UNIVERSITY OF CALIFORNIA
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Gujarati Verbal Constructions

A dissertation submitted in partial satisfaction of the requirements for the degree Doctor of Philosophy in Linguistics

by

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1969
The dissertation of Purushottam Jivanji Mistry is approved, and it is acceptable in quality and form for publication on microfilm.

[Signatures]

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1969
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I am thankful to Mr. William Rutherford for taking care of many missing articles and other deficiencies in the manuscript. I should also like to express my gratitude to my wife, Karen, for her patience and assistance in typing the major portion of the first draft of this work. I also owe appreciation to Mrs. Cynthia Thompson for typing the final draft of the manuscript.
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ABSTRACT OF THE DISSERTATION

Gujarati Verbal Constructions

by

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Doctor of Philosophy in Linguistics
University of California, Los Angeles, 1969

Professor William O. Bright, Chairman

This study describes verbal forms of Gujarati, an Indo-Aryan language, in the transformational-generative model. Previously these forms have been described and classified according to the principles of 'morphemic analysis'. We have attempted to reorganize the same material by giving primary consideration to syntactic and semantic characteristics of sentences in which they occur. The introductory remarks about the language, and the scope of the present inquiry (Chapter 1) is followed by a sketch that introduces some essentials of Gujarati syntax (Chapter 2). The rest of the dissertation is devoted to the discussion of the various verb forms and their sources.

Chapter 3 introduces different Tenses and Aspects. Imperfect, Perfect and Pluperfect aspects are analyzed sub-categories of Past tense, and sentences with the Obligational,
Volitional or Desiderative aspect are analogous to many
copular sentences and are shown here to be derivable without
any additional mechanism in the grammar. Further, syntactic
considerations suggest, and dialectal and comparative evi-
dence support, that complex forms like *awe che* 'is coming'
are Imperfect forms and that the language has an Imperfect-
deletion rule that explains this and other phenomena of the
language.

A re-analysis of the Imperatives and the Causatives
is proposed in Chapter 4. Because of co-occurrence restric-
tions and semantic import, we have distinguished COMMAND-
type imperatives from WISH-type. Causatives have been ob-
served to have two layers of causativization and an abrupt
cut off of the process. It is argued here that the first
causative and the second causative are, in fact, two differ-
ent processes--HELP and EMPLOY, respectively. Further, a
significant relationship between the presence of *-ne* and *-ni
pase* in HAVE-constructions and the causative constructions
is revealed. A related construction, otherwise known as
'passive', is renamed ABLE and shown to involve the conversion
of do-type verbs into happen-types.

In the description of verbal sequences and gerund con-
structions (Chapter 5) the processes of compounding vs. clus-
tering are illustrated. An attempt is made to specify the
types of rules required for the derivation of verbal sequences,
to indicate the problems such a description raises about the
present framework of grammar, and to show similarities in the
derivation of causative constructions and sentences with verbal sequences. We have demonstrated that gerund constructions are adverbial in nature and are often ambiguous as to time or manner.

In conclusion (Chapter 6), it is shown that this study derives a bewildering variety of verb forms (with insight into the workings of the language and with elucidation of inter-relationship between diverse-looking constructions) from only four processes in the grammar: i) Combination of formatives (Root+Tenses, Aspects) provided in the base component; e.g., a future form kherid·še - 'will buy', ii) Formatives from the base and the operation of certain transformations; e.g., a desiderative form kherid·wū, iii) Combination of two verbs of which one is a lexical morpheme and another an abstract pro-form, e.g., an imperative form kherid·j - 'buy' where the pro-form is deleted, and a causative form kherid·aw - 'to cause to buy' - where the pro-form is realized as aw, and iv) Combination of two verbs both of which are lexical items, e.g., a verbal sequence awi geyo 'has already come' where the two verbs are compounded, and a gerund construction awi(ne) geyo 'came and went' where two verbs are clustered together.

The Appendix shows that a certain group of nouns—such as sury 'sun', wersad 'rain' etc.—is different not only semantically but also syntactically from other nouns. It also points out that the so-called idiosyncracies of certain verbs have a neat explanation if we take into consideration the features of nouns with which they are constructed.
1: INTRODUCTION

1.1: The Language: Of the many languages and dialects of India, those used for educational purposes, for literature, and public life are termed national languages. Gujarati (pronounced /gujrati/, also spelled Gujrati, Gujerati) is one of fourteen such national languages. It belongs to the Indo-Aryan language family, which is the Indian representative of a much wider Indo-European family. It has a close affinity with other major Indian languages: Bengali, Hindi, Marathi, Punjabi, etc.

The term Gujarati refers to the language as well as to the native speakers of the language. As a language, it is the lingua franca of Gujarat, a state situated on the western coastline of India. The state's territorial limits run roughly from Dwarka and the river Mithi in the north to Mount Abu and the jungles of Dang in the east, and to the river Damanganga in the south. The region thus comprises the territory of Gujarat proper and also peninsular Gujarat-Saurashtra and Cutch.

Peninsular Gujarat is known as Saurashtra or Kathiawad, and the dialect of the area as Kathiawadi. Non-peninsular Gujarat is divided into three subdivisions: (1) Northern, from the river Banas to the river Sabarmati, the dialect being known as Pattani; (2) Central, from the river Sabarmati to the river Narmada, the dialect being Charotari; and (3)
Southern, from the river Narmada to the river Damanganga, the area of the Surti dialect. Besides these regional dialects, different social groups have their own dialects. There are also occupational groups, each with its own dialect. The speech of the area around the capital of the state, Ahmedabad, is at present considered the most elegant.

The linguistic boundaries of the language are much wider, however. Therefore, though the population of Gujarat is over 18 million, the number of Gujarati speakers can be estimated as closer to 22 million. Gujarati speakers associate themselves mainly with trade and commercial activities and are spread over all the big cities in India and abroad. Places like Bombay, Calcutta, Delhi, Hyderabad, Lahore, Madras, Nagpur, etc., not only have Gujarati communities, but also Gujarati schools and organizations fostering the atmosphere and culture of Gujarat. In fact, the Gujarati community of Bombay is a powerful force in setting standards and thereby influencing the customs and fashions of Gujarat.

In Pakistan, too, especially in Karachi, there are literary societies and an increasing number of publications in Gujarati: literary books, magazines, newspapers, etc. "Today it [Gujarati] can be heard in the small and far-flung villages and hamlets of both East and West Pakistan," observes Mr. G. Allana in the Introduction to the Gujarati section (pp. 175-8) of his anthology Presenting Pakistan Poetry. A significant number of Gujarati-speaking families have settled in Java, Hongkong, Malaya, Burma and other commercial
centers. Of all places abroad, East Africa has the largest number of Gujarati speakers. This is evident from the Gujarati characters used in the paper currency of this area.

A group of Zoroastrians known as Parsis left Iran for religious reasons and landed at Sanjaŋ, a port in South Gujarat, in the twelfth century. They have since adopted Gujarati in all walks of life. The same proficiency is found among the Muslims of the area.

In more recent times, two additional influxes have occurred: Sindhi speakers, brought by the partition of India, and Marwari speakers, attracted by better opportunities and conditions. These recent settlers use Gujarati as a second language. One also finds a large number of Marathi speakers of Bombay having a good command of the Gujarati speech.

1.2: Previous Studies: The Gujarati language has been a subject of investigation for approximately one and one-half centuries. Works on the language have appeared by both native and foreign scholars. Quite a large number of them appeared as introductions to edited texts of Old Gujarati and Apabhramṣa; a few scholars also wrote grammars of the language. These grammars attempted to describe the structure of the contemporary language and also to trace the historical evolution of particular features starting from Sanskrit to the present day. For the first goal, the model they used was derived from current Sanskrit grammars and traditional English grammars, and substantial space was devoted to classifications on the basis of semantic considerations. But more
often than not, it was the second goal that appeared to be more vigorously pursued. Further, they did not delimit their inquiry just to linguistic phenomena but extended to philological and literary matters as well. Among these grammars, Taylor's and Trivedi's have been very influential on a large number of other works. In recent years two scholars, Pandit and Cardona, have made significant contributions to Gujarati linguistics. Pandit has worked extensively on Gujarati phonology, in both its synchronic and diachronic aspects. Cardona's is the best descriptive grammar of Gujarati among the grammars so far attempted. Unlike the other grammarians of the language, he concentrates only on the grammatical details of the present day language and describes his findings quite explicitly in the framework of what has come to be known as the structural approach in linguistics.

The topics (along with the numbers of pages devoted to each topic) discussed in Cardona's grammar are as follows:

Phonology (19-52)
Writing System (53-60)
Nominal System (61-97)
Verbal System (98-140)
Adjuncts (141-154)
Nominal Derivation (155-163)
Composition (164-165)
Compound-like sequences (166-167)
Summary of Syntax (168-173)
In such a treatment, language seems to be viewed as made up of a number of sub-systems. We find a reasonably clear picture of the morphological details involved in each subsystem, but, at the same time, the details of dependency of one subsystem on another, and the various combinations of subsystems which are so characteristic of languages, remain untreated or unemphasized. Such grammatical works fail to give any coherent idea about the principles of sentence construction in the language that they attempt to describe. In Cardona's grammar, too, we find that syntax occupies five pages. In other grammars, there are many comments--some useful and some misleading--about the syntactic details of the language. But in general, there is a dearth of studies on the syntactic structure of Gujarati.

1.3: Aims of this Study: This study is concerned with syntactic details, primarily with verbal constructions, in Gujarati. A sentence in Gujarati contains various elements. Of these, some may or may not be present at the surface level but few sentences are without a verb. As in any other language, the Verb can thus be considered an obligatory constituent.

This core constituent, V, appears in Gujarati sentences in quite a large number of forms, constructed by derivational and inflectional suffixes. The root for any of the inflectional forms has the following shape:

\[ V \cdot (aw \cdot (aw))(\cdot a) \]
where \( aw \) is considered a causative\(^8\) and \( a \), a passive morpheme. Thus, for \textit{kherid} 'to buy' we get the following six derived forms:

\[
\begin{align*}
\text{kherid-} & \quad (V) \quad 'to\, buy' \\
\text{kherid\textcdot}aw & \quad (V \cdot \text{caus}_1) \quad 'to\, cause\, to\, buy' \\
\text{kherid\textcdot}aw\textcdotdaw & \quad (V \cdot \text{caus}_1 \cdot \text{caus}_2) \quad 'to\, cause\, X\, to\, cause\, to\, buy' \\
\text{kherid\textcdot}a & \quad (V \cdot \text{passive}) \quad 'can\, be\, bought' \\
\text{kherid\textcdot}aw\textcdota & \quad (V \cdot \text{caus}_1 \cdot \text{passive}) \quad 'can\, be\, caused\, to\, buy' \\
\text{kherid\textcdot}aw\textcdotdaw\textcdota & \quad (V \cdot \text{caus}_1 \cdot \text{caus}_2 \cdot \text{passive}) \quad 'can\, be\, caused\, X\, to\, cause\, to\, buy' \\
\end{align*}
\]

Each of these six roots combines with inflectional suffixes for tenses, aspects and modals. The resulting forms are further differentiated for person or gender and number. Ignoring the different forms for person, gender, and number we obtain the following forms from just one of the six roots, derived from \textit{kherid-} 'to buy'.

**Simple forms:**

\[
\begin{align*}
\text{kherid\textcdot}e & \quad (\text{Person} \cdot \text{Number}) \quad 'buy' \\
\text{kherid\textcdot}e & \quad (\text{Future} \cdot \text{Person} \cdot \text{Number}) \quad 'will\, buy' \\
\text{kherid\textcdot}t\textcdoto & \quad (t \cdot \text{Gender} \cdot \text{Number}) \quad 'used\, to\, buy' \\
\text{kherid\textcdot}y\textcdoto & \quad (y \cdot \text{Gender} \cdot \text{Number}) \quad 'bought' \\
\text{kherid\textcdot}el\textcdoto & \quad (el \cdot \text{Gender} \cdot \text{Number}) \quad 'had\, bought' \\
\text{kherid\textcdot}w\textcdoto & \quad (w \cdot \text{Gender} \cdot \text{Number}) \quad 'want\, to\, buy' \\
\text{kherid\textcdot}wan\textcdoto & \quad (wan \cdot \text{Gender} \cdot \text{Number}) \quad 'is\, going\, to\, buy' \\
\{\text{kherid} \text\{\textit{jer}\text\} \} & \quad \text{Imperative} \quad 'buy!' \\
\text{kherid\textcdot}t(e) & \quad \text{Conditional} \quad '(if)\ldots\, buy' \\
\text{kherid\textcdot}i(ne) & \quad \text{Gerundive} \quad 'having\, bought' \\
\end{align*}
\]
Most of the above inflected forms occur in construction with auxiliary verbs ch- and ho-, and also with many verbs like śak- 'to be able' and nakh- 'to throw', functioning as modal verbs. As a result, we get the following constructions:

**Complex forms:**

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Root</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>kherid</td>
<td>e</td>
<td>'is buying'</td>
</tr>
<tr>
<td>kherid</td>
<td>t.o</td>
<td>'was will be buying'</td>
</tr>
<tr>
<td>kherid</td>
<td>y.o</td>
<td>is usually</td>
</tr>
<tr>
<td>kherid</td>
<td>wan.o</td>
<td>ho.e ch.e</td>
</tr>
<tr>
<td>kherid</td>
<td>el.o</td>
<td>ho.t.o</td>
</tr>
<tr>
<td>kherid</td>
<td>w.o</td>
<td>ho.s.e</td>
</tr>
</tbody>
</table>

**Verbal Sequences:**

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Root</th>
</tr>
</thead>
<tbody>
<tr>
<td>kherid</td>
<td>i</td>
</tr>
<tr>
<td>kherid</td>
<td>wa</td>
</tr>
<tr>
<td>kherid</td>
<td>t.o</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Root</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>śak-</td>
<td></td>
</tr>
<tr>
<td>lag-</td>
<td></td>
</tr>
<tr>
<td>aw-</td>
<td></td>
</tr>
</tbody>
</table>

We realize that there are numerous forms of Gujarati verbs; but, in the present analysis we maintain that certain forms are basic and others derived. In this study our attempt is to interpret the underlying structure of these forms and to show how the base rules, combined with transformational rules and lexicon, generate the above forms in such a way that some interesting facts about the working of Gujarati grammar are revealed. Although we deal with several topics in Gujarati syntax, our primary aim is to provide an insightful description.
of verbal constructions. For this, we will first present a sketch of Gujarati syntax (Chapter 2) and then discuss various facets of verb forms (see Chapters 3, 4, and 5).

The present investigation has been carried out in the general framework of Chomsky (1965) in which the system of rules of a grammar is analyzed into four components: the syntactic, phonological, semantic, and lexical. A grammar is an attempt to relate the 'meaning' of a sentence to its sounds. It is assumed that this relation is mediated by the syntactic facts of the language. Thus the syntactic component is the sole creative part of the grammar. The phonological and semantic components interpret the information provided by the syntactic component and therefore are interpretive in nature. The lexicon is substitutive as it substitutes appropriate lexical items for feature-composition generated by the syntactic component. The central idea of this framework is that a sentence has a deep structure and a surface structure; and, the surface structure of a sentence is determined by the application of grammatical operations called transformations to its deep structure.

A syntactic study of any language is an attempt to discover regularities and generalizations in the construction of sentences in language. Many linguistic phenomena and regularities are not always revealed by inspection of the final form of sentences. It is therefore maintained that a sentence has an underlying form, often radically different from its final
form, and it is this underlying form that embodies linguistic regularities.

In recent years, many grammatical works have shown that there are aspects of language which cannot be described in mechanical ways, in terms of segmentation and classification. These aspects require different principles of organization: organization in terms of deep structure. According to this organization, the syntactic component contains two sets of rules. The first set is called constituent structure rules, which specify the grammatical categories and their relations. The second set is called transformational rules, which specify the final form of the abstract structure generated by the constituent structure rules. The structure generated by the first set of rules is termed the deep structure and contains all the information necessary for the semantic interpretation of the sentence. This deep structure is matched on to another structure-surface structure by the second set of rules, and this surface structure undergoes phonological rules and receives phonetic specification.
FOOTNOTES

1 Census of India (1961); part II-C (ii); p. xliv.

Calcutta, Government of India Press.

2 Vyas, K.B.: "The first Grammar in Modern Gujarati."
Journal of the Gujarat Research Society XVII (1955) No. 4,
pp. 278-99.

3 To name a few among such works available in English:


4 For example, Trivedi in the Preface of his grammar
mentions that his grammar "contains an exhaustive treatment
of all points connected with Gujarati grammar. It gives a
history of the Gujarati language ... Besides touching upon
the formation and the development of language and its classi-
fication from a formative and an historical standpoint, Pron-
nunciation, Words, their Primary and Secondary powers, Con-
traction, Amplification, and Deteriouration of Sense,
Accidence, Etymology, Syntax, Analysis, and Punctuation, it
deals with Style, points out its merits and demerits in it,
and draws the attention of the reader to the sort of faults
that are commonly met in Gujarati prose and poetry. The sub-
ject of poetics is also dealt with to some extent."
Gujarati bhašanū dhvenišwerup ene dhveniperiworten (Sound Pattern and Sound change in Gujarati), Gujarat University, Ahmedabad (1966).

That a sentence has two structures -- deep and surface -- is implied in all literature which argues that an adequate grammatical description involves transformational rules. For a discussion, cf. Postal, and also Chomsky (1965).
2: A SKETCH OF THE SYNTACTIC COMPONENT

2.1. The Base Component: The syntactic description in this chapter is in three sections, each one treating the base, lexicon, and transformations, respectively. The base generates a set of structures and a general principle of lexical insertion permits lexical entries of the lexicon to replace the terminal symbols of the base on the basis of their feature content. Formal objects so constructed are deep structures (i.e., base p-markers), each of which incorporates all information relevant to a single interpretation of a 'sentence'--a string of formatives. By the various permissible grammatical operations of the transformation component, the deep structure (base p-markers) is then converted into the surface structure (derived P-markers). These surface structures attain their phonetic shape by application of the rules of the phonological component.

The base of the syntactic component is a system of rules that generates a restricted set of basic strings. It contains a set of context-free rewriting rules.

Such rules are very small in number, yet the system accounts for sentences infinite in length and number. This power of the system stems mainly from two sources:

1) Rules$^1$ of the type $A \rightarrow (B)C$ and $A \rightarrow \begin{cases} B \\ C \end{cases}$ accommodate obligatory as well as optional and alternative elements in a
single rule and are therefore a source for structures of more than one type.

ii) Rules may also introduce the initial symbol 'S' into a line of derivation. In this way, the rewriting rules can insert base phrase markers into other base phrase markers. This process equips the grammar with an infinite recursiveness.

The sequential application of the rewriting rules, starting with an initial symbol S and applied one at a time, expands X first into non-terminal symbols (NP, VP, etc.) and finally into terminal symbols (N, V, Adj., etc.). The derivation is completed when no rewriting rule is applicable—i.e., when the generated string contains no non-terminal symbols. The transformations apply on the structures provided by the base. One of the functions of the rules of the base therefore, is to provide information that is necessary to initiate transformations. The underlying order of elements and use of the dummy elements like Q, ABLE introduced by the rewriting rules makes the functioning of the transformational rules possible.

Though we are mainly concerned with the details of verbal constructions, this chapter introduces some essentials of Gujarati syntax for an overall view of the language as well as for background to gain an understanding of verbal constructions. At every expansion we shall give illustrative examples and notes on the reason(s) for such a breakdown—citing only the overriding criteria; the others will become obvious in the later stages of the grammar.
PS1: $S \rightarrow \{\begin{array}{l}
ADV \ S \\
S \ \text{Conj} \ S \\
(ADV) \ NP \ \text{PRED-P (Post)}
\end{array}\}$

Justification for expanding a sentence into ADV S lies in the existence of sentences such as (1)

(1) be rupyamā Bill pāc keḷa ene keri kharidśe two rupee-in five banana and mango buy

"Bill will buy five bananas and five mangos for two rupees."

Here, the adverb be rupyamā "for two rupees" is not a constituent of either of the two sentences that are conjoined but is dominated by a sentence that dominates the two constituent sentences as shown in (2)

(s) $[\begin{array}{ll}
\underbrace{[be \ rupyamā]}_{\text{ADV}} & [\underbrace{\text{Bill pāc keḷa kharidśe}}_S] \\
[\text{Bill pāc keri kharidśe}_S] & S
\end{array}]^2$

An asterisk means, by convention, that the output contains an unlimited number of elements of the same category. Thus, the second alternative in the above rule produces as many Ss as desired. Technically, all Ss are flanked by boundaries—i.e., $\#S\#$. Thus, the product of PS1 may have the form $\#S\#\text{CONJ}\#S\#$. Yet the final form of a sentence has only two boundaries: $[\#\ldots\#]$ initial and final. Only such strings qualify as well-formed sentences of the language and receive sentence intonation.

PS 2: PRED-P $\rightarrow$ VP AUX
There is no strong motivation at present to assume AUX as a constituent not dominated by VP. Whether Gujarati verbs are subcategorized in terms of AUX or its constituents has not been investigated, but we have at present accepted Chomsky's observation that "verbs are not strictly subcategorized in terms of types of NPs or types of Auxiliary" (Chomsky: 1965 p. 96). Moreover, NP VP together constitute the basic meaning, while AUX is a modifier that makes the sense more specific with respect to time and/or modality, etc. Marginal evidence for the present analysis is supplied by the fact that AUX can be deleted independent of VP under the identity condition, as in the following sentences.

(3) a dewathi Bill lekhi wâci sekše
    this medicine-by write read can

"Bill will be able to write and read by (taking) this medicine."

This sentence has its source in (4)

(4) [a dewathi Bill lekhi sekše]ₘ CONJ
    [a dewathi Bill wâci sekše]ₘ

"Bill will be able to (taking) this medicine."

"Bill will be able to read by (taking) this medicine."

PS 3: VP \{PREDICATE (ADV) (POST-F) (NP) V\}

The VP is expanded to provide for two basic types of sentences—copular and verbal. The copular sentences have different types of elements in the predicative position (as shown in PS 4). These elements are grouped under the category of
PREDICATE to show that they behave similarly in very many processes of the language. For example, as is shown in the Adjectivization transformation (T_{11}), anything that occurs in the predicative position could be transposed to the attributive position.

The copular verb is ho· and is marked [·V]. Many rules that apply to verbs also apply to the copula (Ref. discussions in 5.1). Thus, the deletion rule applies to both of them as exemplified in the following sentences:

(5) Bill jetlo ũco ho·to teṭlo ũco Jim hoto. as much tall was that much

(5a) Bill jetlo ũco Jim ho·to "Jim was as tall as Bill (was tall)."

(6) Bill jetla peysa leše teṭla peysa Jim leše as much money take that much

(6a) Bill jetla peysa Jim leše "Jim will take as much money as Bill (will take money)."

The second part of the rule specifies the traditional classes of verbs, namely

1) intransitive

(7) Bill došt̂e "Bill will run."

ii) transitive

(8) Bill radio kheridše "Bill will buy a radio."

III) double-object

(9) Bill Jimne radio apše "Bill will give Jim a radio."

These verbs are further subcategorized on the basis of co-occurrence restrictions between Verbs and Adverbs.
Jimne in (9) is assigned the structure POST-P. Such a constituent is defined by PS9 as a construction composed of NP \cdot P(ost)p(osition). It thus corresponds to Prep-Phrase positied for English (Chomsky: 1965 p. 107). Though one finds more than one Prep-phrase as constituents of VP in English (Chomsky has V (NP) (Prep-Phrase) (Prep-Phrase)(Manner) as one of the expansions of VP), it is not clear whether it is necessary for all of them to be introduced in the base or whether some are the results of embedding. In the present analysis, we have preferred to have only one POST-phrase in the constituent of VP--not because the details of Gujarati are radically different from those of English, but because it is assumed that other POST-phrases are generated by embedded Ss. For the following sentence (10) then, we postulate (11) as its underlying form

(10) Bill widyarthione India wiše wayakhyan apše students - to about lecture give "Bill will give a lecture on India to the students."

(11) Bill widyarthione#wyakhyan India wiše che# wyakhyan apše

Adverb is a very poorly understood constituent of language. In our description it is generated at four places: two ADVs in PS₁, one in PS₂, and one in PS₄. These four adverb nodes provide a source for four different types of adverbial phrases. We have already given an example (1) of the structure ADV S. The second type of adverb, also from PS₁, has an NP and PRED-Phrase as its sister nodes as in (12):
(12) ghermâ Bill Jim\'ne bolawše
    house       call

    "In the house Bill will call for Jim."

The third type of adverb is needed for sentences like

(13) Bill Jim ne ghermâ bolawše

    "Bill will call Jim to come inside."

where ghermâ is a constituent of PRES-PHRASE. The dual nature
of the same adverb ghermâ is clarified by the English transla-
tion given. In (12) it's a sentence adverb modifying the whole
sentence. In (13) it is a predicate adverb modifying the PRED-
P. This dichotomy is necessary since only the latter plays a
role in the subcategorization of verbs

(14) Bill do\'go jošthi pechađšë
    ball        force-with throw (on the floor)

    "Bill will throw the ball (on the floor) with force."

The verb of sentence (13) takes a Place adverb, whereas that
of (14) takes a Manner adverb. These restrictions on co-
ocurrence will appear in the lexicon in the form of selection-
al features which are listed for each individual verb. Thus,

(15) pechađ-  [+V], +[Manner]--, ...
    bolaw-    [+V], +[Place]--, ...

The fourth adverbial node is also a constituent of PRED-
PHRASE but occurs in copular sentences such as

(16) Bill ghermâ ho\'š.\'e

    "Bill will be in the house."

