

SOME ASPECTS OF THE CAUSATIVE CONSTRUCTION
IN HINDI

by

ANGELA B. KLEIMAN

May, 1971

The phenomena of Causativization in Hindi have been analysed by traditional grammarians as a straightforward process: grammarians have indicated the morphological changes that take place on a verbal root when the causative morphemes are attached to them, and have indicated the semantic shifts, if any, that sometimes take place when the causative morphemes are added to non-causal roots. Kellogg (1955:252), for example, states that from every primitive verb in Hindi a first and a second causal verb can be derived,¹ which express immediate and mediate causation, respectively, of the act or state signified by the primitive. He also gives two morphophonemic rules for the formation of the causal: the addition of -a- to the root of the primitive to form the first causal, and of -va- to form the second causal. He also discusses other changes that operate on the root because of the addition of the causative morphemes; these will not be gone into in this paper.

Greaves' analysis is more semantically oriented. He states (1933:271) that many verbs which may be causal in form are not causal semantically; thus, he says, for example, banana 'to make' is not a causative semantically but an active transitive. In spite of these prefatory remarks, the rest of his exposition does not differ from that of Kellogg's.

The modifications in meaning that the causative morphemes bring about in the root, and the restrictions on causative formation will not be discussed further in this paper since these have been extensively treated in the literature.

This paper will investigate the nature of the causativization rule in Hindi, and its interaction with other rules of Hindi grammar. For this purpose, studies and proposals pertaining to this problem will be discussed in the first part of this paper; in the second part we will present an alternative analysis that, we believe, can account for the phenomena of causativization with semantic and syntactic accuracy.

The earliest analysis of causativization in the Generative Transformational framework is that of Yamuna Kachru (1965, 1966). In her proposal she is concerned with giving adequate structural representation to the roles that the noun phrases play in the causative sentences, and to the interaction of these roles in non-causal, direct causal, and indirect causal sentences. Thus, for example, in her (1965) formulation of the causative rule in Hindi she introduces the markers Recipient Noun and Mediant Noun, since Agent, Mediator, and Recipient interact in a very systematic way in causative sentences. This relationship can be schematized in the following way: (where the vertical line stands for 'becomes')

Intransitive non-causal:			Agent (surface agent)		
Direct causal:		Agent	Object (recipient)		
Indirect causal:	Initiator	Agent	Mediator	Object (recipient)	
Transitive non-causal:			Agent	Object	
Direct causal:			Agent	Recipient	Object
Indirect causal:	Initiator	Agent	Mediator	Recipient	Object

These facts seem to be indicative of a process of successive embedding in the formation of causatives, and this is the analysis proposed by Kachru. She maintains that causatives are instances of Verb Phrase Complementation, and that there is a Causative transformation that applies recursively. The relationship between

(1) mē ne ṅgur khayē

I ate grapes

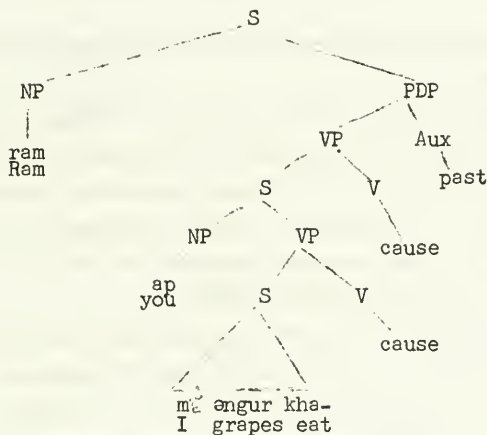
(2) ap ne mujhe ṅgur khilaye

You fed me grapes

(3) ram ne apse mujhe ṅgur khilvaye

Ram made you feed me grapes

can be captured in a straightforward way by proposing the following derivation for sentence (3):



The most relevant transformation that applies on the structure above is the Causative Verb formation, which attaches the verb of the most embedded S onto the causative verb of the structure immediately above. The transformation applies recursively, and the implicit claim seems to be that the rule applies cyclically. The transformations that operate on the NP's will not be discussed here.

The status of the type of complementation proposed by Yamuna Kachru for the derivation of causative sentences is doubtful. Analyses of English have tried to do away entirely with intransitive verb phrase complementation. The verbs which according to Rosebaum (1965) take such complements are very few in number, which is unusual, since one would expect their number to be as great, say, as the verbs taking sentential subject complements, especially since intransitive VP complementation is the simplest type of complement structurally. Lakoff (1965) has tried to account for such verbs as endeavor by postulating that these are transitive verbs which are marked in the lexicon as having to meet the structural description of the rule of It-Deletion. This means that these verbs must obligatorily be

followed by a sentence, which explains the ungrammaticality of
(4) *I endeavored it

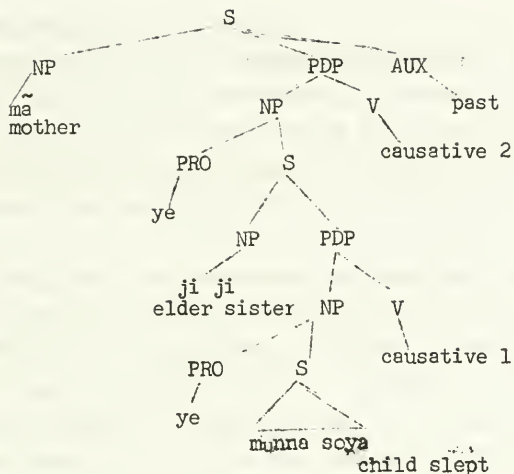
According to Lakoff, then, the only difference between this verb and try is that one is marked with respect to the It-Deletion transformation while the other is not. Other verbs which were originally analysed as intransitives taking verb phrase complements have more recently been analysed as instances of sentential subject complementation by Lakoff (1967) and Newmeyer (1969).

