to the position that an analysis of the causes of the complement/adjunct asymmetry in any of the languages under discussion is less than optimal if it does not generalize to cover the other instances. In particular, it seems reasonable to expect that the correct account of the German asymmetry in (5) and (6) should generalize to the Hindi asymmetry represented in (3) and (7).

3. With that in mind, we will weigh some of the proposals which have been made for French and German against the facts of Hindi. Given the number of proposals in the literature, and the complex and typically rather idiosyncratic theoretical devices they assume, we of course cannot develop each analysis in full, and will instead proceed in a highly schematic fashion. We refer you to the original works for details. We leave out of consideration the analysis of Everaert (1986), since, as noted, we think it is based on
a misinterpretation of the basic nature of the asymmetry, and that of Evers (1986), which we do not understand.

Consider first the account developed for French by Aoun (1981), building on the work of Rouveret and Vergnaud. We have summarized this account here as (14) (A97:225).

(14) a. \( V' \)-Preposing is a rule adjoining \( V' \) to the left periphery of the embedded clause.

b. The preposed \( V' \) governs and indexes the embedded subject NP.

c. When governed and indexed in this way, the complement subject NP constitutes a SUBJECT, in the sense of Chomsky (1981), only with respect to the elements bearing the same index (i.e., with respect to the elements in the same argument structure).

The basic idea here is that, according to (14c), once the complement subject in a Verb Raising construction comes to be governed—hence argument-indexed—by the raised verb in Verb Raising constructions, it counts as a SUBJECT, in the sense of the Binding Theory, only for its co-arguments. Since adjunct phrases do not participate in the argument structure of the predicate, they are not co-arguments of the complement subject, which therefore, by (14c), does not define a Binding Domain with respect to them. Their Binding Domain is accordingly the matrix clause. In Harbert (1983) it was suggested that this analysis could be extended to the analogous asymmetry in German, involving lexical anaphors, under the standard assumption that constructions like (5a) also involve Verb Raising. We note, however, that the account is not very explanatory, since provision (14c) is entirely stipulative. The facts of Hindi, moreover, reveal that in linking the possibility of long binding to the government of the complement subject by the raised verb it also fails empirically. If we considered only the German facts, the contrast between (5a) and (5b) would suggest that this might be a fruitful assumption; in (5b), where the subject of the complement is PRO—hence ungoverned (at least in standard versions of GB)—long binding is prohibited. Conversely, in (5a), where it is case marked, hence presumably governed, long-binding is possible. However, the fact that long binding of adjunct reflexives is possible in control structures
with PRO subjects in Hindi, as in (3c), for instance, indicates that
government of the complement subject cannot in fact feature centrally in a
general analysis of the phenomenon.

The same consideration rules out the extension of the account
developed in Grewendorf (1983) to account for the asymmetry in German.
Grewendorf's proposal is based on two assumptions, listed as (15a) and
(15b)—first, that non-complement PPs are generated outside of VP while PPs
which are complements of the verb occur inside of the VP, and second, that
PP nodes do not constitute barriers to government. Granting these two
proposals, he claims, the complement/adjunct asymmetry in German
anaphor binding falls out from standard assumptions. S'-Deletion must have
applied to complement clauses such as the one in (5a), since the
complement subject receives accusative case, apparently from the matrix
verb. Thus, the structure of (5a) would be (15c):

(15) a. Noncomplement PPs are daughters of S.
Complement PPs are daughters of VP.

b. PPs are not barriers to government

c. NP lassen [g NP [pp für sich] [vp arbeiten]]
         let for self work

The underscored anaphor here is governed by the preposition für,
but it is also governed by the matrix verb lassen, under Grewendorf's
assumptions, since S and PP are not barriers to government. Accordingly,
the anaphor is dually governed, and as a result both the matrix clause and
the embedded clause qualify as Governing Categories. The anaphor can
satisfy Principle A by being bound in either of them. On the other hand, the
matrix clause does not serve as a GC for anaphors contained in complement
phrases in the embedded S, since these are within the VP of that S, and
thereby shielded from outside government.

Certain problems arise for Grewendorf's account even within
German, involving his claims about constituent structure. It also fails to
genralize to Hindi, however, since it again links long-binding to S'-deletion
and the consequent governance by the matrix verb of elements contained
within the complement clause. This is incompatible with the realization of
the subject of the infinitive as PRO in the Hindi long-binding cases.

Finally, we consider the analysis of Pustejovsky (1984) for the
German facts, which is based on a rather different set of assumptions,
though again relying crucially on a version of Verb Raising. The analysis
incorporates the definitions in (16):

(16) a. \( \alpha \) is a Predicative Domain for \( \beta \) iff \( \alpha \) is the minimal
maximal projection containing \( \beta \) and the subject of the
predicate containing \( \beta \). (Pustejovsky 38)

b. Revised Binding Theory:
   A. An anaphor is bound in its predicative domain
   B. A pronominal is free in its predicative domain  (P39)

The core feature of the account, however, is the extended sense in
which Pustejovsky intends that 'subject' be construed in (16a). He starts off
from Williams' definition of subject as external argument, and extends this
notion in such a way that verbs are taken to be 'subjects' of adjunct phrases
which modify them: "Let us say that a modifier is a predicate, where...the
verb is its one external argument, hence its 'subject'." (p. 369). Thus, it is
the position of the verb which determines the binding domain of anaphors
contained in such phrases. Crucially, this holds only for modifying phrases
—not for complement phrases, whose relationship with the verb is not one
of predication. The minimal predicate containing an anaphor in an object
phrase is the Verb Phrase in which it occurs, and its binding domain is
accordingly the domain of the external argument of that verb phrase—the
subject NP.

Pustejovsky then proposes, following Evers (1982), that a requirement
of Aux-government obtains in German (though not in English), according to
which verbs without tense features must be adjacent to and minimally c-
commanded by an element which does have such features. The effect of
this, as we understand it, is that the complex V' resulting from Verb Raising
must be governed by INFL in German—a requirement which is satisfied by
raising it into INFL. In consequence of this, sentences such as (5a) will have
a derived structure like (17). The Predicative Domain for the reflexive sich in this structure, given Pustejovsky's assumptions, is the matrix clause, since that clause is the first maximal projection containing the reflexive, the predicate (für sich) containing that reflexive, and the 'subject' of that predicate—the complex verb $V_1$.

(17)

$$
\begin{align*}
S \\
NP & \quad VP & \quad INF \\
Hans & \quad NP & \quad PP & \quad V_1 \\
Peter & \quad für sich & \quad arbeiten lässt & \quad 'Predicate' & \quad 'Subject'
\end{align*}
$$

This captures the possibility of long binding for such adjuncts. Such an account would be generally compatible with the facts of Hindi as well, under the assumption that kahnā is also a Verb Raising predicate, since it does not entail that the subject of the complement clause is governed. (Cf. Mahajan (1987) for arguments for Verb Raising in Hindi). So far as we are aware, there is no principle which will prevent Verb Raising out of control complements, though the difference between Hindi and German in the admissibility of long binding in control structures would remain to be accounted for. It also remains to be seen whether Pustejovsky's extended notion of subject will turn out to be of general utility. Pustejovsky suggests—mistakenly, we think—that it does have more general application in that it provides the basis for an account of the difference between English and German with respect to such sentences as (18) and (19). These sentences involve simple clauses containing anaphors and pronouns embedded in adjunct prepositional phrases:

(18) John$_i$ pushed the book away [PP from him$_i$/himself$_i$].

(19) Hans$_i$ stieß das Buch weg [PP von sich (Refl)/ihn (Pron)]

'Hans$_i$ pushed the book away from self$_i$ /him$_i$. '
The bracketed PPs again are predicated of the verbs in these examples, and the verbs therefore serve as the subjects of those PPs, in Pustejovský's extended sense. In the German sentence, the verb is, by hypothesis, raised to INFL. Hence, the whole clause comes to function as the predicative domain for the underscored forms. The reflexive may therefore be bound to the subject of that clause, while the pronoun must be free in it. Conversely, in English, where by hypothesis the verb remains in VP rather than being raised to INFL, the pronoun is required to be free only within the VP, and may corefer with the subject. On first consideration, the facts of Hindi seem to provide support for Pustejovský's contention that there is a connection in German between the possibility of long distance binding in infinitive complement constructions and the binding pattern in (19). Hindi, which, like German, allows long binding in infinitive complements, also resembles German in not allowing proximate pronouns in sentences analogous to (19). This is illustrated in (20).

(20) rām-ne kītāb [pp ān-e/*uske pās-se] hatā diyā
Ram₁-ERG book self₁/*him₁ near-from removed
'Ram pushed the book away from him.'

There are two major problems with this proposed extension of his analysis, however. First, even if we assume that there is a connection between the two sets of facts, it seems to us that Pustejovský's account does not in fact provide a workable way of capturing it. We note that the account appears to lead to the following incorrect predictions—first, that in English simple sentences, no anaphor appearing in an adjunct PP within the verb phrase should be allowed to have as its antecedent a VP-external nominal, and second, that in German, no pronoun occurring in an adjunct PP within a Verb Raising complement should be capable of coreferring with the matrix subject. The first of these predictions is falsified by (21). The second is falsified by the version of (5a) with the pronoun, which we repeat here.

(21) They [VP pushed the books [PP toward each other]].

(5) a. weil   Hans [Peter für ihn arbeiten] läßt/sah
because Hans₁ Peter for him₁ to-work lets/saw
Thus, while Pustejovsky's account correctly yields the asymmetry in reflexive binding in Verb Raising constructions, it leads to incorrect results elsewhere.

Second, it seems to us that the attempt to link the two patterns reflected in (3) and (20) might well be misdirected in the first place, because of their failure to converge in the grammar of French. In French, as we have observed, it is possible to long-bind adjunct traces in Verb Raising constructions, yet French differs from Hindi and German in allowing pronouns occurring in adjunct PP's to corefer with the subject of the containing clause. This is illustrated by example (22):^11

(22) Il a mis le livre [PP sous lui]
    Hej put the book beneath himj

4. In conclusion, we will sketch a possible alternative account of the observed binding asymmetry in Verb Raising constructions which we believe has some initial promise. It is well-known that Verb Raising constructions seem to be of a dual nature. In certain respects it appears as if they should be considered to be biclausal. For example, German causative constructions with lassen consist semantically of two propositions. Moreover, the (accusative) apparent subject of the embedded clause, as well as the matrix subject, is a potential binder for anaphors occurring in the complement. Since anaphor binders must be subjects in German, this fact supports a biclausal analysis, as does the fact that such NPs (in some cases) also trigger the SSC effect. On the other hand, certain other facts—including the availability of the main clause subject as an antecedent for embedded anaphors under certain circumstances—suggest a monoclusal analysis (cf. especially Evers (1975) for further arguments). This duality has traditionally been accounted for derivationally, by positing a syntactic rule of Verb Raising, Clause Union or Reanalysis to mediate between the two structures, by converting the biclausal structure into a monoclausal one. It has been suggested recently, however, e.g., by Goodall (1984), Haegeman and van Riemsdijk (1986), that there may be advantages to assuming that the two representations are not ordered sequentially in a derivation, but exist 'simultaneously'. Our proposed alternative account is based in a general way on this idea of parallel structural representations.
In particular, we propose that each sentence containing a Verb Raising predicate like lassen is associated at S-structure with two phrase markers (dimensions). One of these--illustrated by the (simplified) upper tree in (23)--is a full representation of the argument structure of the construction. We will refer to this representation as Propositional Structure dimension. The other representation--illustrated by the lower tree in (23)--reflects the monoclausal 'surface constituent structure' identified by such processes as gapping (cf. Evers (1975)). Adapting a term from Chomsky (1981), we will refer to this as α-Structure dimension.

We propose that Principle A of the Binding Theory can, in principle, be satisfied by reference to either dimension. For adjunct anaphors in German and Hindi constructions of the type in question, this makes the right prediction. If they are bound in the Propositional Structure representation, the only possible antecedent, given the SSC subcase of principle A, is the
embedded clause subject. If they are bound in $\alpha$-Structure, given the subject-antecedent requirement, only the matrix subject is a possible antecedent. This twofold possibility corresponds to the facts. It remains to be determined, however, why anaphors contained in argument phrases in the complement clause cannot have the higher subject as an antecedent. We can achieve this result by requiring that they be bound in the Propositional Structure dimension, where the SSC would preclude binding to the main clause subject. We believe that this requirement can be derived in turn from the Projection Principle. The Projection Principle requires that arguments be present at every level of structure. Let us assume that that means, in the present case, that they must be represented in both the Propositional Structure and $\alpha$-Structure dimensions. We propose that an anaphor in a subject-antecedent language may be bound to an antecedent which is a subject in at least one dimension of an S-structure representation, so long as Principle A is not violated in any dimension in which that anaphor occurs. Consider the argument anaphor sich in the top example in (23). If it is bound to the embedded subject Maria, it satisfies both requirements of Binding Theory. It is subject-bound (bound to an NP which is a subject in at least one dimension), and the binding satisfies the domain restriction of Principle A in both dimensions. Thus, the lower-clause antecedent interpretation is possible. However, if it is bound to Hans, then the resultant indexing in Propositional Structure, [Hans$_i$...[Maria$_j$...sich$_i$...]] will violate Principle A.

A similar violation can be avoided in the case of anaphors in adjunct phrases if we assume, along lines suggested by Lasnik and Saito (1984), that the presence of adjuncts is not enforced by the Projection Principle. Thus, an adjunct phrase like für sich in the bottom example in (23) need not be present in both dimensions. It may be absent from Propositional Structure dimension, for example, and accordingly sich may be bound to the 'matrix' subject in the $\alpha$-Structure dimension without producing an SSC violation in the Propositional Structure dimension. Of course, if the adjunct containing the anaphor were missing in both dimensions, it would have no phonological realization. Nor, assuming that indices are assigned to anaphors at S-structure, would the anaphor be assigned an interpretation.
To this point, the proposed analysis will also work for Hindi, since, as we have noted, the facts of anaphor binding are essentially the same as in German. However we observed above that the two languages are different in terms of how pronouns are interpreted in Verb Raising constructions, in a way that will turn out to be problematic for the analysis just proposed. For German, the proposed analysis is in accord with the facts of disjoint reference assignment to pronouns in Verb Raising constructions. Since Principle B can be satisfied by reference to the Propositional Structure dimension in the case of both adjunct phrases and argument phrases, it follows that pronouns contained in phrases of both types should be able to corefer with the matrix subject, so long as they are disjoint in reference with the embedded subject. This is in fact the case (cf. (5a)). In Hindi, however, pronouns inside Verb Raising complements, whether in adjunct phrases or in argument phrases, must be disjoint in reference not only with the complement subject but also with the main clause subject. That is, in terms of the present analysis, they behave as if Principle B were required to refer to the $\alpha$-Structure dimension only. We do not at present have a nonstipulative account of this difference, though we note that in the logic of the analysis just proposed German emerges as the unmarked case.

NOTES

* A version of this paper was presented at SALA 1987 held at Cornell and Syracuse Universities. We would like to thank the audience there for helpful comments, especially Jim Gair, Utpal Lahiri, and Kashi Wali.

1. With complements of other predicates, however, including causatives, long binding is not subject to this restriction. The behavior of reflexives in causatives, though complex, is reflected approximately in the following examples:

   (i) räm-neʃ bace-koʃ apnâʃiɾ'k khánã khilâyâ

   Ram-ERG child-DAT self's food made-eat

   'Ram$_1$ made the child$_k$ eat self's$_i$/'k food'
(ii) rām-neʃ shyām-seʃ bacce-koʃ apnāi/k\(^{ij}\)
     Ram-ERG Syam-INSTR child-DAT self's
      khānā khilvāyā
       food had-made-eat
   'Ram\(_i\) caused Shyam\(_k\) to make the child\(_j\) eat self's\(_i/k/\(^{ij}\) food'

In (i) the verb is in the so-called first causative. The 'matrix' subject but not the logical subject of the complement is a possible antecedent here. If we take causative in this instance to be a lexical process and assign a monoclausal representation to (i), the unavailability of child as an antecedent is explained since it is not a subject at any syntactic level. In (ii) the verb is in the so-called second causative. Here not only Ram but for many speakers, Shyam can be the antecedent for the reflexive. The crucial point to note here is that in this construction, unlike the ones under discussion in the body of this paper, coreference with the matrix subject is always possible regardless of whether the anaphor is in a complement or an adjunct phrase. Moreover, it behaves in a manner distinct from the first causative construction in that, for some speakers at least, the 'logical subject' of the complement clause is a possible antecedent—thus precluding a strictly monoclausal account, under the standard assumption that antecedents must be subjects in Hindi.

Reflexives of a few other causative-like verbs behave in a like manner. The following sentences, taken from Cohen (1973), are well-formed.

(iii) rām-ne vinod-ko [PRO apnī kār ṭhīk karne-ka] hukm diyā
     Ram-ERG Vinod-DAT self's\(_i\) car right making-of order gave
   'Ram\(_i\) gave Vinod orders to fix self's\(_i\) car'

(iv) rām-ne vinod-ko [PRO apnī kār ṭhīk karne-ke-liye]
     Ram-ERG Vinod-DAT self's\(_i\) car right making-for
      manāyā
       persuaded
   'Ram\(_i\) persuaded Vinod to fix self's\(_i\) car'
Thus, there are three distinct patterns of anaphor binding in Hindi infinitive constructions. The first causative constructions, as we noted, are probably best treated as involving a lexical process and no clausal embedding. Second causative constructions may be similarly treated for speakers for whom the causee is not a potential antecedent. Our analysis for constructions of the type represented in (3), (7) will be developed below. We do not at this point have a thoroughly developed account of constructions like those in (ii)-(iv) for those speakers who do allow the causee as an antecedent (suggesting the necessity of positing a biclausal structure at some level). One possibility, being explored by coauthor Srivastav in work in preparation, is that this construction can be analysed as derived via a syntactic process of 'clause union' through which the D-structure subject becomes a non-subject marked by the Instrumental case at S-structure. The ability of some speakers to bind a complement reflexive to that Instrumental NP is dependent on their ability to access the D-structure configuration for binding. The syntax of infinitive complementation in Hindi and its interaction with Binding Theory is a complicated issue, with much work remaining to be done. In this paper, we will concentrate exclusively on anaphors and pronouns in complements of verbs of the type kahna.