It is equally possible that there are different restric-
tions as to the kinds of adverbs and/or their internal structure
that can appear under each of the four adverbial nodes. But this is one of the areas that remain to be investigated.

PS3 introduces direct objects as well as indirect objects. The indirect object invariably has a case marker \textit{-ne} suffixed to it as in (9). The direct object also has the \textit{-ne} suffix, but only under restricted conditions as exemplified in the following sentences.

\begin{enumerate}
\item[(17)] Bille radio joyo "Bill saw a radio."
\item[(18)] Bille Jim joyo
\item[(19)] Bille Jim-ne joyo "Bill saw Jim."
\end{enumerate}

That is, personal nouns must occur with \textit{-ne} when they function as a direct object. The object marker \textit{-ne} is introduced by a transformation as it is not a 'meaning'-carrying element and is predictable on the basis of the configuration of nodes and labels of the base P-markers. In double object verbs, it is rare to find a sentence in which a personal noun functions as a direct object, and the \textit{-ne} that occurs with the indirect object is not restricted to any conditions.

\begin{enumerate}
\item[(20)] Bill lak\={d}i-ne r\={e}ng may\={s}e
\quad stick color
\quad "Bill will color the stick."
\end{enumerate}

In (20), \textit{lak\={d}i} is [-human] and still it has \textit{-ne} because it functions as an indirect object.

\[
\text{PS 4} \quad \text{PREDICATE} \rightarrow \left\{ \begin{array}{c}
\text{AP} \\
\text{ADV} \\
\text{NP (PP)} \\
\end{array} \right\}
\]

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(21) Bill mâdo che "Bill is sick."
sick
(22) Bill gher·mâ che "Bill is in the house."
house-in
(23) Bill captain che "Bill is a captain."
(24) wyakhyan India wiṣe che
lecture about
"The lecture is about India."
This rule is the source for all Noun Phrases of the form: Modifier Noun. PREDICATE is broken down into different constituent classes in this rule because certain transformations operate on different constituent classes rather than on the general node PREDICATE. For example, sentences that conjoin two similar predicates have a higher degree of acceptability than sentences that conjoin different Predicates as in (25) and (26).

(25) Bill team no captain ene fielder che
"Bill is a captain of the team and a fielder."

(26) Bill ghermâ ene fielder che
house-in
"Bill is in the house and a fielder."

PS 5: AP → (MOD) ADJ

PS 6: MOD → {Intensifier
S (Comparative)}

PS 7: ADJ → {Adjective
NP + Gen.}

In PS₅ we have developed a node ADJ for Adjective and NP + Gen. (see the expansion in PS₇) because both of the latter
constructions undergo almost identical rules e.g., T₁₇ Agreement. The expansion of ADJ in PS7 is exemplified in (27) and (28)

(27) car môghi che
    expensive ADJ

"The car is expensive."

(28) car Bill-ni che
    ADJ

"The car is Bill's."

Adjective Phrase (AP) is also expanded into an optional Modifier and an obligatory ADJ. If the MOD is chosen we get the following types of sentences

(29) mari car [gheñi môghi] che. [Intensifier,ADJ]
    my [very expensive] AP

"My car is very expensive."

(30) mari car [temari car jeñî môghi] che. [S, ADJ]
    my [your equal quantity] AP

"My car is as expensive as yours."

(31) mari car [temari car jëwî newî] che. [S, ADJ]
    "My car is as new as yours."

(32) mari car [temari carthi wedhave [môghi] che. [newî] AP
    [S, 'Comparative, ADJ]

"My car is more [expensive] than yours."

Sentence (30) has the underlying form

(33) mari car [temari car môghi che] môghi che

By the operation of T₁, (33) changes into (34)

(34) mari car temari car jeñî môghi che teñî môghi che
Then the deletion operations reduces (34) to (30).

In (30) the adjective is preceded by ještli and in (31), by jemi. The occurrence of ještli or jemi is dependent on the feature [+Measure] or [+Quality] of adjectives and we assume that all adjectives are marked for these features in the lexicon.

$$\begin{align*}
\text{PS 8:} & \quad \text{ADV}\{\text{Adverb}\} \\
& \quad \text{NP PP} \\
& \quad \text{S Gerund}
\end{align*}$$

Elsewhere we have made comments on the category Adverb (refer p. 17). Here we will take a look at the internal structures of the most common types of adverbs. Traditionally adverbs have been described as

i) adverbial words such as ehî 'here', tyâ 'there', etyare 'now', tyare 'then', etc.

ii) NP Case e.g., statione 'at the station' and gher•mâ 'in the house'

iii) NP•ni Post position e.g., station•ni pase 'near the station' and station•ni agal 'in front of the station'.

iv) Gerund constructions such as nahine (ješše) 'having bathed, (will go)' and došine (ješše) 'by running, (will go)'.

Line one of PS8 enumerates the type of adverb morpheme like ehî and tyâ--'one word adverbs'. NP + PP accounts for two of the above types of traditional adverbs--i.e., ii) and iii). No distinction need be made between 'case' and •ni post
position'. Lexical items formerly considered as separate entities--i.e., ni and post-position--are now listed as a single entry--e.g., ni pase 'near' [+PP...]. The last line of PS8 enumerates gerund constructions which are discussed in detail in 5.2.

In a detailed grammar, adverbs would have to be treated under various subdivisions such as Location (ghermā 'in the house'), Time (be diwes pechi 'after two days'), Direction (station.e 'to the station'), Frequency (wremwar 'often'), etc. For this, the N of NP, and the PP will have to be marked for the features of location, time, frequency, etc. in order to generate correct adverbial phrases. It is interesting to note that the features 'location' and 'duration' in Gujarati are neutral with respect to time and space. Notice the following phrases

(35) sâj.e 'in the evening' = point in time
    station.e 'to the station' = point in space

Moreover, the question word used to inquire about both duration in time as well as in space is neutral with regard to this feature also.

(36) Bill kyâ sudhi rehše?
    "How long will Bill stay?" (up to what point in time)

(37) Bill kyâ sudhi ješe?
    "How far will Bill go?" (up to what point in space)

PS 9: POST - P → NP PP
This rule gives the structure of Postpositional phrases. In terms of their internal structure they are very similar to the adverbial phrases discussed in the previous rule. The details of this similarity are not clearly understood. Yet there are justifiable reasons for keeping the nodes separate. For example, though similar in form, we do want to call the e-phrase in (38) below an Adverb, whereas, in (39) we clearly do not.

(38) Bill station-e ješe "Bill will go to the station" go

(39) Bill-e radio kheridyoy "Bill bought a radio" buy

\[
\text{PS 10: } NP \rightarrow \begin{cases} 
S \rightarrow \begin{cases} 
\text{(DET)} & \text{(MEASURE)} & \text{NOUN} \\
\text{NOM} & \text{QUOTE} & \text{NOUN} 
\end{cases} 
\end{cases}
\]

\[
\text{PS 11: } \text{MEASURE} \rightarrow \text{Number (Quantifier)}
\]

\[
\text{PS 12: } \text{DET} \rightarrow \text{Dem (S)}
\]

\[
\text{PS 13: } \text{NOUN} \rightarrow \text{N} \text{ NUM}
\]

\[
\text{PS 14: } \text{NUM} \rightarrow \pm \text{ Singular}
\]

Though the number of rules in the base is limited, the base still is a source for sentences limitless in number as well as in length. This is accomplished by its recursive
property--the introduction of Ss at various places in the base. Thus, we have the initial symbol S introduced in both PS10 and PS12. The S in PS10 when chosen without the following sister constituent is a source for causative sentences (ref. T7), which are discussed in 4.2. The same S when followed by NOM introduces Nominalization and yields sentences like the following (ref. T2)

(40) Bill·e [awwa] swikaryû
     come accept
     "Bill agreed to come"

(41) Bill·e [jewa mate teyyari] keri
     go for preparations
     "Bill began (his) preparations for leaving"

When S Quote is chosen from the base, quotative type sentences exemplified by (42) result

(42) Bill·e [Jim kale awâse] em kehyû
     tomorrow come so said
     "Bill said that Jim will come tomorrow"

Quotative here is realized as em (ref. T4). The expansion of NP into S N accounts for appositional sentences like (43) (ref. T4 and T5)

(43) [[[Bill kale awâse] _e(wat)]_NP Jim·ne pesand nathî]
     like not
     "Jim does not like (the fact) that Bill will come tomorrow".

We have not yet discussed the first line of PS10 which expands NP into a Noun optionally preceded by DET(erator) and
MEASURE. When the latter two are not chosen, the expansion corresponds to proper names like Jim, Bill, etc. The choice of DET provides for the generation of relative clauses as in (44).

(44) [[Bill je maňesne melyo ]te maňes]cor che mân met thief

"The man who Bill met is a thief."

DET also can be expanded into DEM(onstrative). Traditionally, a 'this', te 'that', and pelû 'yonder' are considered demonstratives. Also traditionally, three tes are postulated. In addition to the one above is a correlative of je as in sentence (44) and the third is a third person singular pronoun as in (45)

(45) te gayo "He went."

However, it could be argued that sentences like (45) are reduced versions of (46)

(46) te maňes gayo "That man went."

which is, in turn, a reduced version of a sentence like (47)

(47) Bill je maňesne melyo te maňes gayo

"The man who Bill met went."

Thus, there is only one te—a correlative of je.

MEASURE is introduced for elements like pâc in pâc pustako (Number, N) 'five books' and for pâc retel in pâc retel khand 'five pounds of sugar' (Number, Quantifier, N). Refer T16 and the discussion following the rule.

PS 15: \( \text{AUX} \rightarrow (\text{MODAL}) \ (\text{ABLE}) \ \text{TENSE} \)
The node MODAL is developed to produce the second member of a verbal sequence. In addition to sentences with a single verb like (48)

(48) Bill duỹo "Bill ran."

Gujarati also has sentences that contain verb sequences such as (49)

(49) Bill duỹi reỹo "Bill finished running."

In this sentence the verb duỹ- has the structure V, and the verb reỹ- has the structure MODAL associated with it.

In the section on verbal sequences we have presented arguments for an alternative analysis (ref. 5.2).

The nomenclature ABLE is introduced for what has been traditionally called 'passive'. ABLE constructions are possible with transitive as well as intransitive verbs. The ABLE introduces a morpheme a to the verb stem, and also triggers transformations that attach .thi to the underlying subject NP, and permute the subject NP and the object NP in case of transitive verbs (ref. Tg). Thus, (48) has (50) as the corresponding ABLE form

(50) Bill·thi doỹayû "Bill could run."

Sentences (51) and (51a) exemplify a transitive sentence and its corresponding ABLE construction

(51) Bill car kheridþe "Bill will buy a car."

(51a) Bill·thi car kherid·a·þe

"Bill will be able to buy a car."
PS 16: TENSE\rightarrow \{ \text{FUTURE} \}
        \{ \text{PRESENT} \}
        \{ \text{PAST} \}

The future is formed by suffixing the future marker \( \ddot{k} \) to the stem of the verb; i.e., kherid- 'to buy' has the future form kherid\( \ddot{k} \)- which is followed by the personal endings. The present marker is \( \emptyset \) and is also followed by the personal endings when suffixed to a verb stem. The base itself does not contain a node for the endings, simply because the endings consist of agreement features like Number, Gender and Person, which are introduced by transformational rules as in T17.

PS 17: PAST\rightarrow \{ \text{IMPF} \}
        \{ \text{PERF} \}
        \{ \text{AUX} \}
        \{ \text{PLUPERF} \}

PS 18: AUX\rightarrow ho-\text{TENSE}

PAST is developed into three aspects: IMPF(ert) realized as -t- as in kherid·to; PERF(ect) realized as -y- as in kherid·yo and PLUPERF(eect) realized as -el- as in kherid·el·o. A sentence could have either one of these forms alone or one of these forms followed by a form of the auxiliary verb ho- as in (52) and (53)

(52) Bill·e radio kheridy·o
     "Bill bought a radio."
(53) Bill e radio kheridyo ho to  
"Bill had bought a radio."

For justification of PS17 and PS18 and for a discussion of the constraints on the auxiliary forms, refer to 3.2 and 3.4.

PS 19: POST→(EMPH) (NEG) (Q)

POST refers to post-sentential elements. Q stands for yes-no type questions. The only difference between a declarative and an interrogative sentence is in intonation. The function of Q is to trigger a transformation that produces the question intonation. Thus, the base enumerates something like (54) and Tquestion converts it into (54a)

(54) Bill car kheridše Q
(54a) Bill car kheridše? (where ? stands for question intonation)

Similarly, NEG, if chosen, is realized as nehi as in (55)

(55) Bill car kheridše nehi
"Bill will not buy a car."

EMPH(atic) includes not only intonational emphasis but also focus items such as j 'only', pen 'also', etc. A sentence normally has only one EMPH in it, and the EMPH can be added to any major category. These three emphatic elements are illustrated in the following sentences.

(56) Bill car kheridše "Bill will buy a car."
(57) Bill car kheridše "Bill will buy a car."
(58) Bill car kheridše "Bill will buy a car."
(56a) [Bill·j] car kheridše
    "Bill only will buy a car (not John)."
(57a) Bill [car·j] kheridše
    "Bill will buy a car only (not a toy)."
(58a) Bill car [kheridše·j]
    "Bill will buy (only) a car (not borrow)."
(56b) [Bill peŋ] car kheridše
    "Bill also will buy a car."
(57b) Bill [car peŋ] kheridše
    "Bill will buy a car also."
(58b) Bill car [kheridše peŋ]
    "Bill will also buy a car."

We thus need an additional rule to expand EMPH into its appropriate elements:

\[
\text{PS 20: EMPH} \rightarrow \begin{cases} \text{Intonation} \\ \cdot j \\ \text{peŋ} \end{cases}
\]

We also assume that there is an attachment transformation that attaches emphasis or focus items to any of the nodes in the above structure. It should be noted that base structure is sufficient for a semantic interpretation of most sentences but in the case of sentences that have EMPH as one of their constituents like (56) - (58b), a semantic interpretation depends on the surface structure.

The above rules characterize the major features of Gujarati syntax. At the end of such rewriting rules, complex
symbols (C.S.) are introduced in the base structure by Lexi-
cal embedding rules which expand terminal symbols.

a. \( N \rightarrow C.S. \)

b. \( V \rightarrow C.S. \)

c. Adjective \( \rightarrow C.S. \)

etc.

Many grammatical processes are dependent on the subcategories
of nouns (animate nouns, mass nouns, etc.). The grammar con-
tains this information in the form of the following additive
rules:

PS 22: i) \( N \rightarrow [\pm N], +G, \pm \text{Animate}, \pm \text{Count}] \)

ii) \([- \text{Animate}] \rightarrow [\pm \text{Abstract}] \)

iii) \([- \text{Abstract}] \rightarrow [\pm \text{Mass}] \)

iv) \([+ \text{Animate}] \rightarrow [\pm \text{Human}] \)

v) \([G] \rightarrow [\text{Masculine}][\text{Feminine}], [\text{Neuter}] \)

The generating process of the grammar then inserts items from
the Lexicon whose features coincide with those of the terminal
symbols.

2.2: **The Lexicon**: Any complete description of a lan-
guage must contain a list of all lexical items. In addition
to phonological features, which do not concern us at present,
a lexical item has certain syntactic features associated with
it. These features are conditions specifying whether or not
a particular item can be introduced in the phrase structures
enumerated by the rules of the base component. We assume that each item carries four distinct types of features, features which are specified in terms of either + for possession or - for non-possession.

i) **Categorial features** are features like Noun, Verb, Adjective, etc. Chokro 'boy' has the feature \(+N\) and therefore can be inserted under the node N of the base structure.

ii) **Inherent features** are features like AnimatOE or Inanimate in the case of nouns. These features determine the selection of other lexical items in the sentence. That is, the selection of Verb or Adjective is dependent on the inherent features of the nouns selected. They influence morphological aspects of verbs and adjectives, as the latter agree in number and gender with the noun that they are constructed with. In addition, a lexical item has co-occurrence properties with respect to grammatical frames known as

iii) **Subcategorization features.** These correspond, for example, to what traditionally have been classified as transitive/intransitive in the case of verbs. The verb \(\text{dod- 'run'}\) is intransitive, i.e., it has a feature \(-\text{NP}\).³ This feature asserts that dod- cannot be introduced in such a syntactic frame.

Co-occurrence restrictions with respect to inherent features are known as iv) **Selectional features.** For example, the verb \(\text{rej- 'weep'}\) requires the subject noun to be [+Animate].

(59) Chokro rej\(\text{xe} \) "The boy will weep"
is grammatical whereas
(60) typewriter redše "The typewriter will cry." is either metaphorically understood or ungrammatical. In literature one often encounters such sentences, which would otherwise appear strange. We can pin-point the strangeness easily --it breaks a selectional condition (ref. the Appendix for the discussion of an interesting characteristic of group of nouns called Unmarked Nouns.)

The base already has rules that analyze Gujarati nouns into complex symbols (PS22). These rules define the following major subcategories of nouns:

\[
\begin{align*}
(1) & \text{manēs 'a man'} & (2) & \text{wicar 'thought'} & (3) & \text{Bill} \\
& \langle +N \rangle & & \langle +N \rangle & & \langle +N \rangle \\
& [+\text{Animate}] & & [-\text{Animate}] & & [+\text{Animate}] \\
& [+\text{Count}] & & [+\text{Count}] & & [-\text{Count}] \\
& [+\text{Human}] & & [+\text{Abstract}] & & [+\text{Human}] \\
\end{align*}
\]

\[
\begin{align*}
(4) & \text{deya 'pity'} & (5) & \text{kutro 'dog'} & (6) & \text{seiny 'army'} \\
& \langle +N \rangle & & \langle +N \rangle & & \langle +N \rangle \\
& [-\text{Animate}] & & [+\text{Animate}] & & [-\text{Animate}] \\
& [-\text{Count}] & & [+\text{Count}] & & [-\text{Count}] \\
& [+\text{Abstract}] & & [-\text{Human}] & & [-\text{Abstract}] \\
& & & & & [+\text{Mass}] \\
\end{align*}
\]

\[
\begin{align*}
(7) & \text{Tommy 'name of a dog'} & (8) & \text{cokha 'rice'} \\
& \langle +N \rangle & & \langle +N \rangle \\
& [+\text{Animate}] & & [-\text{Animate}] \\
& [-\text{Count}] & & [-\text{Count}] \\
& [-\text{Human}] & & [-\text{Abstract}] \\
& & & & [+\text{Mass}] \\
\end{align*}
\]

\[
\begin{align*}
(9) & \text{khursi 'chair'} & (10) & \text{dudh 'milk'} \\
& \langle +N \rangle & & \langle +N \rangle \\
& [-\text{Animate}] & & [-\text{Animate}] \\
& [+\text{Count}] & & [-\text{Count}] \\
& [-\text{Abstract}] & & [-\text{Abstract}] \\
& [-\text{Mass}] & & [-\text{Mass}] \\
\end{align*}
\]
Each of the above subcategories is further divided into masculine, feminine and neuter.

In the lexicon, items are specified in such a way that each is differentiated from any other by the value of at least one specified feature. These items then go through a series of redundancy rules before they are inserted in the phrase structure. The following show some such rules:

i) \([-\text{Animate}] \rightarrow [-\text{Human}]\)

ii) \([+\text{Animate}] \rightarrow [-\text{Abstract}]\)

iii) \(\{[+\text{Animate}] [-\text{Abstract}]\} \rightarrow [-\text{Mass}]\)

Of the ten types of nouns we have listed, the first entry \(\text{māṇes} \ '\text{man}',\) after the application of these redundancy rules, has the following specification

\[(62) \langle +\text{N} \rangle \]
\[\begin{array}{c}
[+\text{Animate}] \\
[+\text{Count}] \\
[+\text{Human}] \\
[-\text{Abstract}] \\
[-\text{Mass}] \\
\end{array}\]

These redundancy rules are followed by another set of rules that add the idiosyncratic properties to a group of nouns.

iv) \([-\text{Count}] \rightarrow [+\text{Singular}]\)

says that nouns of the \((3), (4), (7), \) and \((10)\) groups are inherently singular.

v) \( [+\text{Mass}] \rightarrow [-\text{Singular}]\)

Although rule iv) applies to \((8)\) specifying '+' for the feature 'singular', rule v) replaces it with '-' as the environment also is appropriate. That is, \((8)\) \text{cokha} 'rice' type
nouns are inherently plural.

Syntactic features are not merely classificational schemata but are required for specification of the domain of certain transformations. For example, \( N_{\text{Human}} \) takes -ne when it functions as object (i.e., when it is immediately dominated by VP as in the following sentence:

Bill·e Jím·ne joyo "Bill saw Jim."

In addition to morphemes of the type presented in (61) and (62) above, which have phonological, semantic and syntactic properties associated with them, we assume that the lexicon also has entries like no·'to be' that are empty with respect to semantic properties, as well as pro-elements like TIME, PLACE, or \( [+V
\text{PRO}^{+\text{HELP}}] \), \( [+V
\text{PRO}^{+\text{COMMAND}}] \) that are empty with respect to phonological properties.

Lexical insertion rules introduce lexical items that have gone through both redundancy rules of the type i) through iii) and feature-adding rules of the type iv) and v) above. Insertion of lexical items under terminal symbols N, V, ADJ, and MODAL terminates the derivation of the underlying structure. The string so derived then serves as input to the transformational component.

2.3. The Transformations: The preceding rules describe the major features of Gujarati sentences. However, the strings generated by the base are quite abstract and often contain hypothetical constituents. As has been mentioned before, the
generative transformational approach assumes that each sentence has two structures: an abstract structure generated by the base, containing information about how the sentence is understood, and a surface structure—the form which sentences take when spoken. It is also assumed that there is a set of rules known as transformational rules that relate these two structures, or more specifically, convert abstract structure into surface structure without changing the meaning.

These transformational rules operate not on morphemes but on the phrase structure of a string. In order to change the base phrase structure into the surface structure, they add, delete, or permute elements. Further, these rules are applied cyclically from the bottom to the top, beginning with the innermost S in the deep structure and proceeding to the outermost.

A transformational rule has as its input a structural description (SD) and as its output, a structural change (SC). The SD indicates the domain of the rule. It provides information about the number of substrings into which the input can be analyzed. The rules then add, permute, or delete a substring.

\[(63) \begin{array}{ccc}
X & Y & Z \\
1 & 2 & 3 & \Rightarrow & 3 & 1 & 2
\end{array}\]

says that a string that can be segmented into X Y Z is permuted to Z Y X. The rules at times are sensitive to 1) particular structures associated with a segment or a sequence of segments as in (64)
or to ii) the presence of certain syntactic features
\[(65) \begin{array}{c} 1 \; 2 \; 3 \; +F \end{array} \Rightarrow \begin{array}{c} 1 \; 3 \; 2 \; +F \end{array}\]
or iii) to identity or non-identity of two segments or sequences of segments.
\[(66) \begin{array}{c} 1 \; 2 \; 3 \; 4 \end{array} \Rightarrow \begin{array}{c} 1 \; \emptyset \; 3 \; 4 \end{array}, \text{ if } 2 = 4.\]
The device used in (64) is called 'labelled bracketing'.
\([X \; Y \; Z]_A\) means that a string \(X \; Y \; Z\) is dominated by the node A. The device of (65) is called 'feature-vector'.
The transformational rule can apply if the entity 3 has the feature [+F]. In (66) the rule applies only if the condition, 2 = 4, is met.

In specifying the SC, there are two conventions used in this description: 1) '+' indicates that the substrings on both sides of it are sister constituents of a construction. Thus, \(1 + 2\) has the following interpretation
\[(67) \begin{array}{c} 1 \end{array} \arrow[2] A \]
i.i) '<' indicates that the substring on the left of it dominates the one on the right. Thus, \(1 < 2\) means
\[(68) \begin{array}{c} 1 \end{array} \downarrow 2 \]
Rules also use variables such as 'X, Y, and Z' to represent a string of any length including null. The occurrence of two Xs in a string does not mean identity of Xs unless explicitly stated.
The following is a partial list of transformational rules for Gujarati, presented informally. We have first presented a rule and its SD, SC and conditions, if any. With each rule we have given sentences and their derivational history to exemplify the rule. Rules which are obligatory are so marked; all other rules are optional. Occasionally, we have digressed in our presentation to show what other facts of the language are explicable on the basis of the particular rule under discussion.

\[ T_1 : \text{Relativization (Obligatory)} \]

\[ X \# X \{ \text{Adjective} \} X \# \{ \text{Adjective} \} X \]

\[ \begin{array}{cccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 \\
\end{array} \]

\[ \text{(Cond: } 4 = 7 \text{)} \]

\[ \begin{array}{cccccccc}
1 & 0 & 3 & \text{je} & + & 4 & 5 & \emptyset & \text{te} & + & 7 & 8 \\
\end{array} \]

The rule inserts relative \( \text{je} \) and correlative \( \text{te} \) to the left of the identical elements of the matrix and constituent sentences. In Gujarati, if there is an element \( X \) which is either a noun or an adjective, and which appears in both the matrix and in the constituent sentence, and if the node that immediately dominates the matrix \( X \) also dominates the constituent \( X \), then the identity between the two \( X \)s is indicated by \( \text{je} \) to the left of the constituent \( X \) and \( \text{te} \) to the left of the matrix \( X \). For example, the Phrase-markers which represent the following three sentences:

(69) \#chokro mādo che \#chokro station·e ješe boy sick go
(70) Bill chokro mão do che mão do thešé become

(71) Tom Bill MEASURE paysa leše MEASURE paysa apše give 
money take will be converted by the above rule into the Phrase-markers representing the following sentences:

(69a) je chokro mão do che te chokro station-e ješe 
"The boy who is sick will go to the station."