Robin Lakoff (1968, p. 17) has suggested that selectional restrictions of verbs with regard to the type of complement they can take are universal; she states that 'these selectional restrictions are part of the meaning of a verb; they will not change in time... Hence, it is likely that the selectional restrictions that determine whether a verb can occur with a complement subject or object are universal, since a meaning is universal'. If it were shown that all intransitive verbs can take only sentential subjects, for example, this view could perhaps be accepted since it is likely that transitivity and intransitivity are universal rather than language specific features, but as it is, there is no compelling evidence that this is the case.

Causative verbs have also been analysed as transitive verbs which take sentential objects as complements. This has been the analysis that Lakoff has proposed (1965).² Sinha (1970) adopts Lakoff's analysis in his treatment of Hindi causatives. He maintains that a sentence like

(5) mā ne ji ji se m'anne ko s'lvaya

Mother made the elder sister put the child to bed
is derived from the structure



The main argument that Sinha advances for postulating the above underlying structure is generality of description. Apart from the causative rule no new rules are needed in the grammar to derive the causatives. The transformations that are needed to derive the actual causative sentence are:

1. Zero complementizer transformation, whose application triggers the deletion of the auxiliary element in the embedded sentence.
2. *ye*-Replacement (It-Replacement, or Subject Raising as it is currently called) which, according to him creates the intermediate structures upon which the Accusative (*ko*-attachment) and the Dative (*se*-attachment) transformations can apply.
3. Causative transformation, by which the verb of the embedded S is incorporated into the causative and takes its characteristic morphophonemic features.

Sinha is not explicit about the ordering of the transformations he proposes. He considers sentences like (5) only, that is, relatively straightforward sentences where no other rules of Hindi apply. The ordering he seems to be specifying is Zero complementizer transformation before *ye*-Replacement; Nominative, Accusative, and Dative transformations

next, and then, after the principles of tree pruning have applied, the Causative transformation applies, first on the causative 1 sentence and then on the causative 2 sentence. Sinha does not discuss any of the transformations as to whether they are in the cycle or not, but if any of the transformations applying before Causativization is cyclical, it would follow that Causativization is a last cyclical or a postcyclical rule.

The Zero Complementizer transformation is not justified by Sinha, nor does he present any independent evidence that would justify it. He maintains that the choice of complementizer is determined by the verb in the matrix sentence to a large extent, but he also states that if the head noun of the complement sentence has the feature [+Pro] only Zero complementizer can occur; it seems then that both the verb in the matrix sentence and the head noun of the embedded sentence can determine the type of complementizer that will appear, and so there is no way to guarantee that they will not contradict each other.

Another set of verbs for which Sinha has postulated the Zero complementizer is that formed by the so-called conjunct verbs; unfortunately conjunct verbs are perhaps the most dubious instances of complementation in Hindi. The third class of verbs that according to Sinha takes Zero complementizer is that formed by verbs like lagna 'seem', mana 'consider', in constructions like the following:

(6) *mvjhko larka eccha laga* -
to me boy good seemed

which, according to Sinha is transformationally related to

(7) *mvjhko laga ki larka eccha ha*
to me seemed that boy good is

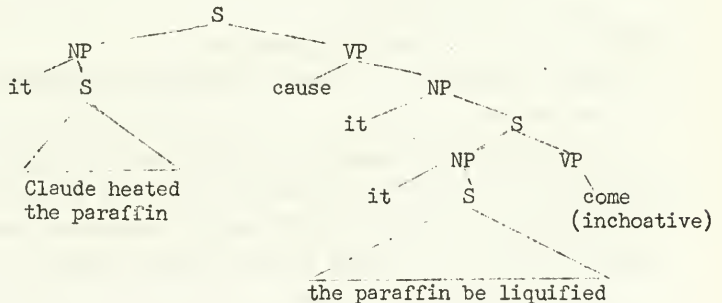
Yamuna Kachru³ has pointed out that there is a clear difference between (6) which means 'I liked the boy' and (7) whose meaning is 'I considered that the boy was good'. Sinha's implicit claim is then that transformations can change meaning, a claim that is not accepted

in some generative models of grammar.

Sinha's analysis has another drawback: it seems that in general, sentences with object complements can be paraphrased by sentences with the kr 'that' complementizer. This complementizer cannot occur however with either causatives or conjunct verbs, which means that both causatives and conjunct verbs are exceptional in their behavior and thus contrast with other verbs that take complex sentential objects.

The next analysis that will be discussed also treats causatives as complex sentences with embeddings. Jonnie Geis (1970) claims that such English causatives as make, cause, bring about are sentential subject verbs. Such an analysis, according to her, can provide an adequate representation of the fact that only an act or a state of affairs, and not a person or an instrument per se can cause something to happen.

In this analysis, sentences like
 (8a) Claude liquified the paraffin by heating it
 (8b) Claude's heating the paraffin liquified it
 have the following underlying representation:



According to Geis, the multisentence Deep Structure is supported by the fact that causative sentences can contain both a durative time adverbial (which usually cooccurs with statives) and an instantive time adverbial (which generally cooccurs with inchoatives). Thus in

English it is possible to say

(9) This afternoon Max liquified the paraffin for an instant.

The causative sentence would be derived through the application of an optional rule of Agent Creation which operates in the embedded sentential subject and makes it the NP of the whole causative sentence, extraposing at the same time the rest of the embedded S to the end of the sentence as a postposed by-phrase. There is evidence for a rule of that kind in the fact that by-phrases of this type occur only with predicates that are semantically causative,⁴ as the ungrammaticality of (10) shows:

(10) *Jennifer seems to dislike Alice by laughing at her.