2. Since neither pronouns nor reflexives may occur with the intended interpretation in these cases, Hindi seems to counterexemplify the Spanning Hypothesis of Manzini and Wexler (1987:440), which precludes the possibility of such 'binding gaps'.

Spanning Hypothesis: Any grammar contains at least an anaphor and a pronominal that have complementary or overlapping distribution.

3. When the reflexive is in an adjunct, coreference is possible:

ba[r] khushi ke-sath ravi-ne patrakär-koj [PROj apne] great joy with Ravi-ERG reporter-ACC self's
ghar-mē kām karne] diyā house-in work to-do let

'With great joy Ravi let the reporter work in his house.'
4. A clitic corresponding to the direct object can also be extracted. This is not unexpected, given the fact that V-preposing seems to have the effect of removing it from the domain of the complement subject.

5. Such extraction is apparently possible if the subject itself is cliticized as well. See Aoun (p.216ff.) for discussion.

6. This situation is the virtual converse of the complement/adjunct asymmetries involving extraction discussed in Kayne (1981) and Huang (1982). In those cases, traces of adjuncts must be closer to their antecedents than traces of arguments.

7. One problem with this conclusion, though, is that German bitten complements, which, as (5b) shows, are opaque to reflexive binding even when the reflexive occurs in an adjunct phrase, are transparent to clitic fronting even from direct object:

   weil wir es\_ Paul \[PRO [t] zu lesen\] baten
   because we it Paul \hspace{1cm} to read \hspace{1cm} asked
   'because we asked Paul to read it'

8. The constituent structure it assigns to (5) seems to be contradicted by other evidence. German, as is well-known, is subject to a 'Verb-Second Constraint', under which the verb in main clauses is allowed to be preceded by at most a single constituent (See Koster (1976)) for a plausible characterization of the actual nature of this constraint, and Thiersch (1982) for a discussion of a highly restricted class of exceptions to it.) Given this constraint, the possibility of such sentences as (i), under appropriate intonation, demonstrates that adjunct PPs such as the one in (15) must in fact form with the verb a constituent smaller than $S$, i.e., must be within VP:

   [Für sich selbst gearbeitet] hat er nicht
   For himself worked has he not

However, Grewendorf also considers a second version of the analysis, which does not require the assumption that adjunct PPs are outside of VP.
Rather, it could be that they are within VP but that VP is not a barrier to government in German (perhaps because it is not a maximal projection). To derive the complement/adjunct asymmetry under this version, we replace the assumption that all PPs are transparent to government with the assumption that nonargument PPs and only those are transparent to government. This yields the contrast between (5) and (9), if somewhat stipulatively.

9. It should be noted that Pustejovsky treats sentences like (5) as monoclusal constructions, in which the causative verb takes a bare VP complement.

10. Given the Head Movement Constraint of Chomsky (1986), repeated here as (i), such movement would have to take place in a number of intermediate steps:

   (i) Movement of a zero-level category β is restricted to the position of a head α that governs the maximal projection γ of β, where α 3-governs or L-Marks γ if α • COMP.

   (Chomsky ex.160)

   (ii) [\[NP [\[VP [C COMP [\[PRO [\[VP V^j]] INFL_i]] V_i]] INFL_i]]

In (ii), V^j would have to be raised first to INFL_i. The resultant V^j would then be moved to COMP (where, given that the head marking properties are determined by I, as suggested in Chomsky (1986:94, note 4), it would count as INFL[-AGR], and therefore not govern the PRO subject). It would then be moved to V_i, and the complex V would then be raised further to INFL_i. Each of these movements would be consistent with (i).

11. As this example shows, the class of PPs with which this is possible is even larger in French than in English.

12. Compare Aoun (1982:271, note 45) for a similar suggestion. Aoun exploits this assumption in the characterization of an adjacency condition which is sensitive to intervening arguments but not intervening nonarguments.
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A PARAMETER SETTING PARADOX:
CHILDREN'S ACQUISITION OF HINDI ANAPHORA

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Current linguistic theory describes a module of Universal Grammar which both formulates essential properties of all natural languages and characterizes the 'initial state' of the human competence for language. In this paper we assume that empirical studies of the 'initial state,' specifically of constraints on first language acquisition, are necessary to the test of specific proposals regarding the content of UG. In particular, we investigate constraints on the first language acquisition of certain forms of anaphora in Hindi.

1.0 Constraint on Anaphora in First Language Acquisition

In English, it has been observed that early stages of first language acquisition are characterized by a constraint on anaphora, stated in (1).
(1) **Forward Directionality Constraint**

In early acquisition of anaphora, the proform (null or pronoun) should follow, not precede, the antecedent.

(We use the term 'anaphora' in a general sense to refer to relations between proforms and their antecedents, where proforms may be lexical (like the English pronoun, 'he', or Hindi 'vo' for example, or null (cf. Lust (1986a))). In accord with (1), experimental and naturalistic studies have shown that children acquiring English as their first language resist backward anaphora (where a proform precedes an antecedent) in both production and comprehension. The constraint in English has been found to involve lexical pronouns and to generalize to certain forms of null anaphors (e.g., Lust, Solan, Flynn, Cross, and Scheutz, (1986)). Subsequent research has attempted to define the nature and source of this constraint. (See Lust (1986a) for review; and Lust (1987), and Lust and Mazuka (to appear) for discussion.) For example, do children have a universal processing principle which determines that only prior terms may be anaphorically referred to? Such a principle might be predicted, for example, if children's early competence for language were determined by principles of discourse or computational complexity more strongly than by principles of Universal Grammar. Alternatively, does UG itself in some way involve a forward directionality principle for anaphora (cf. Carden, (1986)).

1.1 **Parameter-Setting**

On the contrary, in our project, we have hypothesized that the forward directionality constraint which was observed in English acquisition, may be at least partially based on children’s sensitivity to configurational factors involved in parameter-setting for the English language. Therefore, we hypothesize that (1) reflects the presence of 'structure dependence', a basic property of UG, not its absence.

Several parameters which determine English configuration and differentiate it from other languages have been proposed recently. For example, in Lust (1981, 1983) it was proposed that (2) may provide a testable formulation of a critical dimension for language organization which is consulted by the young child acquiring a first language. This Parameter formulation is related to the proposed 'Head-Direction parameter'
formulation (e.g., Chomsky (1982)), although not identical to it. (See Lust, in preparation, for discussion.)

(2) **Principle Branching Direction (PBD)**

PBD refers to the branching direction which holds consistently in unmarked form over major recursive structures of a language, where 'major recursive structures' are defined to include embeddings of sentence complements under either NP or S 'heads'. Specifically relative clauses in complex NP, and adverbal subordinate clauses in complex sentences are critical to definition of this parameter.

It was proposed that it is because English is principally **right branching** on this parameter and because the child's acquisition is 'structure dependent' that the constraint in (1) holds for English acquisition. Because English is RB, the directional constraint in (1) will have as one consequence that a proform or an anaphor (we use this term generally here to refer to either a lexical pronoun or a null pronoun) will generally not 'command' its antecedent, thus respecting a basic principle of UG, whereby proforms may not 'command' their antecedents (cf. Principle C in Chomsky's Binding Theory). It was hypothesized that children were sensitive to the RB direction of English and deductively established linearity relations between antecedent and anaphor to accord with it, in their general theory of the grammar for the language they were acquiring. This constraint, stated in (3), would thus guarantee a critical component of the theory of UG (e.g., Chomsky (1981, 1982)).

(3) **Constraint on Anaphora in Acquisition**

In early child language, the direction of grammatical anaphora is constrained to accord with the Principal Branching Direction (PBD) of the specific language being acquired. If the PBD of the language they are acquiring is 'right', children establish anaphora in a mainly **forward** direction. If the PBD is 'left', they do not. Rather, a backward direction of anaphora is unmarked.

('Grammatical anaphora' involves interpretation of proforms which (i) is represented in sentence grammar; (ii) involves construal as well as
coreference relation between terms; (iii) grammatical structure is a necessary condition for either the existence of, or the blocking of, such anaphora.) A wide number of experiments have tested various types of anaphora acquisition for their susceptibility to the proposal in (1), in order to assess its domain.

Initial confirmation for the hypothesis that the RB nature of English was the source of the acquisition constraint in (1), was found when Arabic, another RB language, was found also to show a forward directionality constraint in first language acquisition of similar forms of anaphora, while three LB languages (Japanese, Sinhalese and Chinese), were shown to have no forward directionality constraint in first language. Rather, in these LB languages, children found backward anaphora was as accessible (or in some cases more accessible) as forward anaphora in systematically matched experimental designs which tested similar anaphora types. (See Lust, in preparation, for review.) The anaphora type involved in this first set of experiments involved free pronominal anaphora in adjunct adverbial subordinate clauses. This was the type of anaphora that had motivated the constraint in (1) in studies of English acquisition.

2.0 Hindi

Given these empirical results and the proposed constraint in (1), Hindi becomes a critical language for the study of the acquisition of anaphora and for test of the proposed constraint. Although Hindi may be described as basically SOV like Japanese or Sinhalese, its embedding is not similar to these. It is not simply left-branching. On the PBD parameter, (as well as on several other versions of a configurational parameter) in (2), Hindi appears to be mixed. That is, both values of the parameter-setting appear to be unmarked. As the examples in (4) and (5) show, Hindi relative clauses may appear to the right of their heads e.g., (4), or to the left as in (5). (The examples here are from Srivastav, pc.)

(4) a. VO dhobi JO ø mere sath aayaa daaktar ka
   THAT washerman WHO ø me with came doctor's
   bhai hai
   brother is
   'The washerman who came with me is the doctor's brother.'
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(4) b. VO dhobi ḍāktār kā bhai hai JO ø mere
THAT washerman doctor's brother is WHO ø me
sāth āyā
with came.
'The washerman who came with me is the doctor's brother.'

(5) a. JO dhobi mere sāth āyā VO ø ḍāktār kā bhai hai
WHO washerman me with came HE ø doctor's brother is
'The washerman who came with me is the doctor's brother.'

b. JIS ghar mē māi rahtā thā VO ø usne kharidā hai
WHICH house in I live used to THAT ø he bought has
'He has bought the house I used to live in.'

Participial modifiers apply left of their heads, as the example in (6) shows.

(6) usne kamre mē baithe hue logō ko cāy pilai
he room (in seated people to) tea drink-caused
'He offered tea to the people who were sitting in the room.'
(Kachru (1980:35))

As (7) shows, adverbial subordinate clauses may also occur either before (left) or after (right) main sentences. In apparent accord with mixed PBD, both appear (7a&b) equally unmarked, i.e., '...relatives, complements and other subordinate clauses are relatively free with regard to their order with respect to main clauses...' (Kachru (1980:141)). Kachru (1980:139) gives the example in (7a). Our informants also allow (7b).

(7) a. jab māi kalkatte mē tha tab har garmī
when I Calcutta in was then every summer
mē darjiling jātā thā
in Darjeeling go used to
'I used to go to Darjeeling every summer when I was
in Calcutta.'

(7) b. har garmī mē darjiling jātā thā jab māi kalkatte mē tha
It has even been argued that the position of 'comp.' as right or left of the clause, may be 'mixed' in Hindi (Singh (1975)). (See Verma (1966), Masica (1972), Bhatia l(974), Donaldson (1971), Kachru (1978), Subbarao (1984), Davidson (1980), Gurtu (1988), and Srivastav ((1988) and this volume) for further study of Hindi relative clause formation.)

We may then (given the proposed constraint in (3) and the facts in (4)–(6)), question whether the first language acquisition of anaphora in Hindi will be constrained and if so, how?

3.0 Design

In our research, children in India were tested for their production and comprehension of complex Hindi sentences with proforms and possible NP antecedents (potential pronominal anaphora) which varied factorially in both the linear and the configurational relations between these. We report only production results here.

The experimental sentences involved adverbial jab-clauses, as shown on Table (1). Half of these sentences were right-branching (RB), i.e., they had the jab clause on the right of the main clause as in sentences 1 & 2 and 5 & 6 on the Table. Half were left-branching (LB), i.e. had the jab clause on the left of the main clause, as in 3 & 4 and 7 & 8. All of the sentences involved one proform in subject position, either in jab clause or in main clause. The proform was either an empty category (null anaphor) as in 1-8 or a lexical pronoun, vo, as in 9-16, both allowed by Hindi. (We will refer to these two types of proforms as proform types.) Half the sentences involved what we will call forward directionality of proform, i.e., the null site or the pronoun followed a lexical NP subject, as in 1-4, and 9-12. Half the sentences involved backward directionality of the proform, i.e., the null site or pronoun preceded a lexical NP subject as in 5-8 and 13-16. All sentences were tensed in both (present imperfective tense) main clause and subordinate clause. They had near equal syllable length (14-16 syllables) and near equal word length (8-9 words).

3.1 Method

Production was elicited through use of a standardized Elicited Imitation task, where Ss were asked to repeat a sentence after the
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experimenter. Through standardized scoring procedures, differential success rates and the nature of children's errors (i.e., their changes of the stimulus sentences) were assessed in terms of the factors involved in the design of the stimulus sentences. (See Lust, Chien, and Flynn (1987), for a study of the El methodology). Although imitation results alone do not display the subjects' 'anaphora' (coreference) judgments directly, previous research has shown the El task to be sensitive to these judgments, which appear to underlie the child's mental representation of the stimulus sentence it is imitating; and to provide results which converge with those from comprehension tasks. (See LC&F (1987))

3.2 Analyses

This design allowed statistical Analyses of Variance on correctness of children's productions of such complex sentences according to an experimental factorial design with repeated measures. The factors included Branching Direction (2) (Right Branching or Left Branching) X Proform Type (2) (null or pronoun) X Proform Direction (2) (forward or backward.)

In addition, by design, a factor of presence or absence of pragmatic lead was also tested on the imitation of these sentences. While half the subjects were asked to imitate the sentences in isolation; the other half were asked to imitate each sentence only after it had been introduced by a pragmatic lead to the NP subject named in the sentence. For example, in this [+PL] condition a sentence like 2 on Table (1) would be preceded by a lead like 'Now this one is going to be a little story about Ram.' Then the experimental sentence would be read. The addition of the pragmatic lead factor to the design was motivated by the question, 'To what degree are children's early hypotheses regarding anaphora dependent upon pragmatics vs. grammar?' In particular, to what degree are the early hypotheses about directionality dependent on pragmatic context?

Standardized scoring criteria were applied. There were two replication items for each condition, giving a score range of 0-2.
<table>
<thead>
<tr>
<th>Right Branching</th>
<th>Left Branching</th>
<th>Null</th>
<th>Backward</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. sameer radio listens when Ø śarbat pīṭā hai punch drinks 'Sameer listens to the radio when (he) drinks punch.'</td>
<td>6. Ø samosākhāṭā hai jab ramesh Ø Samosa eats when Ramesh pānī pīṭā hai water drinks '(He) eats the samosa when Ramesh drinks water.'</td>
<td>5. Ø khīṛkī band kartā hai jab Ø window closes when rām sīṭī bājātā hai Ram whistle blows '(He) closes the window when Ram blows the whistle.'</td>
<td></td>
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<tr>
<td>2. rām khilaune se khelṭā hai jab Ram toy with plays when Ø gāna gāṭā hai Ø song sings 'Ram plays with a toy when (he) sings a song.'</td>
<td>7. jab Ø mīṭhāī lāṭā hai kishor when Ø sweet brings Kishor jūṭā utāṛtā hai shoe takes off 'When (he) brings the sweets, Kishor takes off shoes.'</td>
<td></td>
<td></td>
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<tr>
<td>3. jab shyām gāna gāṭā hai Ø when Shyam song sings Ø katorā letā hai bowl takes 'When Shyam sings a song, (he) takes the bowl.'</td>
<td>8. jab Ø bādāṃ khāṭā hai shyām when Ø almond eats Shyam palang ḍaṭāṭā hai bed moves 'When (he) eats the almond, Shyam moves the bed.'</td>
<td></td>
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</tr>
<tr>
<td>4. jab mohan ballā rakhtā hai Ø when Mohan bat puts down Ø cāṛpāī khīṛtā hai cot pulls out 'When M puts the bat down, (he) pulls out the cot.'</td>
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<td></td>
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<tr>
<td>Right Branching</td>
<td>Lexical Forward</td>
<td>Pronoun Backward</td>
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<tr>
<td>9. munna câklet khâtâ hai</td>
<td>Munna chocolate eats</td>
<td>13. vo darvâzâ kholtâ hai jab</td>
<td></td>
</tr>
<tr>
<td>jab vo dûdh pîtâ hai</td>
<td>when he milk drinks</td>
<td>he door opens when</td>
<td></td>
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<tr>
<td>when he drinks milk</td>
<td>'Munna eats chocolate when he drinks milk.'</td>
<td>rohit cây pîtâ hai</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Rohit tea drinks</td>
<td></td>
</tr>
<tr>
<td>10. mohan âlû letâ hai jab</td>
<td>Mohan potato takes when</td>
<td>14. vo cäval khâtâ hai jab räm</td>
<td></td>
</tr>
<tr>
<td>he notebook drops</td>
<td>vo käpl girâtâ hai</td>
<td>he rice eats when Ram</td>
<td></td>
</tr>
<tr>
<td>'Mohan takes the potato when he drops the notebook.'</td>
<td>he notebook drops</td>
<td>reçîyo suntâ hai</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>radio listens</td>
<td></td>
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<td></td>
<td></td>
<td>'He eats rice when Ram listens to the radio.'</td>
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</table>

<table>
<thead>
<tr>
<th>Left Branching</th>
<th>Lexical Forward</th>
<th>Pronoun Backward</th>
</tr>
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<tbody>
<tr>
<td>11. jab manu kitäb parhâtâ hai</td>
<td>when Manu book reads</td>
<td>15. jab vo pän khâtâ hai mohan</td>
</tr>
<tr>
<td>vo pânî pîtâ hai</td>
<td>he water drinks</td>
<td>when he leaf eats Mohan</td>
</tr>
<tr>
<td>he water drinks</td>
<td>'When Manu reads the book, he drinks water.'</td>
<td>kitäb detâ hai</td>
</tr>
<tr>
<td></td>
<td></td>
<td>book gives</td>
</tr>
<tr>
<td>12. jab amit pensil pakarhâtâ hai</td>
<td>when Amit pencil holds</td>
<td>16. jab vo sarâk par caltâ hai</td>
</tr>
<tr>
<td>vo pâsî phêktâ hai</td>
<td>he penny throws</td>
<td>when he road on walks</td>
</tr>
<tr>
<td>he penny throws</td>
<td>'When Amit holds the pencil, he throws a penny.'</td>
<td>râm patthar phêktâ hai</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ram stone throws</td>
</tr>
<tr>
<td></td>
<td></td>
<td>'When he walks on the road, Ram throws a stone.'</td>
</tr>
</tbody>
</table>
3.3 Adult Judgments

In this study, we test whether the children acquiring Hindi are sensitive to the experimental variables we manipulate, and we test what their initial hypotheses are regarding unmarked linear and configurational domains for the two forms of pronominal anaphora, *viz.*, null and lexical pronoun, *vo*.