(70a) Bill chokro je mão do che te mão thešé 
(which by a rule that changes je into jewo before Adjectives will get the final form Bill chokro jewo mão do che Two mão thešé "Bill will become as sick as the boy is."

(71a) Tom Bill je MEASURE paysa leše te MEASURE paysa apše 
(which, by a rule je + MEASURE → jetla, changes (71a) into 
Tom Bill jetla paysa lešηe tetla paysa apše - "Tom will give as much money as Bill will take.")

This rule in fact accounts for sentences of quite diverse nature. For example, the language also has sentences like

(72) Bill awše tyare Jim tayyar thešé come then ready become 
"Jim will get ready when Bill comes."

(73) Bill awše tyå Jim awše where 
"Jim will come where Bill comes".

Because a single word adverb can be substituted for Bill awše tyare (72) and Bill awše tyå (73), most descriptions label them adverbial phrases. Such descriptions do not provide any
explanation for the phonological similarity between tyâ and tyâre.

What is interesting about sentences (72) and (73) is that they can be expanded by a correlative jyâre (74) and jyâ (75) without disturbing their meaning.

(74) jyâre Bill awâše tyâre Jim teyyar theše
    "Jim will get ready when Bill comes."

(75) jyâ Bill awâše tyâ Jim awâše
    "Jim will come where Bill comes.
    ["Jim will show up wherever Bill shows up."

Not only in Gujarati but in other Indo-Aryan languages as well there are pairs of relatives and correlatives like

je:te 'which...that'
jetlû: tetlû 'as much...that much'
jyâ: tyâ 'where...there'.

These pairs are formally related and in most cases clearly composed of two morphemes. Notice that all relatives begin with je and correlatives with te. This sketch introduces only one pair, je...te; and the other pairs are introduced by morphophonemic rules. We propose the following derivational histories for sentences (74) and (75)

(74a) [[[TIME·e Bill awâše]S TIME]·e Jim teyyar theše come ready become

(75a) [[[PLACE·e Bill awâše]S PLACE]·e Jim awâše

T1 converts them into

(74b) je TIME·e Bill awâše te TIME·e Jim teyyar theše

(75b) je PLACE·e Bill awâše te PLACE·e Jim awâše
Morphophonemic rules (n) and o) apply to (74b) and (75b) and we get (74) and (75).

In support of this analysis it should be mentioned that (76) is synonymous with (74)

(76) je səmey·e Bill awše te səmey·e Jim təyyar theše time

(at what time Bill will come, at the same time Jim will get ready)

"Jim will get ready when Bill comes."

The proposed analysis thus shows that jyare, jvə, etc., are not accidentally similar, but that the similarity stems from a constituent, je, that they all share. Furthermore, the analysis also explains the distributional fact that jvə can be replaced by je sthele 'at what place' and jyare 'when' by by je səmey·e 'at what time'. The analysis is further supported by historical evidence. For example, for the present day jyare;tyare 'when...then', old Gujarati had jeh warə; teh warə, jeh and warə being the ancestral forms of je and war 'time', respectively. Thus, old Gujarati jeh warə corresponds to our postulated formative je TIME (74b). In middle Gujarati, we find two variants: ji warə; jiharei; ti warə; stiharei. The affinity of the second variant with the modern jyare;tyare is quite obvious.

\[ T_2 \text{ Nominalization (Obligatory)} \]

\[
\begin{array}{cccccccccc}
X & \# & NP & X & V & TENSE & \# & NOM & X \\
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\
\Rightarrow 1 & 3 & + & Gen & 4 & 5 & + & 8 & 9
\end{array}
\]
This rule deals with the S NOM introduced by PS 10. It does three things: it deletes the TENSE of the constituent sentence, inserts Gen to the NP, and brings the embedded V and NOM under one constituent.

\[(77)\ [\text{Bill} \text{awšē}_S \text{NOM}]_{\text{NP}} \text{Jimne gəmšē} \text{like}\]

\[(77a)\ \text{Bill Gen aw+NOM Jimne gəmšē}\]

The morphophonemic rules (b) and (c) on page \_\_\_\_\_\_ provide the phonological properties of Gen and NOM rewrite the above sentence into

\[(77b)\ \text{Billnū awwū Jim-ne gəmšē}\]

"Jim will like Bill's arrival."

There also exists a variant of (77b) in the form

\[(77c)\ \text{Billnū awen Jim-ne gəmšē}.\]

Such variants are found in Sanskritized or literary Gujarati, and are taken care of by a minor modification in the morphophonemic rule (c). Instead of \(\text{NOM} \rightarrow \text{-wū}\), we postulate

\[\text{NOM} \rightarrow \left\{ \begin{array}{c} \text{-wū} \\ \text{-on} \end{array} \right\}.\]

The first alternative gives us the colloquial variety (77b), and the second, the literary variety (77c).

As NP appears in various constituents, this and other rules that develop Ss introduced in PS10 and PS12 affect not only the subject and object NPs but also the NPs that appear in Adverbial and postpositional phrases.

\[(78)\ \text{Bill [Jim awšē}_S \text{NOM}^{\text{NP}} \text{-thi}_\text{ADV} \text{khuši thešē}}\]

\[(78a)\ \text{Bill [Jim+Gen aw+NOM}_S \text{NOM}^{\text{NP}} \text{-thi}_\text{ADV} \text{khuši thešē}}\]
By the phonological rules that change gender endings -ø (masculine) and -u (neuter) to -a when followed by a postposition, we get

(78b). Bill Jim-na awathí khuší theše

"Bill will be pleased by Jim's arrival."

\[ T_3: \text{Complementation - 1} \]
\[ X \# S \# \{ \text{Quotative} \}_N V \text{ AUX} \]
\[ 1 \ 2 \ 3 \ 4 \ 5 \ 6 \ 7 \]
\[ \Rightarrow 1 \ 6 \ 7 \ \text{ke} \ 3 \]

\[ T_4: \text{Complementation - 2 (Obligatory)} \]
\[ X \# S \# \{ \text{Quotative} \}_N V \text{ AUX} \]
\[ 1 \ 2 \ 3 \ 4 \ 5 \ 6 \ 7 \]
\[ \Rightarrow 1 \ 3 \ 5 \ 6 \ 7 \]

\[ T_5: \text{Complementation - 3 (Obligatory)} \]
\[ [S \ N] \ NP \Rightarrow 1 \ e \ 2 \]

The base component generates two more types of NP constructions as it expands NP into

\[ \text{NP} \Rightarrow S \ \{ \text{Quotative} \}_N \]. \text{ Ref PS10.} \]

The first alternative results in quotative sentences and the second in appositional.
An interesting point about S N noun phrases and S Quotative noun phrases is that they sometimes can have the same surface form. Compare the following two sentences where the embedded S is shifted to the post verb position and in the process a linking ke is inserted between the matrix verb and the embedded S (i.e., T₃)

(79) Bill e kehyu ke Jim kale awse said tomorrow come

"Bill said that Jim will come tomorrow."

(80) Bill e janyu ke Jim kale awse khew

"Bill found out that Jim will come tomorrow."

These sentences also occur in another form where the embedded S remains in the preverb position but quotative sentences have e (T₄) and appositional sentences have e (T₅) between the constituent S and the matrix verb as shown in the following sentences

(79a) Bill e Jim kale awse e kehyu

(80a) Bill e Jim kale awse e [wat jani janhyu].

PS10 provides the constituent structures needed to account for e (79a) and e (wat) (80a). Note that the postulation of *S#N--different from *S#Quotative--also provides an explanation for the ambiguous nature of sentences like:

(81) Bill e sambhelyu ke Jim kale awyo hear come

"Bill heard that Jim came yesterday."

The sentence can be understood to mean that somebody uttered

"Jim kale awyo."
and Bill heard them actually do so. In this interpretation it is synonymous with (81a)

(81a) Bill e Jim kale awyo em sambhe lyu

"Bill heard 'Jim came yesterday.'"

(81) also means that Bill heard about the event that Jim came yesterday. In this interpretation it is synonymous with (81b)

(81b) Bill e Jim kale awyo e [\text{wat sambhali} sambhe lyu]

"Bill heard that Jim came yesterday."

These two interpretations arise because the sentence is derived from two different underlying structures.

T6 : Gerund (Obligatory)

\[
\begin{array}{cccccccc}
\text{NP} & X & [\# \text{NP} & X & V & \text{TENSE} & \# & \text{Gerund}] & \text{ADV} & X \\
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 \\
a) & 1 & 2 & 4 & 5 & 6 & \{7\} & 9 & 10 , & \text{if } 1 = 4 \\
b) & 1 & 2 & 5 & 6 & 9 & 10 , & \text{if } 1 = 4 \\
\end{array}
\]

The term 'Gerund' is here used, as in other Indic research, to refer to a kind of adverbialization not, as in Latin or English, to a nominalization. The dummy symbol 'Gerund' triggers the transformation. If the matrix subject and the constituent subject are different, rule a) just deletes the morpheme boundaries. TENSE in the constituent sentence is either retained or is replaced by \text{ya}. This accounts for the two stylistically variant forms of gerund constructions.
(82) kheđuto [wersad peğiš e Gerund] kam kerše
farmers [rain fall] work do

"The farmers will do (their) work after it rains."

(82a) kheđuto [wersad peğiš] Gerund] kam kerše
Gerund is rewritten as i(ne) following a V, otherwise as peći. (Ref. a) on the list of morphophonemic rules at the end of this chapter.) The above sentence thus has the following final form

(82b) kheđuto wersad peğiš peći kam kerše

Alternatively, if the matrix subject and the constituent subject are identical the constituent subject as well as the constituent AUX are deleted (T6).

(83) kheđuto [khetermā ješe Gerund] kam kerše
farmers [field-in go] work do

"The farmers, having gone to the farms, will do (their) work."

(83a) kheđuto [khetermā je + Gerund] kam kerše
(83b) kheđuto khetermā jei(ne) kam kerše.

For further discussion of the Gerund construction, see 5.2.

T7: Causative (Obligatory)

(ADV) NP X #: NP X V AUX #: V X

\[
\begin{array}{cccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 & 11 \\
\end{array}
\]

\[
\begin{array}{cccc}
1 & 2 & 3 & 5+ \{ -ne
\text{ ni pase}\} \\
\end{array}
\]

\[
\begin{array}{cccc}
6 & 10 & <+V> \\
\end{array}
\]

\[
\begin{array}{cccc}
<+V> & +HELP & +EMPLOY \\
\end{array}
\]

\[
\begin{array}{cccc}
1 & 1 & 1 & 1 \\
\end{array}
\]
This rule operates when the constituent verb is a lexical morpheme (i.e., [-Pro]) and the matrix verb is a pro-verb with the feature either [+HELP] or [+EMPLOY]. The embedded S comes from PS11. The rule in addition to deleting the internal boundaries, amalgamates the matrix and the constituent verbs into a single item and also adds to the constituent subject NP the post-position -ne if the verb is [+HELP] and -ni pase if it is [+EMPLOY]. The following example illustrates the processes which are involved in deriving causative sentences:

(84) Bill # Jim kagel lekhše # [+V ]
letter write # [+PRO ]
       [+HELP]

(84a) Bill Jim·ne kagel lekh·aw·še
        "Bill will help Jim write a letter."

(85) Bill # Jim kagel lekhše # [+V ]
       [+PRO ]
       [+EMPLOY]

(85a) Bill Jim·ni pase kagel kekh·aw·še
        "Bill will employ Jim to write a letter."

(86) Bill # Jim # Tom kagel lekhše # [+V ]
letter write # [+PRO ]
       [+HELP ]
       [+PRO ]
       [+EMPLOY]

(86a) Bill# Jim Tom·ne kagel lekhaw·še# [+V ]
       [+PRO ]
       [+EMPLOY]

(86b) Bill Jim·ni pase Tom·ne kagel lekhaw·daw·še

        "Bill will employ Jim to help Jim write a letter."

For further discussion of the causative construction--its justification and analysis--refer to 4.2.
T8: ABLE (Obligatory)

\[(ADV) \ NP \ [X \ (NP) \ V \ (MODAL) \ ABLE \ X]_{PRED-P} \]

\[1 \ 2 \ 3 \ 4 \ 5 \ 6 \ 7 \ 8 \]
\[\Rightarrow 1 \ 4 \ 2+\text{thi} \ 3 \ 5 \ 6 \ 7 \ 8 \]

This rule moves the object NP, if it is present, to the subject NP position as well as attaches the postposition -\text{thi} with the underlying subject NP. Thus, given

(87) Bill \ dod\cdot\text{ABLE}::\text{še}

run

the above rule attaches -\text{thi} to Bill and converts sentence (87) into (87a)

(87a) Bill\cdot\text{thi} \ dod\cdot\text{ABLE}::\text{še}

i.e., Bill\cdot\text{thi} \ dod\cdot\text{a}::\text{še} "Bill will be able to run."

The following sentences are examples of a non-ABLE (88) and its corresponding ABLE sentence (89)

(88) Bill\{radio\} \ law\cdot y\{o\} \ "Bill\{i\} \ brought \ a\{radio\}."

Mary\{car\} \ bring\{i\} \ "Mary\{i\} \ brought \ a\{car\}."

(89) Bill\{radio\} \ law\cdot y\{o\} \ "Bill\{i\} \ was \ able \ to \ bring \ a\{radio \ car\}."

Mary\{car\} \ bring\{i\} \ "Mary\{i\} \ brought \ a\{car\}."

In (88), the verb agrees with the underlying subject but in (89) the agreement is between the underlying object and the verb. We prefer to express this phenomenon by first moving the underlying object \{car\} to the subject position. Then the agreement rule T_{17} follows and operates on the output of T_{8}.

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The syntax of transitive and intransitive verbs differs in that sentences with perfect and pluperfect forms of the former have their subject NP followed by a postposition -e and their verbs agreeing with the object NP. Such sentences are often referred to as 'ergative'. On the other hand, in the case of intransitive verbs, the agreement is with the subject NP, and it has no postposition following, as in (90) — (92).

(90) Bill dod·to "Bill used to run."
(91) Bill dod·yo "Bill ran."
(92) Bill dod·elo "Bill had run."
(93) Bill pustek kherid·t.o "Bill used to buy books."

But notice the following sentences:

(94) Bill·e typewriter radio kherid·y [o]
    "Bill has bought a {typewriter radio."
(95) Bill·e typewriter radio kherid·el [o]
    "Bill had bought a {typewriter radio."

In Gujarati, typewriter is a neuter noun whereas radio is a masculine noun. T9 attaches the postposition -e to the subject NP (Bill) and moves the object NP (typewriter, radio)
to the subject position in (94) and (95). The agreement rule \( T_{17} \) then operates on the output of this rule and spreads gender and number of the derived subject NP to the verb forms.

The operation of moving the object NP to the subject NP takes place in ABLE constructions also. The reason for not grouping these two together into one rule is that there is a small group of verbs (law- 'bring', bhen- 'study', ŝikh- 'to learn', semej- 'understand', bol- 'speak', cuk- 'miss'.) that are exceptions to the above rule.

(96) Bill pustek lawyo "Bill brought a book."
(97) Bill-e pustek lawyû.

That is, the verb, law-, though a transitive verb, does not participate in the ergative construction. But these verbs go through the ABLE process like any other verb.

(98) Bill-thi \[ \text{typewriter} \] lewa-yû.

"Bill was able to bring a \{typewriter\} radio."

One source of recursion in a language is a process of conjunction. Conjunction, though quite common, is a complex and little understood phenomenon at present. Some sentences with conjunction are derived from two or more sentences. But there are other sentences for which it seems necessary to have various kinds of phrasal conjunction in the base itself. In this sketch we have not dealt with the latter. In the former type there are two broad varieties: either two or more sentences are joined together by a conjunctive element as in
(99a) or are reduced to a single sentence with conjoined constituents as in (100a), (101a), (102a) and (103a). But these sentences [i.e., [(100a) - (103a)]] do not illustrate all the possible conjunction of constituents found in the language. Further, there seems to be no single simple rule that accounts correctly for all relevant facts and therefore we have merely noted two processes involved in the conjunction.

T₁₀ : Conjunction

1) Constituents that are similar in category and in function are conjoined.

2) Two or more identical constituents dominated by the same node are reduced to one.

Part 1) of the above statement implies that the conjoining of constituents is possible only if certain conditions are met - namely, similarity in category and in function. Part 2) then assures the deletion of identical elements.

(99) is an example of conjunction of two sentences

(99) [John Bill·ne pen apše]ₚ CONJ give [Tim Ken·ne radio betawše]ₚ show

"John will give Bill a pen."

"Tim will show Ken a radio."

will be converted into

(99a) John Bill·ne pen apše ene Tim Ken·ne radio betawše.
The following sentences exemplify the conjunction and reduction of constituents:

(100) [John Bill•ne pen apše] CONJ
     give [John Ken•ne radio betawše] show
     John will give Bill a pen and show Ken a radio."

(101) [John Bill•ne pen apše] CONJ
     [Tim Bill•ne radio betawše]
     (101a) Bill•ne John pen apše ene Tim radio betawše
     "John will give a pen to Bill and Tim will
     show (Bill) a radio."

(102) [John Bill•ne pen apše] CONJ
     [Tim Ken•ne pen betawše]
     (102a) Pen John Bill•ne apše ene Tim Ken•ne betawše
     "John will give Bill and Tim will show Ken a
     pen."

Notice that in both (101a) and (102a), the resultant sentences undergo not only a rule of deletion but also a rule of permutation that transposes the identical element to sentence initial position.

(103) [John Bill•ne pen apše] CONJ
     [Tim Ken•ne radio apše]
     (103a) John Bill•ne pen ene Tim Ken•ne radio apše
     "John will give Bill a pen and Tim a radio to
     Ken."
$T_{11}$: Adjectivization.

$\left[ \begin{array}{cccccc} \text{je} & \text{N} & \times & \text{ho+ TENSE} & \text{te} & \text{N} \\ 1 & 2 & 3 & 4 & 5 & 6 \end{array} \right]_{\text{NP}}$

$\Rightarrow 3 \ 6$

The $\text{je...te}$ insertion rule (i.e., $T_{11}$) develops various kinds of relative clauses. Some of these have the following types of variants:

(104a) Bill $[\text{je pustek kimti che te pustek}]$ kheridše

which book expensive that buy

"Bill will buy a book that is expensive."

(104b) Bill $[\text{kimti pustek}]$ kheridše

NP

"Bill will buy an expensive book."

(105a) Bill $[\text{je pani pyalamâ che te pani}]$ piše

water cup-in

(105b) Bill $[\text{pyalmanû pani}]$ piše

"Bill will drink water that is in the cup."

(106a) Bill $[\text{je pustek Jim•e kheridelû che te pustek}]$

book buy Tom•ne apše
give

(106b) Bill $[\text{Jim•e kheridelû pustek}]$

Tom•ne apše

"Bill will give to Tom a book bought by Jim."

(107a) Bill $[\text{je man•es khemis peherto che te man•es}]$

shirt wear man•es

meîše meet

"Bill will see the man who is wearing a shirt."

(107b) Bill $[\text{khemis peherta man•es}]$

meîše

"Bill will see the shirt-wearing-man."
(104a), (105a), (106a), and (107a) are produced by \( T_1 \). \( T_{11} \) deletes the relative markers je and te, embedded N, and the ho forms to give examples like (104b), (105b), (106b), and (107b).

\[ T_{12} : \text{Attribution} \]
\[ \begin{array}{ccc}
\text{NP} & \text{PP} & \text{N} \\
1 & 2 & 3 \\
\end{array} \]
\[ \Rightarrow 1 \ (2) + \text{Gen} \ 3 \]

In pyalamānů in sentence (105b), there is a Genitive nů that does not appear in (105a). We thus need a rule that supplies Gen whenever the predicate is NP PP to yield phrases such as

(108) kuwamānů pani "water from the well"

The attribution rule not only introduces Gen into the string, but it also makes the postposition optional. In addition to (108), we also get

(109) kuwanů pani "water from the well"

As given here \( T_{12} \) is a simplified version of what it ought to be. The deletion of postposition is, in fact, obligatory in certain cases. For example,

(110) \[ \text{je radio Bill pase che te radio} \] _NP

"The radio that Bill has"

(111) \[ \text{je taw Bill·ne che te taw} \] _NP

"The fever that Bill has"
which $T_{11}$ converts into

(110a) Bill pase radio

(111a) Bill ne taw.

$T_{12}$ yields

(110b) Bill no radio

(111b) Bill no taw

?(110c) Bill pase no radio

*(111c) Bill ne no taw

Notice that of the four possible phrases, only two are acceptable. To accommodate this fact a further specification is required that obligatorily deletes postpositions in certain environments. I have suggested a modification, but have not reformulated the rule simply because the precise conditions under which postpositions are deleted are not clear to me. Furthermore, there are reasons to believe that the pase and ne of (110) and (111) are different from the postpositions of NP PP phrases. (Ref. discussion on have constructions in 4.2.) Notice the following sentences:

(112) Delhi pase edhalek sempetti che aBundant wealth

(113) Delhi pase marû gam che my village

Both of these sentences appear to be of similar structure. One of the readings of (112) is "Delhi is very rich" whereas (113) means "My village is near Delhi." In addition to the semantic differences, there are some syntactic differences. For example, Delhi pase can be replaced by Delhi nejik
without a change of meaning only in (113); not in (112).

(113a) Delhi nəjik marũ gam che

*(112a) Delhi nəjik eəhəlexer sempetti che.

Also, the adjectival construction form (112) is not

*(112b) Delhi pase·ni eəhəlexer sempetti,

but

(112c) Delhi·ni eəhəlexer sempetti.

Whereas the one form (113) is

(113b) Delhi pase·nů marũ gam

and not

*(113c) Delhi·nů marũ gam.

T_{il} (Adjectivization) operates on the output of T_1 (Relativization). Relative clauses under certain conditions may go through reductions and result in adjectivization.

Thus, given

(114) Bill # maŋešə aw.·e1·o che # maŋeš·ne maɫxe man come meet

(114a) Bill je maŋeš awelo che te maŋešne maɬxe
"Bill will see the man who has come."

By adjectivization, we get

(114b) Bill awela maŋešne maɬxe
"Bill will see the man who has come."

Sentences (114a) and (114b) are equally acceptable, and therefore, it might be reasonable to assume that adjectivization is an optional stylistic process. But the following observation shows that such an assumption is ill-founded.
Relative clauses result from the S introduced by PS12. This is a recursive rule and therefore, the base may generate more than one embedded S per surface S. A sentence, then, such as (115) with an $S_3$ embedded in an $S_2$ which is itself embedded in $S_1$ whose Ss have been generated from PS12 will undergo $T_1$, and then $T_{11}$.

(115) Bill [manese [ car kimti che ]$_S$$_3$
       expensive

       car kherideli che ]$_S$$_2$ manese melse.
       buy

*(115a) Bill je manese [je car kimti che te car
       kherideli che] te manese melse

(115b) Bill je manese kimti car kherideli che te
       manese melse

"Bill will meet the man who has bought an
       expensive car"

Notice that (115a) is ungrammatical, but (115b) is not. There is no sentence in Gujarati that allows more than one layer of relativization in its surface structure, though there is no limit to the number of adjectives in any of the prenominal positions. The principle appears to be that adjectivization is obligatory if the sentence is dominated by an NP that is not immediately dominated by the topmost S. It is this principle that explains the ungrammaticality of (115a).

\[
T_{13} : \quad \text{Comparative 1} \\
X \{ \text{MEASURE} \} \quad X \{ \text{MEASURE} \} \quad X \\
\text{je} \quad \{ \text{Adjective} \} \quad \text{te} \quad \{ \text{Adjective} \} \\
1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7 \\
\Rightarrow 1 \quad 2 \quad 6 \quad 7, \quad \text{if} \quad 4 = 7, \quad \text{or} \quad 4 \quad \text{has copula as one} \\
\quad \text{of its constituents.}
This rule operates on the output of $T_1$ and deletes the 
correlative te, the identical MEASURE or ADJ of the consti-
tuent sentence, and the constituent predicate if it is iden-
tical with the matrix predicate-phrase or if it has a copula.
The kinds of sentences before and after the application of
this rule are shown in the following pairs:

(116a) a manes jetlo ūco che tetlo ūco pelo mañes che
      this man tall that

(116b) a manes jetlo ūco pelo mañes che
      "That man is as tall as this man."

(117a) a manes jewo saro che tewo saro pelo mañes che
      good

(117b) a manes jewo saro pelo mañes che
      "That man is as good as this man."

(118a) Bill a radio jewo saro che tewo saro radio -
kheridše buy

(118b) Bill a radio jewo saro radio kheridše
      "Bill will buy a radio as good as this radio."

(119a) Bill Jim jetla peysa leše tetla peysa leše
      money take

(119b) Bill Jim jetla peysa leše
      "Bill will take as much money as Jim (will take)."