An interesting point in this analysis is that the noun phrase has somehow to be identified as agent or non agent for the correct formulation of the Agent Creation rule. This is similar to Hindi, where the role of the Agent is important for the formulation of several rules which interact with the causatives. Geis notices that in English it is impossible to say

(11) *John made himself indispensable to the gang by knowing the floor-plan of the building

derived presumably from the grammatical

(12) John's knowing the floorplan of the building made him indispensable to the gang.

In sentence (12) John is not a true agent. Geis solves the problem by stipulating that the verb must be [-stative] for the rule to apply, since there is no adequate way of stipulating what an agent is in the theoretical framework in which she is working.

Notice that sentences like

(13) *stov jela kor ram ne pani v'bala*

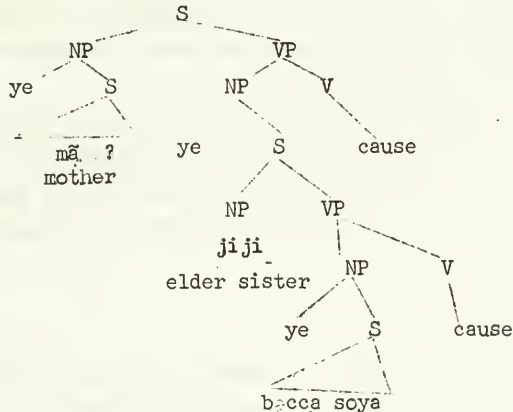
Turning on the stove Ram made the water boil

(14) *ram ke stov jelane se pani v'bla*

Ram boiled the water by turning on the stove

are derived in the manner indicated by Geis, with not only a sentential

object but a sentential subject as well. Although we accept the claim that it is actions or states, not persons, which cause something to happen we will not represent structurally this claim in this paper, first, for the sake of simplicity, second, because it is not directly relevant to the topic of this paper, and third, because it is not clear what the embedded sentential subject will be like in those sentences where there is not an instrumental se-phrase in surface structure, as in sentence (5), which according to Geis' analysis would have the following underlying structure.



Notice that the sentential predicate in subject position would have a nebulous semantic content; the delimitation and restriction of these predicates is beyond the scope of this paper. So, in this article, the subject of a causative such as (5) will still be represented as a simple noun phrase with no embeddings, in spite of the semantic inadequacy of this representation. It should be kept in mind, however, that this is done for the sake of convenience and is not intended as a claim about the character of the subject of causative sentences.

All of the analyses discussed so far view causativization as an instance of complementation. We will now investigate briefly two proposals to analyse Hindi causatives as simple sentences.

Bahl (1967) proposes to expand a VP into Verb + Causal Morpheme, and to expand NP in such a way as to account for all cooccurrence restrictions between nouns and causals. For this an elaborate system of context sensitive rules and of strict subcategorization of nouns is proposed. It is possible that this system permits Bahl to account for the facts that he considers relevant, namely, to delimit the class of verbs which permit the causal morphemes in their expansion, but his extremely cumbersome expansion rules are almost equivalent to listing the forms which can occur with causals and fail to capture any generalization that might be made about causatives. Furthermore, the validity of context sensitive rules of expansion has been questioned by several linguists.

L. B. Balachandran (1971) has also maintained that causative sentences are simple sentences with no embeddings. The theoretical framework on which her analysis is based is that known as Case Grammar. In Case Grammar, the difference between the inchoative

(15) The ice melted

and the causative

(16) I melted the ice

is explained in terms of the number of case relationships that are involved in each sentence. Sentence (15) has only the case category objective (ice) while (16) has both an agentive (I) and an objective (ice).

In the framework of Case Grammar, a sentence like

(17) mē ne n kor se lōrke ko kapre pōhēnvaye

I made the servant dress the boy

has the following underlying representation:

to be formulated with reference to a Deep Structure Agentive. Since in the derivation that she proposes for causatives there is only one Agentive, no constraints need to be imposed on Reflexivization, and sentences like

- (20) *m̃ ne lərke_iko əpne_i kapre pəhənye
I made the boy_i wear his_i clothes

where the reflexive əpne is correferential with the objective lərke 'boy' will be automatically excluded, thus guaranteeing the only possible interpretation, namely, 'I made the boy wear my clothes'.

The third argument that according to her gives support to the claim that embedding does not take place in causative sentences is semantic. She states that sentences like

- (21) m̃ ne use koi tərəh ki cizē dikhayī pər usne ek ki bhi tərəf
nəhī dekha

I showed him various things but he did not look in the direction of even one

should be anomalous if dikhana 'to show' were derived from cause and dekhna 'to see' since in the rightmost conjunct we are negating a predicate which is affirmed in the leftmost conjunct.

Balachandran proposes to capture the relationship between non-causals and causals by setting up case frames for the non-causal verbs from which the case frames of the causal verbs can be derived through some specific rules. For instance, a verb like khana 'to eat' would have the following basic case frame:

khana : A + O (Agentive, Objective)

and her rules would permit us to derive the following causative case frames:

khilana : A + D + O (Agentive, Dative, Objective)

khilvana : A + IA + D + O (Agentive, Instrumental Agent, Dative, Objective).

Let us consider now Balachandran's arguments in some detail.