It should be noted that, according to our informants, adult native speakers do not easily allow coreference (anaphora) between the underlined proform and NP subject on the sentences with backward null proforms on Table 1, e.g., 5-8 or 13-16. The RB structures 5-6 are rejected as anaphoric, in accord with Principle C, although this principle would not explain the rejection of 7-8. Adult informants allow coreference (anaphora) on the sentences with forward proforms, e.g., 1-4 and 9-12. However, preferred noncoreference judgment is given for lexical pronouns (*vo*) in general in these structures. Adults, then, prefer coreference only with forward nulls like 1-4, on these sentence types.

3.4 Subjects

All children were residents of India (mainly Agra and Hyderabad areas), where they were tested by a trained experimenter whose mother tongue was Hindi. All were monolingual Hindi speakers, with no overt language handicap.

There were 145 Ss in all (mean age 4.10). 75 Ss from 3.0 - 6.1 (mean age 4.9 (5)) were tested in four age groups (each group having a one year range), without the pragmatic lead. Another 70 Ss were tested from 3.1 to 6.11 (mean 4.12) in the same groups, with a pragmatic lead.

4.0 Results

Factorial analyses of children's elicited imitation success on these sentence types provided the following results. We report first the neutral condition without PL.

4.1 Branching Direction (BD).

There was no significant difference due to BD of the stimulus sentences overall; i.e., in general Ss imitated right-branching (.58) e.g., (1, 2,
5, 6) (9, 10, 13, 14) on Table (1), and left-branching sentences, e.g. (3, 4, 7, 8, 11, 12, 15, 16) on Table (1) (.57) with equivalent ease (F (1,71) = .02, p = .89).

This contrasts with results from English where RB structures are significantly more accessible than LB, and also with results from Japanese and Sinhalese where LB structures are significantly more accessible than RB.

4.2 Proform Direction

There was also no significant effect overall due to Proform Direction in these Hindi acquisition data. That is, in general it was not significantly easier for children acquiring Hindi to imitate proforms in a forward direction over those in a backward direction. Conflating over proform type and BD in which the proform appears, the effect is nonsignificant (F (1,71) = .57, p = .45, F = .56, B = .59). This result differentiates Hindi from English acquisition, and from Arabic, where forward proforms are generally superior to backward. It more closely resembles Japanese or Sinhalese, where there is no general forward directionality constraint (although in Japanese and Sinhalese a preference for backward proforms is found in certain structures).

4.3 Proform Type

There was a significant effect of proform type. Children acquiring Hindi imitated the sentences with nulls (e.g., 1-8 on Table (1)) significantly better than those with pronouns (e.g., 9-16 on the Table).

A large number of the errors on sentences with the pronoun vo involved a change of the vo pronoun to a null (33% of items, 60% of errors). These imitation changes occurred on both forward (36% of items, 63% of errors) and backward (31% of items, 56% errors) forms of the pronoun sentences. (Only 4% of items, 15% of errors on sentences with null subjects involved conversion to vo.)

This result differentiates Hindi from English acquisition. In sentences with adverbiale subordinate ('when') clauses, young children acquiring English prefer the pronoun to the null form in a similar domain productively converting a sentence like 'John saw Tom when Ø walking down the street'
to 'John saw Tom when he was walking down the street,' (Lust, Solan, Flynn, Cross, Scheutz (1986)).

This Hindi result resembles results in Sinhalese or Japanese, where the null anaphor is the preferred form in first language acquisition, as in the adult grammar. It also resembles results in Arabic acquisition.

4.4 Interaction of Proform Direction and Branching Direction

Critically, there was a significant interaction between Proform Direction and Branching Direction, which modulated the effects we have just reported. As shown in Figures (la&b), in RB Hindi structures, (Figure (la)) forward proforms are significantly easier for the children to imitate than backward proforms (whether null or 'vo' pronoun). However, in LB structures, (Figure (lb)) just the opposite is true. In Hindi LB structures, children find it significantly easier to produce backward proforms (whether null or pronoun) than forward. (There is no significant interaction between BD and Proform type, or between these and proform direction.) In both BD cases the difference between proform directions is significant. In RB, Forward proforms (.70) are superior to Backward (.46), F (1,71) = 33.13, p < .00. In LB, Backward proforms (.72) are superior to Forward (.43), F (1,71) = 29.93, p < .00. Thus there are significant proform direction effects in the Hindi data. They apply to both nulls and pronouns, but they are critically linked to the BD of the sentence.

These figures also show that sentences with a forward direction of anaphora do show a significant BD effect (viz., R, .70, L, .43; F (1,71) = 21.57, p < .00). Sentences with a backward direction of anaphora also show a BD effect, but now in the opposite direction. (viz., Left, .72, right .46, F (1,71) = 22.30, p < .00). Thus, there is also a BD effect in the Hindi data, but it is linked to proform direction. In general, for producing forward proform direction, RB structures are unmarked for the Hindi child, while for producing backward proform direction, LB structures are unmarked.

Overall, when imitation 'errors' (i.e., changes of the stimulus sentences) were analyzed, 'anaphora errors,' (i.e., imitations that changed some aspect of the relation between name antecedent and proform in the sentence), occurred to a similar degree on both LB and RB, and on both F
and B proform directions. However, in RB structures there were more such anaphora errors on backward proforms (36% of items) than on forward (27%); while on LB structures there were more on forward (32%) than on backward (27%). (The interaction of BD X AD was significant in analyses of these anaphora errors \( F(1,71) = 9.04, p = .004 \).)

4.5 Effects of Pragmatic Lead

When a pragmatic lead to the antecedent preceded the stimulus sentences, (and anticipated the subject named in the sentence), there is still no overall BD effect. Again, the children still prefer null to pronoun significantly. The Hindi data do, however, now show a forward directionality effect. That is, with pragmatic lead, forward proforms are now significantly favored over backward; \( F = .51, B = .34; F (1,66) = 16.31, p = .0001 \). However, these data with PL also again show a significant interaction between BD and Proform Direction \( F (1,66) = 13.72, p = .0004 \) as the figures in (2) show. Even with PL, BD and Pronoun Direction are linked by the child acquiring Hindi. Figure (2a) shows that RB structures again show a significant preference for Forward direction of both types of proforms, when there is a PL. The effect of PL is minimal on pronouns in RB structures, appearing to cohere with it fully; and PL only intensifies the forward directionality preference for nulls in these (RB) structures. The critical effects of PL are on the LB structures. As Figure (2b) shows, when there is a PL, these LB structures no longer show a preference for backward direction of proforms. Rather, as Figure (2b) shows, both Forward and Backward proform directions are similarly flatly depressed in the Hindi LB structures when a PL is given. There is no longer any directionality effect in the LB structures when a PL to the antecedent is administered before the sentences. The PL depresses both backward pronouns and backward nulls in LB structures similarly.
Figure 1
Amount Correct Imitation: Hindi Sentences with jab-clauses
(in condition without pragmatic lead)

a.

b.
Figure 2
Amount Correct Imitation: Hindi Sentences with jab-clauses
(in condition with pragmatic lead)

a.

\[\begin{array}{c}
\text{Mean} \\
\hline
2.0 & 1.8 & 1.6 & 1.4 & 1.2 & 1.0 & 0.8 & 0.6 & 0.4 & 0.2 & 0.0 \\
\hline
\end{array}\]

\begin{align*}
\text{Forward} & \quad 0.8 \\
\text{Backward} & \quad 0.2
\end{align*}

Right Branching

b.

\[\begin{array}{c}
\text{Mean} \\
\hline
2.0 & 1.8 & 1.6 & 1.4 & 1.2 & 1.0 & 0.8 & 0.6 & 0.4 & 0.2 & 0.0 \\
\hline
\end{array}\]

\begin{align*}
\text{Forward} & \quad 0.6 \\
\text{Backward} & \quad 0.6
\end{align*}

Left Branching
In summary, a comparison across the two groups [± PL] shows that there is a significant interaction between PL and Proform Direction in the data as a whole (F (1,137) = 13.31, p = .0004). PL depresses imitation success in general (F (1,137) = 5.57, p = .0197, -PL = -.43); but depresses backward proforms particularly (F (1,137) = 11.20, p = .001, -PL = -.59, +PL = -.34). It coheres with forward proform direction. Also, as comparison of Figures (1 & 2) shows, a significant interaction of BD and Proform Direction characterizes the data as a whole (F (1,137) = 56.79, p = 0.000). Forward direction of proforms is significantly preferred to Backward in RB structures and Backward preferred to Forward in LB structures overall. The latter can be modulated by pragmatic lead so that no directionality effect characterizes the LB structures. But forward proform direction is still not more productive in these LB structures, even with PL.

5.0 Conclusions

5.1 Summary of Results
We will summarize these results, characterize them cross-linguistically, and then raise their theoretical consequences.

(i) First language acquisition of Hindi is not characterized by a general preference for one BD over another in complex sentence formation (with temporal adverbial subordinate 'jab' clauses), as it is in other languages.

(ii) First language acquisition of Hindi is not characterized by a general forward directionality constraint on proforms, as it is in English.

(iii) First language acquisition of Hindi is not characterized by a general preference for a phonetically realized lexical pronoun. It is characterized by a preference for a null.

(iv) Pronouns and nulls pattern similarly in Hindi, in spite of the overall advantage of the null. That is, the factors tested (BD and Proform Direction), affect them both similarly. First language acquisition of Hindi is thus characterized by the child's generalization over types of proform.
(v) Proform Direction and BD are precisely linked in Hindi first language acquisition (for both nulls and pronouns). Directionality of Proform correlates with direction of BD (i.e., subordinate clause embedding), in the following manner: forward direction is associated with RB structures and backward direction is associated with LB.

(vi) Pragmatic lead did not generally uniformly improve imitation success nor did it reverse the proform direction results. That is, presence of PL did not lead to a significant preference for forward direction in LB structures. Nor did it neutralize the significant interaction between BD and proform direction in the data. Thus, the data suggest that the grammatical factors tested, including the proform direction factor, are to a degree independent of this pragmatic factor in Hindi acquisition.

5.2 Cross-Linguistic Comparisons

In terms of cross-linguistic patterns, Hindi acquisition resembles English acquisition in certain ways, viz., in RB structures, forward directionality of proforms is strongly preferred.

However, Hindi differs from English and resembles LB languages like Japanese and Sinhalese in that backward proforms are preferred in LB structures. In fact in Hindi, this preference for backward proforms in LB structures (e.g., Figure (1b)) may even be even stronger than it is in these left-branching languages.

Hindi acquisition also differs from English acquisition and resembles Japanese and Sinhalese, in that it shows an overall preference for null proforms in the adverbial subordinate clause contexts tested here.

Hindi thus shows a mixed acquisition pattern, as its mixed value of the PBD parameter would predict.

5.3 Theoretical Consequences: The Adult Model and UG

Several aspects of these results clearly were not necessary given adult Hindi, i.e., the primary language data, (PLD), to which the child is exposed.
(i) Traditional Hindi grammars represent the \textit{jab} clause as sentence initial, i.e., LB, although it does not appear (according to our acquisition data) that one is more marked in colloquial Hindi. Thus, if children’s early imitations resembled the adult grammatical judgments, a LB preference could have been found in these data. It was not.

(ii) Certain linguistic analyses had proposed that forward pronominalization may be required in Hindi. Kachru and Bhatia (1975:45) had argued that reflexivization, for example, occurred only in a forward direction. In addition, Bhatia (1974) had argued that a similar forward directionality constraint may hold for certain forms of null anaphors in Hindi. In relatives, as in (8) for example, while forward null arguments are allowed in (8a–c), backward nulls are questionable or disallowed, as in (8d–f).

\begin{align*}
\text{(8) a. } & \text{vo lækā merā bhai hai jo ø NY mē rahtā hai} \\
& \text{COR boy my brother is REL ø NY in lives} \\
& \text{The boy who lives in New York is my brother.} \\
\text{b. } & \text{jo lækā NY mē rahtā hai vo ø merā bhai hai} \\
\text{c. } & \text{vo lækā jo ø NY mē rahtā hai merā bhai hai} \\
\text{d. } & \text{?vo ø merā bhai hai jo lækā NY mē rahtā hai} \\
\text{e. } & \text{?jo ø NY mē rahtā hai vo lækā merā bhai hai} \\
\text{f. } & \text{*vo ø jo lækā NY mē rahtā hai merā bhai hai}
\end{align*}

Clearly, as in English, anaphoric pronouns like \textit{vo} or \textit{apnā} do occur productively backward in Hindi, as in (9).

\begin{align*}
\text{(9) rām ne apnā khilaunā toṛneke bāre mē vinod kī ālocnā kī} \\
& \text{Ram self toy breaking about Vinod criticized} \\
& \text{Ram criticized Vinod for breaking his (Ram’s or Vinod’s) toy.} \\
& \text{(Cohen (1973))}
\end{align*}

As we saw above, however, adult judgments on our sentences with pronouns and nulls preferred forward direction. Given the adult model, then, the child acquiring Hindi may well have been expected to show a preference for, even a constraint to, forward directionality of proforms, just as the child acquiring English did. However, the child acquiring Hindi
preferred forward direction of proforms only in RB structures, and in fact reversed this preference to a preference for backward direction of proforms in LB structures. They did so for both nulls and pronouns similarly. The child acquiring Hindi has thus clearly not established linearity relations between proform and antecedent on the basis of induction from surface linearity alone.

(iii) Also for many adult speakers, pronouns (vo) in adverbial subordinate clause contexts are not judged to be more marked than null anaphors in these positions. In fact for some adults, pronouns appear to be more unmarked than nulls. For the child, however, nulls were consistently preferred to pronouns in these positions; although the child applied general principles similarly over both.

These non-necessary acquisition results (i–iii) then in general suggest clearly that the child acquiring Hindi is not forming generalizations relative to the potential organization of proform and antecedents on the basis of induction from the surface facts alone. Critically, the child appears to be organizing surface linear relations between proforms and possible NP antecedents with reference to the configuration in which these terms appear.

The child acquiring Hindi thus is forming generalizations which are paradigmatically 'structure-dependent'. Cross-language comparisons suggest the child is consulting this configuration differentially, depending on a parameter of grammatical organization, in this case, PBD (cf. Lust, in preparation).

The findings with regard to pragmatic lead, wherein this factor was found to be to some degree independent of grammatical factors, confirms that the BD and Proform Direction effects observed in Hindi acquisition must, in part, relate to the grammar of Hindi which the children are acquiring; not only to general pragmatic or discourse factors. Because the PL did not cause Hindi children to reverse their preference for backward proform direction in LB structures, it is clear that proform direction is not simply and only pragmatically determined. The depression that children show on LB structures with backward proforms, when a PL exists, suggests that this LB
structure is somehow inconsistent with a pragmatic lead, and with the forward proform direction which is consistent with PL. Children must learn to integrate the independent effects of grammatical and pragmatic factors.

6.0 Disambiguating Previous Results

Finally, these results have several consequences for disambiguating previous English results. Both English and Hindi provide high frequency modeling of forward proforms, particularly forward lexical pronouns. The fact that Hindi acquisition (where Hindi is mixed in PBD), does not show the overall general forward directionality constraint in acquisition, which English acquisition does, confirms that it is the principally right branching direction of English which is responsible for the strong forward constraint in English acquisition. It clearly confirms that a universal forward processing or discourse constraint does not determine this aspect of first language acquisition (cf. Lust & Mazuka, to appear). In turn, it suggests that in both languages, 'constraint' on anaphora direction in first language acquisition is at least in part a reflex of more fundamental principles.

In English acquisition also, as we mentioned above, children showed a preference for the lexical pronoun in adverbial subordinate clause structures. The opposite Hindi results in this study also suggest that a preference for a phonetically realized proform does not necessarily characterize first language acquisition, but is a function of the grammar of the language being acquired.

The Hindi acquisition data appear to be in remarkable accord with the theoretical proposal that the PBD provides a dimension for grammatical organization which 'constrains' first language acquisition. Because Hindi is mixed on this parameter, its acquisition shares properites with both the RB and LB language acquisition patterns, and is not totally consistent with either.

The parameter at issue, viz., PBD, seems strongly supported by these data since (i) this parameter predicts in general that the Hindi acquisition pattern should differ from that of either clear PRB or clear PLB languages; and since (ii) in Hindi the BD differences across stimulus sentences (in
whether they are RB or LB) correlated with different proform direction preferences, i.e., with whether proforms were backward or forward.

In addition, the Hindi first language acquisition data reveal a paradigm example of 'structure-dependence', viz., children modulate antecedent-proform direction to go forward in RB Hindi structures and backward in LB Hindi structures. Configuration thus clearly determines linearity here just as it is predicted to in strong theories of UG. Neither pragmatic factors nor the adult model predicts these results.

The pattern of association of RB with forward proforms and association of LB with backward proforms, which was observed in our Hindi results, appears to be in perfect accord with the constraint formulated in (3) above, which hypothesizes that anaphora direction is dependent on BD.

7.0 The Paradox

The paradox these data raise, is, however, the following. If the children in first language acquisition are as structurally sensitive as they are shown to be in these Hindi results, why is a parameter necessary at all? Clearly the parameter is evidenced empirically in the cross-language pattern of acquisition differences: (i) Hindi, (ii) Japanese and Sinhalese (LB), and (iii) English and Arabic (RB). These three language types show three distinct patterns of anaphora acquisition. They thus would appear to reflect the three parameter value differences of these languages.

In general, the child acquiring Hindi, with generally mixed PBD, appears to show much more modulation of proform direction with modulation of the grammatical structure in the stimulus sentence than either of the other two groups of children acquiring languages with a uniform, regular PBD.2 One might say then that the parameter setting determines the particular form that structure-dependence may take in language acquisition and that the Hindi acquiring child is grammatically more flexible because of its mixed parameter setting.