Because the deletion of the constituent predicate takes
place under two conditionāš in $T_{13}$ the resultant sentences are
often ambiguous. For example,

(120) ehh† jetla mañeso tyâ rehše
     here men there stay
     "As many men will stay there as here."
which can be either from (120a) or (120b):

\[(120a)\] əhi jeṭla maṇeso rehše teṭla maṇeso tyā rehše

"As many men will stay there as will stay here."
(i.e., there will be an equal number of men staying here as there will be staying there.)

\[(120b)\] əhi jeṭla maṇeso che teṭla maṇeso tyā rehše

"As many men will stay there as are here."
(i.e., the number of men staying there is equal to the number of men present here right now.)

\[T_{14} : \text{Comparative 2}\]

\[
\begin{array}{cccccccccc}
X & \# & NP & \text{Adj} & \text{Copula} & \# & \text{Comparative} & \text{Adj} & X \\
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\
1 & 3 & 7 & 8 & 9, \text{ if } 4 = 8
\end{array}
\]

The application of the comparative transformation yields sentences like

\[(121)\] a car peli carna kerta wedhare sari che this that more good

"This car is better than that car"

This sentence is derived from the underlying deep structure that looks something like

\[(121a)\]

\[
\begin{array}{c}
S \\
\downarrow \\
PRED-P \\
\downarrow \\
VP \\
\downarrow \\
AUX \\
\downarrow \\
Predicate \\
\downarrow \\
Copula \\
\downarrow \\
MOD \\
\downarrow \\
Adj \\
\downarrow \\
sari \\
\downarrow \\
Comparative \\
\downarrow \\
-na kerta wedhare \\
\downarrow \\
peli car sari che that good
\end{array}
\]
The comparative transformation involves a deletion operation that uses the Adjective of the matrix sentence to erase the corresponding Adjective of the embedded sentence. The same operation is also applied to Copula giving the sentence (121).

\[ T_{15} : \text{IMPF} - \text{Deletion} \]

\[
\begin{array}{cccccc}
X & V + \text{IMPF} & \text{ho}+ & \text{Present} & X \\
1 & 2 & 3 & 4 & 5 \\
1 & 2 & 4 & 5; \text{Cond.} & 5 & \text{NEG} \\
\end{array}
\]

Sentences such as the following (122) with a verb form consisting of a \( V + \) ending for Person followed by the auxiliary \( \text{ho} + \) Present are derived from the underlying structure (122a). For a discussion of this analysis see 3.

(122) Bill awe che "Bill is coming."

(122a)

\[
\begin{array}{c}
S \\
\text{PRED-P} \\
\text{AUX} \\
\text{TENSE} \\
\text{PAST} \\
\text{IMPF} \\
\text{AUX} \\
\text{TENSE} \\
\text{PRESENT} \\
\end{array}
\]

\[ T_{15} \] deletes the IMPF node and leaves a structure that, after going through the appropriate agreement rules, takes the final form (122).
\[
T_{16} : \text{Quantifier/Singularity} \\
X \ (\text{DET}) \ (\text{MEASURE}) \ [\langle \text{Singular} \rangle_N] \ \text{NUM} \ X
\]

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>(Number, Quantifier)</td>
<td>4</td>
<td>5</td>
<td>\langle Singular \rangle</td>
</tr>
</tbody>
</table>

This rule states two things. First it states that nouns that are inherently singular or plural remain so syntactically. This is stated by projecting the feature \langle S\rangle Singular from the node N to NUM. So, for example, if the noun is \textit{dudh}, which is inherently [+Singular], the feature [+Singular] is developed under NUM. By the application of the latter rules (ref. \(T_{17}\)) that spread the feature of NUM to verb forms, we then get only singular verb forms for \textit{dudh}-type nouns.

Second, it states that if MEASURE is to be indicated, inherently singular or plural nouns have Number followed by a Quantifier. Thus we get \textit{be pusteko} 'two books' and not *\textit{be cokha but be retel cokha}, 'two pounds of rice'; not *\textit{be dudh} but \textit{be cup dudh} 'two cups of milk'.

The nouns that are inherently singular or plural in Gujarati are also those nouns that are not counted; their quantity is expressed by conventional measure categories like \textit{retel} 'pound', \textit{cup}, \textit{inch}, \textit{mile}, etc. It is these measure categories that appear as Quantifier (e.g., \textit{be retel khand} 'two pounds of sugar'). With other nouns, the Quantifier does not appear at all; MEASURE is indicated only by Number (\textit{be pusteko} 'two books'). Furthermore, the countable nouns are singular if the Number is \textit{ek} (\textit{ek pustek}); with other numbers
such nouns are plural (be pustako). It is interesting to 

note that in Gujarati the range of singularity extends up to 

1 1/2 as is evidenced by the following phrases:

(123) ek ṛotlo 'one loaf' 
     sewa ṛotlo '1 1/4 loaf' 
     doṅh ṛotlo '1 1/2 loaf' 
     be ṛotla 'two loaves' 
     poṇa be ṛotla '1 3/4 loaves'

poṇa be '1 3/4' is really 'two minus 1/4'. The plural 

marker for -o nouns is -a as in ṛotlo (sg.): ṛotla (pl.).

T17: Agreement (Obligatory)

ADV [X [<*Gender>]]_N NUM]_NP X [X [PAST ADJ]}_X]_PRED-P

This rule collapses several rules into one. It spreads 

the gender and number of the subject noun to the past tense 
forms of the verbs as well as to the primary adjectives and 

the derived adjectives of NP + Gen-structure as in PS7. 

The following sentences reveal the concord phenomena in Gu- 

jarati.

(124) chokro ehi reh·t·o "The boy used to live here."

(125) chokri ehi reh·t·a "The girl used to live here."
(126) chokrao šhî reh.t.à "The boys used to live here."

(124a) chokro [saro] che "The boy is good."

(125a) chokri sarî che "The girl is good."

(126a) chokrao sarà che "The guys are good."

(124b) chokro [behargam.n.o] che. "The boy is from another town."

(125b) chokri behargam.n.i che "The girl is from another town."

(126b) chokrao behargam.n.a che "The boys are from another town."

T₁₈: Gender spread (Obligatory)

\[
\begin{align*}
\text{[NP (PP) + Gen [\langle \text{Gender} \rangle \_N \_NUM]_NP} \\
1 & \quad 2 & \quad 3 & \quad 4 \\
1 & \quad 2 & \quad + \quad \text{Gender} & \quad 3 & \quad 4
\end{align*}
\]

T₁₈ spreads the gender of the noun to the postpositional phrases that are introduced in the prenominal position (ref. T₁₁ and T₁₂). Thus, given the underlying structure

\[
\begin{align*}
\text{(127) chokro} & \quad \text{'boy'} & \quad \text{chokro} \\
\text{chokri} & \quad \text{'girl'} & \quad \text{ghermâ che} & \quad \text{chokri} \\
\text{chokru} & \quad \text{'child'} & \quad \text{house-in} & \quad \text{chokru}
\end{align*}
\]
By Relativization,

\[(127a) \quad \text{je} \quad \begin{bmatrix} \text{chokro} \\ \text{chokri} \\ \text{chokrû} \end{bmatrix} \quad \text{ghermâ che te} \quad \begin{bmatrix} \text{chokro} \\ \text{chokri} \\ \text{chokrû} \end{bmatrix} \]

By Adjectivization,

\[(127b) \quad \text{ghermâ} \quad \begin{bmatrix} \text{chokro} \\ \text{chokri} \\ \text{chokrû} \end{bmatrix} \]

By Attribution,

\[(127c) \quad \text{ghermâ + Gen} \quad \begin{bmatrix} \text{chokro} \\ \text{chokri} \\ \text{chokrû} \end{bmatrix} \]

By Gender-agreement (T_{18}) we get the final forms

\[(127d) \quad \text{ghermâno chokro } "\text{The boy who is in the house.}"
\]
\[(127d) \quad \text{ghermâni chokri } "\text{The girl who is in the house.}"
\]
\[(127d) \quad \text{ghermânu chokrû } "\text{The child who is in the house.}"
\]

Note that these transformations are partially ordered. If the ordering of some of the transformations were reversed, we would get ungrammatical sentences. For example T_9 permutes the subject and object of the underlying phrase marker; and, if T_{17}, which spreads the concord, were to precede it, the resultant sentence would be ungrammatical.

In addition to the transformational rules, there are a set of rules that provide phonological information about dummy elements and grammatical morphemes. The following is only a partial list of such rules.

\[\text{a) Gerund} \rightarrow \begin{cases} \text{pechi} & \sqrt{\text{Tense}} \\ \text{-ine} & \sqrt{\text{ya}} \end{cases} \quad \text{(Ref. T}_6\text{)}\]
b) Gen$$\rightarrow{\overline{\textit{n}}}$$ (Ref PS7, T$_2$, T$_{12}$)

c) Nom$$\rightarrow{\overline{\textit{w}}}$$ (Ref. T$_2$)

d) ho + Present NEG$$\rightarrow$$ nethi

e) Comparative$$\rightarrow$$ na kerta wedhare (Ref. T$_{14}$)

f) ABLE$$\rightarrow$$ a (Ref. T$_8$)

g) Present$$\rightarrow$$ $\emptyset$

h) Future$$\rightarrow$$ $\overline{\textit{s}}$

i) IMPF$$\rightarrow$$ $\overline{\textit{t}}$

j) PERF$$\rightarrow$$ $\overline{\textit{y}}$

k) PLUPERF$$\rightarrow$$ $\overline{\textit{el}}$

l) $\begin{bmatrix} \text{te} \\ \text{te} \end{bmatrix}$ + MEASURE$$\rightarrow$$ $\begin{bmatrix} \text{te}^\text{t} \text{u} \\ \text{te}^\text{t} \text{u} \end{bmatrix}$ (Ref. T$_1$, T$_{13}$)

m) $\begin{bmatrix} \text{te} \\ \text{te} \end{bmatrix}$$\rightarrow$$ \begin{bmatrix} \text{teu} \\ \text{teu} \end{bmatrix}$ / -Adj (Ref. T$_1$, T$_{13}$)

n) $\begin{bmatrix} \text{te} \\ \text{te} \end{bmatrix}$ + TIME$$\rightarrow$$ $\begin{bmatrix} \text{tyu} \\ \text{tyu} \end{bmatrix}$ (Ref. T$_1$

o) $\begin{bmatrix} \text{te} \\ \text{te} \end{bmatrix}$ + PLACE$$\rightarrow$$ $\begin{bmatrix} \text{ty} \\ \text{ty} \end{bmatrix}$ (Ref. T$_1$
FOOTNOTES

1 For a discussion of the form of rules, abbreviating devices, phrase marker assignments, relation of phrase markers to generally held views, refer Chomsky (1961); Bach, Chomsky (1965), especially Chapter 2, and Rosenbaum.

2 Some friends have commented, humorously, that the Gujarati sentences that appear in this study belong to a dialect spoken by some imaginary American speaker who has a native-like proficiency in the language. Indeed the personal names that one finds in these sentences are different from those that one normally encounters in Gujarati. Furthermore, these sentences use English words like radio, car, pen, pencil, typewriter, etc., These words, unlike the names Bill, Jim, Mary, etc., are adopted in Gujarati and are used with a high degree of frequency in urban areas. I have used such non-native names and borrowed English words because the central function of these sentences is to exemplify the grammatical details. Care has been taken not to put an unnecessary burden on the reader by proliferation of marginal things such as lexical items, names, and phonological details. For the same reasons, I have retained these words in their normal spelling and have also taken the liberty of replacing words in the illustrative sentences of other grammarians for consistency.
We have used in our examples the following 31 consonants of the language: /p, ph, b, bh, m, w, t, th, d, dh, n, r, l, s, t, th, d, dh, n, l, c, ch, j, jh, y, ñ, k, kh, g, gh, h/. Of the eight vowels /i, e, e, a, ù, o, u/ however, we have eliminated e and o because of their low frequency and for typographical reasons. Notice that Gujarati /ch, c, j, jh/ are affricates in nature. A dot below and a tilde above a symbol indicate retroflexion/x/ and nasalization/ñ/ respectively. A dot between two symbols /x.y shows a morpheme boundary which is represented only occasionally. The forms are written in systematic phonemic representation in the sense of Chomsky (1964). They must subsequently go through a set of phonological rules which produce the shape in which they are used. For example, ho·t·o is realized as he·to, and kheri·d·t·o as kheri·do~kheri·to where the two variants represent two varieties of Gujarati—literary and colloquial, respectively.

3. In order to make our specification unambiguous we will indicate the subject NP by an initial boundary: # NP, and the object NP without such a symbol.

4. The details of such pro-verbs are discussed in Chapters 4 and 5.

5. Note that the derivation of (101a) from (100) requires deletion of the identical element of the second sentence of (100). For (103a), on the other hand, the deletion takes place in the first sentence of (103). These details confirm
a very interesting observation of Ross, who postulates a process of gapping for deriving sentences like (103a) from (103).

For further details, refer Ross (1967b).

\[6\] At present, \( T_{16} \) is not stated correctly with respect to the introduction of quantifiers in Gujarati sentences, for the grammar will have to further specify that a particular quantifier co-occurs with a particular subset of such nouns. This will undoubtedly complicate the lexicon. In addition, there are cases where MEASURE is expressed either by a number or by a number followed by a quantifier as in \textit{be kanda} 'two onions' and \textit{be retel kanda} 'two pounds of onions'. Such cases remain unaccounted for in the present analysis. The only justification for introducing the quantifier by the transformation is that such an analysis reveals the dependency of Quantifier upon a particular class of nouns--nouns that are inherently singular or plural.
3. THE VERB SYSTEM - I

3.1: Brief Survey: In Gujarati one finds constructions such as hû kheridû 'I buy', te kherid-e 'He buys', teme kherid-x-o 'You will buy', teme kherid-y-o 'You bought', Bille kheridwû nethi 'Bill doesn't want to buy', etc. In these constructions, the underlined words exhibit similarity both in meaning and in form. It is because of this that the above-mentioned group of words are traditionally considered "morphologically related."

Gujarati has a morphologically rich verbal system. One can obtain various temporal, aspectual and participial forms from a single root (ref. 1.3). These forms contain (1) ROOT + (2) TENSE and/or ASPECT + (3) PERSON or GENDER and NUMBER. The last constituent (PERSON, GENDER, NUMBER), though it appears in most of the verb forms, is quite different from the other constituent. It is dependent on the noun phrase with which the verb is constructed. The independent constituents of a verb form are, therefore, ROOT + TENSE and/or ASPECT. Though the previous descriptions of verb forms assume categories of TENSE and ASPECT, there are differing views about the number of subcategories of each required to account for the different verb-forms and their functions. The following brief survey brings forth the details from Taylor's, Trivedi's
and Cardona's descriptions and also illustrated the types of problems encountered in the description.

Taylor\(^1\) postulates three tenses - PRESENT, FUTURE and PAST. The forms without any tense-marker (kherid\(\cdot\)e), with -\(\text{-n}\) as a tense marker (kherid\(\cdot\)n\(\cdot\)e) and with -\(\text{-y}\) (kherid\(\cdot\)y\(\cdot\)o) are recognized by him as present, future and past tense forms respectively. He also realizes two types of formally different past tenses - PAST\(_1\) (kherid\(\cdot\)y\(\cdot\)o) and PAST\(_2\) (kherid\(\cdot\)el\(\cdot\)o) but ho, which functions both as a verb and as a copula, has a single form ho\(\cdot\)to for both types of past tenses.

The temporal forms have additional meaning associated with them for which Taylor postulates three aspects: INDICATIVE, CONDITIONAL, and IMPERATIVE. He lists these three aspects and cites a few examples - each list ending in 'etc.' Unfortunately, he neither discusses differentiating characteristics nor gives exhaustive lists of forms for each of the aspects. Broadly, verbs used in imperative constructions (e.g. aw in shi aw 'come here') are imperative, those in here come conditional constructions (e.g. aw\(\cdot\)e, in jo Bill aje awe if today come 'If Bill comes today!') are conditional, and the rest are indicative forms. Thus, in Taylor's analysis, the tense of a verb-form is decided by the presence of the tense-marker, and the ASPECT by the type of sentence it is used in. A verb-form thus belongs to only one of three tenses but may belong to any of the three aspects.
In addition, some verb forms combine with auxiliary verbs and produce a complex temporal system. The following table summarizes the various complex forms discussed by Taylor:

<table>
<thead>
<tr>
<th>V+TENSE</th>
<th>AUX +TENSE</th>
<th>INDICATIVE</th>
<th>CONDITIONAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>ker</td>
<td>ho</td>
<td>ker.e ch.e</td>
<td>ker.t.o ho.e</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ker.t.o ho.t.o</td>
<td>ker.t.o ho.t</td>
</tr>
<tr>
<td>Present</td>
<td>Present</td>
<td>ker.y.o ch.e</td>
<td>ker.y.o ho.e</td>
</tr>
<tr>
<td>Past</td>
<td>Past</td>
<td>ker.y.o ho.t.o</td>
<td>ker.y.o ho.t</td>
</tr>
<tr>
<td>Past_1</td>
<td>Present</td>
<td>ker.el.o ch.e</td>
<td>ker.el.o ho.e</td>
</tr>
<tr>
<td>Past_2</td>
<td>Present</td>
<td>ker.el.o ho.t.o</td>
<td>ker.el.o ho.t</td>
</tr>
</tbody>
</table>

Note that in the above table Taylor assumes that che, ho.e, ho.t.o, ho.t are all derivatives of a single auxiliary element ho. Secondly, the Past_1 (ker.y.o) and the Past_2 (ker.el.o) forms of the main verb remain the same in indicative as well as in conditional constructions, but the present form has two shapes: the ker.e in the present indicative but ker.t.o in the other three constructions.

Trivedi also analyzes these verb forms into three tenses. He observes that past-participial forms (e.g. ker.y.o; ker.el.o) function as verb forms indicating past tense. Further, the present-participle (e.g. ker.t.o) also indicates past tense. Thus, in Trivedi's description there are three types of past-tense forms:
Regular (ker·t·o)  
Non-remote (ker·y·o)  
Remote (ker·el·o)

For the aspectual system, Trivedi postulates five aspects: Indicative, Imperative, Desiderative, Contrafactual and Conditional. Even in Trivedi's description we do not find defining characteristics of these aspects. On the basis of his examples, it seems that he would like to make a distinction between two types of conditions—simple (e.g. (a) jo Bill awe 'If Bill comes.') v.s. contrafactual (e.g. (b) if come jo Bill awet 'Had Bill come'). The language also has forms if come with the structure Root + w + Gender. Taylor mentions that such forms (e.g. kherid·w·û) are considered participles by some and nouns by others. These, for Trivedi, are desiderative forms (ref. Section 5 of this chapter for further details about these and other forms).

Both Taylor and Trivedi maintain that present tense forms are used in imperative, conditional or indicative constructions, but Trivedi shows the semantic and formal differences involved in two types of conditional constructions as in sentences (a) and (b) above and adds the details of kerwû type forms to the verbal system.

Trivedi mentions that complex forms (i.e., verb forms with auxiliary, e.g. kare che) could be classified on the basis of their composition or on the basis of their meaning. He prefers to label them according to their meaning. It is
for this reason that we find differences in the treatment of complex forms between Taylor and Trivedi. For Trivedi a complex form with a main verb in present tense is Incomplete, and with a main verb in past tense is Complete.

In this framework the paradigm for "Complete" will include the following forms for ker-'to do'.

- **keryo che** (Indicative present)
- **keryo ho.e** (Conditional present)
- **keryo hoto** (Indicative past)
- **keryo hot** (Conditional past)

"Incomplete", on the other hand, will have:

- **kere che** (Indicative present)
- **kerto ho.e** (Conditional present)
- **kerto hoto** (Indicative past)
- **kerto hot** (Conditional past)

Note that there is a similar form of the main verb in all the four cases of 'Complete', but 'Incomplete' has one form (kere) in one case and another form ker't'o) in the other three cases. As regards the auxiliary, Trivedi assumes two elements (ch-and ho-), as opposed to only one (ho-) by Taylor.

Cardona divides verb-forms into four categories: neutral, temporal, conditional and aspectual. Of the three constituents of a verb form, Root+Marker+Ending, Neutral is characterized by having no marker and ending indicating person. It has no reference to time or aspect, and could be either imperative (e.g. ker) or simple (e.g. ker'e). Temporals are divided into Present, Past, Simple Future and
Imperative Future. Simple future is characterized by the marker -š- (kerš·e), and the imperative future by -j- (ker.j·e); and both have an ending indicating person. Conditional forms are characterized by the absence of any ending and the marker is t(e), e.g. kerat(e). Aspectuals are either imperfective or perfective. Imperfective has -t- and Perfective has -y- as their markers, and in both types of forms the ending indicates the gender.

About complex forms, Cardona assumes two auxiliary verbs: ho- and ch-. One of the distinctions between the auxiliary and other verbs is that auxiliary verbs participate in a slightly different tense-aspect system. Thus, we have

1) **Present** Indicative  
   Root ch + personal ending (e.g. ch·e)

2) **Present** Non-Indicative  
   Root ho + personal ending (e.g. ho·e)

3) **Future**  
   Root ho + Markers + personal ending  
   (e.g. ho·š·e)

4) **Past**  
   Root ho + Marker t + gender ending  
   (e.g. ho·t·o)

5) **Conditional**  
   Root ho + Marker t(e)  
   (e.g. ho·t(e))

Thus, Cardona's analysis has four categories and their subcategories as follows:
(2) Neutral Temporal Conditional Aspectual
   Simple Imperative \[\text{(kerst(e))} \quad \text{(ho·t(e))}\]
   Present Past Future \[\text{(ho·t·o)}\]
   Simple Imperative \[\text{(ker·š·e)} \quad \text{(ker·j·e)} \quad \text{ho·š·e}\]
   Indicative Non-Indicative \[\text{(ch·e)} \quad \text{(ho·e)}\]

Note that in this analysis, only auxiliary verbs participate in both types of Present and in Past, and only non-auxiliary verbs participate in both types of Aspectuals and in Neuter.

Cardona divides the complex forms into ten categories:

(3) \[\begin{array}{ccc}
\text{Imperfective} & \text{Perfective} \\
\hline
\text{Present Indicative} & \text{kere che} & \text{keryo che} \\
\text{Present Non-Indicative} & \text{kerto ho·e} & \text{keryo ho·e} \\
\text{Past} & \text{kerto ho·t·o} & \text{keryo ho·t·o} \\
\text{Future} & \text{kerto ho·š·e} & \text{keryo ho·š·e} \\
\text{Conditional} & \text{kerto ho·t} & \text{keryo ho·t}
\end{array}\]
Notice that, in this analysis, all perfective constructions have keryo; but in imperfective constructions, Present indicative has ker·e and the rest have ker·t·o as the main verb.

To evaluate these three analyses—that is, to inquire whether they provide meaningful descriptions or not—would take us too far. But it is obvious that Cardona's analysis is markedly different from those of Taylor and Trivedi. For Cardona, conditional forms have the structure Root +t(e), e.g. kherid·t(e); but for Taylor and Trivedi, each non-conditional form has its opposing conditional form. This and other differences in their treatments stem from their different criteria of 'relatedness'. Cardona groups forms on the basis of morphological characteristics and on semantic facts. Thus, conditionals are recognized by the inflectional marker t(e). On the other hand ch·e, ho·e, and kherid·e are considered instances of Indicative present, Non-indicative present and Neutral, respectively, on semantic criteria.

In Taylor and Trivedi, we find semantic and syntactic criteria playing an important role. Conditional, for them, is not determined by any particular inflectional marker but is understood to be a form that occurs in a conditional sentence.

(4) Bill kherid·e
    buy
    'Bill buys'

(5) jo Bill kherid·e
    if   buy
    'If Bill buys'
kherid-e in these two sentences is only phonologically similar; it is analyzed both in Taylor and Trivedi as an indicative form in (4) and as a conditional form in (5). Even when Trivedi makes distinction between aw-e in (5) and kherid-t in (6)

(6) Jo Bill kherid-t
   if     buy

"Had Bill bought"

as Conditional and Contrafactual respectively, his explanation (p. 216) clearly shows that the distinction is based not on different endings of kherid-e and kherid-t but on the manner in which (5) and (6) are understood. Such a view implicitly recognizes that the underlying forms (5) and (6) are different.

3.2: Tenses and Aspects: In the rest of the chapter, we will treat the morphological and syntactic aspects of Gujarati not as two separate, independently functioning levels but as an integrated part of an over-all system. Our main concern will be with the syntactic and semantic facts and with the rules that reflect interrelationship between forms.

We have the following rule in the base:

\[ \text{PS 16: TENSE} \rightarrow \begin{cases} \text{FUTURE} \\ \text{PRESENT} \\ \text{PAST} \end{cases} \]

That is, TENSE is expanded into FUTURE, PRESENT AND PAST.

Sentences (4) and (7) illustrate PRESENT and FUTURE:

(4) Bill kherid-e
    buy

"Bill buys"
(7) Bill kherid·ַּ·e buy
"Bill will buy"

kherid·ַּ·e in (7) specifically indicates future time and thus contrasts with kherid·e in (4). For convenient reference, we shall refer to the kherid·e - type as the Present form, and the kherid·ַּ·e - type as the Future form. In the present, the root is directly followed by the person ending, but in the future there is a tense marker ַ separating the two.

Among the other forms, three forms — Root + t + Gender, Root + y + Gender and Root + el + Gender — are similar in two respects. Their ending shows gender and they all indicate past happenings. The structure of these forms is summarized below, and sentences (8) through (10) illustrate their occurrence.

\[
\begin{align*}
\text{Root} & \quad \{t, y, el\} \quad \text{Gender} \\
\end{align*}
\]

(8) Bill tyå aw·t·o there come
(9) Bill tyå aw·y·o "Bill came there"
(10) Bill tyå aw·el·o

The form aw·to in (8) indicates repetitive activity, i.e., "Bill used to come" and therefore does not co-occur with an adverb designating a point in time, whereas aw·y·o and aw·el·o have no such semantic connotation and therefore they freely occur with various kinds of adverbs:

*(11) Bill gei kale aw·t·o yesterday come

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(12) Bill gei kale aw·y·o
'yesterday'
"Bill came yesterday"

(13) Bill gei kale aw·el·o
'yesterday' come
"Bill came yesterday"

Sentence (8) is ungrammatical as the adverb gei kale 'yesterday' refers to a point in time, and as such does not occur with t-forms of a verb. On the other hand, the form aw·el·o in (10) specifically refers to a remote happening and thus contrasts with the forms aw·y·o and aw·t·o, as illustrated in (14) and (15).