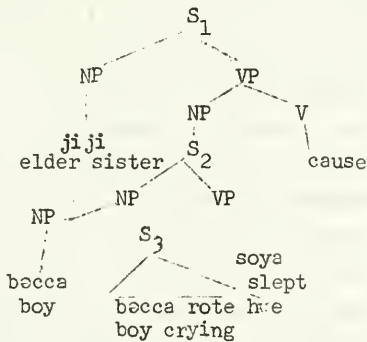
Krishnamurti (1970) discusses two of these arguments. With respect to the cooccurrence restrictions on participial manner adverbials, he claims that the facts noted by Balachandran can be handled by a transformational constraint that operates on the formation of manner adverbials, which would show that the constraint is independent of the causatives. According to him, if a sentence like (22)

(22) bæcca rote h'e
 boy crying

is embedded, it can become the modifier of the verb in the higher matrix sentence only under identity conditions between the subject of the matrix sentence and the subject of the embedded sentence. He states that in a sentence like

(23) jiji ne bæcce ko rote h'e s'rlaya

The elder sister made the boy who was crying sleep
 the identity constraint is not satisfied since the subject of the causative verb and the subject of soya 'to sleep' are not identical. If we consider the derivation of (23) in detail we will see that Krishnamurti has misunderstood the operations that take place in the sentence: ⁵



Notice that the identity condition is satisfied: the subject NP of S₃ is identical to the subject NP of S₂ and therefore the process

of adverbial raising can take place, yielding the sentence that Krishnamurti wants to block. He failed to notice that the phrase rote hve is embedded directly under S_2 and not under S_1 . Notice furthermore that even if rote hve were embedded directly under the causative verb, his transformational constraints would still have to be restricted to causatives only since it is possible to obtain sentences like:

(24) jiji ne bæcce ko rote hve dekha

The elder sister saw the child crying

even though the subjects of ækhna 'to see' and the subject of rona 'to cry' are different.

Needless to say, Balachandran's claim that causative sentences are simple structures does not account for the restrictions she wants to explain since there is no restriction in Hindi specifying that only the subject NP (Deep Structure or Surface subject) of the sentence can contain a participial phrase, as sentence (24) indicates.

The restrictions that these two authors have assumed operate on manner adverbials are not based on correct data. Although the native speaker will assign the interpretation they claim is unique to sentence (23) more readily, the interpretation 'the boy was crying' is also possible. On the other hand, if we consider a sentence like (25) n_ker ne kotte ko hæddi çebate hve d_raya

servant to dog bone chewing caused to run
the most natural interpretation, and the first that the native speakers assign to the sentence is 'The servant made the dog which was chewing a bone run' rather than 'The servant, chewing a bone, made the dog run', which is the interpretation we would expect if the constraints pointed out by Balachandran and elaborated by Krishnamurti were indeed operative in the language. It seems that the speakers' presuppositions about the real world have a direct bearing on what interpretation these sentences will be assigned;

the phenomenon is semantic, and is not directly related to any constraints on causatives.

Krishnamurti also tries to deal with Belachandran's observations about the semantic structure of causative verbs. The former maintains that all transitive verbs should be marked as to whether they are agent or object oriented, or both. A verb is agent oriented when 'an agent does something to an object to bring about a state or event'. A verb is object oriented when 'something happens to the object as a result of the agent's activity whereby the intended state or event is brought about'. Causatives in Hindi, according to him, have only agent orientation, and this accounts for the fact that a sentence like

(26) $m\bar{e}$ bacce ko khana khilata hū, phir bhi voh nahī khata

I feed the boy but he does not eat

is acceptable.

Krishnamurti maintains that these facts indicate that causatives must be analysed as complex structures; causatives are formed by a causative verb which is the carrier of the agent orientation feature, and an embedded verb which is the carrier of the object orientation marker.

Here again⁶ the observations of both these authors are not entirely correct. While it is possible to say sentence (26), a sentence like (27) is ungrammatical:

(27) $*m\bar{e}$ ne bacce ko khana khilaya, phir bhi vane nahī khaya

I fed the boy but he did not eat

It seems counterintuitive to claim that causative sentences have only agent orientation in the imperfect tenses, but both agent and object orientation in the perfect. Whatever the feature is that makes (26) and (27) differ, whether it is a feature of agent and object orientation, or some feature of completion, it seems to me should be a marker of the aspect and not of the verb.

Balachandran's third argument has to do with the Reflexive rule in Hindi, as we have seen. Yamuna Kachru (1968) and K. V. Subbarao (1967) have noted that in a sentence like

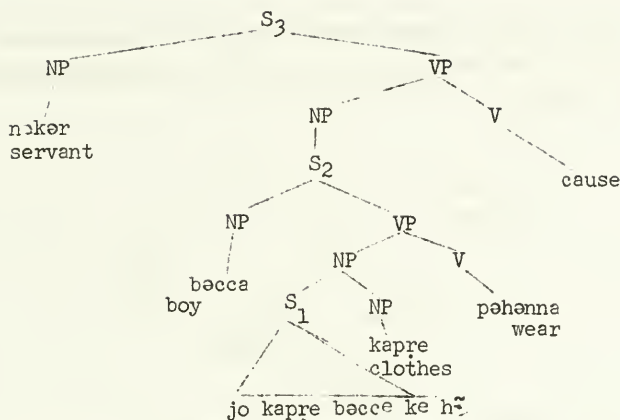
(28) $m\check{z}_i$ ne bōcce ko $\text{\textcircled{a}}pne_i$ kapre pohnaye

I made the boy wear my clothes

the only interpretation is that which has been indicated, where $\text{\textcircled{a}}pne$ is correferential with $m\check{z}$, and have suggested that in order to block the derivation where $\text{\textcircled{a}}pne$ is correferential with bācca Causativization must apply before Reflexivization. Balachandran objects to this proposal stating that ordering is being used solely for the purpose of supporting a Deep Structure which she claims is wrong, but she offers no syntactic arguments for such rejection.