In current theory of UG, however, parameter setting is theorized to aid first language acquisition, because setting to a particular value would provide a wide set of deductive consequences which differentiate languages.
One would have imagined then that a mixed parameter setting would have been detrimental, not fortuitous, as the facts suggest. In general, after all, how is it even possible for a parameter to be set in two directions at once?\(^3\)

We do not attempt to resolve this paradox or these questions here.\(^4\) However, the Hindi acquisition data may suggest that in the absence of a consistent parameter value setting, for the language they are acquiring, children fall back on a more exaggerated structure-dependence, for which they are competent.

Further research on the structure of Hindi relative clauses (e.g., Srivastav (1988), this volume) will be crucial to the resolution of this paradox. Srivastav, for example, has discovered that right- and left-embedded Hindi relative clauses are not equivalent in several of their crucial syntactic and semantic properties (cf. also Gambhir (1981)). If this is the case, Hindi may not be in fact 'mixed' in BD parametrically. Srivastav suggests, in fact, on the basis of her data, that Hindi may be principally RB. In this case, however, the apparently exceptional facility with LB behavior proforms in Hindi acquisition would remain to be explained.

NOTES

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1. Finite relative clauses in Hindi are formed in the following fashion: (i) the relative marker jo 'who,which' is placed in front of the relative element, (ii) the correlative marker homophonous with the third person pronoun yo is placed at the beginning of the head noun, and a second identical and coreferential NP is indicated by the symbol 'ø' in our data. The list of relative and correlative markers is given below:
2. See Lust in preparation for full report of discussion of the cross-linguistic results. In point of fact, acquisition data in all languages appears to show some modulation of proform direction with structure, i.e., sentence BD.


4. It might be suggested, as per one anonymous reviewer, that UG simply provides all possible settings for UG parameters. Hindi could represent the unmarked case, where both values are instantiated and no value can be set over another. If this is possible, however, it is not clear how parameter-setting to one value over another could be claimed to have any empirical prediction, i.e., to explain anything that non-parameter setting alone could not explain in either acquisition or linguistic theory.

REFERENCES


A PARAMETER SETTING PARADOX


RELATIVE CLAUSES IN HINDI AND LEARNABILITY

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0. Introduction

The relevance of the way in which human beings acquire language is implicit in the generative approach to the study of natural language. Within the conceptual framework of Government and Binding Theory this connection has been made explicit. The grammar of natural languages is conceived of in terms of principles common to all languages and a set of available options that particular languages must choose from, the parameters. Such a model of grammar seeks to put into perspective some of the following observations about the acquisition of language. Human beings gain competence of the intricate system of communication that every natural language represents within a relatively short time. They acquire any language they are exposed to, and can acquire more than one given the appropriate language environment. They learn without overt instruction, specifically without negative evidence. This last argument, about the acquisition of language despite the poverty of stimulus, provides the strongest motivation for the principles and parameters model of grammar.
In this model, the language acquisition process is greatly aided by the innate language capacity — the child is equipped with knowledge of the principles that constitute Universal Grammar. Thus the load of learning is greatly reduced and the mystery of the fast pace of acquisition resolved. However, Universal Grammar only provides the essential infrastructure for language development. Input data is required to provide lexical information and to determine specific parameter settings.

It is clear that linguistic theory and acquisition studies complement and constrain each other. Linguistic analyses cannot be formulated without regard to the question of how language is acquired. It is not enough that an analysis be descriptively adequate, it must also be possible for the child to acquire the surface forms from underlying principles of grammar on the basis of positive evidence alone. For acquisition studies, it is no longer enough to plot the developmental stages of a child’s grammar. Instead, experimental data must isolate the structural properties that characterize the child’s grammar at any stage of development. Since linguistic analyses make predictions about acquisition, the validity of linguistic claims can be tested against data from first language.

In this paper I will look at Relative Clause Formation (RCF) with a view to establishing the properties that account for similarities and differences in the relativization strategies of languages such as Hindi and English. I will argue against previous analyses of RCF in Hindi by showing that each of them, in order to account for the full range of facts, would have to posit rules that pose serious problems for a theory of acquisition. I will present an alternative account of the phenomenon, which I argue is preferable from the point of view of learnability. In section 1, I spell out the differences in the surface forms of RCF in English and Hindi and discuss the connection between linguistic hypotheses about RCF and first language acquisition. In section 2, I summarize previous analyses of RCF in Hindi and discuss the predictions they make for acquisition. In section 3, I list some facts about Hindi RCF that are problematic for earlier analyses and argue that there are in fact two distinct strategies for relativization. In section 4, I outline the formal properties of the two strategies. In one the relative clause acts like a NP modifier as in English, in the other it acts as a universal quantifier binding into a sentence. As such, they have distinct D
and S structure configurations. I show how the facts noted in section 3 follow from this structural difference. Finally, I discuss how an analysis which structurally separates the two functions of the relative clause overcomes the problems for acquisition that earlier analyses faced.

1. Relative Clauses: The Problem

A universal property of natural language is the potential for generating sentences of infinite length from a finite set of phrase structures. It follows, then, that every natural language must have recursive structures. Coordination and embedding are two such structures. Crosslinguistically, it has been observed that phrases of most types can be coordinated. Complementation and relativization appear to involve embedding and are also attested universally, though the actual forms of such structures may vary from language to language. It would be reasonable to hypothesize that these structures should be similar, in essential ways, across languages. To the extent that crosslinguistic experimental data is available, it seems that the pace and order of acquisition of these structures does not vary with particular languages, though more empirical evidence is required to establish this. If this could be established it would provide strong evidence for the claim that acquisition is structure dependent.

In this paper, we look at RCF in two languages, Hindi and English. We understand RCF to involve a noun modified by a sentence. A standard syntactic representation for relativization would be something like the following: \( N.P \rightarrow N' \ S' \), where \( S' \) contains a relative pronoun coindexed with \( N' \). Semantically, the relative clause denotes a set formed by abstracting over the relative pronoun. The NP is interpreted as the intersection of the sets denoted by \( N' \) and \( S' \). Thus a sentence like 'The girl who is standing is tall' would have the following syntactic representation:
Clearly, the structure involves recursion since $S'$ may contain another NP that could be expanded by a relative clause. Naturally, all recursive structures build on basic non-recursive structures. This linguistic fact suggests that children should acquire relativization only after they have mastered the basic structures that relativization employs. This seems to be correct. It has been observed that relativization follows coordination (Tavakolian (1981) and Sharma (1974)). There could be several possible explanations for this which would draw upon structural differences between the two. One explanation may be that noun modification involves coindexation of the relative pronoun with the head noun and two semantic operations, abstraction and intersection. Coordination, on the other hand, may simply juxtapose two phrases and require only a single semantic operation like union or intersection. These observations seem to suggest a correlation between structural complexity and the order of acquisition. Thus research in linguistic theory and language acquisition draw upon each other. Studies of RCF in child language have focused on identifying the acquisition of NP recursion, the essential structural property distinguishing relativization from other kinds of complex structures such as coordination. As yet, it has not been definitively established when NP recursion begins.
The above account describes the familiar form that RCF takes and correlates it to observations about first language acquisition. There are languages, however, that employ strategies that do not fall into this pattern in an obvious way (Andrews (1985) and Keenan (1985)). One such strategy is known in typological literature as the correlative construction and is found most notably in Indic languages such as Hindi, Bengali, Marathi or Gujarati. It is also attested in languages like Hittite and the Australian language Walpíri. A correlative construction is one in which the relative clause does not appear adjacent to the noun it is understood as modifying, as is shown in 2(a)–(b) below. The linking between the modifier and the head noun is effected by means of a morpheme, usually the demonstrative, that appears on the head noun. The issue germane to the present discussion is the correlation of a structural account for correlatives and the expected order of acquisition.

Let us consider the surface forms of correlative constructions. 'The girl who is standing is tall', for example, has three possible translations into Hindi. The relative clause can precede or follow the main clause. In addition, it can also follow the head noun as in English. (I will use underscores to indicate relative clauses and bold face to indicate the main clause NP they are construed with throughout the paper).

(2) a. jo laṛkī khāṛī hāi vo lambī hāi
    which girl standing is she tall is

    left-adjointed

b. vo laṛkī lambī hāi jo khāṛī hāi
    that girl tall is who standing is

    right-adjointed

c. vo laṛkī jo khāṛī hāi lambī hāi
    that girl who standing is tall is

    embedded

'The girl who is standing is tall.'

Hindi is a language with relatively free word order so that constituents inside the clauses may be scrambled. The variation in the relative ordering of the two clauses, however, is not the result of a scrambling option since examples like the following are not possible, under the intended interpretation:
Scrambling, we see, cannot operate across clauses. This paper does not deal with the issue of clause-internal scrambling, but rather with the relative ordering of the two clauses. The question that is of theoretical interest is whether correlatives also involve recursion in the NP. If they do, what principles of language allow the child to get at the surface forms of Hindi, as opposed to English? If they do not, then what is their syntactic structure and how would the acquisition of the two types of RCF pattern? While the focus here is on Hindi, the facts generalise to other Indic languages. In addition, many of the observations hold for Hittite and Walpiri. From the information available to me it seems that the analysis for Hindi may have some bearing on the characterization of RCF in these languages as well.

2.0 The Correlative and its Analyses

There is a considerable body of literature on the subject of correlatives. The analyses proposed so far basically fall into two classes. One group of studies takes them to be underlyingly RCF of the English kind, the other base-generates relative and main clauses adjoined at the sentential level. While the two approaches differ in the syntactic representation of correlatives as opposed to relatives, they agree that semantically they are the same -- the relative clause in both structures modifies the head noun. I will review below some of the important analyses of the phenomenon and discuss their implications for acquisition.

A standard approach to the correlative considers it to derive from a rule expanding NP, just as in English. The surface forms result from movement, which is assumed to be freer in Hindi than in English. This view is represented in Verma (1966), Kachru (1973 and 1978) and Subbarao (1984). Junghare (1973) and Wali (1982) take the same view of Marathi RCF. Despite some differences of detail, not relevant to the present discussion, their basic viewpoint is similar. Taking Subbarao's analysis for
concreteness, the sentences in (2) would have a D-structure configuration such as the following:

(4)

Subbarao proposes that pronominalisation in Hindi is determined by linear order. In order to get the left-joined structure, the main clause NP, which follows the NP in the relative clause, is pronominalised, and surfaces as the demonstrative vo. The relative pronoun jo is then attached to the subordinate clause NP, yielding the surface form (2b). In order to get the right-joined structure, the relative clause is first extraposed. Pronominalization applies and replaces the NP in the relative clause with the pronoun jo. The demonstrative vo attaches to the main clause NP. This yields (2b). In order to get the embedded structure in (2c), a rule called Sentence-Flip, that reverses the order of NP and S' is invoked. This is followed again by pronominalisation. As in the case of (2b), it is the NP in the relative clause that is pronominalised.

Junghare differs in her analysis of Marathi in generating relative clauses to the right of the head noun and therefore does not need a rule to flip the order of the constituents. However, she too needs to manipulate the rules of pronominalisation to get the surface forms in (2). Both analyses suffer from a fundamental inadequacy. With left-joined relative clauses it is not necessary that the relative clause be adjacent to the noun. This can be seen in the case of relativization of a non-topicalized object.
It is not possible to derive (5b) from (5a) by the rules proposed. Donaldson (1971) uses this as an argument against the NP-embedded approach to correlatives. However, it is not necessary to abandon the analysis, but a rule which could propose relative clauses to a sentence-initial position needs to be added.

Let us consider the implications of the NP-embedded approach for acquisition. One way of relating these linguistic analyses to acquisition would be the following. Children would be expected to acquire the embedded structure first since that is the base form. Presumably, this would be at the same time as children acquiring English. In the case of English, children would learn on the basis of positive evidence that relative clauses can be extraposed only under certain conditions. Since they would never hear a relative clause precede the main clause they would never acquire the rule of preposing. For Hindi, however, children would hear relative clauses preposed and extraposed and realise, again on the basis of positive evidence, that the language allows these structures.

The question of acquisition hinges upon how parameters relevant to this structure may be set. The subset principle (Berwick (1985)) suggests
that the unmarked value of a parameter is the one that generates a grammar which is a proper subset of the grammar generated by the other value. The 'unmarked value' is selected in the absence of evidence, thus only positive evidence is required for acquisition. While the actual application of the subset principle is not without problems (see Martohardjono (1988) and Kapoor et al (1988) for arguments against it), it provides a general account of parameter setting which takes into consideration the absence of negative evidence in the acquisition process. Under the NP embedded approach, RCF in English would be a subset of RCF in Hindi. English would be the unmarked and Hindi the marked case since Hindi allows extraposition to the right as well as the left, while English allows extraposition to the right only. This would fit in with the claim in Baltin (1985) that extraposition to the left is generally proscribed in languages. However, it also predicts that in Hindi speaking children, the embedded structure (2c) should precede the adjoined structures (2a-b). This may not be the case. Sharma (1974) documents left adjoined relative clauses among the first samples of RCF. Of course, experimental data would be required to establish the facts.

While Subbarao generates relative clauses to the left of the head noun and Junghare to the right, Bains (1987) suggests that relative clauses may be generated to the left or the right of the head. In his view, Hindi has structures such as \( NP \rightarrow N' S' \) as well as \( NP \rightarrow S' N' \). While this analysis seems only nominally different from the earlier analyses, it seems to make a claim about branching direction in Hindi.\(^3\) While Indic languages like Hindi and Marathi have SOV structures, finite complements in these languages tend to follow the verb. Thus it is an open question whether they are right-branching or left-branching languages (See Subbarao (1984) and Junghare (1973) for some related discussion). Another possibility that has been considered is that these languages are neither left-branching nor right-branching but actually have mixed branching direction, left-branching for some structures and right-branching for others. Bains' analysis of RCF in Hindi would argue for a strong version of this view since the same structure, namely the relative clause, may freely branch to the left or the right. This has interesting implications for acquisition.
Lust et al (this volume) argue that Principal Branching Direction (PBD) is a parameter that is set very early. Children's interpretation of anaphora, for example, is sensitive to it so that children learning English, a right branching language, favor forward anaphora while children learning Sinhala, a left branching language, favor backward anaphora. Interestingly, their findings for Hindi suggest that direction of anaphora correlates with the branching direction of the specific structure being tested. In light of this, Bains' analysis of relative clauses, if correct, would provide the perfect control case for determining the effect of the PBD parameter. Anaphora sensitivity would be predicted to vary in minimal pairs of left-branching and right-branching relative clauses. It might also argue for a different conception of what is marked and unmarked in RCF. While languages with uniform branching direction may proscribe extraposition to the left, it may be that movement is less constrained in languages with mixed branching direction. One could then make the following argument. English RCF is not a subset of Hindi RCF as in the standard NP embedded analyses. Rather, RCF in both languages are the same. However, due to the fact that PBD is fundamentally different in the two languages, movement possibilities differ. That is, the options available for preposing or extraposing is linked to differences in settings of the PBD. Thus the analysis in Bains, though similar to the others discussed above, would make very different claims about acquisition.

Before moving on to the conjoined clause approach to correlatives, it should be pointed out that the semantics for any of the NP embedded analyses is not problematic. Essentially, set intersection, as proposed for English, augmented by rules to interpret moved constituents would suffice. One simple way would be to interpret the noun phrase with a lambda abstract over the trace of the moved S' and then fill in the value of the extraposed/preposed S' by lambda conversion. Such a rule is not stipulative since the transformational rule of move alpha is assumed to leave traces, which are required for interpretation. This would not increase the load of learning since trace theory applies universally and hence this semantic operation would be part of the innate language capacity.

Now let us consider the the adjoined clause approach, which holds that RCF in Hindi does not involve NP embedding. Under this approach
correlatives involve a type of phrase structure not attested in English, namely $S \rightarrow S_{rel} S_{main}$ or $S \rightarrow S_{main} S_{rel}$. This is the structure argued for by Donaldson (1971) and is implicit in typological surveys such as Keenan (1985) and Andrews (1985). The D-structure of the sentences in (2) would be something like the following:

(6)

```
S
  |           |           |
  S          S
  /     \    /     \    
 a. jo larki khari hai vo lambi hai
    which girl standing is she tall is

b. vo larki lambi hai jo khari hai
    that girl tall is who standing is
```

'The girl who is standing is tall.'

Since the order of the clauses is irrelevant, it is the presence of the relative pronoun *jo* and the demonstrative *vo* that determines which is the subordinate clause and which is the main clause. Again, pronominalisation is held to be determined by linear order. Thus if a relative clause precedes the main clause it has a full NP and the main clause has only the demonstrative (6a), but when it follows it the order is reversed (6b).

The adjoined clause approach, thus, separates RCF in Hindi from RCF in English. Since the syntax of RCF is completely different in the two languages, it is the semantics that must bear the burden of conveying the synonymy. A formal semantics for such constructions in Hittite is provided by Bach & Cooper (1978). They suggest that the relative clause is interpreted independently as a set. The NP in the main clause is understood as having an R (for relative) element that is abstracted over. Then the relative clause is fed in as argument of the lambda abstract. The effect of this rule is to bring the relative clause under the scope of the head nominal, thereby accounting for the synonymy of correlatives and relatives across languages. Another proposal along these lines is Dasgupta (1980) who analyses sentence-initial relative clauses in Bengali. In his view, the
relative pronoun marks a variable that needs to be bound by an antecedent in the main clause. Relativization is effected by means of a binding relationship. It is implicit in the nature of the relationship proposed by him that the main clause NP have scope over the relative clause. Thus, he achieves the same results as Bach and Cooper.

A fundamental problem with the adjoined clause approach, and one not sufficiently addressed by its proponents, is that it leaves unexplained why the relative clause when it appears sentence internally must be adjacent to the head noun, as shown by the grammaticality of (2c) as opposed to the ungrammaticality of (3c).

Under the adjoined clause analysis, predictions about acquisition patterns in languages like English and Hindi are not easily formulated. While one language involves recursion in the NP, the other employs something like sentential coordination. To the extent that correlative have coordinate-like structures, one might speculate that RCF in Hindi would begin earlier than RCF in English. On the other hand, the argument can be made that even though syntactically correlative involve coordination, the semantic operations required to interpret them are more complex than the ones required in English. Acquisition data from English and Hindi would have to be analysed with a view to isolating relevant syntactic and semantic properties.