(14) Bill aw·y·o te pehelâ Jim aw·el·o
come that before come
"Jim came before Bill came"

*(15) Jim aw·el·o te pehelâ Bill aw·y·o
come that before come

Sentence (14) indicates that Bill's arrival is more recent than Jim's arrival. Sentence (15) is not a well-formed sentence because aw·el·o refers to a remote happening and therefore could only precede a non-remote act aw·y·o.

To account for these facts, we will assume that PAST tense is realized in three aspects: Imperfect (aw·t·o), Perfect (aw·y·o) and Pluperfect (aw·el·o). Such an account is contrary to the general practice where tense and aspect are recognized as independent categories. Even though it is far from clear how tenses are differentiated from aspects, or how one tense or aspect is differentiated from others in
its semantic field, there are forms (for example--aw·y·o) for which there is no agreement as to whether it indicates a tense or an aspect. This difficulty has been noted before. For Trivedi and Taylor forms like aw·y·o indicate past tense, whereas according to Cardona they indicate Perfect Aspect. On the other hand, we have a rule in the base:

\[
\text{PS 17: } \text{PAST} \rightarrow \begin{cases} \text{IMPF.} \\ \text{PERF.} \\ \text{PLUPF.} \end{cases}
\]

This rule states that aspectuals such as IMPF (imperfect), PERF (perfect) and PLUPF (pluperfect) are subcategories of the tense PAST. As a natural consequence of this mechanism, forms like aw·y·o are immediately dominated by PERF, which is dominated by PAST. That is, forms such as aw·y·o do, in fact, indicate both PAST tense and PERFECT aspect and this fact is represented by the structure assigned to such forms in the present analysis.

3.3: **Underlying Structure of a Complex Form.** Some of the verb forms occur in construction with an auxiliary. As a result, we find the following forms.

(16) Bill kheri·de ch·e (Root·t·person ch·e·person)
    "Bill is buying"

(17a) Bill kheri·d·t·o ho·še (Root·t·gender ho·še·person)
    "Bill might be buying"

(17b) Bill kheri·d·t·o ho·t·o (Root·t·gender ho·t·o·person)
    "Bill was buying"
(17c) Bill kheridto ho·e ch·e (Root · t · gender ho·p · person ch·p · person)

(18a) Bill·e kheridyû ch·e (Root · y · gender ch·p · person)
"Bill has bought"

(18b) Bill·e kheridyû hoše (Root · y · gender ch·p · person)
"Bill might have bought"

(18c) Bille kheridyû ho·t·û (Root · y · gender ho·t · gender)
"Bill had bought"

(18d) Bill·e kherid·y·û ho·e che (Root · y · gender ho·p · person ch·p · person)

(19a) Bille kherid·el·û che (Root · el · gender ch·p · person)
"Bill had bought"5

(19b) Bill·e kherid·el·û hoše (Root · el · gender ho·s · person)
"Bill might have bought"

(19c) Bill·e kherid·el·û ho·t·û (Root · el · gender ho·t · gender)
"Bill had bought"

In the preceding data, the auxiliary occurs in four forms: ch·e, ho·še, ho·t·o and ho·e ch·e. It has also been shown in the previous discussion that a root has five simple forms: Present, Future, and three types of Past - imperfect, perfect, and pluperfect. We therefore would expect twenty complex forms, but of the possible twenty combinations of verb and auxiliary forms, only twelve combinations occur in the language,
as illustrated in sentences (18a) to (19c) and summarized in the following chart:

<table>
<thead>
<tr>
<th></th>
<th>chē</th>
<th>ho·s·e</th>
<th>ho·t·o</th>
<th>ho·e·ch·e</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRESENT</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>kherid·e</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FUTURE</td>
<td>kherid·š·e</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMPF</td>
<td>kherid·t·o</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>PERF</td>
<td>kherid·y·o</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>PAST</td>
<td>kherid·el·o</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>PLUPF</td>
<td></td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

Of the five simple forms, Perfect and Pluperfect forms occur with all the four forms of the auxiliary, Imperfect forms occur with three, Present with one and Future with none. Notice that Present combines with che but not with the other three forms. Imperfect on the other hand combines with the other three forms but not with che. From an examination of this distributional characteristic, it can be seen that Present and Imperfect are complimentary to each other. We therefore would like to postulate that a complex form of the type kherid·e che (Root·š·person ch·e) has kherid·t·o che (Root·t·gender ch·e) as its underlying representation. And because such a sequence does not occur, not at least in the standard language, a rule is required which changes Root·t·(gender).che (e.g. kherid·t·o che) into Root·(person) che.
(e.g. kheride che). This is precisely what \( T_{17} \) of the transformational component is doing. Of course, Gender and Person are inserted by later transformational rules and therefore they are in the bracket to indicate that they do not play any role at this stage. The transformational rule just deletes the IMPF as shown in the following diagram:

\[
\begin{array}{c}
\text{(21)} & \text{PRED-P} & \text{PRED-P} \\
\text{V} & \text{AUX} & \text{V} & \text{AUX} \\
\text{TENSE} & \text{AUX} & \text{TENSE} & \text{AUX} \\
\text{IMPF} & \text{Ch-} & \text{Ch-} & \text{Ch-} \\
\end{array}
\]

At first sight it looks that the above analysis introduces an additional transformation rule in the grammar. But, alternatively, we would require many more ad hoc rules to express the constraints that appear in chart (20). Furthermore, the above transformational rule not only explains the distribution, but brings forth more general principles involved in the combination of verb and auxiliary forms. In terms of underlying representation, chart (20) will be restated as follows:
We have already commented on the asymmetry in Taylor's division of complex forms into Present and Past, (also in Trivedi's Incomplete and Complete and Cardona's Imperfective and Perfective), namely that the Past (Complete, or Perfective) set has a single form of the main verb but the other set has two forms. (e.g., kheridyo in kheridyo che, kheridyo hoše, kheridyo hoto, etc. v.s. kheride and kherid.to in kharide che, kheridto hoše, kheridto hoto etc.). That is, we are required to list allomorphs in such an analysis. In the analysis just proposed we will have a single form of the main verb even for the second set. Among many other advantages, the necessity of listing allomorphs is thereby obviated. Below we present five more arguments to support our analysis.

(a) This analysis provides natural explanation for idiosyncrasies in the negative constructions in the language. One way of negating is to have a morpheme nahi preceding the verb or auxiliary.
(23) Bill aw·ē·e
       "Bill will come"

(24) Bill nehī aw·ē·e
       "Bill will not come"

A sentence with che (as either a verb or auxiliary) has nethī and not *nehī che in its corresponding negative sentence. (Refer d) in the list of morphophonemic rules at the end of Chapter 2).

(25) Bill shī che
       here
       "Bill is here"

*(26) Bill shī nehī che

(27) Bill shī nethī
       "Bill is not here"

(28) Bill aw·y·o che
       "Bill has come"

*(29) Bill aw·y·o nehī che

(30) Bill aw·y·o nethī
       "Bill hasn't come"

But notice

(31) Bill aw·ē ch·e
       "Bill is coming"

*(32) Bill aw·ē nethī

(33) Bill aw·t·ō nethī
       "Bill is not coming"

Here aw·ē ch·e does not have the expected aw·ē nethī but aw·t·ō nethī in the corresponding negative sentence. That is,
a grammar without Rule $T_{15}$ would not only have many ad hoc rules to express the constraints in Chart (20), but also a rule that changes aw·e-type into aw·t·o-type form in negative sentences.

We thus assume that

\[(34) \quad \text{NP} \quad \text{V·IMPF (NEG) ch-} \quad \text{VP}\]

is the underlying structure for sentences such as (31) and (33), and where if we do not choose NEG, we get (31), otherwise (33) by the operation of IMPF-deletion and agreement rules on (34).

The following represents the derivational history of sentences (31) and (33).

\[(35) \quad \text{Bill} \quad \left[ \begin{array}{c} \text{aw} \\ \text{come} \end{array} \right] \quad \text{V} \quad \text{IMPF} \quad \text{ho·Present} \]

\[(35a) \quad \text{Bill} \quad \left[ \begin{array}{c} \text{aw} \\ \phi \end{array} \right] \quad \text{V} \quad \text{ho·Present} \quad \text{ho·Present} \quad (T_{15}: \text{IMPF-deletion}) \]

\[(35b) \quad \text{Bill} \quad \text{aw·e} \quad \text{ho·Present·e} \quad (T \text{ person-agreement}) \]

\[(35c) \quad \text{Bill} \quad \text{aw·e} \quad \text{ch·p·e} \quad \text{(Morphophonemic rule)} \]

That is, (31) Bill aw·e ch·e "Bill is coming".

\[(36) \quad \text{Bill} \quad \left[ \begin{array}{c} \text{aw} \\ \phi \end{array} \right] \quad \text{V} \quad \text{IMPF} \quad \text{ho·Present NEG} \]

\[(36a) \quad \text{Bill} \quad \text{aw·t·o} \quad \text{ho·Present NEG} \quad (T_{17}) \]

\[(36b) \quad \text{Bill} \quad \text{aw·t·o} \quad \text{nethi} \quad \text{(Morphophonemic rule d)} \]

That is, (33) Bill aw·t·o nethi "Bill is not coming"

(b) The forms found in conditional sentences provide further evidence to support our hypothesis.

\[(37) \quad \text{chokro aw·y·o che} \quad \text{boy come} \quad \text{"The boy has come"} \]
(37a) jo chokro aw·y·o hoe
   "If the boy has come"

(38) chokro aw·el·o che
   "The boy has come"

(38a) jo chokro aw·el·o ho·e
   "If the boy has come"

(39) chokro awe che
   "The boy is coming"

(39a) jo chokro aw·t·o ho·e
   "If the boy is coming"

Here, the forms in the non-conditional sentences (37), (38),
and (39) have ch·e and the corresponding conditional senten-
ces (37a), (38a) and (39a) have ho·e as the auxiliary form.
Notice that the same form of the main verb--aw·y·o or aw·el·o
--is retained in the related conditional sentences both for (37)
and (38) but for awe of (39) we have aw·to in (39a). We will
consider this as one more reason to assume that aw·e che of
(39) is, in fact, aw·t·o che.

(c) Another is the fact that a main verb of a complex form
undergoes Adjectivization (ref. T₁₁), which moves the verb
over the attributive position and produces sentences like
(40a), (41a) and (42a).

(40) je samey geyo che te pacho aw·t·o nethi
    which time went is that back come isn't
   "The time that is gone does not come back"

(40a) geyo samey pacho aw·t·o nethi
    gone time back come isn't
   "The gone-time does not come back"
(41) je manes Delhi gevelo che te kale awse
which man gone is that tomorrow come

"The man who has gone to Delhi will return tomorrow"

(41a) Delhi gevelo manes kale awse
gone man tomorrow come

"The Delhi-gone-man will return tomorrow"

(42) je radio Hyderabad ma bene che te kyay
which in make is that anywhere
nele te nethi

"The radio that is made in Hyderabad is not found/available anywhere"

(42a) Hyderabad ma bento radio kyay nele te nethi
in being made anywhere find isn't

"Hyderabad-made-radio is not available anywhere"

Since the source of gayo semey (40a) and Delhi gevelo manes
(41a) is je semey gayo che te (40) and je manes Delhi gevelo
che te (41), it provides some evidence that Hyderabad ma ben-
to radio (42a) has je radio Hyderabad ma ben to che te as
its source. This source then undergoes additional transfor-
mation (T15) and results in (42) je radio Hyderabad ma bene
che te.

(d) Some interesting evidence for our proposal is also found
in dialect variations. Cardona (100) observes: "no *awti che
--no *awtu che--;" i.e. such combinations are ungrammatical.
He then points out that "The restriction noted on the occur-
rence of *aw t o che etc. does not apply to some dialects,
in which such sequences are used in present indicative func-
tion". That is, where other dialects have a complex form
like aw e ch e, we find aw t o ch e8 in this dialect. In
other words, one dialect is reported to have a form exactly similar to our postulated form.

This evidence provides further motivation to assume **Root·IMPF (·Gender) che** as the underlying representation and a transformation rule that deletes IMPF and converts it into **Root·Person ch·e**. We assume that underlying representation is the same cross-dialectally but the IMPF deletion rule applies optionally to the Southern variety that has both **aw·t·o che** and **aw·e·che** and obligatorily elsewhere. This gives a very systematic explanation of the dialect variation.

(e) This hypothesis finds further support in other Indo-Aryan languages. Leaving aside other details, we find that verb-forms of the corresponding sentences in Gujarati, Hindi, and Marathi contain similar constituents, though the actual morphemes might be different as in (43) and (44).

(43a) Bill aw·y·o ch·e  
(43b) Bill a·y·a hæ  
(43c) Bill a·l·a ahe  
(44a) Mary aw·y·i ch·e  
(44b) Mary a·y·i hæ  
(44c) Mary a·l·i ahe

The verb in these Gujarati [(43a) and (44a)], Hindi [(43b) and (44b)], and Marathi [(43c) and (44c)] sentences has the structure Root·PERF·Gender. This and similar facts account for considering Gujarati, Hindi, and Marathi as sister languages.
But notice sentences (45) and (46):

(45a) Bill a·t·a hæ "Bill is coming"
(45b) Bill a·t·a hæ "Bill is coming"
(45c) Bill e·t·o ahe

(46a) Mary a·t·a hæ "Mary is coming"
(46b) Mary a·t·i hæ "Mary is coming"
(46c) Mary e·t·i ahe

Hindi (45b, 46b) as well as Marathi (45c, 46c) sentences have Root·IMPF·Gender Aux structures associated with their verb phrases. But the type of structure found in Gujarati sentences (45a, 46a) - namely Root·Person Aux·Person - do not occur in other sister languages. The assumption of Root·IMPF·Gender Aux structure even for Gujarati sentences shows the similarity between the related languages, and the IMPF-deletion rule represents a differentiating characteristic—an innovation—of Gujarati.9

Thus, we have presented enough arguments based on internal syntactic details and also dialectal and comparative data to justify our claim about the underlying representation of a complex form different from its surface structure.10

3·4: Constraints on ho-. In section I of this chapter we have noted the details about auxiliary forms--che, ho·p·e, ho·e, ho·t·o, ho·e che, etc.--presented by Taylor, Trivedi and Cardona, and commented that there are certain differences in their analysis. First, Cardona and Trivedi seem
to believe that auxiliary forms are derivatives of two roots, ho- and ch-, whereas Taylor assumes only one root ho- for all of them. Further, Cardona finds it necessary to set up a special tense/aspect system for these roots, which differs from the regular system that is set up for the other roots of the language (refer p. 75). In short, the description of the auxiliary forms seems to impose extra complexities, ad hoc additions and loss of generalizations in the grammar.

A very common source of irregularity or complexity in a language is the limitation on the combination of elements. For example, we noticed that one obtains five tense forms in Gujarati—Present, Future, Past Imperfect, Past Perfect and Past Pluperfect. There are twenty possible combinations, given the four auxiliary forms. Yet the language uses only twelve of them. In the previous studies it has been assumed that these are complex facts, and therefore the resulting descriptions were complex—the authors saw no principle involved in the constraints on complex forms and could do nothing more than to list the twelve occurring combinations with a different label attached to each. On the other hand, we saw enough reasons to assume that the language has an IMPF-deletion rule as has been demonstrated before. This rule generates forms that appear to have Root-Present Aux but such forms have PRESENT only superficially, they are in fact, instances of Imperfect—a subcategory of Past. This conclusion immediately reveals a principle behind the constraints
on combinations of verb and auxiliary forms. We discovered that only Past forms of the main verb occur in complex forms. There are thus twelve types of complex forms from three types of Past combined with four auxiliary forms.

If we consider the auxiliary, we find that there are a very limited number of forms

(47) **Simple**

```
ch·e; ho·e
ho·š·e
ho·t·o
```

(47) **Complex**

```
ho·e ch·e
```

Obviously there are very tight restrictions on auxiliary forms, and therefore will require many rules to state. But the extraordinary fact is that a large part of the restrictions come from the IMPF deletion rule that we have already discussed. In the remaining cases, restrictions are not ad hoc but a function of a couple of rules. For example, we observe that there are no auxiliary forms with ý and -el- (as in kherid·ý·o and kherid·el·o). Thus, for the three types of Past - IMPF, PERF, and PLUPF - we find only one type of Past - i.e., IMPF - in the auxiliary forms. That is, Past is expanded only into IMPF when it is conjoined to ho-.

(48) ho·PAST → ho·IMPF

Notice that we have two forms ho·e and ch·e in the first line under Simple. It is because of the existence of these two forms that some grammars assume that there are two auxiliary verbs: ho- and ch- in Gujarati. Such a position is more explicitly maintained by Cardona. He gives one
paradigm of ch- and another of ho- and calls them Indicative and Non-indicative respectively. Such an analysis is simply not valid, first because there is no contrast between ho- and ch-forms, and second because it can be shown that these two sets of forms occur in two different kinds of constructions: ch-forms in declarative sentences and ho-forms in conditional sentences as illustrated in (49) and (50).

(49)  Bill aw·y·o ch·e
      come
    "Bill has come"

(50)   jo Bill aw·y·o ho·e
        if
      come
    "If Bill has come"

We, therefore, will assume that there is only one auxiliary element, ho, which has two syntactically conditioned allomorphs in the Present Tense.\textsuperscript{12}

(51)  ho·PRESENT→ch·PRESENT, if the sentence is declarative.

According to the rules developed thus far, ho will go through the following route (Route 1):

(52)
   
(1)  ho \cdot \text{TENSE}

   (ii) \{ FUTURE \}
      ho \{ PRESENT \}
      \{ PAST (AUX) \}

If we choose AUX, we get complex forms; otherwise we get simple forms.
(iii) \[
\begin{align*}
\text{ho} & \cdot \left\{ \begin{array}{c}
\text{FUTURE} \\
\text{PRESENT} \\
\text{PAST} \left( \text{ho} \cdot \text{TENSE} \right) \\
\end{array} \right\} \\
\end{align*}
\]

(iv) \[
\begin{align*}
\text{ho} & \cdot \left\{ \begin{array}{c}
\text{FUTURE} \\
\text{PRESENT} \\
\text{PAST} \left( \text{ho} \cdot \left\{ \begin{array}{c}
\text{FUTURE} \\
\text{PRESENT} \\
\text{PAST} \\
\end{array} \right\} \right) \\
\end{array} \right\} \\
\end{align*}
\]

By the rule that expands PAST into IMPF, we get

(v) \[
\begin{align*}
\text{ho} & \cdot \left\{ \begin{array}{c}
\text{FUTURE} \\
\text{PRESENT} \\
\text{IMPF} \left( \text{ho} \cdot \left\{ \begin{array}{c}
\text{FUTURE} \\
\text{PRESENT} \\
\text{IMPF} \\
\end{array} \right\} \right) \\
\end{array} \right\} \\
\end{align*}
\]

or the following six forms

a) \( \text{ho} \cdot \text{FUTURE} \)

b) \( \text{ho} \cdot \text{PRESENT} \)

c) \( \text{ho} \cdot \text{IMPF} \)

d) \( \text{ho} \cdot \text{IMPF} \; \text{ho} \cdot \text{FUTURE} \)

e) \( \text{ho} \cdot \text{IMPF} \; \text{ho} \cdot \text{PRESENT} \)

f) \( \text{ho} \cdot \text{IMPF} \; \text{ho} \cdot \text{IMPF} \)

The rule of IMPF - deletion will apply to e) and convert it into \( \text{ho} \cdot \emptyset \; \text{ho} \cdot \text{PRESENT} \). Later on, the rule that converts \( \text{ho} \)-into \( \text{ch} \)-will change \( \text{ho} \cdot \text{PRESENT} \) in b) and e) into \( \text{ch} \cdot \text{PRESENT} \) in certain syntactic environments. Eventually, we get six forms:

a) \( \text{ho} \cdot \emptyset \cdot \text{e} \)

b) \( \text{ch} \cdot \text{e} / \text{ho} \cdot \text{e} \)

\( \text{c) } \text{ho} \cdot \text{t} \cdot \text{o} \)
d) ho·t·o ho·k·e

e) ho·e ch·e

f) ho·t·o ho·t·o

Of these, it is not clear to me at present whether forms d) and f) are not possible, or possible but do not occur. These two forms are not found in my speech, but they are treated as part of the language in one description (Taylor p. 96). Even if it turns out that d) and f) are un-grammatical in the language, the fact can be explained by assuming one more constraint, namely that TENSE is expanded only into PRESENT for ho when it is preceded by ho.

(53) ho·PAST ho·TENSE → ho·PAST ho·PRESENT

If we assume this additional rule (53), ho will go through Route 2:

(54) (i), (ii), and (iii) same as in (52)

By the application of (53), we get

(iv) ho·

\[
\begin{cases}
\text{FUTURE} \\
\text{PRESENT} \\
\text{PAST (ho·PRESENT)}
\end{cases}
\]

Rule that expands PAST into IMPF will give us

(v) ho·

\[
\begin{cases}
\text{FUTURE} \\
\text{PRESENT} \\
\text{IMPF (ho·PRESENT)}
\end{cases}
\]

or, the following four forms:

a) ho·FUTURE

b) ho·PRESENT

c) ho·IMPF

d) ho·IMPF ho·PRESENT
which by the application of IMPF-deletion\textsuperscript{13} results in ho·∅ ho·PRESENT. Later on, (51) will change ho·PRESENT of of b) and d) into ch·PRESENT in declarative sentences, giving

\[
\begin{align*}
& \text{ho·∅ e} \\
& \text{ch·e/ho·e} \\
& \text{ho·t·o} \\
& \text{ho·e ch·e}
\end{align*}
\]

It is difficult to determine whether we need Route 1 or Route 2 for the derivation of auxiliary forms. Note that this description assumes only one verb ho and derives all the forms that were previously derived by assuming two verbs ho- and ch-. Further, the details of auxiliary forms were previously described by means of additional grammatical categories; we account for all the details without any additional categories, but by one general rule (the IMPF-deletion) and two or three specific rules ((48), (51) and probably (53)).\textsuperscript{14}

3.5: Derivations: Volitional, Obligational and Desiderative: The language also has the following types of verb forms:

\[
\begin{align*}
\text{Bill} & \quad \{ \text{radio} \} \\
\text{Mary} & \quad \{ \text{car} \} \\
\text{bālek} & \quad \{ \text{typewriter} \} \\
\text{child} & \quad \{ \text{kherid·wan i che} \} \\
\text{"Bill} & \quad \{ \text{radio} \} \\
\text{Mary} & \quad \{ \text{car} \} \\
\text{child} & \quad \{ \text{typewriter} \}
\end{align*}
\]
(56) Bill e radio kheridwan[ê]\ü
Mary e car che
bałe\k\ü typewriter
"Bill
Mary
the child" has to buy a
radio
car
"typewriter

(57) Bill e radio kheridwan[ê]\ü
Mary e car che
bałe\k\ü typewriter
"Bill
Mary
the child" wants to buy a
radio
car
"typewriter

The approximate glosses accompanying sentences (55) (56) and (57) indicate the fact that these sentences mean different things to Gujarati speakers. The difference in meaning is correlated with the formal differences. Sentences (55) and (56) have the identical verb form kheridwan— but in (56) the subject-noun has a marker -ê. Further the verb agrees, in gender with the object-noun in (56) but with the subject-noun in (55). Sentences (56) and (57) on the other hand, are similar both in having the marker-ê with the subject-noun and also in the details of agreement (with the gender of the object noun). The only difference between them is in their verb forms (V\ü\cdot Gender in (56) but V\ü\cdot Gender in (57)).

One possible analysis is to include three more aspectsuals in the base component, say VOLITIONAL for (55), OBLIGATIONAL for (56) and DESIDERATIVE for (57) and describe their formal correlates. The above sentences then would have the structure as follows:
We then would need two transformations: i) Agentive-ε-Attachment when the aspect is OBLIGATIONAL or DESIDERATIVE; and ii) Agreement of verb-form with the subject-noun if the Aspect is VOLITIONAL, otherwise with the object-noun.

The above-mentioned analysis, though it is reasonably simple and accounts for the data, is unmotivated and ad hoc. Further it will be shown that no special mechanism (such as additional aspects) is needed to produce sentences like (55) to (57) if they are analyzed differently.

It is claimed that the above sentences are copular and have a structure like that of (59):
(59a) *Bill* (((*Bill* radio kherid-)$_S$ Nom)$_NP$ Genitive)$_{Adj}$—
Copula.

(59b) *Bill* ((*Bill* radio kheridwa)$_NP$ Genitive)$_{Adj}$ —
Copula ($T_2$)

(59c) *Bill* (*Bill* radio kheridwan-)$_{Adj}$ Copula

(59d) *Bill* (radio kheridwano)$_{Adj}$ Copula ($T_{17}$)

(59e) *Bill* radio kheridwano ch·e

Notice a) that the agreement rule ($T_{24}$) that operates on verb forms with wan (*kherid·wan-* is the same that operates on adjectives and therefore is required in the grammar on independent grounds. Compare the following sentence with sentence (55)
(60)  
Bill   
Mary  
bašek  
child

mâq·i che  
sick  ū

" Bill  
Mary  
The child

{ is sick

b) The -n- that occurs in these verb forms is also found in genitive forms of nouns.

chokro  
boy
chokri  
girl
bašek  
child

behargam·n·i che  
another city  ū

" The boy  
The girl  
The child

{ is of/from another city"  

In fact, the constructions NP·Genitive -n- function as adjectives throughout language.