If we maintain that both Causativization and Reflexivization are cyclical rules, ordering Causativization before Reflexivization will not prevent the derivation of a sentence like (28) meaning 'I made the boy wear his clothes'. The hypothesis that rules apply cyclically means that all rules in the cycle apply first to the most deeply embedded sentence in the tree if the structural description of the rule is met. The rules operate in their prescribed order on the deeper sentence performing all those operations which can be performed within the sentence. After the cyclical rules have applied, the rules are reapplied to any sentence that dominates the structure which has been previously operated upon. Notice that Reflexivization is a rule that operates entirely within a sentence, while Causativization is a rule that operates between two sentences in that it takes an element from one sentence and makes it a part of a higher sentence.

Let us consider the deep structure of sentence (28), with the second, ungrammatical meaning, namely, 'I made the boy wear his clothes'.



The rules that are relevant for the derivation of the sentence are Relative Clause Reduction, Reflexivization, and Causativization. None of the rules can apply in the most deeply embedded sentence. We reapply the rules and Causativization again cannot apply since its structural description is not met. Relative Clause Reduction applies yielding

[bæcca[bæcce ke kapre] pöhanna]

and then Reflexivization applies yielding

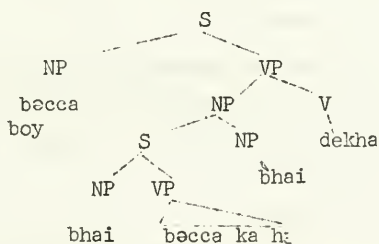
bæcca ðne kapre pöhanna

Relative Clause Reduction has to be ordered before Reflexivization for otherwise we would not be able to derive a sentence like

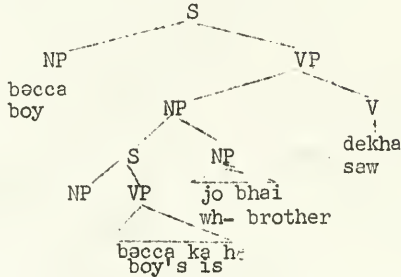
(29) bæcce ne ðne bhái ko dekha

The boy saw his brother

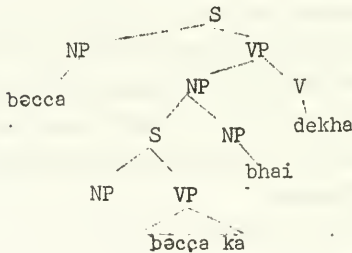
which has the following derivation:



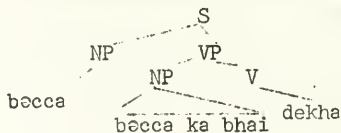
Reflexivization cannot apply since the two occurrences of bacca 'boy' are not dominated by the same node S. Relative Clause formation applies yielding



After Relative Clause Reduction we obtain



After the tree pruning conventions have applied, the two occurrences of bacca are dominated by the same node S and Reflexivization can apply to



yielding (29) after all relevant morphophonemic rules have applied.

Returning now to sentence (28), we proceed next to the sentence immediately above, S_3 , and try to apply the rules again. Causativization applies, and we obtain the sentence

n:kər bæcca əpne kəpə pəhəyaye

Relative Clause Reduction or Relativization cannot apply. After Subject

Raising and the case marking rules we obtain sentence (28) which should have been blocked but which comes from a grammatical Deep Structure and which has violated no ordering specifications.

There are three possibilities where the analysis above may be wrong: one, that Causativization is not cyclical, two, that Reflexivization is not cyclical, and three, that neither is cyclical.

Causatives are clear examples of recursive embeddings, so, if we maintain that Causativization is a transformation of the same nature as, say, Relative Clause Reduction and that it is in the cycle, we will derive ungrammatical sentences as we have seen above. If Reflexivization is cyclical, Causativization must be ordered not only before Reflexivization, but before the cycle as well. For these reasons it is worth investigating whether Reflexivization is in the cycle or not. Let us consider sentences like the following, which are ambiguous in Hindi:

(30) ram ne mohən ko əpne ghər jane ko keha

Sentence (30) could have been derived from

(30a) ram ne mohən ko ram ke ghər jane ko keha

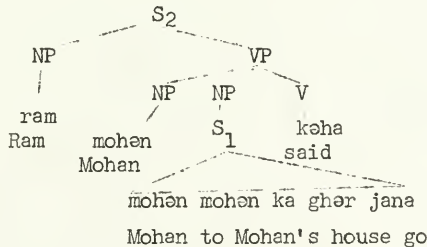
Ram told Mohan to go to Ram's house

or from

(30b), ram ne mohən ko mohən ke ghər jane ko keha

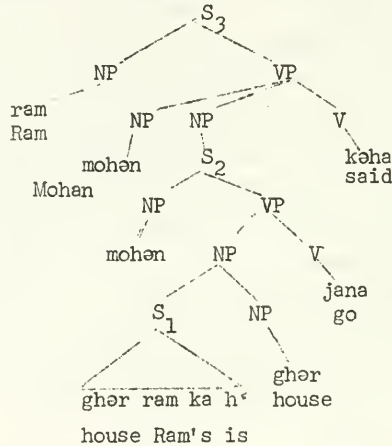
Ram told Mohan to go to Mohan's house

The deep structure of (30a), in a simplified form, is the following:

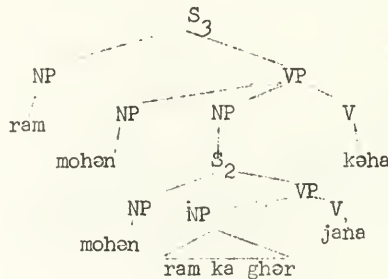


On S_1 the structural description of EquiNP Deletion is not met; only Reflexivization can apply in this sentence; we consider now S_2 and EquiNP Deletion can apply, yielding (30b). Notice that EquiNP Deletion, though ordered before Reflexivization, applies after this in sentence (30b) since otherwise the structural conditions for Reflexivization are lost.