To sum up, the NP-embedded approach to correlative suggest that cross-linguistically, RCF is uniform syntactically and semantically. The adjoined clause approach to the phenomenon holds that correlative are syntactically distinct from relatives but semantically alike. A basic premise shared by both approaches is that there is a single strategy of relativization in Hindi, represented by (2a-c). I will show next that this very premise is wrong. Despite the apparent synonymy of the sentences in (2), Hindi actually has two strategies for relativization. I will evaluate my proposal against earlier proposals on the basis of the implications for acquisition.
3.0 Asymmetries Between Correlatives

In this section I will point out that there are differences between left-adjointed relative clauses on the one hand, and embedded and right-adjointed relative clauses on the other. If one takes the issue of learnability seriously, perceived differences must be deducible from general structural principles and available data. Some of the observations that I will make have been made in previous discussions but have never been taken to be more than stylistic effects. The point I wish to emphasize is that the separation between left-adjointed and embedded or right-adjointed relative clauses is too systematic to be considered accidental. Further, the nature of the differences is such that they cannot be derived from positive evidence alone. As such, they can only be explained as a reflex of a fundamental structural difference between relative clauses that precede the main clause and those that follow the head noun.

We had noted that a fundamental property of RCF, as evidenced by English, is that it allows for recursive structures so that an NP inside a relative clause can be modified by another relative clause. Thus, a sentence like 'I saw the girl who beat the boy who lives there' is perfectly natural. Its translation into Hindi, however, does not follow the expected pattern:

(7) a. * jo larākā vahā rahtā hai
    which boy there lives

    us-ko jis larāk-nej mārā māi-ne us-ko dekha
    him which girl beat I her saw

b. māi-ne us larāk-ko dekha
    I that girl saw

    jis-nē us larke-ko mārā jo vahā rahtā hai
    who that boy beat who there lives
c. māi-ne us lāṛkī-ko jis-nē us lāṛke-ko
I that girl who that boy

jo vahā rahtā hai mārā dekhā
who there lives beat saw

'I saw the girl who beat the boy who lives there.'

We see that recursion is not possible in the left adjoined structure. The right-adjoined structure, on the other hand, is perfectly natural. The embedded structure is also grammatical, though less preferred. For this, there may be a processing explanation. Since embedded structures involve interruption of the main clause and require orderly memory of return addresses they are generally harder to process in languages that are not left branching. The asymmetry between the two adjoined clauses is more telling. Under any version of the uniform structure hypothesis, the NP-embedded analyses or the adjoined clause analyses, this asymmetry is left unexplained.

A second difference has to do with pronominalisation, the form of the head and the relativized nominal. It has been noticed that in left-adjoined structures both NPs can be realised with a common noun. It has not been investigated, however, why this is not possible in the two other types. Thus the following pattern obtains:

(8) a. jo lāṛkī kharī hai vo lambī hai left-adjoined
   which girl standing is she tall is
   jo lāṛkī kharī hai vo lāṛkī lambī hai
   which girl standing is that girl tall is
   jo kharī hai vo lāṛkī lambī hai
   who standing is that girl tall is

b. vo lāṛkī lambī hai jo kharī hai right-adjoined
   that girl tall is who standing is
   * vo lāṛkī lambī hai jo lāṛkī kharī hai
   that girl tall is which girl standing is
   * vo lambī hai jo lāṛkī kharī hai
   she tall is who girl standing is
RELATIVE CLAUSES IN HINDI AND LEARNABILITY

It is not possible to account for the facts above on the basis of notions like precedence or c-command under any of the uniform structure hypotheses. For any of the analyses discussed above, capturing this fact reduces to a statement that pronominalisation is less restricted in left adjoined relative structures. It is optional, and when it does apply may refer to either linear order or c-command. Such a statement has no explanatory value.

A third difference has to do with quantification. Consider (9):

(9) a. *jo larkiyā kharī hai do lambī hāī
    which girls standing are two tall are

   a'. jo larkiyā kharī hāī un-mē-se do lambī hāī
    which girls standing are of them two tall are

b. do larkiyā lambī hāī jo kharī hāī
    two girls tall are who standing are

c. do larkiyā jo kharī hāī lambī hāī
    two girls who standing are tall are

'Two girls who are standing there are tall.'

There is a definiteness effect in structures with initial relative clauses so that indefinite quantification in the main clause obligatorily requires a partitive construction, as in (9a'). Under the movement analysis it would have to be stipulated as a constraint on leftward movement that the quantifier be definite. Rightward movement would not be similarly constrained. Under the adjoined clause analysis, on the other hand, the problem would be to block the initial relative clause from being interpreted
in the scope of the indefinite quantifier, while allowing the right adjoined relative to be so interpreted. The semantic rules suggested by both Bach and Cooper and Dasgupta erroneously provide an interpretation for \(9a\). Again, the constraint would have to be stipulated.

Finally, sentence-initial relative clauses may have multiple heads, that is there may be more than one relative pronoun, each construed with an NP in the main clause. This option is not available to the other two. Consider the sentence 'Which girl saw which boy, she liked him' which is tantamount to saying 'For each girl and boy pair, such that she saw him, she liked him'.

\[
(10) \begin{align*}
\text{a.} & \quad \text{jis laɾki-ne}_i \text{ jis laɾke-ko}_j \text{ dekhā} \\
& \quad \text{which girl} \quad \text{which boy} \quad \text{saw} \\
& \quad \text{us-ne}_i \text{ us-ko}_j \text{ pasand kiyā} \\
& \quad \text{she} \quad \text{him} \quad \text{liked} \\
\text{b.} & \quad \ast \text{ us laɾki-ne}_i \text{ us laɾke-ko}_j \text{ pasand kiyā} \\
& \quad \text{that girl} \quad \text{that boy} \quad \text{liked} \\
& \quad \text{jis-ne}_i \text{ jis-ko}_j \text{ dekhā} \\
& \quad \text{who} \quad \text{whom} \quad \text{saw} \\
\text{c.} & \quad \ast \text{ Impossible to construct.} \\
& \quad \text{ 'Which girl saw which boy, she liked him.'}
\end{align*}
\]

The problem for the NP embedded analysis is clear. There is no source for the left-adijoined relative clause as shown by the impossibility of constructing \(9c\). The problem for the adjoined clause analysis is to provide an interpretation for \(9a\) while ruling out \(9b\). The Bach-Cooper semantics does not extend to such sentences but whatever semantics one adopts will encounter this problem.\(^5\)

The points made above are sufficient to establish that any uniform structure hypothesis faces serious problems. While most of the analyses discussed earlier can be salvaged by incorporating the constraints in the
formulation of rules or on the acceptability of structures, such measures are not acceptable from the point of view of learnability. The language acquisition process, as understood currently, does not involve acquisition of specific rules. In fact, there is only one maximally general transformational rule, move alpha. Sentences are good or bad depending upon whether the structure resulting from its application fits in with the grammar of the particular language. What the child acquires are the parameters that help in determining the properties of this grammar. Since the child does not learn specific rules, (s)he cannot acquire constraints that are rule specific.

I propose therefore that the asymmetries noted in this section have a structural source. Specifically, I suggest that the relative clause has two functions. It can be a noun modifier, as in 2(b)-(c), or a quantifier, as in 2(a). This has the advantage of obviating the need for stipulations. Since there would be two distinct structures involved, the child would learn them separately. In the next section I will outline the formal differences between the two kinds of relativization and show how the asymmetries observed above can be derived.

4.0 Relative Clause as Modifier and Quantifier

The relative clause in Hindi has two functions, it can modify a noun or act as a sentential operator. When it modifies a noun, it is generated in a position internal to NP. We assume here that it is a sister of N and is to its right. This is the structure of embedded relative clauses such as (2c). There is also an optional rule of extraposition which moves the relative clause rightward and attaches it to S. This is the structure of right-joined relative clauses such as (2b). In effect, I agree with the NP-embedded approach that Hindi RCF involves NP recursion, but claim that this is true of only those relative clauses that follow the main clause NP.

When the relative clause is sentence-initial, however, it does not modify a noun in the main clause. Rather, it picks out a set in the domain of discourse and the main clause asserts something about this set. As such, it functions like a quantifier, having scope over the main clause. The quantification involved is universal, (2a) being the special case of universal quantification over a domain of one. The principle of non-vacuous quantification ensures that there must be a variable in the main clause that
this quantifier binds. I agree with the adjoined clause approach that these structures are base generated but differ in how I view the relationship between the relative clause and the main clause. The main clause NP, instead of being modified by the relative clause, is actually bound by it.

In Srivastav (1988) I present further arguments for this view of Hindi RCF and discuss the linguistic issues involved. In this paper I will assume the generalizations made above without further justification, showing why this analysis is to be preferred from the point of view of learnability.

In the present analysis, then, (2a–c) would have distinct syntactic and semantic representations. Their syntactic representations are given below:

(11) a. Left-joined

\[
S \\
\downarrow \quad \downarrow
\]

\[
S_i \\
\downarrow
\]

\[
S \quad S
\]

\[
jo \ ləɾkɪ \quad eɿ \ kʰaɾi \ hai \quad voɿ \ ləmbi \ hai
\]

which girl standing is she tall is

b. Embedded

\[
S \\
\downarrow
\]

\[
NP \\
\downarrow
\]

\[
Det \quad N' \quad Vp
\]

\[
N' \quad S_i \quad S_i
\]

\[
vo \ ləɾkɪ \quad jo \ kʰaɾi \ hai \quad ləmbi \ hai
\]

that girl who standing is tall is
c. Right-adjointed

\[
\begin{array}{c}
S \\
\quad S \\
\quad \quad NP \\
\quad \quad \quad \text{Det} \\
\quad \quad \quad \quad N' \\
\quad \quad \quad \quad \quad N'' \\
\quad \quad \quad \quad \quad \quad \text{vo} \\
\text{that} \\
\quad \quad \quad \quad \quad \quad \text{larki} \\
\quad \quad \quad \quad \quad \quad \text{girl} \\
\quad \quad \quad \quad \quad \quad \text{lambhi hai} \\
\quad \quad \quad \quad \quad \quad \text{tall is} \\
\quad \quad \quad \quad \quad \quad \text{jo kharvi hai} \\
\quad \quad \quad \quad \quad \quad \text{who standing is} \\
\end{array}
\]

A distinct syntax has its reflex in semantic interpretation. In (11a) the relative clause is not in the scope of the main clause NP. In (11b) and (c), on the other hand, there is a level of representation, namely D structure, at which the relative clause is in the scope of the head noun. In the first case, the relative clause does not modify the noun in the main clause, rather it A' binds it. In the second case, the relative clause modifies the noun. The first requires variable binding, the second set intersection. I will show now that all the asymmetries noted earlier can be derived from this distinction. As such, there is no need to posit specific constraints.

It was noted in (7) that recursive relativization is only possible in post nominal relative clauses. In the present analysis, NP expansion occurs only in embedded and right adjoined structures. It follows that recursion should be easy, since \(NP \rightarrow N' S'\) allows for it. The embedded structure is capable of recursion but due to processing factors is not as natural. The left-adjointed structure represents quantification and recursive quantification is not known to be a standard feature of natural languages. Assuming that \(jo\), an operator, must raise to an A' position at LF the lack of recursion can be explained. Consider the following LF representation of 7(a):
We see that $t_j$, a variable, is not locally A' bound and the LF is ill-formed. The present approach thus predicts the lack of recursion in left adjoined structures.

Let us consider next the facts regarding pronominalisation presented in (8) in light of the structures in (11). A full NP is an R expression that must be A free according to Principle C of the Binding Theory. In (11a) the main clause NP is co-indexed with the relative clause, but notice that the relative clause is in an A' position. Thus the main clause NP in (8a) is always A free and hence licit, whether it is a pronoun or an R-expression. In (11b) and (c), however, the relative clause is c-commanded at some syntactic level by the head noun, which is in an A position. Thus a full NP leads to a violation of Principle C and (8b) and (c) are grammatical only when the relative clause does not have a full NP.$^6$
The quantification facts noted in (9) is also explained under the present account. (11a) is interpreted as a quantificational structure in which the relative clause must bind a variable in the main clause. Only definite NPs, i.e. NPs with the demonstrative vo, qualify as variables. (9a) is ruled out by the principle of non-vacuous quantification since there is no appropriate variable in the main clause that the quantifier can bind. When a partitive construction is used, as in (9a'), the variable un is provided for the quantifier to bind and the structure is acceptable. In the case of 11(b) and (c), on the other hand, the relative clause forms a constituent with the head noun. Since the determiner has scope over this derived constituent, it can be definite or indefinite. There is no restriction and (9b) and (c) are therefore grammatical.

Finally, let us look at the facts about multiple relativization presented in (10). Since right adjoined relative clauses are produced by movement, (10b) will never be generated. There is no syntactic source for it as shown by the impossibility of constructing (10c). (10a), on the other hand, can be interpreted as a structure involving binary quantification. A relative clause carries the indices of all the wh elements inside it, and can be a binary quantifier if there are two wh elements in it. General principles of quantification will ensure that binary quantifiers bind two variables in the main clause.

There are many issues of theoretical interest in the characterization of the relative clause as a quantifier, as opposed to its function as a noun modifier, that are beyond the scope of this paper. It should be clear, however, that this conception of RCF in Hindi avoids the problems of earlier analyses. The asymmetries observed in section 3 follow from general principles of quantification and binding and refer to structural notions such as c-command. The current assumption is that these are primitives that the child does not have to learn. If the child can distinguish between the quantificational and the modificational uses of the relative clause, (s)he will be able to acquire all the differences in the adult grammar without overt instruction. From the point of view of learnability, this analysis is claimed to be superior to any of the proposals discussed earlier.
5.0 Hindi RCF and First Language Acquisition

To sum up so far, it was shown in section 3 that relative clauses in Hindi behave differently depending on whether they precede the main clause or follow the main clause NP. Specifically, they differ with respect to recursion, pronominalisation, quantification and multiple relativization. These differences cannot be part of Universal Grammar and therefore have to be learnt by the child. Either formulation of the uniform structure hypothesis, the NP-embedded or the adjoined clause approach, can account for these facts. For example, to account for the facts about quantification the grammar of Hindi may contain a statement prohibiting leftward movement just in case the determiner is indefinite (the NP embedded approach), or a statement preventing a left adjoined relative clause from being interpreted in the scope of an indefinite determiner (the adjoined clause approach).

It is a basic premise of the research paradigm of GB that linguistic analyses must not only be descriptively adequate, they must also be explanatory. The nature of the constraints required to salvage previous analyses require the acquisition process to depend upon impossible learning procedures. While it has been argued that indirect negative evidence may be available to the child (Lasnik (1987)) it is not clear how the constraints described above could be acquired without direct negative evidence. Thus I take the problem of acquisition to be a definitive argument against the uniform structure approach to Hindi RCF.

The alternative proposed in section 4 is the following. What has been considered RCF in Hindi is really two distinct phenomena. In the left adjoined structure the relative clause is a quantifier (l1a), in post nominal positions it is a noun modifier (l1b–c). It has been shown how the differences noted in section 3 follow from this. The account, however, is explanatory only if this distinction in structures can be shown to be available to the child on the basis of positive evidence alone. The question then amounts to identifying the nature of the evidence required to set the relevant parameters.

Notice that in the analysis being presented, noun modification in Hindi is essentially like English. If relative clauses are taken to be set denoting
terms, they may combine with other set denoting terms such as common nouns. In (b)-(c), but not (a), the relative clause is a sister of N'. Semantically, this is interpreted as set intersection. If syntactic sisterhood is taken to be a necessary condition for intersection in all languages, the burden of learning is minimal. If Hindi relative clauses are right branching and Hindi, like English, disallows leftward movement of modifiers, the child will never generalise knowledge of the modificational uses of the relative clause to the left adjoined structures (s)he encounters in languages like Hindi.

It still remains to be answered how the Hindi speaking child acquires the knowledge that the language uses relative clauses as quantifiers. I propose that this is not unique to Hindi. The possibility exists universally. Even from the brief description of the left adjoined structure given here, it can be seen that it is like free relatives in many ways. Free relatives do not modify common nouns and therefore do not involve set intersection. They have a quantificational force which is also universal. Presumably, they are subject to a rule of Quantifier Raising, resulting in an LF configuration similar to the one proposed in (a) for Hindi. Thus the only difference between Hindi and English is that Hindi allows adunction structures of the kind required to interpret quantified NPs in the base while English allows it only at LF.

If we take it to be the unmarked case that such adunctions do not occur in D-structure, the default parameter setting would be the one that yields languages like English. The child exposed to Hindi would have positive evidence for setting the parameter differently. English, under this view, would be a proper subset of Hindi.

6.0 Conclusion

The essential question for a linguistic theory of Universal Grammar is the question of how language is acquired. This argues for a research paradigm 'which closely integrates the analysis of acquisition data with arguments for linguistic theory and which attributes an independent status of significance to both' (Lust 1987: 9). In this paper I have focused on a single aspect of Hindi grammar, RCF, and shown how linguistic analyses of the adult grammar must be consistent with what is known about acquisition.
Similarly, these analyses provide a theoretical framework within which data from child language could be analyzed. The present analysis, though defensible on theoretical grounds, remains to be confirmed by controlled experimental data.

NOTES

1. Some of the points discussed here were presented in a paper 'Hindi Relative Clauses: Free Variants or Distinct Strategies?' at SALA 1986, University of Illinois, Urbana Champaign. I am grateful to Barbara Lust who first directed my attention to the topic and to Jim Gair for their crucial help in the early stages of this work. I am indebted to Gennaro Chierchia for detailed discussions of the syntactic and semantic issues involved. I would also like to thank Barbara Partee, Wayne Harbert, Gita Martohardjono, Kashi Wali, Jim Huang and Carol Rosen for many helpful comments. I alone am responsible for remaining errors and omissions.

2. This prediction is less clear for Subbarao's analysis, since the embedded structure involves application of Sentence-Flip. I am assuming that given the need for a rule preposing relative clauses, Sentence-Flip is obligatory in the case of relative clauses not preposed or extraposed, and that obligatory rules would be acquired before optional rules.

3. The correlation with PBD made here is not necessarily Bains'. It follows logically from his analysis that Hindi has the two structures NP \(\rightarrow S'N'\) and NP \(\rightarrow N'S'\). Since the full text of his paper is not available to me, I am not aware whether this is incompatible with his general approach to Hindi phrase structure.

4. Dasgupta (1980) makes a syntactic distinction between sentence-initial RCF and sentence-final RCF in Bengali. While the former is base-
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generated, the latter has an NP internal source. This is essentially the syntactic distinction made here for Hindi. The crucial difference is that Dasgupta considers sentence-initial and sentence-final RCF to be semantically alike and suggests that the semantics of left-joined relatives will extend to right-joined structures, though not the other way around.