(62)  
chokrano  
boy's
radio

"The boy's radio"

c) There is a general rule in the language that transposes copular predicate in the attributive position, preceding nouns. The copular predicates, other than adjectives, become adjectives by genetive-attachment when they move before the nouns (ref \( T_{11} \) and \( T_{12} \)).

(63)  
pañi  
water

(a) gendû  
dirty
(b) gharmâ  
in the house
(c) piwa mate  
for drinking

"The water is

{(a) dirty
(b) in the house
(c) for drinking

""
(64a) gendû pani "dirty water"
dirty water

(64b) gehrma-nû pani "water that is in the
in the house of water

(64c) piwa mate-nû pani "drinking water"
for drinking of water

(65) a chapano hetu loko-ne usker-wano che
this newspaper's goal people excite is
"The goal of this newspaper is to excite people"

(66) a chapano lokone usker·wano hetu15
this newspaper's people excite goal
"This newspaper's goal of exciting people"
(people exciting goal)

In order to derive (66) from (65) we don't need any
additional rule if we analyze lokone uskerwano in (65) as
adjective. Then the rule that gives gendû pani in (64) from
pani gendû che (65) will also give (66) from (65).

Volitional sentences in this analysis are thus produced
by the rule that expands a verb phrase into an adjective and
copula. The analysis explains the adjectival behavior of the
verb forms (i.e., the details of agreement, occurrence in
attributive position, etc.) and also derives the surface
structure of such sentences by the independently existing
rules of the grammar.

The details of the other two types of sentences—Oblig-
gational and Desiderative—is partially similar to Volitional.
The sentences (56) and (57) exemplify obligatory and desiderative constructions. They are given here as they are found
in my speech, but these forms are not acceptable to all the speakers of the language. The variation occurs in the subject noun. In my speech it is NP·e, whereas some speakers have NP·ne. Among the grammatical studies, Taylor mentions only Volitional (67) and Desiderative (67a) constructions:

(67) te ceďhwano che

"He is going to climb up" (p. 94)

(67a) temare shi aw·w·û sarû nethi you here come good is not

"It is not good for you to come here" (p. 167)

Trivedi gives examples of all three varieties: Volitional (68b), Obligational (69b), and Desiderative (70b).

(68b) te kale mumbei ja·wan·o che he tomorrow Bombay go is

"He is going to Bombay tomorrow" (p. 238)

(69b) mare kam ker·wan·û che "I have to work". 238)

(70b₁) tene kale mumbei ja·w·û che he tomorrow Bombay go is

"He wants to go to Bombay tomorrow" (p. 157)

Elsewhere (on pages 228 and 230) one finds paradigms for Desiderative constructions where the pronoun form is tepe as in (70b₂) which is different from tene in (70b₁).

(70b₂) tene kar·w·û che "He wants to do" he do

Cardona (p. 134) also provides instances of all the three types: Volitional (68c), Obligational (69c), and Desiderative (70c).

(68c) hû mumbei je·wan·o chû "I am going to Bombay"
(69c) mare bhai·ne' paysa ap·wan·a che
           I brother money give
           "I have to give money to my brother"

(70c) mare a copdi wâc·w·i che
           I this book read is
           "I want to read this book"

It is very unfortunate that the examples in these studies contain pronominal forms, as they are not directly helpful in deciding whether the subject noun should be NP-e or NP-ne in Desiderative and Obligational constructions. To recapitulate the problem:

(71) mare ja·w·û che
           I go is
           "I want to go"
Sentence (71) is found in my speech, in other speakers', as well as in grammars.

(72) Bill·e ja·wû che
           Bill go is
           "Bill wants to go"

(72) is in my speech, although not all speakers accept it and the grammars are silent about it.

(73) Bill·e ja·w·û che
           Bill go is
           "Bill wants to go"

Though barely acceptable to me, (73) is found among some speakers, though the grammars are silent about it.

The construction NP-e occurs elsewhere: with transitive verbs in their PERFECT and PLUPERFECT forms.
(74) Bill·e car kherid·y·i
    buy

"Bill bought a car"

is acceptable to all, but

*(75) Bill·ne car kherid·y·i
    buy

is totally unacceptable. Thus, to assume that NP·e and
NP·ne are in free-variation is out of the question.

Corresponding to (75) the language has

(76) mâ car kherid·y·i

"I bought a car"

Sentences (71), and (72) and (73) show that the pro-
nominal form mare corresponds to the nominal form NP·e of
my speech and NP·ne of others, in Obligational and Desidera-
tive constructions. But sentences (75) and (76) clearly
illustrate that the pronominal form for NP·e is not mare but
mâ. It is therefore reasonable to assume that NP·e of sen-
tence (72) is one of the idiosyncratic characteristics of
my dialect and that NP·ne of sentence (73) represents the ba-
sic form. 16 This is further supported by the fact that cor-
responding to NP·ne in

(74) Bill·ne gher·e
    house-at

"At Bill's house"

the language has mare in

(75) mare ghere

"At my house"
We therefore conclude that sentences (56) and (57) in fact, have $\text{Bill} \cdot \text{ne}$ in place of $\text{Bill} \cdot \text{e}$.

We further maintain that (56) and (57) are also copular sentences. The only difference is that in Volitional sentences like $\text{Bill jewano che}$, $\text{Bill}$ is the subject-noun and $\text{jewanû}$ is the predicative adjective; whereas in Obligational $\text{Bill} \cdot \text{ne jewanû che}$ and Desiderative $\text{Bill} \cdot \text{ne jawû che}$, $\text{Bill} \cdot \text{ne}$ is a predicative noun phrase and $\text{jawanû}$, $\text{jawû}$ are dominated by the subject noun phrase, as in (76) and (77)

(76) 

```
(76a) ((Bill ja\text{-})_S Nom) NP Bill che  
(76b) (Bill jawû)_{NP} Bill che (T_2)  
(76c) (jawû)_{NP} Bill che (Identical NP-deletion)  
(76d) jawû Bill \cdot ne che (-ne-insertion)  
```
(77a) \[
S_2 [ [+\text{Pro}]_N ] \quad S_1 \quad [ [+\text{Pro}]_N ] \quad \text{NOM} \quad \text{GEN} \quad \text{ADJ} \quad \text{Copula} \quad S_2 \quad [ [+\text{Pro}]_N ] \quad \text{NP}
\]

Bill Copula

T nominalization:

\[
S_2 [ [+\text{Pro}]_N ] \quad S_1 \quad [ [+\text{Pro}]_N ] \quad \text{NP} \quad \text{GEN} \quad \text{ADJ} \quad \text{Copula} \quad S_2 \quad [ [+\text{Pro}]_N ] \quad \text{NP}
\]

Bill Copula

T adjectivization:

\[
[ \text{Bill} \text{ jēwanû} ] \quad \text{ADJ} \quad [ [+\text{Pro}]_N ] \quad \text{NP}
\]

Bill Copula

T identical NP-deletion:

\[
[ \text{jēwanû} ] \quad \text{ADJ} \quad [ [+\text{Pro}]_N ] \quad \text{NP}
\]

Bill Copula

T -ne- insertion:

\[
[ \text{jēwanû} ] \quad \text{ADJ} \quad [ [+\text{Pro}]_N ] \quad \text{NP}
\]

Bill-ne Copula

jēwanû Bill-ne ch.e
The types of rules involved in the derivation of sentence (77) Bill·ne jéwanû che are required to account for sentences such as:

(78) Bill·ne jéwanû kam che  
     go work

"Bill has the work of going"

That is, (78) is derived from

(79) kam [kam jéwanû che] Bill·ne che.

Sentences (77) and (78) are felt to be very similar, and the above analysis provides an explanation for this fact. Sentence (78) has a concrete lexical item kam as the underlying subject, whereas in (77) we have [+PRO] instead, an entity without any phonological properties. We have assumed the existence of such entities because they explain structural similarities between two sentences like (77) and (78) which similarities are not necessarily apparent in their final forms. Note that the rules that derive sentences like (79) are also used in the derivation of (76) and (77). Further, we have already discussed that the rules are not devised just to produce these sentences, but are required in the grammar for other constructions also. For example, the last rule in the derivation of both (76) and (77) attaches -ne to the predicative noun phrase—i.e., Bill-ne from Bill of preceding line. Notice that the language has sentences like

(80) Bill·ne taw che  
     fever

"Bill has fever"
(81) Bill. ne tew che
habit is

"Bill has a habit"

(82) Bill. ni pase typewriter che
vicinity is

"Bill has a typewriter"

We have -ne in (80) and (81) but -ni pase in (82). Whether it is -ne or -ni pase with Bill in the above sentences is dependent on the feature of the other nouns (taw 'fever', 'typewriter') in the construction: it is -ne if the other noun has a feature [+Internal], otherwise it is -ni pase.

(Refer to the discussion in 4.2.)

(83)

\[ S \]
\[ NP \]
\[ +N \]
\[ +Internal \]
\[ VP \]
\[ NP \]
\[ Copula \]

\[ taw \]
\[ fever \]

(83a) (taw)\textsubscript{NP} Bill che
(76a) (jewû)\textsubscript{NP} Bill che
(77a) (jewanû)\textsubscript{NP} Bill che

The first noun phrase has a feature (+Internal) in all these sentences and therefore the sentences have the form as follows by the application of a single rule.
(83b) taw Bill·ne che
(76a) jawû Bill·ne che
(77a) jawanû Bill·ne che

which by a later rule is converted into

(80) Bill·ne taw che
    fever
(76d) Bill·ne jawû che
(77) Bill·ne jawanû che

We have thus demonstrated that sentences like (55), (56) and (57) could be derived without adding any more aspects such as Volitional, Obligational and Desiderative. What is even more important about the present analysis is the fact that rules which are required for other types of sentences of the language also derive these constructions and thereby make important generalizations about the language.
FOOTNOTES

1 Taylor: pp. 88-91.

2 Trivedi: pp. 221-236.

3 That is, formally, verb-forms of conditional sentences are contrafactual if they end in -t (kherid·t), otherwise they are conditional. It should be added that this distinction is not consistently observed through his discussion. Thus, in one of Trivedi's charts (p. 231), keret is recognized both conditional and contrafactual. Elsewhere (p. 233) he considers kerto hot, karyã hot, karelu hot, etc. as instances of conditional.

4 Cardona: pp. 93-106.

5 These and other glosses are obviously very rough approximations to the meaning conveyed by Gujarati constructions. Quite often, it has not been possible to mirror the contrast between two forms in their glosses as is the case here.

6 It is equally possible to consider

Root (·person) \{ho·x·e \}
\{ho·t·o \}
\{ho·e che\}

as underlying forms and derive the imperfective counterparts

Root·IMPF (·Gender) \{ho·x·e \}
\{ho·t·o \}
\{ho·e ch·e\}
from them. If it were purely a matter of distributions, there is no a priori reason for preferring either \texttt{Root \_ \_ \_} (\texttt{\_ \_ \_Person}) or \texttt{Root \_ \_ \_IMPF} (\texttt{\_ \_ \_Gender}) for the underlying representation of complex forms and thus our choice of either one would be arbitrary. The rationale behind our choice of \texttt{Root \_ \_ \_IMPF} (\texttt{\_ \_ \_Gender}) as an underlying form can be appreciated only after the details of negation, adjectivization, dialectal and comparative materials have been set forth.

\textsuperscript{7}Consequently, \texttt{ho \_ \_ \_e ch \_ \_ \_e} too will have a different underlying representation. For a possible underlying structure of this complex form as well as problems that verb \texttt{ho} poses, refer to the discussion in section \textsuperscript{4}.

\textsuperscript{8}Complex forms of the type \texttt{aw \_ \_ \_to ch \_ \_ \_e} represent both geographical and social dialect. Such forms are found in South Gujarat. Speakers of this area generally have both \texttt{aw \_ \_ \_t \_ \_o che} and \texttt{aw \_ \_ \_e ch \_ \_ \_e}, and they use the latter when talking with the elite or the educated group.

\textsuperscript{9}The details discussed here are supported by recent observations that related languages or different dialects have the same core system and differences between them arise either by an addition, deletion or change in the order of lower level rules. Thus, Chomsky and Halle (1968: p. \textsuperscript{49}) remark:

"It should also be observed that very different dialects may have the same or a very similar system of underlying representations. It is a widely empirical fact that
underlying representations are fairly resistant to historical change, which tends, by and large, to involve late phonetic rules."

In this claim that Root·Person of the complex forms are derived from Root·IMPF·Gender, it is assumed that there is no contrast between the two. There is one verb—su 'to sleep' — that I know of, which may appear to be an exception— to this as in sentences (a) and (b):

(a) Bill be wage su·t·o ch·e
two strike sleep
"Bill slept at two o'clock"

(b) Bill be wage su·e che.
"Bill generally sleeps at two o'clock"

Sentence (a) has Root·t·Gender and sentence (b) has Root·Person as their main verbs but they are not synonyms as is obvious from their glosses. There are reasons to believe that su·t·o in such sentences is not an instance of Root·IMPF·Gender but Root·PERF·Gender. One indication is the absence of *su·y·o and the use of su·t·o where other verbs have Root·y·o forms, as in sentences (c), (d) and (e):

(c) Bill gei kale aw·y·o che
yesterday come
"Bill has come yesterday"

(d) Bill gei kale su·t·o che
yesterday sleep
"Bill has slept yesterday".

*(e) Bill gei kale aw·t·o che
yesterday come
Sentence (e) is ungrammatical even for those dialects that have complex forms like Root·t·Gender_che; (refer Footnote 8). This is so because such complex forms do not occur with time adverbs of the kind gei kale 'yesterday'. But the grammaticality of (d) shows that suto_che is not conditioned by the restriction.

Another piece of evidence is provided by the fact that verbs with irregular perfective forms have the pluperfect morpheme added to their perfective forms, as in kar 'do', kar·Perf → kidh-, kar·Pluperf → kidh·el--; bes 'sit., bes·Perf → beth-, bes·Plupf → beth·el--; su 'sleep', su·Perf → sut-, su·Plupf → su·t·el--; but aw 'come' has aw·Perf → aw·y-, aw·Plupf → aw·el-- and though it has aw·t- (aw·IMPF) but no *aw·t·el--.

This evidence suggests that the verb su 'sleep is an exception not to our analysis but to the rule which rewrites PERF into Y.

11 For explicit statements regarding this observation, refer to Cardona: p. 101; Taylor: p. 88; and Trivedi: p. 231.

12 The emphasis on phonemic similarity is apparent in analyses that assume two verbs in their auxiliary forms. We have grouped the two elements into one on the basis of syntactic details. The type of argument that we are relying on is not a new one but is often used and discussed in Post-Bloomfieldian linguistics. The conflict between the phonemic similarity criterion and the syntactic criterion is also quite well
known and is at the base of most of the problems in morphemic analysis reported in the forties.

For various criteria of morphemic analysis and conflict between them, see Harris, Zellig G. "Morpheme Alternants in Linguistic Analysis" *Language* 18(1942), 169-80, also Hockett, Charles F. "Problems of Morphemic Analysis" *Language* 23(1947), 321-43.

13 One could raise issues about whether this rule deletes IMPF or merely replaces it by PRESENT. The latter rule will convert Root·IMPF into intermediary steps Root·PRESENT, which becomes Root·Ø when PRESENT is rewritten as Ø. But this rule will also apply to d) ho·IMPF ho·PRESENT and change it into ho·PRESENT ho·PRESENT. In order to get the desired form ho·e ch·e, the grammar then will require a special condition to change only the second ho into ch by the application of (51). The rule that we have chosen allows us to change Root·IMPF directly into Root·Ø, avoiding the intermediary stage Root·PRESENT as well as the unneeded condition for deriving the complex form ho·e ch·e from ho·IMPF ho·PRESENT.

14 We have thus shown that verb ho is conjugated in a way similar to that of any other verb in the language, but with additional constraints on the combination of tenses. The discussion does not deny that there are no irregularities about auxiliary forms—but instead of listing occurring forms, we have explained irregularities as certain restrictions on the combination of tenses. The verb ho is unique in many
other aspects that have remained unnoticed in the previous descriptions. For instance, it does not have causative or passive forms—that is, it does not participate in any of the derivational processes that we have discussed in Chapter 4.

In Section ii of Chapter 5, we will show that the verb ho- has dual functions—an auxiliary verb and a copula.

15 This is actually a simplification. Attributive adjectives are not just transpositions of predicative adjectives, but come from relative clauses. For example, in English *The good book* is derived not from "the book is good" but from 'the book that is good' in recent analysis. Although this matter involves significant change in the structural description of the transposition transformation, it does not affect the point made here.

16 Whether obligational and desiderative sentences have -e or -ne in association with the noun phrase has been a matter of confusion to some grammarians. Cardona, on the one hand, in his Grammar gives sentences having -e. Durbin, however, in her review of Cardona maintains that "/ehne gher jewa che/> for 'he wants to go home' and /e manase gher jewa che/> for 'that man wants to go home' are unacceptable in Gujarati," on the grounds that -ne should be used. This whole argument is unwarranted as it is not a matter of "acceptability" but of dialect difference.
4. THE VERB SYSTEM - II

4.1. Imperatives. One of the sentence types found in languages is the imperative construction. In recent works on generative grammar, an imperative construction is analyzed as having the following structure associated with it:

(1)

Such an analysis assumes phrase structure rules which have the above-mentioned structure as one of their expansions. This is done by having IMP as an optional constituent of a sentence. It is the presence of this IMP that triggers necessary transformations and produces imperative sentences.

Gujarati too has imperative constructions. Yet no IMP constituent is developed in the base, because it is argued in this study that the above analysis is not an appropriate one and that no additional element like IMP is needed to account for the imperative constructions. In this section, first we will summarize the positions held by the grammarians and discuss their observations about Gujarati imperatives. This will then be followed by a reanalysis of these constructions and a formulation of a more general type.
The following chart summarizes Taylor's (p. 89) observation about Gujarati imperatives:

<table>
<thead>
<tr>
<th></th>
<th>ker--ker·j·e</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd Person</td>
<td>ker·o--ker·j·o</td>
</tr>
</tbody>
</table>

The dash /--/ between two forms separates present and future forms and is not used to indicate variants of a single form. Taylor (p. 112) observes that forms with the affix o are used for both numbers in second person as well as for 3rd person, in a wish or a benediction. This observation is supported by an example:

(2) prebu temarū bheelū ker·j·o
god yours good (fortune) do

"May God grant you good fortune"

In this sentence the verb has o even when the subject-noun is 3rd person: prebhu.

Trivedi (p. 228) recognizes both types of forms (i.e., j-forms like ker·j·e and j-less forms like ker·o) as well as number distinction but maintains that: "Imperatives could only be in present tense." According to him, what has been considered by Taylor a contrast of present and future in imperative constructions is characterized as a contrast of normal (-j-less-forms) and honorific (-j-forms). Thus the j-forms, which according to Taylor are forms of the future imperative, are described by Trivedi (p. 229) as: "These (i.e. j-forms) are honorific forms of the imperative."
Cardona (p. 99) divides the imperative forms into i) neutral and ii) future, and this division corresponds to Taylor's classification of present and future. He further observes that:

i) The neutral imperative is overtly marked only in the second person singular and in a polite third person form:

2nd sg.  -  φ
3rd pers. -  o

That is, the second person imperative form has a zero ending (e.g. ker) whereas the forms having -o ending are instances of the third person imperative.

ii) The future imperative has the suffix -j- following the stem. It is used only in the 2nd person and in a 3rd person form type the·j·o "may it come to be" in imprecations (Cardona: p. 100). These observations are followed by examples

A. Neutral imperative (Cardona: p. 103)

a) ahī aw
here come
"come here"

b) rameš pelu kam ker·o
Ramesh that work do
"Let Ramesh do that work."

c) bhagwan ehnū hēlū ker·o
god his good(fortune)
"May the God grant him good fortune."
B. Future Imperative (Cardona: p. 104)

b) tame mare tyâ aw·j·o
   you my there(house)do
   "Come to my home"

c) be cah law·j·e
   two tea bring
   "Bring two teas"

d) tarû nekkhod ja·j·o
   your bad fortune go
   "May bad fortune beset you"

There are thus disagreements among the grammarians about the characteristics of Gujarati imperative constructions. In short there are 2 issues:

1. j-forms v.s. j-less forms: their functions
   a.) Tense - distinction (observed by Taylor and Cardona).
   b.) Normal - Honorific distinction (observed by Trivedi)

2. Functions of -o-forms (i.e. ker·o; ker·j·o)
   a.) According to Taylor, it occurs essentially with the 2nd person plural, but its use is extended to 2nd singular as well as to 3rd person in a wish or benediction.
   b.) According to Trivedi, it occurs with 2nd person plural.
   c.) According to Cardona, it occurs with 3rd person.

Between the tense vs. normal-honorific distinction, the language has little evidence to support Trivedi's
normal-honorific distinction. That is, in sentences (3) and (4)

(3) tū aw
    you come
    "come"

(4) tū aw·j·e
    you come

Sentence (4) is not at all understood as having tū 'you' of more elevated or exalted position than tū 'you' in (3). On the other hand, the grammaticality of (5) along with the ungrammaticality of (6) provides evidence that these two forms of imperatives differ from each other in their tense connotation, which is reflected in their restrictions with time adverbials.

(5) tū atyare aw    "come just now"
    you just now come

*(6) tū atyare aw·j·e

About the o-forms, Taylor's characterization is correct except for one clarification: when he observes that o-forms are also used with the second person singular, he is referring not to grammatically singular, but to semantically singular second person. The second person plural teme 'you (pl.)' is also used to address a person who commands respect. In such a usage teme refers to a single person semantically, but in terms of its grammatical behavior, it still remains plural--e.g. in terms of its agreement with the verbs.

(7) bhai, tū behar ja "Brother, go out"
    brother you outside go
(8) bhai-o , tame behar ja-o "Brothers, go out"
brothers you outside go

*(9) bhai , tû behar ja-o
brother you outside go

(10) bapuji , tame behar ja-o "Father, go out please."
Father you outside go

tû in (7) is semantically singular as it refers to a single
person and also grammatically singular because the verb ja
has the ǵ ending. Similarly, tame in (8) is semantically
plural and also grammatically plural because the verb with
which it is constructed has the o-ending (ja-o). Sentences
(9) and (10) both have the o-form ja-o and semantically sin-
gular pronouns; yet (9) is an ungrammatical sentence because
the pronoun tû is grammatically singular and therefore does
not occur with o-forms of verbs in imperatives. But (10) is
a well-formed sentence because the pronoun tame is grammati-
cally plural, and therefore is privileged to occur with the
o-forms of a verb.

It is evident from the above discussion that the o-
forms of imperatives occur with grammatically plural second
person. Trivedi's description is therefore preferable to
Taylor's. Unfortunately Trivedi has imposed normal-honorific
distinction for j-forms vs. j-less-forms where there is no
evidence to support it and has missed such a distinction in
the ambiguous use of tame 'you (pl.)' where there is some
evidence to justify it.

Cardona (p. 91) recognizes the various uses of the sec-
ond person pronouns in his discussion on pronouns. But his
characterization of the o-forms (ker.o) differs radically from the previous descriptions. For him, the o-forms occur with the third person. The following is the paradigm that he gives for imperatives (Cardona: p. 99):

Sg.  Pl.
1st  aw
2nd  awo
3rd  awo

He (Cardona p. 103) cites the following sentence as an illustration of the o-forms:

remeš pelu kam karo "Let Ramesh do that work."
Ramesh that work do

This is obviously a different observation than Taylor's and Trivedi's. They maintain the co-occurrence of the o-forms with the second person plural pronoun and, in the discussion above, we have seen the evidence that supports their position. Cardona’s description thus fails to accommodate the correct observations of previous grammatical studies. Further, Cardona’s own example in support of his observation about the o-forms deserves some comments.

*(11) remeš pelu kam karo "Let Ramesh do that work."
(12) remeš, pelu kam karo "Ramesh, please do that
eruš that work do work."
(13) remeš, teme pelu kam karo
Ramesh you that work do
"Ramesh, please do that work."

Sentence (11) is Cardona’s example. As it is, it is ungrammatical to native speakers and therefore I have marked it with
an asterisk. The same sentence is grammatical if the first element, namely remeš, is to be understood not as a subject but in a vocative sense. Thus the grammatical sentence (12) is similar to sentence (11) except that it has a comma after remeš to indicate that the noun is in vocative. The gloss also shows how the sentence is understood. The sentence (13) differs from (12) in having additional teme 'you' though (12) and (13) mean the same. In fact, (13) is an underlying sentence for (12) and the o-form (kerō) in Cardona's example agrees with teme, the second person plural pronoun and not with remeš, a third person, as Cardona has assumed.

Though we have shown that in Cardona's example the o-form is in agreement with the 2nd person, it cannot be shown that in all sentences with o-form the subject is in the second person. For this, a very convincing example is found in Taylor (p. 89)

(14) prebhu temarū bhalū ker·j·o
     god yours good (fortune) do

"May God grant you good fortune."

Sentence (14) has prebhu, a third person, as subject, and the o-form ker·j·o as the verb. In fact, irrespective of the number, o-forms occur with third person, as is evident from (14) and (15).