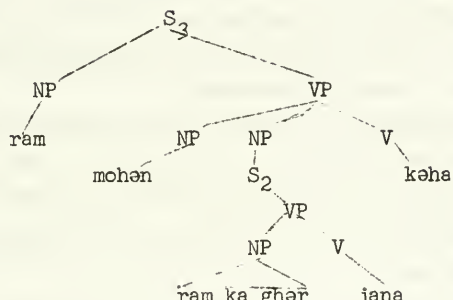
Sentence (30e) has the following Deep Structure;



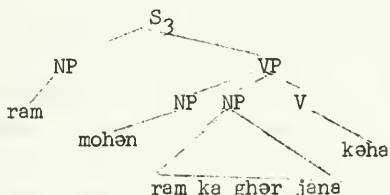
After Relative Clause formation and Relative Clause Reduction have applied, we obtain (after tree pruning)



Reflexivization cannot yet apply. EquiNP Deletion yields



Only after EquiNP Deletion has applied, and the node S_2 has been pruned, the two occurrences of ram are dominated by the same node S_3 :



Reflexivization applies, and after all relevant morphophonemic transformations have applied we obtain (30a).

Notice that in the derivation of (30b) Reflexivization must apply before EquiNP Deletion, for otherwise the structural description for Reflexivization will not be met once the embedded subject NP is erased under identity with the closest NP of the embedding sentence; in (30a), on the other hand, Reflexivization must apply after EquiNP Deletion for only then the second occurrence of ram will be dominated by the same node S. These ordering paradoxes indicate clearly that both Equi and Reflexivization are in the cycle, and that EquiNP Deletion is ordered before Reflexivization.

Sentences like

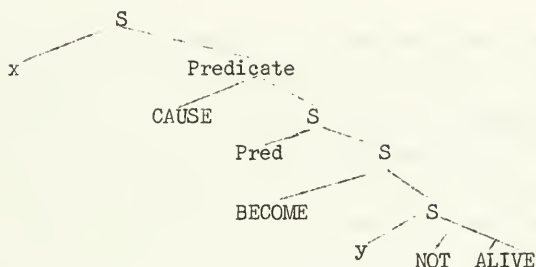
- (31) trilok əpne əpko bevəkuf manta hə
 Trilok considers himself stupid

indicate that Reflexivization is also ordered after Subject Raising, and presumably Subject Raising is in the cycle. Subject Raising is the rule Sinha claims interacts with the Causativization rule in the derivation of causative sentences.⁷

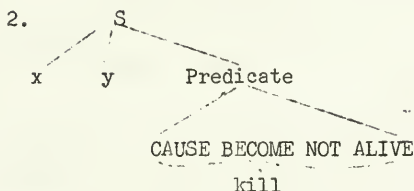
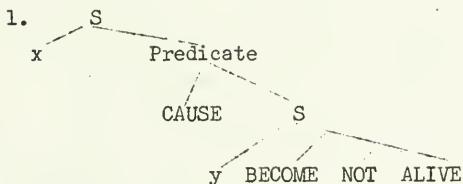
The constraints we have discussed indicate that Causativization must be ordered before the cyclical rules of the grammar. In addition to this feature of the Causativization rule that has been presented in this paper, there are further aspects of the rule that deserve to be investigated.

There is evidence that Causativization is not a lexical rule as the others we have discussed or mentioned in this paper. The main difference between English and Hindi Causatives is that in English we have surface structure evidence that the causative is complex not only in deep semantic representation, but throughout the derivation as well. In Hindi, on the other hand, the predicate of causation and the embedded verb are one lexical item in surface structure, and this is direct evidence that the causative transformation in Hindi is a prelexical transformation, that is, that the causative transformation applies to trees which terminate in semantic material rather than in lexical material. In English, too, there are cases of prelexical causativization rule, as in enable, break, etc., but there is no general morphological device for marking causatives as in Hindi. A semantic structure such as cause to laugh is represented in the same manner in both languages, with the difference that in English there is no corresponding lexical item to replace such a configuration, so the derivation is blocked, whereas in Hindi the Causative rule can apply and after its application the lexical item hāsana replaces the constituent tree.

Causativization has been claimed to be a special case of the more general prelexical rule of predicate raising. McCawley (1968) has claimed that the rule of predicate raising operates on a structure like



in the following manner



In the structure above, capital letters stand for semantic predicates, while small letters stand for lexical items, following the convention introduced by McCawley, Morgan, etc.

The assumption behind this approach is that lexical items replace constituents, and therefore there must be a rule that takes these predicates or constituents in the semantic representation of a verb and turns them into one constituent, which is what the Predicate Raising transformation accomplishes. The rule operates first in the most embedded predicate moving upwards; this means that there is more than one application of the rule in a given tree; on the other hand, the rule does not interact with any other rules in the grammar, and so,

even though recursive in its application, it may be ordered before the cycle. Hindi offers strong evidence that this prelexical rule is not ordered in the cycle; it also offers evidence that lexical insertion takes place immediately after the operation of Predicate Raising, or, before the rules in the cycle apply, since causatives behave as simple structures with respect to several other rules in the grammar, such as the Agentive and Participial Adjectivization transformations.⁸

In the literature, the rule of Predicate Raising has been regarded as an optional rule since it is possible to obtain such paraphrases of kill as cause to die, where Predicate Raising has not applied on the higher predicate. The transformation has to be considered as obligatory when applying on causatives in Hindi since there are no paraphrases that I know of for these sentences. Notice that the obligatoriness of the transformation seems to be quite general whenever the language has a morphological device that clearly indicates in surface structure the types of predicates that constitute the semantic representation of the item; thus in English, for example, cause to be able is generally realized as enable.