5. Dasgupta's analysis does not have this problem since (9b) would never be generated. The problem with indefinite quantification, however, is still a serious flaw in his account.

6. I thank Jim Gair for discussion of this point.

7. The only study of acquisition of RCF in Hindi known to me (Sharma (1974)) documents some facts. They are not sufficient for evaluating the linguistic analyses discussed here.

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A NOTE ON WH QUESTIONS IN MARATHI AND KASHMIRI* 

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The object of this paper is to compare and contrast Wh question strategies in Marathi and Kashmiri. The paper argues that in-situ questions in Marathi are conditioned by factivity, and a branching dependent Connectedness Condition (Kayne (1984)) accompanied by a switch in the complementizer. An ECP dependent LF movement strategy as advocated in Lasnik & Saito (1984) for in-situ questions in Chinese and Japanese fails to explain the Marathi data adequately.

Kashmiri is a V2 language that exhibits S-structure Wh movement, which is also conditioned by factivity. An interesting feature of Kashmiri is that in order to achieve wide scope it employs a Wh feature copying strategy which is realized as a Wh morpheme in the matrix Comp. The paper suggests that the copying mechanism is a parametric variation of the S-structure Wh movement strategy. The discussion is confined to tensed clauses in both languages.
Typologically, Marathi exhibits in-situ questions like the ones in Chinese and Japanese (Huang (1982), Lasnik & Saito (1984)). However there is a difference. Wh questions in Chinese and Japanese have been analyzed as having movement at the LF level. LF movement enables one to express narrow and wide scope distinctions which are basic to the semantic interpretations of the direct and indirect question dichotomy. However, the mechanism of LF movement is not adequate to express scope distinctions in Marathi. In-situ questions in Marathi are much more constrained than those in Chinese and Japanese. The Marathi sentence in (1), for example, is interpreted as having only a narrow scope reading for käy, while that in (2) is ungrammatical.

(1) Minilä māhit āhe [ki [Mō hannī käy väcla]].
    Mini-to knows that Mohan-ERG what read
    (i) 'Mini knows what Mohan read.'
    (ii) '*'What does Mini know that Mohan read?' (o.k. in English)

(2) "Minilä vāṭta [ki [Mō hannī käy kela]]
    thinks that Mohan what did
    '*'What does Mini think that Mohan did?' (o.k. in English)

In contrast, in Chinese as noted in Huang (1982), a sentence parallel to (1) will be ambiguous between narrow and wide scope interpretations, and the one in (2) will have an unambiguous wide scope reading. This is illustrated in (3) and (4).

(3) [Zhangsan zhidaō [shē mai-le shu]]
    know who bought books
    (i) 'Zhangsan knows who bought the books.'
    (ii) ‘Who does Zhangsan know bought the books?’

S-structure: [NP knows [...WH.....]
LF-Structure: (i) [NP knows [WH[...t...]]
              (ii) [WH[ NP knows [...t...]]
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(4) [Zhangsan xiangxin [shei mai-le shu]]
    believe who bought books
   (i) "Zhangsan believes who bought the books.'
   (ii) 'Who does Zhangsan believe bought the books?'

S-structure:  [NP believes [....WH...]]
LF-structure: (i) *[NP believes [WH[....t...]]
   (ii) [WH [NP believes [....t....]] (Huang (1982))

LF movement correctly represents the Chinese data but is inadequate to predict Wh scope relations in Marathi. What then are the conditions that constrain Wh scope in Marathi? Consider first the narrow scope associated with indirect questions. Within the GB framework a subcategorization feature [+WH] accompanies each verb and determines its choice of indirect question. 'Believe' for example is subcategorized for [-WH], while 'wonder' is subcategorized for [+WH]. The former excludes indirect questions while the latter necessarily requires one, as in (5) and (6).

(5) "Mary believes who John likes.
(6) I wonder who John likes/ I wonder John likes Mary.

The lexical subcategorization of the individual verbs for indirect questions is almost universal and has been recently formalized as an LF filter by Lasnik & Saito (1984) as in (7).

(7) Narrow Scope LF Filter: (Lasnik & Saito p.287)
   (a) A [+WH] Comp must have a [+WH] head.
      (ask, wonder,...)
   (b) A [-WH] Comp must not have a [+WH] head.
      (believe, regret,...)

[WH] subcategorization, though it correctly predicts the association of individual verbs with indirect questions, misses a semantic generalization. It is not quite clear, for example, that verbs that optionally allow indirect questions mostly belong to the factive class, while those that exclude it are mostly non-factive or what has been recently termed as propositionals by Peterson and Wali (1985). The lexical [WH] subcategorization comes out as
an idiosyncratic property of each verb. It has no way of capturing the implicit semantic generalization on the factivity scale. I suggest instead that verbs carry the semantic feature bundle [Factive, ~Propositional] which gives a better classification and appears to be syntactically and semantically relevant in Marathi and Kashmiri for both direct and indirect questions, as I will show. These features classify verbs as in (8).

(8). Verb chart: F: Factive P: Propositional Q: Inquisitives

\[
\begin{array}{cccc}
+F & +F & -F & -F \\
-P & +P & +P & -P \\
+Q & -Q & -Q & +Q \\
know & regret & believe & wonder \\
forget & sad & seem & guess \\
realize & appear & true & say \\
discover & & & \\
tell & & & \\
\end{array}
\]

Notice that verbs that exclude indirect questions belong to the 'regret' and 'believe' category both of which share the feature [+P]. The L&S filter (7) can now be tentatively replaced by a much more satisfactory schema such as (9).

(9) a. [+P] verbs must not have a [+WH] in their Comp. (LF filter) 
b. [+Q] verbs must have a [+WH] in their Comp. (LF filter).

Inquisitive verbs like 'wonder' and 'ask' that necessarily take indirect questions have been allotted a feature Q which fits the schema. Filter (9) predicts that emotive factive 'regret' and the propositional 'believe' will exclude indirect questions. It also predicts that verbs like 'guess' will necessarily embed indirect questions.

b. *Miraī chi afsūs ki Mohanan karnis dits kitāb 
Mirā regrets that Mohan who gave book 
*Mira regrets who Mohan gave the book to.*
(11) a. "Minilā vāṭta [ki [koṇi pustak vāclā]]
   b. "Mināi čhi bāsān [ki [kam' par kitāb]]

   believes that who read book
   "Minā believes/thinks who read the book.'

Consider now the wide scope interpretation associated with direct questions in embedded tensed clauses. In Marathi an objectual tensed clause can be either postposed to the right or preposed to the left though it basically occurs in the center since Marathi is an SOV language. The interesting facet of Marathi is that scope interpretations are dependent on the position of the clause. Postposed right branching 'ki' clauses never allow wide scope as shown in (12).

(12) Minilā (i) māhit āhe [ki [ Līlī-nī Rāvīlā kāy dīla.]]
    knows     that Līlī Rāvī-to what gave

    (ii) vāṭta
    believes

    (iii) vāṭ vāṭta
    regrets

    Mini (iv) mhaṇte
    says

Expected wide scope LF interpretation [WH [NP V [ki [ ...t...]]]] (i.e. What does Mini know/believe/regret/say that Līlī gave to Rāvī?) is not available for (i-iv) in (12).

The exclusion of wide scope can not be allocated to any semantic constraint since direct questions are not constrained like indirect questions. The explanation then must be sought in the syntactic component in some language specific terms. The absence of the wide scope reading in (12) is surprising under the L&S analysis. There is no ECP violation involved. The trace of Wh movement is lexically governed by the verb and is therefore licit. In fact, the trace is also antecedent governed. If we assume that Wh movement is successive cyclic, the initial and the intermediate trace will be
properly governed by their respective antecedents. Thus there is no apparent reason for ruling out the LF representation of (12):[Wh [NP V [ t ki [ NP...t...V]]]]. In-situ wh phrases in Marathi thus sharply contrast with those in Chinese and Japanese.

An attractive alternative to the L&S analysis is to posit a Question operator with scope over the matrix clause and to assume that the connection between the operator and the Wh phrase is decided by the word order dependent Connectedness Condition as suggested in Kayne (1984). In this framework the exclusion of the wide scope reading follows from the fact that in an SOV language the verb is not a canonical governor of the S' that branches to the right. The ability of the operator to reach the Wh phrase in the 'ki' clause is foiled because the maximal S' is to the right of its canonical governor, namely the verbs 'know', 'believe', 'regret', and 'say', while the Wh phrase is to the left of its canonical governor as shown in (13) in schematic form.

\[(Q [NP.. knows/believes,etc.[s: [ki [s...WH..V]]])

\((\text{Matrix V S'} \text{ does not match embedded WH V order}).\)

Consider now the basic preverbal as well as the preposed position of the objectual tensed clause. In Marathi both positions allow wide scope just in case the verb belongs to the non factive category as in (14). The factive verbs again resist wide scope interpretation as shown in (15).
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what gave that believes

what gave that believes

'What does Mini believe Lili gave to Ravi?'

S-structure (a):
[NP [...WH...] asa] believe]] (Center embedding)
S-Structure (b):
[[....WH...] asa][NP believes] (Preposed position)

LF interpretation of (14a&b)
[WH [NP believe [NP gave t to NP]]].

what gave that knows

what gave knows

'What does Mini know that Lili gave to Ravi?'  
(o.k. in English).

S-structure (a):
[NP [...WH...] te] knows] (Center S)
S-structure (b):
[[....WH...]te][NP knows] (Preposed S)

LF interpretation of (15a&b)
*[WH [NP knows [NP gave t to NP]]]

Consider first the branching dependent analysis. The canonical government condition predicts that left branching structures create proper paths in an SOV language and operators can connect with Wh phrases. This prediction is fulfilled in (14) and the wide scope interpretation becomes available. The left branching condition is fulfilled in (15) also, but the operator has failed to bind the Wh as predicted. I suggest that the crucial distinction here again goes back to factivity which in Marathi is reflected in
the structure of the factive clause itself. I argue that there is a node [+N]
in the matrix clause accompanying the factive verbs which does not
canonically govern the preposed as well as postposed S' thus constraining
Wh scope within S' itself. The arguments for the factive S' being governed
by a [+N] come from the fact that only factive verbs are accompanied by
an optional nominal 'hi goštā' (this story) in both preposed and postposed
clauses, while this is not allowed with non factive verbs as shown by the
contrast in (16) and (17).

(16) a. Minilā (hi goštā/he) māhit āhe ki koṇ ghari gela
       (this story/this) knows that who home went

       b. koṇ ghari gela (hi goštā/he/te) Minilā māhit āhe.
          who home went (this story/this/that) Mini knows.

(17) a. Minilā ('hi goštā/'he/asa) vāṭta ki Lili ghari geli.
       so feels that Lili home went

       b. Lili ghari geli ('hi goštā/'he/asa Minilā vāṭta.
          Lili home went so M. feels

(18) Accompanying complementizers in preposed clauses:

       Factives  Propositionals
       te (that), *asa  *te, asa (so)

Notice that the complementizer accompanying the preposed clauses
with 'know' is 'te', a definite pronominal, while the one with believe clause
is 'asa' which may be glossed as 'so'. The two can not be switched. The LF
movement assumption will again have to bring in the antecedent
government part of ECP for the unavailability of wide scope reading of
'know' type verbs. It would imply that lexically governed subjects and
objects are no different than adverbials. However this account fails to
explain why 'believe' type verbs can have a wide scope interpretation.
Under Kayne's analysis the preverbal right branching structure satisfies the
Connectedness Condition in propositionals but not in factives since in the
latter the maximal projection has a [+N] governor. That the distinction
related to the factivity accompanied by a [+N] node is reflected in verbs of
regret class which have both factive and propositional features. When 'regret' is accompanied by 'te/he' the wide scope reading is blocked but there is no such effect when the accompanying node is 'mhaṇūn' an equivalent of 'asa'.

(19) a. Lilini koṇālā pustak dila
    (i) *hyāca tula du'kkha vāṭta.
    (ii) mhaṇūn tula du'kkha vāṭta.
    who-to book gave that of/so you regret

'Who do you regret that Lili gave a book to?'
(possible with 'mhaṇūn' only)

The duality of the regret clause supports the argument that it is the propositionality associated with 'mhaṇūn' that controls wide scope interpretation.

As mentioned above Kashmiri is a V2 language. Elsewhere I have argued that the basic clause structure in Kashmiri is SIOV and that the finite verb moves to INFL when the subject is initial (Wali forthcoming). However if the topic is initial (i.e. moved to the specifier position of the comp.) then the verb moves to the head of the complement phrase (Note: e represents the gap left by verb movement and t the Wh gap).

(20) a. Mirāi kh'av kell.
    Mira ate banana.

S-structure: [Mirai kh'av kell e ]

b. Kell kh'av Mirāi.
    Banana ate Mirā

S-structure: [Kell kh'av [Mirai e t e ]].

I will argue in this paper that contrary to appearances, Kashmiri Wh-questions are formed by syntactic Wh-movement to the specifier position of the complement phrase and the verb necessarily moves to the head of this complement phrase. All other orders are derived by topicalization which
flanks the Wh moved complementizer phrase (see Wali forthcoming). These do not affect the argument here.

(21) k'eh kh'av Mirāi ?
    What ate Mirā

(22) k'eh dut Rāman Mirāi ?
    what gave Ram Mira-to

S-structure: [K'eh V [NP e NP t e ]]

(23) k'azi kh'av Mirāi kell ?
    why ate Mirā banana

S-structure: [k'azi V [NP e t e ]]

Notice that the traces left by both Wh and the verb are properly governed and pose no problem of interpretation. The verb traces are governed by the verb in CP; the complement Wh traces are lexically governed, while the adjunct traces are antecedent governed.

Consider now the following variations on (21) and (22).

(24) a. Mirāi k'eh kh'av ?
    b. *Mirāi kh'av k'eh ?

(25) a. Rāman Mirāi k'eh dut ?
    b. *Rāman dut Mirāi k'eh ?

The ungrammatical sequences (24b) and (25b) suggest that the verb is forbidden to move to the INFL position in the presence of a Wh element. The verb can not precede the Wh element. Notice that in (24a) and (25a) the Wh element is in situ giving rise to the suspicion that in Kashmiri Wh optionally moves to the specifier position or stays in-situ. However this argument cannot be sustained. The evidence comes from the allowed variations of the adverbial.
In Kashmiri the adverbials occur after NFL unless they are topicalized and switched to the first position as shown in (26).

(26) a. Mīrā čhi winken kell kh'evān.  
    'Mira is eating banana now.'  
    AUX now banana eat

b. Wīnken čhi Mīrā kell kh'evān.
c. *Mīrā winken čhi kell kh'evān.

(27) a. me čheyi tati chāy.  
    I drank there tea

b. tati čheyi me chāy.
c. *me tati čheyi chāy.

Consider now the variation in 'k'azi' besides the one in (23).

(28) a. Mīrāi k'azi kh'av kell ?
b. *Mīrāi khav k'azi kell ?
c. *Mīrāi k'azi kell kh'av.

The underlying structure of (28) is:

(29) [ [Mīrāi e k'azi kell kh'av]]

If we are to assume that Kashmiri allows Wh elements to stay in situ the grammaticality of (28a) remains unexplained. (28a) can only be derived by moving the verb before the object. However the only position the verb can move to is before the adverb. This movement is not possible as (28b) indicates. An in-situ 'k'azi' requires that the verb stay in the final position. Kashmiri does not allow this verbal position either, as shown by (28c). The only way to derive (28a) is to assume that both 'k'azi' and the verb have moved into the Comp position and that the subject nominal 'Miraai' is later topicalized beyond the Comp. One may assume that this is some sort of focus device. I will not consider the implications of 'focus' here.
Consider now the 'ki' clauses as in (30).

(30) Міраі чі (i) патā [ki kamis дits Mohanан kitāb]. know that who-to gave Mohan book
     (ii) бāsān ['
         believe
     (iii) afsūs ['
         regret

Міраі von ['
said

The expected wide scope interpretation of (30) (i.e. Whom do you know/believe/regret... ) is not available in Kashmiri 'ki' clause either.

Kashmiri is an SIOV language with V2 properties. The postposed occurrence of the 'ki' clause is not due to any extraposition but due to the movement of the matrix verb to INFL which automatically puts the 'ki' clause in post verbal position. This 'ki' clause is now followed by a trace of the moved verb as in (31). In the embedded clause the Wh element precedes the verb (i.e. Wh V) in the comp. position, Wh movement inducing the verb movement. Both Wh and V leave traces in the source positions as shown in (31). If we interpret the maximal projection S' containing the trace of the embedded Wh as being governed by the e of the matrix verb, there is no violation of the Connectedness Condition. The governor of the embedded Wh (i.e. the embedded V) and the maximal S' are on the same side (Wh V vs S' V), and wh movement to the matrix specifier position should not be blocked. If, on the other hand, we assume that the maximal S' is canonically governed by the verb from the position it is moved into, then canonical government is foiled (Wh V vs. V S'), and Wh movement should be blocked. Thus Kayne's Connectedness Condition cued to the branching direction does give an explanation of the 'ki' clause being an island in both Marathi and Kashmiri. Both the languages prohibit 'Wh' in the 'ki/ki' clause from having matrix scope.
(31)  a. [Mīrāi čhi khabar [ki [k'eh por [Mohanann e t e ] e ]]]
    knows that what read
    'Mira knows what Mohan read.'
   b. [k'eh čhi [Mīrāi khabar [ki [ t [Mohanann t por ]]]]]
    'What does Mira know that Mohan read?'

How does Kashmiri achieve wide scope readings for Wh in embedded clauses? Can Kayne’s connectedness be meaningfully applied here? The question is not easy to answer. Factive verbs of the 'know' type do not allow Wh movement at all. They do not allow the embedded Wh to move to the matrix comp, either from the 'ki' clause as shown above or from the topicalized position as in (32) where the branching direction is not a factor.

(32)  [k'eh d'ut [Rājan Shilāi t e ]ti ] ās Mīrāi khabar]]]
     what gave that know
     'Mira knew what Raj gave to Sila.'
     "What did Mira know that Raj gave to Sila?' (o.k. in Eng.)