(15) serv devo tamari rekṣa ker·j·o
     all gods your protection do

"May all gods protect you"

Thus, o-forms occur with teme 'you (pl)' as well as with the third person.
It is also pertinent and important to inquire into the
details of sentences like (16) and (17)

(16) e marathi bijanu bhelu theuo
by us other's good(fortune) happen
    "May we do good of others"

(17) marathi bijanu bhelu thejo
by me other's good (fortune) happen
    "May I do good of others"

These sentences are structurally similar to (18)

(18) serv devothi tamari reksha thejo
all by gods your protection happen
    "May all gods protect you"

Sentence (18) in this case is an ABLE ("passive") of (15)
and has serv devo as its subject. Similarly, sentences
(16) and (17) have e me 'we' and hû 'I' respectively as their
logical subject. What sentences like (16) and (17) assert is
that, if sentences like (18) are imperative, then such con-
structions are not limited to second or third person but are
found also with first person as subject. But for unknown
reasons, imperfectives (or benefactives) with first person
as their subject obligatorily undergo ABLE transformation.
For this reason, sentences (19) and (20) are ungrammatical:

*(19) e me bijanu bhelu kerjo
we other's good do

*(20) hû bijanu bhelu kerjo
I other's good do

First, it seems ad hoc to maintain that endings in im-
perative verb forms agree in person and number with the sub-
ject, simply because we have only two endings ēve and o and
six types of subjects (three persons and two numbers). Further, if by imperative constructions is meant sentences that contain, Root·p (e.g. aw), Root·o (e.g. aw·o), Root·i·e (e.g. aw·i·e) or Root·i·o (e.g. aw·i·o), then the evidence we have presented shows that such constructions are possible with a wide variety of subjects. This conclusion, if correct, goes against the traditional assumption that imperative sentences have an implicit or explicit second person pronoun subject.

But imperative sentences with second person subject are at times understood differently than other imperative sentences.

(21) (teme) pustek kherid·o
   you   book   buy
   "Buy a book!"

(21a) hud icchČ chů ke teme pustek kherid·o
       I wish that you  book   buy
       "I wish that you buy a book"

(21b) hud tem·ne agna/ winentČ kerČ chů ke
       I you/to command/ request do that
       teme pustek kherid·o
       you book  buy
       "I command/request you that you buy a book"

(22) prebhu tamarČ bhalČ kero
     god  yours  good  do
     "May God grant you good fortune"

(22a) hud icchČ chů ke prebhu tamarČ bhalČ kero
       I wish that god  yours  good  do
       "I wish that God may grant you good fortune"
(23) emarathi bhelû thejo
by us other's good happen

"May we do good to others"

(23a) hû icchu chû ke emarathi bhelû thejo
I wish that by us other's good happen

"I wish that we may do good to others"

Sentences (21a) and (21b) are understood as expanded and explicit versions of (21). That is, (21) is semantically equivalent to two different sentences (21a) and (21b)--and therefore is ambiguous. It is no surprise, then, that an addressee on hearing such sentences occasionally inquires whether the speaker meant a wish or a command. Sentences (22a) and (23a) are also versions of (22) and (23)--but there is no ambiguity associated with them.

The semantic similarity between (21) and (21a), (22) and (22a), and (23) and (23a) suggests that the deep structures associated with (21), (22) and (23) is almost identical to the deep structures of (21a), (22a) and (23a). The deep structure of (21a) as well as of (22a) and (23a) is as follows:

(24)
The structure associated with (21) and also with (22) and (23) is similar to (24) except that it has no specific verb under the node V but instead a PRO element, with +WISH as one of its features as in (25):

\[
(25)
\]

\[
\begin{array}{c}
S \\
\text{NP} \\
\text{hû} \\
\text{I} \\
\text{VP} \\
\text{S} \\
\text{NP} \\
\text{tème pustek kherido} \\
"\text{You buy a book}" \\
\text{V} \\
\text{[+V} \\
\text{+PRO} \\
\text{+WISH]} \\
\end{array}
\]

We have also noted that (21b) is also understood as a paraphrase of (21), since (21b) has the deep structure shown in (26):

\[
(26)
\]

\[
\begin{array}{c}
S \\
\text{NP} \\
\text{hû} \\
\text{I} \\
\text{POST-P} \\
\text{NP} \\
\text{Post} \\
\text{Position} \\
\text{MV} \\
\text{tème you ne} \\
\text{a[+a} \\
\text{[agni karû chû "command"]} \\
\text{winanti karû chû "request"} \\
\text{NP} \\
\text{S} \\
\text{tème pustek kherido} \\
"\text{You buy a book}" \\
\end{array}
\]
The same structure, but with an abstract verb \[
\begin{array}{c}
+V \\
+\text{PRO} \\
+\text{COMMAND}
\end{array}
\] underlies the sentence (21).

The two types of deep structures that we have postulated correspond to the classical distinction between Benefactive and Imperative. Both are similar in having first person pronoun \(\text{hû} \ 'I'\) as an underlying subject, but they differ in the features of verbs that underlie them. The verb of the Benefactive (25) has no indirect object and has no restrictions on the subject of the embedded sentence dominated by direct object. Thus a benefactive sentence may have first person, second person or third person as its subject. The verb of Imperative (26), on the other hand, has a second person pronoun as indirect object and requires a second person pronoun as a subject of an embedded sentence dominated by direct object. It is precisely for this restriction that corresponding to sentence (21) we obtain (21b), but for sentences (22) and (23) there are no corresponding (22b) and (23b).

The analysis that we have suggested provides justification for the imperative-benefactive distinction, and shows that the traditional assumption of imperative sentences having a second person subject is correct. Further it provides a very logical explanation for the semantic similarity of sentences like (21) and (21a) by assigning almost identical deep structure and also for the ambiguity of (21) by showing that such sentences can be derived from two possible deep structures: (25) and (26).
4.2: Causatives: In Gujarati grammars, a section on the verb morphology divides items functioning as verbs into primary roots and derived roots. Derived roots are obtained by suffixation (ker- 'do': ker·a·ker·aw), root alternation (peq- 'fall': pad) or both (kha- 'eat': khe-wad). Those that are derived by suffixing -a are known as passive roots. The passive formation is morphologically highly regular in the language and, therefore, one finds very little disagreement or discussion about it in the literature.

On the other hand, other derived roots have received more attention because of the 'irregularity' and complexity of their derivation and function. Descriptions of the morphological processes as found in the grammars brings forth three points: 1) the derived roots are causative, 2) the causative morpheme has various conditioned and unconditioned allomorphs, and 3) many roots take the causative morpheme twice.

In Taylor's analysis there are three processes in which primary roots participate, namely, 1st causativization, 2nd causativization, and Transitivization. He maintains that from both the transitive and intransitive primary roots we get 1st causativization and second causativization by the suffixation of the causative morpheme aw or one of its allomorphs:

\[
\begin{array}{llll}
(27) & \text{Primary} & \text{1st Causative} & \text{2nd Causative} \\
\text{Intransitive} & \text{peq 'fall'} & \text{peq·aw} & \text{peq·aw·aw} \\
\text{Transitive} & \text{ker 'do'} & \text{ker·aw} & \text{ker·aw·aw} \\
\end{array}
\]
In addition, he derives transitivized roots from the intransitive primary roots by root alternation:

(28) | Intransitive | Transitive |
     | peq | 'fall'   | paq |
     | khul | 'open'  | khol |
     | ucher | 'grow' | ucher |

Trivedi's description of the derived roots differs significantly from Taylor's. For Trivedi, all derived roots (except passive) are transitive in their grammatical behavior and are causative in their meaning. He thus recognizes only two processes: 1st causativization and 2nd causativization. The 1st causativization is derived not only by suffixation but also by root alternation, whereas the 2nd causativization is the result of suffixation.

Following is a summary statement based on Trivedi's treatment.

<table>
<thead>
<tr>
<th>Primary root and caus(ative)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. {caus.} = /a⇐(e)/</td>
</tr>
<tr>
<td>'fall' peq- : paq-</td>
</tr>
<tr>
<td>2. {caus.} = /e⇐(e)/</td>
</tr>
<tr>
<td>'grow' ucher- : ucher-</td>
</tr>
<tr>
<td>3. {caus.} = /o⇐(u)/</td>
</tr>
<tr>
<td>'open' khul- : khol-</td>
</tr>
<tr>
<td>4. {caus.} = /a⇐(i)/</td>
</tr>
<tr>
<td>'drink' pi- : pa-</td>
</tr>
<tr>
<td>5. {caus.} = /-aw/</td>
</tr>
<tr>
<td>'speak' bol- : bolaw-</td>
</tr>
<tr>
<td>6. {caus.} = /-aw/</td>
</tr>
<tr>
<td>'dance' nac- : nacaw-</td>
</tr>
</tbody>
</table>
7. \{caus\}_{\phantom{1}} = /-a\mathord{\text{d}}/  \\
    'taste'  cakh- : cekha\mathord{\text{d}}-  \\
8. \{caus\}_{\phantom{2}} = /-w\mathord{\text{d}}/  \\
    'eat'  kha- : khewa\mathord{\text{d}}-  \\

A second causative form is further obtained from these 
causative stems. Thus, there are three forms:

  Primary root
  Primary root· caus\_1
  Primary root· caus\_1 · caus\_2

9. caus\_2 = /-daw/  \\
    'do'  k\mathord{\text{r}}- : k\mathord{\text{r}}·aw·daw-

10. caus\_2 = /-aw/\textsuperscript{3}  \\
    'sit'  bes- : bes·a\mathord{\text{d}}·aw-
    'eat'  kha- : kh\mathord{\text{r}}·wa\mathord{\text{d}}·aw-

This description of Trivedi's is radically different 
from Taylor's. The following chart contrasts Taylor's and 
Trivedi's descriptions of the intransitive verb \textit{p\mathord{\text{d}}}-'fall':

<table>
<thead>
<tr>
<th></th>
<th>Transitive</th>
<th>Primary</th>
<th>1st Causative</th>
<th>2nd Causative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taylor:</td>
<td>p\mathord{\text{d}}</td>
<td>pe\mathord{\text{d}}</td>
<td>p\mathord{\text{d}}·aw</td>
<td>p\mathord{\text{d}}·aw·aw</td>
</tr>
<tr>
<td>Trivedi:</td>
<td>pe\mathord{\text{d}}</td>
<td>p\mathord{\text{d}}</td>
<td>p\mathord{\text{d}}·aw</td>
<td></td>
</tr>
</tbody>
</table>

Not only are there four forms in Taylor's analysis as
opposed to three in Trivedi's, but Taylor's transitive (p\mathord{\text{d}})
is Trivedi's 1st Causative, Taylor's 1st Causative (pe\mathord{\text{d}}aw)
is Trivedi's 2nd Causative and Taylor's 2nd Causative
(pe\mathord{\text{d}}awaw) does not exist for Trivedi.
Taylor's description is in purely morphological terms. This is true also of Trivedi's description except that Trivedi occasionally cites sentences exemplifying a form under discussion. Thus, his discussion of causative forms is accompanied by the following three sentences:

(29) ōṣiyā paṭḥ bhēṇe che student lesson learn
"The student learns the lesson"

(30) sīkṣā ṭiśy-ne paṭḥ bhṃ·aw-e che teacher student lesson learn(cause)
"The teacher teaches the lesson to the student"

(31) te sīkṣā pase ṭiśy-ne paṭḥ bheṇ·aw·đaw-e che he teacher teacher student lesson learn
"He has the teacher teach the lesson to the student"

In the above sentences there are many syntactic details (e.g., the additional noun phrase in (30) and (31)) that seem to be related to the causative forms, but Taylor's and Trivedi's descriptions do not give any insight about them.

It is only in the recent work by Cardona that we find the description of the morphological processes of causative forms followed by many significant statements about their syntactic behavior. Thus,

a) "If the base verb is transitive, the agent of the action of the base verb is the secondary agent of the action of the causative; the secondary agent is indicated by a noun phrase followed by the enclitic adverbial pase"(Cardona, p. 169.)

That is, given a sentence (32) with a transitive verb, the above statement and the examples that follow show what will
be the shape of the corresponding causative sentence (33):

(32) Bill pustak lakh·še "Bill will write a book"
    a book write

(33) Jim Bill pase pustak lakh·aw·še
    a book write will

"Jim will make Bill write a book"

In sentence (33), the agent of sentence (32) - Bill is the secondary agent, followed by the enclitic pase¹. b) "If the base verb is intransitive, the subject of the base verb is the direct object of the causative, which is transitive"(p. 169).

(34) moṭar calše "The car will run"
    a car run

(35) Bill moṭar cel·aw·še "Bill will run the car"
    a car run

Thus, moṭar, the subject of sentence (34) is the object of sentence (35).

c) "If the base verb is transitive or semitransitive and its meaning is in the semantic group of 'perceive-learn-eat-drink', the object of the base is the direct object of the causative, and the agent of the base is the indirect object of the causative"(p. 170).

(36) Bill Sanskrit bheṇ·še "Bill will learn Sanskrit"
    learn

(37) Jim Billne Sanskrit bheṇ·aw·še
    "Jim will teach Bill Sanskrit"

d) "If the first causative has an agent and a secondary agent, the secondary causative has three agents: a primary
agent who causes a secondary agent to cause a tertiary agent
to perform the verbal activity designated by the base root" (p. 172).

(38) Mary kam ker•še "Mary will do the work"
work do
(39) Bill kam ker•aw•še "Bill will get the work done"
work do
(40) Jim Bill pase kam ker•aw•daw•še
work do

"Jim will have Bill get the work done"

In sentence (40), Jim (the primary agent) will have Bill
(the secondary agent) get the work done (by a tertiary agent).
The secondary agent - Bill pase - is the primary agent of
the first causative (sentence (39)), and the tertiary agent
is the primary agent of the base verb (sentence (38).

f) "...if the first causative has one agent, the second
causative has two agents: primary agent who causes a secon-
dary agent to perform the activity designated by the verbal
root" (p. 172).

(41) Bill bes•še "Bill will sit"
sit
(42) Mary Bill•ne bes•aď•še "Mary will seat Bill"
sit
(43) Jim Bill•ne bes•aď•aw•še "Jim will have Bill seated"

The main points which emerge from the above discussion can
be summed up as follows:

i) An intransitive verb becomes transitive in the
first causative (ref.: cal-· calaw in sentences (34) and
(35)). This observation is similar to Trivedi's.
ii) A transitive verb has two objects in the first causative, the subject of the non-causal primary sentence becoming the secondary object. This secondary object is followed by pase when it occurs with one group of transitive verbs [lakh-: lakhaw- in sentences (32) and (33)] and by ne with another group of verbs [bha#: bha#aw- in sentences (36) and (37)].

iii) Causative roots with one or two objects have a second causal form also (as in (40)).

In other words, Cardona recognizes that sentences (44), (45), (46) and (47) contain in them sentences (44a), (45a), (46a), and (47a, 47b), respectively.

(44) Jim Bill•ne bes•aːd•še "Jim will seat Bill"
(44a) Bill bes•še "Bill will sit"
(45) Jim Bill•ne Sanskrit bheŋ•aw•še "Jim will teach Sanskrit to Bill"
(45a) Bill Sanskrit bheŋ•še learn "Bill will learn Sanskrit"
(46) Jim Bill pase pustek lakh•aw•še book write "Jim will have Bill write a book"
(46a) Bill pustek lakh•še book write "Bill will write a book"
(47) Jim Bill pase Mary•ne kam ker•aw•daw•še work.do "Jim will have Bill make Mary do the work"
(47a) Bill Mary\-ne kam ker\-aw\-še
work do
"Bill will make Mary do the work"

(47b) Mary kam ker\-še
work do
"Mary will do the work"

It is the great merit of Cardona's work that he does not limit his description of causative forms to verb-morphology, but extends and inquires into pertinent syntactic details associated with them. Though he neither posits explicit deep structure for the causative constructions nor formulates rules which show the precise relationship of (44), (45), (46), and (47) with (44a), (45a), (46a) and (47a, 47b), respectively, he does recognize that these sentences are related. That is, the underscored elements--direct object, indirect object and causative agent--in the above sentences come from full sentences. As I understand it, Cardona's notions about the derivation of causative can be formalized as follows:
(44)  Jim Bill·ne bes·ad·še  "Jim will seat Bill"
(47) Jim Bill pase Mary·ne kam kar·aw·daw·še work do
"Jim will have Bill make Mary do the work"
That is, in (44) we have

\[(48) \text{Jim } \left[\left[\begin{array}{c}
\text{Bill} \\
\text{NP}
\end{array}\right] \left[\begin{array}{c}
\text{bes} \\
\text{AUX}
\end{array}\right] \text{Pred Phrase}\right]_\text{S} \text{NP} \text{bes-ad-še}\]

A general rule then deletes elements from the constituent sentence that are identical to the elements of the matrix sentence. The rule thus deletes \text{bes} in the above structure, and thereby \text{Bill} is the only remaining element of the constituent sentence. The deletion operation is accompanied by an addition of \text{-ne} with the subject-NP of the constituent sentence, which produces \text{Bill-ne}. The derived sentence thus is

\[(44) \text{Jim Bill-ne bes-ad-še "Jim will seat Bill" sit} \]

A slightly modified version of the above mentioned rules produces sentences (45), (46) and (47). It is evident that in this formulation the direct object, indirect object and causative agent are derived from embedded simple sentences.

In addition to the mechanism of derivation Cardona also discusses various classes of verbs in terms of their syntactic behavior in causative constructions. In terms of \text{-ne} and \text{pase} that occur with embedded noun phrases, Cardona observes that all intransitive verbs show similar characteristics, whereas the transitive verbs form three subgroups.
The following chart sums up details of Cardona's examples:

(49)

Intransitive: \textit{bes} 'sit'

\begin{align*}
&\text{NP} \cdot \text{ne} \quad \text{bes} \cdot \text{caus}_1 \\
&\text{NP} \cdot \text{pase} \quad \text{NP} \cdot \text{ne} \quad \text{bes} \cdot \text{caus}_1 \text{caus}_2
\end{align*}

Transitive: a) \textit{bhen} 'study' - type

\begin{align*}
&\text{NP} \cdot \text{bhen} \quad \text{NP} \cdot \text{ne} \\
&\text{NP} \cdot \text{pase} \quad \text{NP} \cdot \text{ne} \quad \text{NP} \cdot \text{bhen} \cdot \text{caus}_1 \\
&\text{NP} \cdot \text{pase} \quad \text{NP} \cdot \text{ne} \quad \text{NP} \cdot \text{bhen} \cdot \text{caus}_1 \text{caus}_2
\end{align*}

b) \textit{lekh} 'write' - type

\begin{align*}
&\text{NP} \cdot \text{lekh} \quad \text{NP} \cdot \text{pase} \\
&\text{NP} \cdot \text{pase} \quad \text{NP} \cdot \text{lekh} \cdot \text{caus}_1
\end{align*}

c) \textit{ker} 'do' - type

\begin{align*}
&\text{NP} \cdot \text{ker} \quad \text{NP} \cdot \text{pase} \\
&\text{NP} \cdot \text{pase} \quad \text{NP} \cdot \text{ne} \quad \text{NP} \cdot \text{ker} \cdot \text{caus}_1 \\
&\text{NP} \cdot \text{pase} \quad \text{NP} \cdot \text{ne} \quad \text{NP} \cdot \text{ker} \cdot \text{caus}_1 \text{caus}_2
\end{align*}

Both the intransitive \textit{bes} and the transitive \textit{bhen} take \text{NP} \cdot \text{ne} and \text{NP} \cdot \text{pase} in the first and the second causatives, respectively. The transitive \textit{lekh} and \textit{ker}, on the other hand, take \text{NP} \cdot \text{pase} in the first causative; only \textit{ker} occurs in the second causative and it takes \text{NP} \cdot \text{ne} there.

Though Cardona's is the only description that discusses relevant syntactic factors of Gujarati causative constructions, there have been a few attempts to formalize causative constructions found in other Indo-Aryan languages. Noteworthy among such attempts is Kachru's (1965) analysis of Hindi. Hindi
is also reported to have the 1st causative as well as the 2nd causative. Kachru's formulation, like Cardona's, involves embedding a simple sentence into a matrix sentence, but she differs from Cardona in that she develops the constituent sentence not under NP but as an alternative node for V. That is, in Cardona's formulation, VP is assumed to be

\[ VP \rightarrow X^5 \rightarrow V \text{ (caus)} \]

and the derivation of causative sentences requires the embedding of NP in the matrix sentence.

In Kachru's formulation, VP is rewritten as

\[ VP \rightarrow X \begin{bmatrix} V \\ S \end{bmatrix} \]

and causative sentences are produced by expanding S under a verb phrase. Further, she requires a node COMPTR in the constituent sentence, and this node is the source for the causative morpheme as well as for the postposition that occurs with the noun phrase. Thus, sentences (44) and (47) will have the following structures in her analysis:
"Jim will seat Bill"
(47) Jim Bill pase Mary ne kam kar aw daw she
work do
"Jim will have Bill make Mary do the work"
Here, sentence (44) has the following structure:

\[
(44) \text{Jim Bill } \left[ \text{Bill bes } \text{AUX } [\text{ne-adj}] \text{ COMPTR} \right] \text{še}
\]

By the application of the rule that deletes an element identical to another element, the above string is transformed into

\[
(51) \text{Jim Bill } \text{bes } [\text{ne-adj}] \text{ sit } \text{še } \text{COMPTR}
\]

By a later rule \textit{ne} is transposed and is attached to Bill, giving (44)

\[
(44) \text{Jim Bill-ne } \text{bes-adj-še sit}
\]

"Jim will seat Bill"

Sentence (47) is likewise derived by the same set of rules, applied twice.

Kachru's formulation, as well as Cardona's, account for the data, but there are certain details both in their analysis and formulation which do not seem to be quite adequate. For example, in Kachru's analysis, the constituent sentence has three constituents: NP, PRED PHRASE and COMPTR. Of these, the COMPTR introduces i) causative morpheme which finally gets attached to the verb, and ii) a postposition which is later on conjoined to NP. The base, therefore, will have a rule

\[
(52) S \rightarrow \text{NP PRED PHRASE (COMPTR)}
\]
But the node COMPTR occurs only if the sentence is embedded into another sentence; it is never a constituent of a main sentence. Further, it is required to produce the constructions under discussion and seems to have no function elsewhere in the grammar. The node COMPTR in Kachru's analysis therefore seems very ad hoc.

On the other hand, subdivision of transitive verbs (summarized in (49)) in Cardona's analysis is a typical consequence of limited field work and of a methodology where the primary goal is classification rather than explanation. The chart (49) shows that transitive verbs are idiosyncratic with respect to causative constructions. First, the verb lekh is reported to have only one causative. This is not true because, in addition to sentences (32) and (33), it is also possible to have (53):

(53) Jim Bill pase Mary-ne pustek lekh-aw-qaw-še
book write

"Jim will have Bill make Mary write a book"

Thus, causative sentences with lekh 'write' have -ne as well as -pase in association with the embedded NP. There is therefore no adequate reason to distinguish ker-type from lekh-type verbs (ref. (49)).

Further, ker-type verbs are assumed to be different from bhe-n-type verbs on the ground that the former has NP-pase in the first causative and NP-ne in the second causative opposed to NP-ne in the first causative and NP-pase in the second causative in the case of the latter. This
complication can be avoided by positing that the first group of verbs take first causative followed by second causative and the second group of verbs take them in the reverse order. Consideration of such possibilities makes it clear that the difference between the three subgroups of transitive verbs is superficial; this simplifies the system under discussion. (54), (55) and (56) are possible sentences in the language:

(54) Jim  doq·ʃe
    run
    "Jim will run"

(55) Tom Jim·ne doq·aw·ʃe
    "Tom will have Jim run"

(56) Bill Tom pase Jim·ne doq·aw·daw·ʃe
    "Bill will have Tom make Jim run"

Let us call the non-causative sentences like (54) primary sentences. Then, sentences (55) and (56) are respectively first causative and 2nd causative sentences. In both these sentences the derivation of the causative form requires the presence of an additional NP. It is also maintained in the previous descriptions that in the first causative the embedded noun phrase has a post-position -ne as in sentence (55), Tom Jim·ne doq·aw·ʃe; whereas in the 2nd causative the post-position particle is -pase as in sentence (56) Bill Tom-pase Jim·ne doq·aw·daw·ʃe. Let us call these constructions as ne-caus and pase-caus. The semantic import of this double causative has been usually characterized as "a primary agent
to cause a second agent to cause a tertiary agent to perform the verbal activity." (Cardona, p. 114).

Such a formulation implies that the -pase causative (2nd causative) can be derived only from sentences that already have ne-causative (1st causative). That is, in sentence (56) Bill Tom·pase Jim·ne doq·aw·daw·še, it is the presence of the first caus. morpheme aw that allows the 2nd caus. morpheme, daw, or in terms of the noun phrases, it is the noun phrase Jim·ne that allows the noun phrase Tom·pase. But the language has also sentences like:

(57) Bill Tom·pase pustek lekh·aw·še  
     book write

(58) Bill Tom·ne pustek lekh·aw·še  
     book write

Here, the verb has only one causative morpheme aw, but the embedded noun phrase contains pase in (57) and ne in (58). Failure to observe such cases is one of the major inadequacies of the previous descriptions. Also, the earlier formulations have intimated that the ne-causative and pase-causative are identical in meaning, and that the sentence with the double causatives differs from the single causative only in having an extra layer of causativity. But sentences (57) Bill Tom·pase pustek lekh·aw·še, and (58) Bill Tom·ne pustek lekh·aw·še, mean different things. We therefore propose that the ne-causative and the pase-causative be considered as two different processes. In order to explore their semantic import, let us call ne-causative a HELP-construction,
and pase-causative an EMPLOY-construction. Then the difference between sentences (57) and (58) can be characterized as

(57) Bill Tom\cdot pase pustak lekh\cdot aw\cdot ſe
    book write
    "Bill will employ Tom to write the book"

(58) Bill Tom\cdot ne pustak lekh\cdot aw\cdot ſe
    "Bill will help Tom write the book"

In order to sharpen these notions of HELP and EMPLOY let us examine the HAVE construction, which is generally described as in no way related to these causative constructions. There are sentences such as

(59) Bill\cdot ne taw che "Bill has fever"
    fever is

(60) Bill\cdot pase pustak che "Bill has a book"
    a book is

But not

*(61) Bill\cdot ne pustak che
    book

or

*(62) Bill\cdot pase taw che
    fever

The usual explanation of the occurrence of -ne or pase in these sentences is said to be governed by whether the thing possessed is abstract or concrete. That is, in sentence (59) taw 'fever' is an abstract noun and therefore we get 'Bill\cdot ne taw che' whereas in (60) pustak 'book' is concrete and therefore 'Bill\cdot pase pustak che'.