A general principle of semantic representations is that verbs can incorporate NP's as long as the NP is not a definite description containing a true referential index. Thus, for example, photograph may contain the NP's picture and perhaps somebody, but it cannot contain a specific NP; it is unlikely that there will be in any language a word meaning take a picture of Peter; similarly, although a lexical item meaning criticize the president might exist or be created in a language, it is unlikely that an item like criticize Johnson might exist.⁹ This excludes the possibility of deriving the causative pahānvana, for example, from the semantic representation

cause x to make y to wear y's clothes

or something similar. In postulating that the Causative transformation in Hindi is prelexical we are maintaining that the constituent structure of a causative verb is invariable, that is, the only predicates for,

say, pəhənvana, is

x cause y cause z to wear;

if another element is present at the point the Causative Transformation applies, this structure will not then coincide with the dictionary entry for pəhənvana and the transformation will be blocked.

Notice that certain facts about Hindi causatives and negatives that have worried scholars are automatically explained once we accept the claim that the Causative transformation is prelexical. A sentence like

(32) mā ne jiji se bōce ko nēhī 'sulveya

Mother did not make the elder sister put the child to sleep has only one interpretation, namely, that in which nēhī 'not' negates the whole structure x cause y cause z sona. In other words, sentence (32) cannot be derived from

x cause y cause z nēhī sona

nor from

x cause y nēhī cause z sona

since the rule of Predicate Raising will be blocked if the predicates are raised over a negative. Notice that in cases of embeddings where the terminal nodes are lexical rather than semantic, as Hindi scholars have maintained is the case of causatives, there is no restriction about negating the most deeply embedded verb, as in

(33) mē ne usko ghor nē jane ko kōha

I told him not to go home.

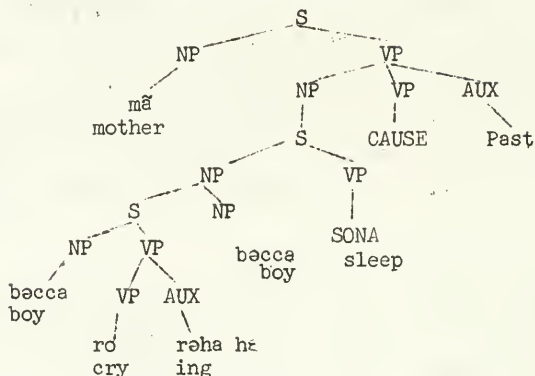
A sentence like (33) is parallel in structure to sentence (32) in all the analysis of causatives that have been proposed so far that consider causatives as instances of sentence embeddings. Researchers were therefore forced to claim that causatives were exceptional with respect to negation, whereas in the ~~analysis~~ analysis proposed in this paper the problem does not arise at all.

We will now ~~present~~ present a step by step derivation of a causative sentence based on the approach that has been discussed ~~above~~ above. Let us

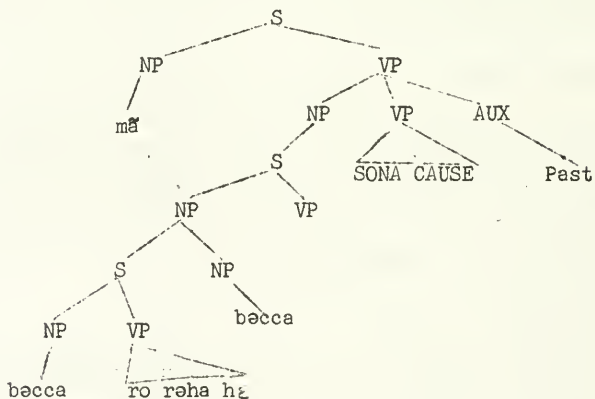
consider the sentence

(34) mā ne rote hve bæcce ko s'laya

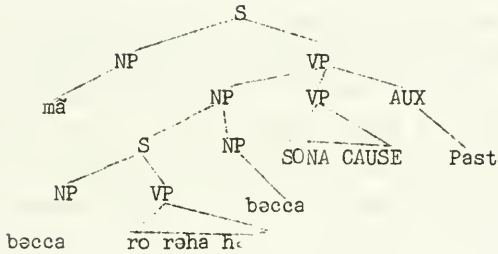
Mother made the crying boy sleep



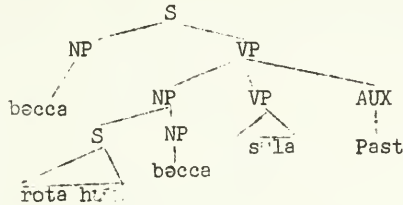
After Predicate Raising we obtain



After the tree pruning conventions, the structure would look like the following:



After lexical insertion, where the lexical item sulena replaces the constituent sona cause, the Adjectivization rule can apply next yielding



We see that Predicate Raising applies first, that is, the whole tree is scanned looking for those nodes ending in semantic material; all other relevant transformations apply later. The proposal advanced here needs more elaboration and investigation, especially of those phenomena which arise when the Causative rule interacts with other rules, but it seems to me that the claim that Causativization is a prelexical rule which applies before the cyclical rules operating on lexical material is basically sound. This claim, together with certain facts of Hindi grammar indicate that some of the assumptions that have so far been made about prelexical rules need much more detailed investigation. Particularly important is a study of the assumption that the rules operating on subtrees of semantic representation are ordered together with other lexical rules of the grammar.

The analysis we have proposed for Hindi is consistent with the semantic and syntactic phenomena that are characteristic of causative

sentences. Semantically, it enables us to represent the relationship between non-causal, direct causal, and indirect causal sentences. The relationship between the NP's of these sentences was not investigated since the proposals of Yamuna Kachru, Sinha, and Balachandran account for this satisfactorily. In particular, the framework of Case Grammar permits the structural representation of these phenomena in an adequate and insightful way.