The containment of scope in factive clauses again may be assumed to arise from a [+N] node just as in Marathi. This node is not a proper canonical governor and blocks the connection with the matrix Wh. The claim is substantiated by the fact that the factive clause can be expanded by 'yi kath/yi' 'this story/this' and by the fact that with preposed Wh clauses it employs a special complementizer 'ti' just as in the Marathi factive clause in (15).

(33)  a. Rājan k'ah d'ut šilas yi kath/yi/ti ās Mīrāi khabar.
     what gave this story/this/that Mira knows.
     'Mira knows what Raj gave to Shila'
   b. [Q [NP know a [+N [ -WH...]]]]

Consider now propositional clauses. Unlike Marathi, Kashmiri does not allow propositional clauses to be topicalized as shown in (34).
(34) *Räjan dits šiläi kitäb čhi Mirrai bäsän?
gave book Aux believes
'Raj gave book to Shila so Mira believes.'

Propositional 'believe' class verbs are subcategorized for not taking indirect questions. In these, wide scope is achieved by the employment of a question particle in the main clause while leaving the original Wh phrase in place as in (35).

(35) [k'ah1 čhu [Mohanas e1 bäsän [(ki)[kamis nish čhi2
what AUX believes (that) whom near
[Mirä t e bihit]]].
Mirä sit
'Who does Mohan believe Mira is sitting near?'

S-structure: [Wh V[NP e believe [ki [Wh V [Mirä t e ]]]]

The duplicated Wh particle is not a 'yes/no' question morpheme. In Kashmiri these are formed by adding a suffix ('ä') to the verb itself. The matrix 'k'eh' belongs to the regular Wh family. It is employed for all embedded Wh categories and is not a morphological duplication in the literal sense. It is, however, semantically significant since it is this 'k'eh' which carries the feature complex of the embedded Wh. The embedded Wh has no semantic content and no interpretation at LF. Its status is like that of a bound variable which is produced in the context of Wh movement. It does not in any way violate the universal LF filter (9a) set up for propositional 'believe' verbs. I suggest that this expression of wide scope in Kashmiri is a parametric variation of the successive cyclic movement found in English and many other languages.

The attainment of wide scope by the employment of a question particle in the matrix, leaving the embedded Wh in place at S-structure is unusual and very different than achieving it through LF movement as found in Chinese, or Japanese, or through connectedness and branching direction as in Marathi. In Kashmiri it is a variation on Wh movement at S-structure. Both versions achieve the same result at LF.
I have argued that scope in Kashmiri is achieved by S-structure Wh movement. Consider then the subjacency analysis to which it becomes amenable. Presence of the [+N] in the factive clause readily explains its islandhood. In the factive clause Wh movement is blocked because Wh crosses two bounding nodes. The propositional clause employs a parametric variation of Wh movement and achieves wide scope. Under the Connectedness Condition we have no explanation of the fact that a mere positing of a Wh matrix element overrides the canonical government violation [V S'] unless one modifies the Connectedness Condition as suggested in Bennis and Hoekstra (1984). That [V S'] order is irrelevant is further supported by the fact that Kashmiri allows Wh movement when the embedded 'ki' clause is subjunctive.

(36) [k'eh čhi [Mirā e yatshān [ki [su gatshi t anun ]]]].
what AUX want that he should bring
'What does Mira want that he should bring?'

In (36) Wh has moved into the matrix Comp in contrast to the tensed 'ki' clause. The movement has taken place at S-structure in one step. If the movement was cyclic the verb would move into the Comp position before the subject. The subjunctive behaves differently than the tensed clause. The matrix and the embedded clause together are treated as a single unit as is the case with non-tensed clauses. This sharply contrasts with Marathi subjunctive 'ki' clauses. The subjunctive 'ki' clause in Marathi does not allow any wide scope interpretation from its right branching structure as exemplified in (37a).

(37) a. "Ravilā vāṭta ki tini kāy karāv? -
thinks that she what should do
b. tini kāy karāv asa Ravilā vāṭta?
'What does Ravi think she should do?'

Wide scope interpretation is possible only from the preposed clause as in (37b).
In conclusion then, Marathi seems to fare better under Kayne's
Connectedness Condition as set up for an SOV language. The
Connectedness Condition readily explains the islandhood of the right
branching 'ki' clause. The factivity feature allows us to posit a [+N] node
which foils the canonical government relation and explains why scope
remains confined to the embedded clause. In Kashmiri Wh movement is an
S-structure movement. The Wh in Kashmiri moves to the specifier position
of the CP. Factive clauses in Kashmiri are also insulated by a [+N] node. In
addition, Kashmiri seems to show that wide scope can be attained by simply
adding a Wh element in the matrix comp and leaving the embedded Wh
intact. It is envisioned as a rare parametric variation of the successive
cyclic movement. The effects of the two are exactly alike.

Consider finally the value of the filters (7a&b) posited by L&S:

b. A [-WH] Comp must not have a [+WH] head.

In Marathi both the filters are observed at LF. A verb subcategorized for
+[WH] for example will not have a wide scope interpretation and those
subcategorized for [-WH] have no indirect question interpretation. In
Kashmiri also (7a&b) are observed at LF without any problem. According
to L&S (7a&b) hold at S-structure in those languages that have syntactic
Wh movement. In Kashmiri filter (7a) seems unproblematic. The embedded
+[WH] Comp has no wide scope interpretation. However (7b) appears
problematic as given. A [-WH] Comp like that of the verb 'bāsān' shows up
with a [+WH] Comp in its tensed clause just in case the matrix Comp is
designated as [+WH]. This I suggest is due to a language specific constraint
in Kashmiri. In Kashmiri a matrix [+WH] requires a [+WH] in every
successive Comp at S-structure for its proper LF interpretation.
APPENDIX

This is in reply to some of the comments made by an anonymous reviewer (R) for the Cornell Working Papers. I am thankful to R. for these useful comments. R. points out many problems that infest Kayne's theory. I agree with R., as is clear from the Kashmiri data. However, it does seem to fit the Marathi data which is not easily explainable under the ECP account suggested in L&S. In particular the ECP account fails to explain the opacity of the extraposited 'ki' clause to Wh extraction. The opacity also pervades complex NPs including relative clauses which I have not mentioned in the paper. In fact, Marathi seems to provide an ideal context for Kayne's hypothesis. This is further confirmed by Wh in adverbial and sentential subject clauses about which R. has inquired. Adverbials allow wide scope interpretations from their preposed position only.

(1) Sūhini koṇālā marlyāvar Ravi chavtāḷā.  
   Sushi who-to beat-after Ravi got furious

The 'mhaṇun' clause is revealing in this respect. It allows its clause both to pre and postpose. But, only the preposed clause has a wide scope interpretation.

(2) Sūhini koṇālā mārla mhaṇun Ravi chavtāḷā.  
   Sushi who-to beat Ravi got furious

(3) "Ravi chavtāḷā kāraṇ Sūhini koṇālā mārla.

Sentential subjects do pose a slight problem. The right branching condition is not sufficient for sentential propositionals. These require in addition the presence of the complementizer 'asa' in order to get wide scope.

(4) "Sūhini koṇālā mārla he ashakya āhe.  
   Sushi who-to beat that impossible is

(5) Sūhini koṇālā mārla asa dista.  
   Sushi who-to beat so seems
A problem with Kayne's analysis is that it fails to explain the violation of the complex NP constraint in Japanese, Chinese, and also in Kannada (see Yadurajan (1983)), an SOV in-situ language which syntactically resembles Japanese in many ways. The N node governing these clauses is not a canonical governor in these languages also. However, it fails to block wide scope interpretation as Kayne's theory predicts. In fact the variation in Island constraints in in-situ question languages as exemplified by Marathi and Hindi vs. Japanese and Kannada\(^2\) is problematic under both analyses. The variation in Island constraints suggests that Wh extraction may be sensitive to some other factors than just lexical or canonical government. For example, recently it has been suggested that in both Hindi and Marathi agreement is anaphoric and more importantly verbs do not assign case to their complements (Gair & Wali (1988)). Both subjects and objects are assigned an oblique case by a postposition. I suggest that this complexity creates a weakening of government by both agreement and verb. The traces left behind by Wh extraction are weakly governed thus blocking Wh interpretation in these languages. This is not surprising. The strong vs. weak government also seems to make a difference with respect to subject extraction in English and Chinese as is well known (see Huang (1981)). A full account of this suggestion seems out of place at this stage.

NOTES

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1. A copying strategy for wide scope is employed in Hindi also as noted in Davison (1985). Hindi, however, is an in-situ language in contrast to Kashmiri.

2. See Cole et al. (1976) for Hindi, Kannada, and some other languages for Island Constraint variations. See also Yadurajan (1983) for Kannada facts.

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BINDING THEORY AND REFLEXIVES IN DRAVIDIAN*

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0. This paper examines the reflexive construction in Dravidian and offers an explanation of the facts in terms of a re-formulated theory of binding adopted here. Section 1 presents the facts and shows how Dravidian has two types of reflexive construction, one showing long-distance binding and the other strict local binding. Section 2 gives an outline of the theory of binding adopted here, whereby long-distance binding, far from contradicting Principle A of Chomsky (1981) is actually predicted by that principle under a slightly larger setting. Section 3 returns to the facts of Dravidian and re-examines them in the light of the proposed binding theory and a suggested distinction between strong and weak reflexives. Section 4, the last and concluding section, takes up for further discussion the distinction between strong and weak reflexives and shows how this might be accounted for in UG in terms of a parameter, the anaphora parameter, which allows for the anaphora of a language to be marked for the feature [±Strong] or left unspecified. The paper ends with a few comments (elaborated elsewhere) on the nature of 'long binding'.
1. The problem of reflexives in Malayalam is well-known. In Malayalam, a Dravidian language, a reflexive element can be bound by an antecedent outside its governing category (in the sense of Chomsky (1981)), violating Principle A of the binding theory. Mohanan (1981) gives the following example:

(1) [tān ānaye nulli ṃma acchanōta parañnu ennō] self elephant pinched that mother father said that rājāwina ūnī ennō] maṇtriye rāni wīśwasippiccu King felt that minister queen believe-caused 'The queen convinced the minister that the King felt that the mother told the father that self (queen/*minister/King/mother/*father) pinched the elephant.'

The reflexive element tān can have as its antecedent queen, king, mother, all outside the minimal S containing tān. (In this case the minimal S is also the governing category for tān in the sense of Chomsky (1981)). But this is not peculiar to Malayalam among the Dravidian languages. Kannada, Tamil, and Telugu also show similar behavior.¹

(2) a. Kannada
[tānu ūrige baruvudakkāguvudilla endu] rāmanu home town can’t come COMP Ram barediddāne has written 'Ram has written that self (Ram) cannot visit his home town.'

b. Tamil
vaṇṇan tān varēṇṇu connān washerman will come COMP said 'The dhobi said that self would come.'

c. Telugu
Kamala tanu mancidi ani andariki ceptundi good COMP to everybody tells 'Kamala tells everybody that self is good.'
In all the sentences in (2) the reflexive element (tān) has its antecedent in a higher S. outside its own minimal S. In the Malayalam example there is more than one possible antecedent for tān in the higher Ss. This is possible in the other languages also. Sentence (3a) is an example from Kannada; (3b) from Tamil.

(3) a. [tānu ūrige baruvudakkāguvudilla endu] rāmanu bareiddāne endu sita hēlidaļu
'Sita said that Ram has written that self (Ram/Sita) cannot visit the home town.'

b. tān ūrukku varamudiyāda enṇu rāman eRudiān self to home can’t come COMP has written enṇu sita conṇa said
'Sita said that Ram has written that self (Ram/Sita) cannot visit the home town.'

An obvious solution that comes to mind in trying to account for these cases is to dismiss them as something other than what we understand as reflexives' in English. But this still leaves the behavior of these elements unexplained. If an anaphor is an element lacking independent reference and therefore needing to be bound by an antecedent, tān of Dravidian is as much an anaphor as, say, himself in English. Besides tān, there is a 3rd person pronoun in these languages e.g., awan in Kannada (masculine, singular). awan can have independent, deictic reference: not so tān.

(4) a. awanu buddhivanta
'He is intelligent.'

b. tānuuddhivanta

(4b) is ungrammatical for the same reason that (5) is ungrammatical:

(5) Himself is intelligent.
Exactly as (5) becomes grammatical when embedded in a higher S containing a suitable antecedent, (4b) also becomes grammatical when so embedded.

(6) a. John believes himself to be intelligent.
    b. Gopalanu tānu buddhivanta endu nambiddāne

Not merely does tān require an antecedent, the antecedent should C-command it, as with anaphors. Compare (6b) which is grammatical with the antecedent in the matrix S with (7) where the antecedent is in the lower S and the sentence is ungrammatical. (Here and below, where necessary, coreference will be indicated by underlining.)

(7) *[gōpālanu buddhivanta endu] tānu nambiddāne

These properties establish tān as an anaphor. One final fact distinguishing it from pronouns may be noted. A pronoun is essentially a discourse category, establishing coreference across sentences; not so an anaphor.

(8) a. John went home. He was very tired.
    b. John went home. *Himself was very tired.

awan (and its other forms) and tān show the same contrasting behavior.

(9) a. sītēyu manege hōdalū avalige bahāla hasivāgittu
to home went to her very hungry
'Sita went home. She was very hungry.'

    b. *sītēyu manege hōdalū tanage bahāla hasivāgittu

It should be pointed out that tān has been traditionally recognized as a reflexive pronoun (cf. Caldwell (1956), Kittel (1903), Spencer (1914)). Mohanan (1981), following traditional usage recognizes tān as an anaphor. Bhat (1978) calls it 'Special Anaphoric Pronoun' (SAP). Amritavalli (1984), however, rejecting Mohanan's view, maintains that tān is just a pronoun.
In any event, the points we have addressed above should make it clear that tān is an anaphor, not a pronoun.

There are certainly constructions where tān appears without a syntactic antecedent. Among these are:

(a) a certain type of discourse where the writer presents the thoughts of a character:

(10) rāmanu yōcisutta kulītukonḍa. tānēnu tappu  
Ram thinking sat self what wrong  
māḍiddu? tanagēke hīgāyitu?  
done self why like this became  
'Ram sat thinking. What wrong had he done? Why have things fallen out like this for him...'

(b) in exchanges like the following:

(11) Speaker A: rāmanu ūrige yārannu kaḷuḥisida?  
hometown whom send  
'Whom did Ram send to his hometown?'

Speaker B: yārannū kaḷuḥisalilla. tānē banda.  
anyone send-not self-emph came  
'Didn't send any one. (He) himself came.'

(c) in proverbial sentences, as in:

(12) tāndondu episidare daivavondu episitu  
self something planned fate something planned  
'While one has planned something, fate has planned something else'

(10) and (11) are not isolated sentences but texts, pieces of discourse. But surprisingly in (10) the regular 3rd person pronoun (in this case, awanu) is not possible. In (11) awanu is possible; but while awanu can occur in any position (Subject, Object...) tān is restricted to the subject position only. As
for (12) it may be viewed as some protagonist's thoughts with wide and universal relevance.

The 'subject-seeking' feature of tān (cf. (10)) as also its restriction to the subject position will remain a mystery if tān is just another pronoun.²

Given that tān is an anaphor, what principle of the binding theory accounts for its behavior? How does this principle relate to the standard principle governing the behavior of anaphors, namely, Principle A of Chomsky (1981)? These are questions which any comprehensive theory of binding must at least attempt to answer.

Mohanan (1981) presents a 'parametrized' version of Principle (A).

(13) Anaphors must be bound (to a subject)
   (in their governing category)

The suggestion is that while in English-type languages anaphors are bound in their governing category, in languages like Malayalam (and some others) anaphors must be bound to a subject. The locality condition---'in their governing category'---is not needed. But this is a mistake as we shall see directly below.

1.2 Besides the cases involving long-distance binding, Dravidian has another reflexive construction as shown in (14).

   (14) rāmanu tannannu hoqeduqondanu
       Ram (nom) self (acc) beat + ko\|'
       'Ram beat himself.'

This is an optional variant of a fuller construction in which the object NP is tannannu tānu. As can be seen, this is a re-duplicated form, the first part showing the case appropriate to the grammatical function of the NP in the object position and the second part reflecting the case of the subject. There is also a suffix ko\| in the verb, with appropriate agreement features. This verbal suffix is obligatory when there is coreference between subject and object as (15) shows.
(15) a. *rāmanu tannannu hoḍedanu
    b. rāmanu avanannu hoḍedanu

While avanannu in (b) can refer to a person outside S, pragmatically determined, tannannu in (a) must refer to rāmanu the subject. Hence the ungrammaticality of (15a) in which this co-indexing is not accompanied by kol. The same situation obtains with personal pronouns of the first and the second person.

(16) a. *nānu nannannu hogalīde  
    I (nom) I (acc) praised
    b. nānu nannannu (nāne) hogalīkkonđe  
    'I praised myself.'
    c. nānu avanannu hogalīde  
    'I praised him.'

(17) a. *nīnu ninnannu hogalīde  
    you you (acc)
    b. nīnu ninnannu (nīnē) hogalīkkonđe  
    c. nīnu avanannu hogalīde

Notice further that kol cannot appear (in these constructions) unless there is coreference.

(18) a. *nānu ninnannu hogalīkkonđe  
    b. nānu ninnannu hogalīde

This reflexive, then, is bipartite in structure: there is reduplication in the coreferential object NP and the suffix kol, with appropriate subject NP features, is added to the verb.

Observe also that the antecedent of the reflexive in (14) is in the same minimal S as the reflexive. This is quite different from the case
discussed in Section 11 where the antecedent of tān was always (and necessarily) outside the minimal S containing tān.

This reflexive construction, illustrated till now with Kannada, can be seen in Telugu and Tamil also.

(19) Telugu
   a. kamala tanani tanu koṭṭu-konn-di
        (acc)    hit    past
   'Kamala hit herself.'

   b. nannu nēnu koṭṭu-konn-ānu
        I (acc) + I (nom)    past
   'I hit myself.'

(20) Tamil
   a. ennai nān aditti-koṇ-ḍeen
        I (acc) I (nom) hit    past
   'Sita hit herself.'

   b. sita avali avalē aditti-koṇ-ḍaḷ
         she (acc) she (nom) hit    past
   'Sita hit herself.'

Malayalam differs from Kannada, Telugu, and Tamil in that there is no verbal suffix parallel to kol/kon.³

(21) a. nān yenne tanne adiccu
        I    I (acc) I (nom) hit
   'I hit myself.'

   b. rām tanne tāne adiccu
   'Ram hit himself.'