The proposal is sound syntactically because the basic assumptions concerning the semantic representation of causatives and the ordering relationships of these and other rules are consistent with the facts noted about Reflexives and Negation in Hindi causative sentences.

Notes

* Paper presented in the course 'Structure of Hindi' (Linguistics 303; Fall 1970), Department of Linguistics, University of Illinois, Urbana, Illinois.

I would like to thank Yamuna Kachru, Jerry Morgen and K. V. Subbarao for their comments and helpful discussions on an earlier version of this paper. Tej K. Bhatia, Yamuna Kachru and K. V. Subbarao have helped me in verifying my data.

1 Kellogg's statement is not exactly true. Yamuna Kachru (class lectures) has characterized a set of verbs that cannot undergo Causativization.

2 Lakoff has also discussed this problem in the article 'Verbs of Change and Causation', but I was unable to consult it.

3 Notes from her class lectures.

4 This is not completely true since we find sentences like the following:

John learned French by reading Baudelaire

John discovered the answer by going through the whole book where we would be forced to claim that verbs like learn, discover, report, etc., are causatives. So, more rightly, causatives seem to form a subset of a larger class of verbs, the properties of which are still undefined. I am grateful to Jerry Morgen for having called my attention to these sentences.

5 These derivations and others in the paper are presented in a simplified form, unless a step by step derivation is absolutely essential for the argument; for a somewhat more detailed derivation of participials see Kachru (1966).

6 Yamuna Kachru pointed out these facts to me.

7 We have not considered in detail the claim that the structural description of Reflexivization must refer to a Deep Structure subject. Greaves (1933:179) makes a similar claim with respect to surface subjects. He maintains that the genitive reflexive apna is generally correferential with the subject NP of the main verb,

and although he cites counterexamples, he states that this rule is general enough to accept its validity. Lakoff (undated) has claimed something similar in his discussion of English pronominalization rule. He states that a subject - nonsubject distinction must be specified in the rule in order to insure the correct outputs. Furthermore, he presents evidence that there are a number of constraints that have to be postulated, but which are not part of the rule of Pronominalization itself but are output conditions, that is, conditions of well-formedness in surface structure.

Reflexivization in Hindi is in general quite predictable, and only its behavior with causatives would motivate an investigation to determine whether Lakoff's claims about anaphoric processes in English are parallel to claims that could be made about the process of Reflexivization in Hindi.

8 Note that McCawley argues that in English lexical insertion does not take place immediately after prelexical transformations have operated. He attempts to show, for example, that transformations that have been regarded as cyclical and as operating on lexical matter apply before lexical insertion takes place. This is the case, he states, of Reflexivization and EquiNP Deletion.

9 See Morgan (1968).

References

- Balachandran, Lakshmi Bai (1971). A Case Grammar of Hindi with special reference to the Causative Sentences, Cornell University Ph. D. Dissertation.
- Bahl, Kali Charan (1967). 'The Causal Verbs in Hindi' Languages and Areas, studies presented to George V. Bobrinsky, 6-27, Chicago.
- Geis, Jonnie (1971). 'Subject Complementation with Causative Verbs', to be published.
- Greaves, Edwin (1933). Hindi Grammar, London.
- Kachru, Yamuna (1965). A Transformational Treatment of Hindi Verbal Syntax, University of London Ph. D. Dissertation.
- _____ (1966). An Introduction to Hindi Syntax, University of Illinois, Urbana, Illinois.
- _____ (1968). 'The ko-sentences in Hindi', Studies in a Transformational Grammar of Hindi, East-West Books, Dhanbad.
- Kellogg, S. H. (1955). A Grammar of the Hindi Language, reprinted by Lowe and Brydone, London.
- Krishnamurti, Bh. (1970). 'Causative Constructions in Indian Languages. Some Semantic and Syntactic Aspects', paper presented to the first All - India Conference of Linguists, Poona, December 1970.
- Lakoff, George (1965). On the Nature of Syntactic Irregularity, Cambridge, Mass., The computation Laboratory of Harvard University, Mathematical Linguistics and Automatic Translation, Report NSF-16.
- _____ (1967). 'Deep and Surface Grammar', Bloomington, Indiana, University of Indiana Club, unpublished ditto.
- _____ . 'Pronouns and Reference', Computation Laboratory, Harvard University, unpublished ditto.
- Lakoff, Robin (1968). Abstract Syntax and Latin Complementation, Research Monogram No. 49, Cambridge, Mass., M. I. T. Press.
- McCawley, James D. (1968). 'Lexical Insertion in a Transformational Grammar without Deep Structure', Papers from the Fourth Regional Meeting of the Chicago Linguistic Society. 71-80.

- Morgan, J. L. (1968). 'Remarks on the notion "possible lexical item" ', Paper presented at the winter meeting of the Linguistic Society of America, December 1968.
- Newmeyer, Frederick J. (1969). English Aspectual Verbs, University of Washington Studies in Linguistics and Language Learning, vol. 6, Seattle, Wash.
- Rosembaum, Peter (1965). The Grammar of English Predicate Complement Constructions, Research Monogram No. 47, Cambridge, Mass., M. I. T. Press.
- Sinha, Anil Chandra (1970). Predicate Complement Constructions in Hindi and English, Ph. D. Dissertation, York University, England.
- Subbarao, K. V. (1967) 'Some Aspects of Pronominalization and Reflexivization in Hindi', paper presented at the conference in Hindi Syntax at the inter-university Rotating Summer Program in South Asian Studies, August 1967.