It is not merely in Malayalam that the verbal suffix marking the reflexive is missing: in Kannada and Telugu, too, there are cases where this situation obtains.
BINDING THEORY AND DRAVIDIAN

(22) Kannada
   a. nanage nannamēḷē nambike illa
      I (dat) on me confidence no
      'I have no confidence in myself.'

   b. avanige tannamēḷē kōpabantu
      'He got angry on himself.'

(23) Telugu
   a. nāmīda nāku kōpam waccindi
      'I got angry on myself.'

   b. Kamalaki tanamīda tanaki kōpam waccindi
      (dat) (dat)
      'Kamala got angry on herself.'

The same is true for Tamil. Evidently this is a well-defined class of cases: the subject is dative; the predicate is, broadly speaking, non-actional.

Clearly, the reflexive construction under discussion is closely associated with the particle kol/kon affixed to the verb. But there is no such particle in the dative subject construction as illustrated in (22) and (23). Malayalam reflexives, too, as seen in (21) show no kol or kon. What is the explanation for this?

Suppose we assume that AGR copies the features of the NP to which it assigns nominative case. This is uncontroversial. Assume further that in Dravidian, which lacks a reflexive pronoun, coreference is indicated by a reduplicated structure in the object NP where the reduplicated part agrees in pronominal features with the Subject NP. Suppose now that the features so reduplicated match the features copied under AGR. Assume further that under these conditions kol/kon (as the case may be) is generated under AGR. Later when AGR moves into V', kol/kon along with the other agreement features is affixed to the Verb.4

This explains the reflexive construction in the typical cases as in (14), (19), and (20). As for the dative subject construction, notice that this
is a very marked construction. The markedness of the construction may, in part, be related to the marked way in which the subject gets case. Supposing it is the verb (more likely the predicate - a small class of expressions which assign, usually, the role of experiencer to the subject) which assigns dative case to the subject. Then, as the subject is already case marked, AGR will not assign case to the subject. Consequently, no subject features will be copied under AGR. Therefore, no kol/kon will be generated, although there is reduplication to indicate subject-object identity.

We have now explained the presence of kol/kon in the standard cases and its absence in the dative subject construction. Notice that we have made the presence of kol/kon dependent on reduplication and not the other way round.

Consider now the Malayalam case. Here there is reduplication but no kol or kon. Supposing we assume that Malayalam has no AGR (as has been suggested for languages like Korean in Yang (1983)), one obvious manifestation of this being the absence of subject-verb agreement in Malayalam. Then, although coreference between subject and object is indicated in the usual way by reduplication, there is no question of some NP feature being copied onto AGR, triggering the generation of kol/kon. The assumption that Malayalam has no AGR raises the question of how nominative case assignment takes place in this language. This, however, is a question we have to put aside in this paper.

Consider now the reflexive construction described in this section with respect to binding theory. Consider, for illustrative purposes, the fuller version of (14) repeated here as (24):

(24) rāmanu tannanu tānu hoḍedukondanu

Whatever stand we take on the base structure of Dravidian--i.e. whether we treat it as configurational or 'flat'--the object NP in (24) must be taken as governed by the verb hoḍi. Then, as in the English example John shot himself, S is the local domain for the reflexive tannanu tānu. In this it is correctly bound to its antecedent. tannanu tānu, then, is 'locally' bound, i.e., bound in a local domain. It can be readily seen that this is so with all the
reflexive constructions examined in this section (from Telugu, Tamil, and, Malayalam).

The problem for a theory of binding applying to Dravidian may now be stated as follows: it is not merely that Dravidian has long-distance binding violating Principle A of Chomsky (1981); it also has 'local' binding correctly observing Principle A. How should the binding principle for anaphors be re-formulated so as to meet this (apparent) contradiction?

2. Several points can be made against the binding theory as set out in Chomsky (1981) besides the fact that it does not account for long-distance binding. That pronouns are free in a governing category (Principle B) has to be stipulated. One would have thought that given Principle A or B, the other principle would follow. The binding theory has nothing to say about PRO except that it is un governed; a separate theory of control is needed to determine the antecedent of PRO. As for variables, they are said to be 'A-free'; yet variables also have to be bound, while there is nothing in common between the binding of variables and the so-called anaphors. Added to this, variables (and more generally traces associated with movement) are subject to Subjacency, a requirement not applicable in the case of anaphors.8

Nevertheless, I feel that Principles A and B are essentially correct and do constitute part of UG. Hence, rather than abandon Principle A (in the face of evidence from Dravidian and some other languages), one should try to see how the facts can be accommodated in a more comprehensive and less stipulative theory which retains Principle A.

Supposing we assume (25) as an axiom of Grammar.

(25) The Local Domain Axiom
Dependent elements will show contrastive behavior in a local domain.

(The sense of 'local domain' will be made precise shortly; for now we may understand it intuitively.) Assume now that dependent elements are basically [±Anaphor]; i.e., anaphors and pronouns. It will then follow that if
anaphors are bound in a local domain, pronouns will be free in that domain. Principle B follows without stipulation.

The empirical assumption made here is that the local binding of anaphors is universal. This, in fact, seems to be so in the case of the overt anaphors: reflexives and reciprocals. In all languages, it would appear that the reciprocal is bound only in a local domain. As for reflexives, there may be languages which have long-distance binding of reflexives but in the very same languages the reflexive is also locally bound. Indeed, many languages seem to permit only a local binding of the reflexive. Whether the null elements (PRO, NP-trace, wh-trace) are also locally bound (in our analysis all these are anaphors) is a point to be investigated. Our assumption is that they are. We, therefore, postulate (26) as the core principle of binding theory.

(26) Anaphors are bound in a local domain.

(26) in conjunction with (25) yields (27) as a corollary.

(27) Pronouns are free in a local domain.

Why should an anaphor be bound or a pronoun be free in a local domain? Evidently this is a result of the structural property of the domain in question. It is then legitimate to ask what happens outside the local domain.

Theoretically there are three possibilities:
(28) (i) The same contrastive behavior as in the local domain is seen outside the domain also; i.e., anaphors are bound but pronouns are free;

(ii) there is contrastive behavior but it is reversed: i.e., anaphors are free but pronouns may be bound.

(iii) there is neutralization:
(a) both anaphors and pronouns may be bound; or
(b) both anaphors and pronouns may be free.

Given (25), it might appear that the only logical possibility outside a local domain is (28iii). This would be so if (25) were interpreted as saying that dependent elements show contrastive behavior only in a local domain (strict interpretation). But supposing we interpret (25) as saying that in all languages dependent elements necessarily show contrastive behavior in a local domain. This would leave open the possibility that in some languages they (i.e., dependent elements) might show contrastive behavior outside the local domain also (weak interpretation). Empirical evidence would suggest that this is the correct interpretation of (25). Notice that under this interpretation case (28iii) is also admitted as a possibility, although other considerations may rule it out. Case (ii) of (28) is typically seen in English and languages like English. The pronoun which has disjoint reference in a simplex sentence (an example of a local domain) can be bound outside the local domain but not so the anaphor. Of the remaining possibilities (iii b) seems quite implausible on 'functional' grounds: in a language having this option there would be no way to refer to an NP in a sentence outside a local domain. The remaining possibilities seem to be attested in natural languages, as we shall directly see.

We have been looking at the possibilities when an anaphor or pronoun appears in a local domain. What happens if there is no local domain? Given the Local Domain Axiom there is no reason to expect any distinct behavior. This will be another case of neutralization, parallel to (28iii).
(29) a. John admires his son.
    b. They admire each other’s friends.

(30) siteyu [avaḷa] magaḷannu pṛitisuttāle [tanna]
    Sita her daughter loves
    'Sita loves her daughter.'

It now remains to define the notion 'local domain'.

(31) α is the local domain for β (β, a dependent) if α contains β,
     and a governor of β; and the argument phrase containing β and
     the governor has a subject.

'Subject' should be understood as the traditional subject of NP or S. The
argument phrase' is an argument of the S in question. The following
examples illustrate these definitions.

(32) a. I heard [NP their stories about each other]
    b. [s John shot himself]
    c. [s Mary believes herself to be honest].

In (a) the NP is the argument phrase; the reciprocal is correctly bound in
this (with their). In (b) the argument phrase has to be taken as the S itself
since it can be the argument of a higher verb as in: they thought that John
had shot himself. The reflexive is correctly bound to the subject of the
argument phrase, John. In (c), an ECM case, the argument phrase is again
the whole S, in which herself is bound by Mary.

With this outline of the theory of binding assumed here, we now turn
to the question of reflexives in Dravidian.

3. To take up the Kannada case first, Kannada has two reflexive
constructions as discussed in Sections (1.1) and (1.2). Call the reflexive
exponents in these constructions weak and strong reflexives, respectively.
It can then be seen that while the strong reflexive is locally bound, the
weak reflexive is bound outside the local domain. Further, within the local domain the pronoun is free.

(33) *rāmanu avanannu nøḍidanu

Outside the local domain, too, the pronoun has to remain free: the English sentence

(34) John said that he would come.

translates in Kannada not as

(35) jānanu avanu baruttānendu hēlidanu

but as

(36) jānanu ø baruttēnendu hēlidanu

Coreference is possible when the pronominal element is null; with an overt pronoun we have disjoint reference.

Thus Kannada observes Principle A fully and, of the three options available in UG as a consequence of Principle A outside the local domain, Kannada observes (28i) --the anaphor is bound but the pronoun has to be free.

Tamil and Telugu also show the same pattern of behavior. Within a given local domain the anaphor is bound and the pronoun is free; outside the local domain again the anaphor is bound, the anaphor showing this binding being the weak reflexive tăn. A pronoun, however, occurring in a local domain must remain free outside the local domain also. We illustrate this with Tamil:

(37) a. jān avan varuvēnnu connān  
    b. *jān avan varuvēnnu connān

Coreference is possible only when the pronominal element is null.
But Malayalam, surprisingly, differs from the other Dravidian languages in this respect. As with the other Dravidian languages it has a strong reflexive which observes local binding (cf. (21)). And, as already noted, it has long binding, too. But, of the options provided by UG outside the local domain, Malayalam alone, of all the major Dravidian languages seems to have chosen option (27ii a)--pronouns can be bound outside a local domain in the same way as the long distance anaphor tān.

(39) tān awiṭe pōkumennē mōhan ennōṭe paraṇānu
'Mohan told me that self (Mohan) will go there.'

(40) awan awiṭe pōkumennē mōhan ennōṭe paraṇānu

A null NP can also occur:

(41) g aite pōkumennē mōhan ennōṭe paraṇānu

I have no explanation, at this time, for the behavior of the pronoun in Malayalam.

4. The two reflexive constructions examined in Sections 1.1 and 1.2 are semantically and syntactically different.

Consider first the semantics of the two reflexives. The strong reflexive involves not only coreference (between the antecedent and the anaphor) but also involves a situation where the same referent in Domain D (cf. Chomsky (1981)) realizes more than one θ-role: agent and patient in (14); agent and locative in (22). But the weak reflexive involves only coreference.

Consider now the syntactic differences. Except that both types of reflexives have C-commanding antecedents which are necessarily subjects, the two reflexives differ in every other respect. (The point made will be illustrated from Kannada. Similar examples can be constructed for the other Dravidian languages also.)
(i) The weak reflexive is not limited to the subject position; but the strong reflexive cannot occur in the subject position.

(42) a. tānu baruvudakkagüdillavendu rāmanu bareddāne come COMP has written 'Ram has written that self cannot come.'

b. Gōpiyu tannannu nōḍabēkendu rāmanu hēloidanu 'Ram said that Gopi should see self (~ Ram).'

(43) *tānu tannannu rāmanannu hoṭedukkonḍanu

(ii) With the strong reflexives there is a reduplication, as we have seen; no such reduplication is possible with the weak reflexive.

(44) *gōpiyu tannannu tānu nōḍabēkendu rāmanu hēloidanu

(iii) In the unmarked case (and with the exception of Malayalam) the strong reflexive is associated with the suffix kol/kon. But no such suffix is possible with the weak reflexive.

(45) a. *[tānu baṭṭeyannu haridukonde endu] rāmanu hēloidanu cloth (acc) tear COMP said

b. [tānu baṭṭeyannu haridanendu] rāmanu hēloidanu 'Ram said that he tore the cloth.'

(iv) The weak reflexive cannot have an antecedent in the same S.

(46) *gōpiyu [rāmanu tānu baruwanendu] hēloidanu

The antecedent of the weak reflexive must always be outside the S containing it. Just the opposite is the case with the strong reflexive.

(e) Finally, the weak reflexive can have more than one possible antecedent. This is not possible with the strong reflexive.
(47) a. tannannu āmantrisida vyaktige rāju ēnannū
do koḍilla endu sīte hēlīdālu
'Sita said that Raju did not give anything to the man
who invited self (acc). (self - Raju/Sita)'

b. tannannu āmantrisikonḍa vyaktige rāju ēnannū
do koḍalillavandu sīte hēlīdālu (tannannu - vyakti (man))

There is, then, a cluster of properties distinguishing the strong from
the weak reflexive in Dravidian. These distinctions follow if we assume that
(i) reduplication (to mark coreference) is controlled by the subject NP and
(ii) takes place only within a local domain.

It is not necessary, however, that a language which has two domains
for reflexive binding, in other words, a language which has both local and
long binding, necessarily have two distinct reflexive forms. The Korean
caki ‘self’, for example, can be locally bound as in (48).

(48) Bill-i Judy-eko cake-lil Sokaha-ossa-ta
     nom dat acc introduce Past dac
     'Bill introduced self to Judy.'

It can also occur under long binding as in (49).

(49) John-in [Bill-i [Mary-ka [Tom-iy caki-e tāehan thāe-to] -lil
     TOP nom nom 's self toward attitude acc
     Silhāha-n-tak-o] sængkaha-n-ta-ko]
hate aspect dec COMP think dec COMP
     'John believes that Bill thinks that Mary hates Tom's
     attitude toward self.'

Naturally, when there is long binding with a reflexive like caki, local binding
is also possible.

Obviously, it is pointless to say that the Korean caki is a strong
reflexive in (48) and a weak reflexive in (49). What then is the status of
the distinction between strong and weak reflexives in Universal Grammar?
Suppose we assume that UG provides for anaphors to be marked in respect of the feature [+Strong] or left unspecified, this being a parameter. Suppose we interpret Principle A as saying that, unless otherwise specified, an anaphor is bound in its governing category (or local domain in our formulation). Then if it is specified [+Strong] it is bound only in its local domain (as with English reflexives or the reduplicated forms in Dravidian); if it is specified [-Strong] (as with Dravidian tān) it is bound only outside a local domain; if left unspecified (as with Korean ᄇaki) it will be bound in a local domain (by Principle A) and as it is not marked [+Strong] it may be bound outside the local domain also. Thus all three cases—English reflexives, Dravidian tān, and Korean ᄇaki—are accounted for.

It is likely that the parameter proposed here, the anaphora parameter, has consequences only for lexical anaphora or even only for reflexives. Independent principles of the grammar may interact to ensure that NP-trace, wh-trace and PRO are necessarily locally bound. Quantifier binding may ensure the same result in the case of reciprocals.

To conclude, Dravidian has two reflexive constructions, one locally bound and the other showing long binding. The two are characterized by quite distinct syntactic and morphological properties. Local binding is associated with the particle kol/kon which is generated under AGR when the features of the NP to which AGR assigns nominative case are reduplicated under some other NP. This NP with the reduplicated segment is an anaphor, a reflexive, necessarily marked [+Strong]. The other reflexive is tān, which can also be [+Strong] if it undergoes reduplication but otherwise [-Strong], hence admitting long binding. The feature [+Strong] is, presumably, an element of UG defining a parameter depending on whether or not the anaphors in a language, especially reflexives, are specified or left unspecified in respect of this feature.

The view of long binding taken here is that it is just binding outside the local domain, an option provided for in UG by the interaction of Principle A with the Local Domain Axiom. Whether or not the option is actually realized in a language depends on whether the parametric choice of marking reflexives for the feature [+Strong] or leaving them unspecified has been exercised. Either way a language may show long binding: if some
anaphor (necessarily a reflexive) has been marked [-Strong], the reflexive in question will then admit only long binding. In this case the language will also have a [+Strong] reflexive, and thus will have two sets of reflexives, one for local binding and another for long binding. Alternatively, a reflexive in a language might be left unspecified for the feature [+Strong]. It will then show both local and long binding. But no matter how long binding arises, it still has certain properties, the most important of which is that it is binding outside a local domain. Other properties (as discussed in, for example, Giorgi (1984) can be shown to follow from the interaction of independent principles (cf. Chomsky (1986), Yadurajan (1987c)), and there also may well be language-specific conditions on 'long-binding'; e.g., in Icelandic all the intervening clauses except the topmost one containing the antecedent must be in the subjunctive mood. This is not, however, to say that long binding of reflexives can be parameterized as attempted, for example, in Yang (1983) or Manzini and Wexler (1984)."
3. Unlike the other Dravidian languages discussed here, tān in Malayalam can occur with pronouns in all persons and not just with third person pronouns.

4. For an alternative analysis see Amritavalli (1984); also Subbarao, K. V. and A. Saxena (1985).

5. On the dative subject in Dravidian see, among others, Masica (1976) and Sridhar (1976).

6. This is loosely put. The point is that the dative case is not structurally assigned but is an exponent of the theta role assigned to the subject by a certain class of predicates.

7. The crucial assumptions made in our analysis have been:

   (i) AGR copies the features of the NP to which it assigns nominative case;

   (ii) If the features so copied match the features reduplicated in the object NP, then kol/kon is generated under AGR.

In general this is so, but there are cases where reduplication may take place in some NP other than the object, e.g., a benefactive phrase. But no matter under what NP node reduplication takes place, the NP must match some features of the subject NP. For further details and for a fuller analysis of the syntax of kol/kon see Yadurajan (1987).


9. I assume that the specifier position is not governed. Hence his in (29a) and each other's in (29b) are not governed. For a detailed discussion of this and certain matters related to the binding theory presented here cf. Yadurajan ((1987c. in preparation).
10. Notice that one advantage of introducing the notion 'argument phrase' in (30) is that it eliminates the need for a separate stipulation about a root sentence being a governing category (as in Chomsky (1981)).

II. For a brief critique of these approaches see Yadurajan (1987b); and for a comprehensive discussion Yadurajan (1987c).

REFERENCES


Kittel, F. 1903. *A Grammar of the Kannada Language*