But Gujarati also has sentences like (63) and (64):
(63) gher-ne bari che
        house window is
        "The house has a window"

(64) gher-pase bari che
        house window is
        "There is a window near the house"

In sentence (63) gher-ne refers to a window that is part and parcel of the house, but in sentence (64) gher-pase, the window referred to is lying outside the house. Similarly one can say

(65) Bill-ne be âkh che "Bill has two eyes"
        two eyes is

(66) Bill pase be âkh che "Bill has two eyes"
In sentence (65), the eyes referred to are Bill's own, but in (66) they are other than his own. In fact, Bill might be holding be âkh 'two eyes' of (66) right in his hand because he is probably a doll maker.

These sentences show that the original observation about a concrete-abstract dichotomy in these cases is wrong. We propose that the distinction is better characterized as INTERNAL for -ne and EXTERNAL for -pase. That is, in the HAVE-construction, the occurrence of -ne or -pase is correlated with the thing possessed, being, in some sense, INTERNAL, or EXTERNAL to the thing doing the possessing.

Now back to causatives. Sentence (58) Bill Tom-ne pustak lekh-aw-še means 'Bill will help Tom write a book' and the book will be published under Tom's name. But sentence
(59) Bill Tom-pase pustek ləkh-aw-še means 'Bill will employ Tom to write a book' and the book in this case, will be published under Bill's name. That is, in sentence (58) Bill is the recipient of the fruits of his doing, whereas in (57) such fruits go to somebody else—namely the employer. The fruit of the activity is INTERNAL to Bill in (58) and therefore, we have Bill-ne, in (57) it is EXTERNAL and therefore Bill-pase. The same holds for sentences (65) and (66):

(65) Bill Tom-ne problem kər-aw-še
do

(66) Bill Tom-pase problem kər-aw-še

Sentence (65) implies that 'Bill will help Tom do the problem' and Tom has the assignment, and in (66) Bill will employ Tom to do the problem where Bill has the assignment.

This, we think, demonstrates that the first causative and the second causative are not identical, and that sentences with two causatives do not imply "a primary agent to cause a second agent to cause a tertiary agent to perform the activity".

In short, in what are considered double-causatives, we claim that there are two different processes, namely HELP and EMPLOY.

The second point that concerns us is the conflicting details found in Taylor's and Trivedi's analysis. As has been noted before, Taylor recognizes a process of transativization in addition to the first causative and the second causative. Thus, given the four forms of the verb ped 'to fall',

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namely peḏ, peḏ·aw, peḏ·aw·ḏaw and paḏ, Taylor analyzes them as follows:

peḏ: Primary root, intransitive
peḏ·aw: First causative
paḏ·aw·ḏaw: Second causative
paḏ: Transitive

Trivedi (as well as Cardona) does not recognize Transitiviza-
tion as an independent process but considers it as the con-
sequence of the first causative. That is,

peḏ: Primary root: intransitive
paḏ: First causative: transitive
peḏ·aw: Second causative.

The existence of paḏ·aw·ḏaw then is explained away as a var-
iant of the second causative: paḏ·aw paḏ·aw·ḏaw. In this
analysis, then, ker·aw (from ker 'do') and ker·aw·ḏaw are
forms of the first and the second causative respectively,
whereas peḏ·aw and paḏ·aw·ḏaw are variants of each other.

It is obvious that both sets show similar suffixation. Fur-
ther, the investigation of the syntactic details of these two
sets of forms also show no distinction:

\[(67) \text{Bill Jim\textperiodcentered pase kam ker\textperiodcentered aw\textperiodcentered še work do}\
  "Bill will have Jim do the work"

\[(68) \text{Bill Jim\textperiodcentered pase jhad peḏ\textperiodcentered aw\textperiodcentered še tree fall}\
  "Bill will have Jim fell the tree"

\[(69) \text{Bill Jim\textperiodcentered pase kam ker\textperiodcentered aw\textperiodcentered ũaw\textperiodcentered še work do}\
  "Bill will have Jim do the work"\]
(70) Bill Jim pase jhad ped aw daw ye 

tree fall 

"Bill will have Jim fell the tree"

Sentences (67) and (68) have similar verb forms with the causative morpheme aw, and are understood in a similar way; i.e., in both sentences, not Bill but Jim will do the activity. Similarly, sentences (69) and (70) both have verb forms with the causative morphemes aw and daw and are also understood in a similar way — namely, that Bill is not the logical subject. Sentences (67) — (68) and (69) — (70) differ in meaning. Sentences (67) to (70) are all understood to mean that Bill causes Jim to do the activity, but that Jim himself does the activity is understood only in (67) and (68). In (69) and (70) Jim, in turn, has somebody else to do the activity. That is, both (69) and (70) are understood to have an additional unspecified agent. Given the facts that keraw: ker aw daw and peq aw: peq aw daw have not only morphological similarity but also similar semantic import, it is evident that the relationship between peq aw and peq aw daw is the same as the one that holds between ker aw and ker aw daw. There is no disagreement among grammarians about the status of keraw and kerawdaw. They are first and second causative forms of ker. We therefore claim that pedaw and pedawdaw are also first and second causative forms.

The above arguments thus support Taylor's analysis of pedaw (first causative) and pedawdaw (second causative). In
addition, Taylor chooses the intransitive *ped* as the primary root, probably because of the identical root in the first and the second causative forms: *peḍ·aw*: *peḍ·aw·daw*. However, comparison of forms of other verbs makes it clear that this is out of the question. The intransitive *khul* 'open' has transitive *khol*, first causative *kholaw*, and the second causative *kholawdaw*. Choice of *khul* as the primary root in this case would force a partial rejection of the regularity and would require an additional rule in the language to change u to o (*khul·aw* *kholaw*). On the other hand, if we take the transitive *khol* as the basis, the first and second causative forms are derived by simple conjunction of Root·Causative morpheme. This choice of *khol* as the primary root entails that we choose the transitive *pad* as the basis for *peḍaw* and *peḍawdaw*, which would require a rule to change a to e. But such a rule is needed not only for the root under discussion, but also for other cases, as discussed in footnote(3). There are thus strong reasons for considering the transitive *pad* and *khol*, instead of the intransitive *ped* and *khul*, as the basis for the causative forms *peḍaw*, *kholaw*, etc. What has been analyzed as *ped* (primary root); *peḍaw* (first causative); *peḍawdaw* (second causative) by Taylor is thus reanalyzed as *pad* (primary root); *peḍaw* (first causative) and *peḍawdaw* (second causative). 6

Finally, if we consider the transitive type verbs *pad* and *khol* as primary roots, then the intransitive (*ped* and *khul*-)type verbs must be considered as derived verbs. There is
enough evidence to say that this is so. As has been noted before, in addition to first causative and second causative, there is one more derivational process in the language, which is traditionally known as the passive formation. It involves conjoining a verb with a morpheme ą. Further, a sentence with a passive form has a post-position -thi with its subject-noun. Thus, corresponding to sentence (71)

(71) Tom pustek lekh.še
    book write

"Tom will write a book"

The language has a 'passive' sentence (71a)

(71a) Tom·thi pustek lekh·a·še

"Tom will be able to write a book"

The gloss for (71a) indicates that the semantic import of 'passive' sentences like (71a) is different from non-passive (71). Therefore we will refer to 'passive' sentences as ABLE constructions. It is further maintained the intransitive peq and khul-type verbs are, in fact, ABLE forms of the transitive paq and khol respectively. This is evident from (72a) and (73a), in which peq and khul behave very much like the ABLE form lekha of (71a).

(72) Bill barnu khol.še "Bill will open the door"
    door open

(72a) Bill·thi barnu khul·še
    door open

"Bill will be able to open the door"

(72b) barnu khul·še "The door will open"
    door open
(73) Bill jhaḍ paḍ·še
tree fall
"Bill will fell the tree"

(73a) Bill·thi jhaḍ paḍ·še
tree fall
"Bill will be able to fell the tree"

(73b) jhaḍ paḍ·še
"The tree will fall"

That is, just as (71a) has an ABLE-relationship with (71), so do (72a) and (73a) with (72) and (73) respectively. Furthermore, it is also possible to delete the logical agent in (72a) and (73a) under certain conditions, and this agent-deletion transformation produces sentences of the type (72b) and (73b). Thus (72b) bapu khulṣe 'the door will open' comes from (72a) X·thi bapu khulṣe 'X will be able to open the door' which is an ABLE construction of (72): X bapu khol. še 'X will open the door'.

That khul is the ABLE-form of khol can be further supported. Gujarati has verbal sequences, one of which is V -i šek--'to be able to V'.

(74) Bill aw·še
come
"Bill will come"

(74a) Bill·thi awa·še "It will be possible for Bill to come"

(75) Bill aw·i šek·še "Bill will be able to come"

*(75a) Bill·thi aw·a·i šekše

(75b) Bill·thi aw·i šek·a·še
"It would be possible for Bill to come"
(74) is a primary sentence and (74a) is its corresponding ABLE construction. It is also possible to construct (75) by adding -i ŋek between the verb aw and the future tense marker -še. One would normally expect that a similar addition of -i ŋek in (75) results in (75a) but (75a) is an ungrammatical sentence in the language. The possible construction with ŋek corresponding to (75) is (75b), not (75a).

The reason why (75a) is unacceptable but (75b) is acceptable is not difficult to locate. If we limit our discussion only to the verb phrases of the above sentences, we find that they have the following structure:

(74) [aw]V [še]TENSE
(74a) [aw]V [a]ABLE [še]TENSE
(75) [aw]V i ŋek [še] TENSE
*(75a) [aw]V [a]ABLE i ŋek [še] TENSE
(75b) [aw]V i ŋek [a]ABLE [še]Tense

That is, the language does not allow any addition between ABLE and TENSE nodes and therefore (75a) is ungrammatical. In other words, in the ABLE construction of a sentence with a verbal sequence, it is not the main verb but the auxiliary ŋek to which the ABLE is attached.

This has some interesting consequences. Given a sentence with an ABLE-form like (74a) Bill thi aw a še "Bill will be able to come", it is now possible to recover the basis of such ABLE forms (aw a) by a corresponding sentence with a
verbal sequence in it like (75b): Bill thi aw i šek a še
"It will be possible for Bill to come." Here, (74a) and (75b) are both ABLE-constructions, but only in (74a) is the ABLE morpheme a attached to the primary verb and we get the ABLE-form awa. On the other hand, in (75b) the ABLE morpheme is not attached to the primary verb but to the auxiliary and thereby the main verb aw- is retained as it is.

The relationship between the following two sentences (76a) and (76b) is the same as that which holds between (74a) and (75b):

(76a) Bill thi barnu khul še [V+ABLE+TENSE = khul še] door open

"Bill will be able to open the door"

(76b) Bill thi barnu khol i šek a še [V -i šek- door open ABLE+TENSE]

"It will be possible for Bill to open the door"

It is evident that both (76a) and (76b) are ABLE constructions. In (76a) khul is dominated by V·ABLE, i.e., it is an ABLE-form, but in (76b) khol is dominated by V·- i.e., it is a primary verb.

It has been generally held that there is a regular derivation of passive (ABLE) forms by attaching the morpheme a to the stem (e.g. lekh- : lekh a ). The details discussed above clearly show that ABLE forms, in addition, are also constructed by root-alternation (khol·khul). But more important, in order to explain sentences like (75b) and (76b), it is necessary to say that the traditional description of
ABLE forms as VERB + ABLE is wrong, and that the node, ABLE, should properly be analyzed as part of the AUX. The traditional description can be summarized in the following two rules:

\[
(77) \quad V \rightarrow \text{VERB} \quad (+ \text{ABLE}) \\
(78) \quad \text{AUX} \rightarrow (\text{MODAL}) \text{TENSE}
\]

These rules produce \text{VERB(ABLE) (MODAL) TENSE}. In such a description it will require an additional rule to change the ordering of ABLE·MODAL into MODAL·ABLE for sentences like (75b) and (76b).

The suggestion made in the preceding paragraph amounts to developing a node ABLE under AUX. That is,

\[
(79) \quad \text{AUX} \rightarrow (\text{MODAL}) (\text{ABLE}) \text{TENSE}
\]

We have (79) in the base (ref. PS\textsubscript{15}) and thereby avoid an unmotivated transformation rule that changes ABLE·MODAL into MODAL·ABLE.

In summary, the published descriptions have observed the forms like a) lakh, b) lakhaw, c) lakh·aw·daw, d) lakh·a, e) lakh·aw·a, and f) lakh·aw·daw·a and have called b) to f) derived roots and analyzed them as a) Primary Verb, b) Verb + First Causative, c) Verb + First Causative + Second Causative, d) Verb + Passive, e) Verb + First Causative + Passive and f) Verb + First Causative + Second Causative + Passive. These assertions can be summed up in the following rule:

\[
(80) \quad V \rightarrow \text{VERB} \quad (\text{Caus}_1)(\text{Caus}_2)(\text{Passive}).
\]

We have changed Passive into ABLE and have analyzed it as a
part of AUX. Further, we have shown that the first causative and the second causative are two different processes—HELP and EMPLOY, and we have demonstrated a significant relationship between the presence of -ne and pase in HAVE-constructions and the causative constructions.

Formulation of the notions about the derivation of "causatives is illustrated by the analysis of the following sentences:

(81) Jim Bill pregnant pustak lakh write

"Jim will have Bill write a book"
(82) Jim Bill-ne pustak lakh-aw-še "Jim will help Bill write a book"
(83) Tom Jim pase Bill·ne pustak lakh·aw·daw·še

"Tom will employ Jim to help Bill write a book"
As discussed before, causative constructions are derived by embedding an NP in Cardona's analysis and by embedding a VP in Kachru's analysis. The present analysis, in addition to maintaining that the first causative and the second causative are separate processes, also differs in the derivation of sentences with these processes. It derives such sentences by the simultaneous embedding of NP and VP as illustrated in the diagrams (82) - (85).

The present derivation assumes that NP has S as one of its expansions. Further, the causative forms are derived by the amalgamation of the matrix verb and the constituent verb. The matrix verbs in these cases are EMPLOY and HELP, the verbs that are in the lexicon. They do not have any phonological shape of their own but are the source for the morpheme *aw* or its allomorph when combined with another verb. Thus, the causative morpheme *aw* is a derivational element added after the embedded verb is compounded with the main verb, and it takes different shapes (allomorphs) in lexically determined cases. For the transformation rule, refer to $T_7$ in Chapter 2.
FOOTNOTES

Ref. PS15 and T\text{g} in Chapter 2. Further details of ABLE constructions and alternation between the verbs ker- 'do' and the- 'happen' are discussed in 4.2, and also in f.n. 8.


Many of these morphological processes of the causative formation are in fact automatic consequences of very general phonological rules. For example, the rule that shortens the root vowel in passive formation lawa- (from law 'bring'+a) also accounts for root alternation in the 1st causative cekhad (from cakh 'taste'+ad, and in the 2nd causative khawadaw (from khewad+aw). Similarly, the rule that inserts \text{-w-} between two vowels across the morpheme boundary accounts for the passive form khewa (from kha+a) and the causative form khewad (from kha+ad). In the light of such rules, it is obvious that many of the subdivisions - for example 7. and 8. - are superficial.

There are several reasons for believing that this enclitic is, in fact, not just pase, but \text{ni pase}. The additional \text{-ni} is optional with nouns and obligatory with pronouns. But because this does not change or influence other syntactic
factors associated with causative constructions, we will continue to use pase, as well as -ni pase.

5* here stands for other constituents of VP, such as NP, ADV, etc., which do not play any role in the derivation of causative constructions and therefore are represented by a cover symbol X.

6 In this discussion I have presented arguments in terms of morphological details for pad > padaw > padawdaw. Sentences (68) and (70) discussed before provide syntactic details in support of this analysis. Thus, we have enough evidence to consider pad as a primary root.

7 Such an analysis derives some intransitive sentences (i.e. keri pad:se 'The mango will fall') from transitive ones (i.e. Bill keri pad:se 'Bill will fell the mango'). It should be added that the above generalization is restricted to some intransitive sentences. Thus, (a) keri pad:se 'The mango will fall' is a derived sentence but not (b) Bill pad:se fall 'Bill will fall'. The question may arise, why is it necessary to maintain that (a) and (b) have different underlying structure when both are clear-cut instances of NP+VERB constructions. It is true that (a) and (b) appear to have similar structure, but notice that a question konathi 'by who?' is natural for (a) but not so with sentence (b). That is, (a) is understood to have an unspecified agent. In general, it seems that all sentences having the structure \[
\text{[N} \quad + \quad \text{VERB]}_s
\text{[Animate]}
\] are truncated versions of different sentences. This explains
why sentences with intransitive verbs differ from each other according to whether the subject-noun is human or non-human.

In addition, sentences of the type (a) and (b) also differ as to the questions (a₁) and (b₂) to which they are answers.

(a₁) Šu the·š.e what happen "What will happen?"

(b₂) Bill sů ker·š.e what do "What will Bill do?"

In order to account for such facts of Gujarati sentences (and these facts are probably true for many other languages) a subcategory of verbs is usually postulated. It is our contention that in very many such sentences it is not a feature of verbs but of nouns that play the role. The above details provide some evidence to support the analysis posited in this study. For further details, ref. to the Appendix -- "Unmarked Nouns."

What I have decided to call ABLE constructions needs some clarification. Broadly speaking, verbs can be classified into the 'happen'-type and ker 'do'-type. The derivation of an ABLE construction can then be defined as converting ker 'do'-type into the 'happen'-type construction. Thus

(c) Bill barpu khol·š.e
door open

"Bill will do the activity of opening the door"

(c₁) Bill·thi barpu khul·š.e
door open

"The door will open by Bill "

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In \((c_1)\) **Bill·thi** is more or less an instrument. When such an instrument remains unspecified, we get

\[(c_2)\] barṇu khul·še \[door open\] "The door will open"

This explanation, we think, shows the semantic similarity of \((c_1)\) and \((c_2)\), which is obscured in the glosses.

It is interesting to note that the particular analysis suggested here has an additional advantage of explaining the 'faulty' distribution of some verbs. For example, the verb the 'happen' does not have causative forms. In our analysis, causative forms are derived from primary roots such as \(paḍ\), \(khol\) and not from ABLE-forms like \(paḍ\) and \(khol\), as discussed above. The following sentences show that the is not a primary root but an ABLE-form of \(ker\).

\[(d)\] Bill kam kar·še \[work do\] "Bill will do the work"

\[(d_1)\] Bill·thi kam tha·še \[work happen\] "Bill will be able to do the work"

That is, the relationship between sentences \((d_1)\) and \((d)\) is the same one that exists between sentences \((c_1)\) and \((c)\). It is precisely for this reason that we do not get causative forms from \(khol\)-as well as \(the\)-. There is nothing 'faulty' or 'irregular' about \(the\)-. Such 'irregularity' of not having corresponding causative forms is regular in the sense that it happens throughout the language with all the ABLE-forms.
For more details on verbal sequences, ref. 5.1.

Ref. Kuroda (1965) and Lakoff (1965).

Most of the details discussed in 4.2 were summarized in the paper entitled "Causative Constructions in Gujarati" that I presented before the 1966 Summer Meeting of the Linguistic Society of America in Los Angeles.
5: THE VERB SYSTEM - III

5.1: Verbal Sequences: There are certain aspects of verbal system shared by most of the languages of India for which significant insight is not available at present. One such aspect is the verbal sequences in which a group of verbs, functioning either as tense-carriers (auxiliaries) or mode-carriers (attributives) or both, combine with other verbs to form a complex but subtle system of distinction. A casual reference to the verbal sequences can be found in any grammatical work on Indian languages. The verbal sequences did not attract special attention because the primary concern in most of these works is morphological investigation, and the verbal sequences apparently do not involve any morphological detail different from other verb-forms. In most of the descriptions, therefore, one finds catalogues of such sequences and at times statements about the function of some of the compounds. This is true for Gujarati though the situation is slightly better for sister languages.¹

The details of verbal sequences are something like this: some verbs function both as a primary verb as well as a modal verb

(1) Bill gayo go
    "Bill went"
(2) Bill pi geyo "Bill drank"

drink

geyo occurs in (1) and (2), but in (1) it is a primary verb as it indicates referential meaning, whereas in (2) it is a modal verb as it indicates grammatical meaning—and the referential meaning is indicated by another verb pi- 'drink'. Thus, in addition to sentences with one verb like (1) we also find sentences with verbal sequences like (2) in the language.

These verbal sequences are mentioned only in passing by most of the grammarians of Gujarati. We find two pages devoted to it in Taylor as well as in Trivedi,² where they list sentences containing such sequences. Cardona³ has treated them at considerable length, noted various types of sequences, listed verbs that function as modal in different types of sequences and also attempted to bring forth their meaning. He observes that one type of sequence has i) the imperfective form of the primary verb and ii) ja- 'go', aw- 'come', or reh- 'remain' as model verbs as in (3) - (5)

(3) wasen pañithi bheratû geyû
jung water fill
"The jug was getting filled with water"

(4) wasen pañithi bheratû awyû
jung water fill
"The jug was getting filled with water"

(5) wasen pañithi bheratû rehyû
jung water fill
"The jug kept being filled with water"
Different modal verbs indicate different meanings. Thus ja- marks "an emphasis on the continuity of the activity—from the point of reference into the future," aw- marks "an emphasis on the continuity of the activity—up to the point of reference from a previous time," and reh- marks "an emphasis on the noninterruption of the activity—or the continuity of activity at different intervals." 4

A second type of sequence contains i) the primary verb with -va-, and ii) ker- 'do' as the modal verb, as in (6)

(6) wasəŋ paŋithi bheraya keryū
    jug     water     fill

    "The jug went on being filled by water"

Such a sequence "marks an emphasis on the continuity of the activity of the root in spite of circumstances to the contrary or against the wishes of someone other than the agent" 5

A third type of sequence contains i) the primary verb with -wa-, and ii) de- 'give', lag- 'begin' or mend- 'begin' as the modal verb.

(7) Bille wasəŋ paŋithi bherawa didhû
    jug     water     fill

    "Bill let the jug get filled with water"

(8) Bill wasəŋ paŋithi bherawa lagyo

    "Bill began to fill the jug with water"

(9) Bill wasəŋ paŋithi bherawa mendo

    "Bill began to fill the jug with water"

    The modal de- "indicates permitting someone," lag- "indicates
the beginning of the verbal activity" and mend- "has the same meaning as "lag-. 6

A more general type of sequence has a large number of modal verbs, the primary root occurring with i. This sequence is divided into two subtypes on the basis of their modal verbs: modal verbs that occur freely with any primary verb and that do not occur freely but are restricted to particular primary verbs. ēk- 'be able' reh- 'remain' ja- 'go', ap- 'give' and cuk- 'miss' occur with all verbs whereas ja- 'go', le- 'take', de- 'give' ap- 'give', and nakh- 'throw off' have restricted distribution. 7

In order to introduce expressions that have a verbal sequence we have analyzed AUX into (MODAL) TENSE following the proposal in Aspects (p.222). When MODAL is not chosen we get sentences like

(10) Bill kherid-ē xe "Bill will buy"
The choice of MODAL on the other hand produces such sentences as

(11) Bill kherid- i ēk-ē xe "Bill can buy"

That is, whenever MODAL is chosen we get sentences with a verbal sequence.

In addition to a) Root- i MODAL sequence exemplified in the above sentences, Cardona's discussion brings forth at least three more formally different types of sequences. 8
b) \textbf{Root-ya MODAL}_1 \\
(12) Bill kherid-ya ker-Š-e \\
\hspace{1cm} buy \hspace{1cm} do \\
"Bill will continuously buy"

c) \textbf{Root-t-Gender MODAL}_2 \\
(13) Bill kherid-t-o reh-Š-e \\
\hspace{1cm} buy \hspace{1cm} remain \\
"Bill will keep on buying"

d) \textbf{Root-wa MODAL}_3 \\
(14) Bill kherid-wa mënd-s-e \\
\hspace{1cm} buy \hspace{1cm} begin \\
"Bill will start buying"

These four kinds of sequences could be reduced to two types. Notice that each of the sequences b), c) and d) has a modal verb and the form of a primary verb different from others. Each modal verb is thus uniquely associated with either b), c) or d)-type sequences. It is for this reason that we have marked MODAL\textsubscript{1}, MODAL\textsubscript{2}, and MODAL\textsubscript{3}. MODAL\textsubscript{1} is always kær- 'do'.\textsubscript{,} MODAL\textsubscript{2}, either reh- 'remain', ja- 'go' or aw- 'come'.\textsubscript{,} and MODAL\textsubscript{3}, either de- 'give' lag- 'start' or mënd- 'begin'. In short, it is possible, among b), c) and d) sequences, to predict the form of a primary verb, given the modal verb, and vice versa. Therefore, b), c) and d) sequences could reasonably be considered as constituting only one type. The sequence of the type a), too, has a unique form of primary verb, but many of the modal verbs that occur in a) are also found in b), c) and d) sequences, exhibiting a contrast between them as in
(15) wasen bheratū reh·y·ū
jug fill
"The jug kept being filled"

(16) wasen bhara-i reh·y·ū
"The jug was completely filled"

It is conceivable to handle the formal details of verbal sequences by merely expanding MODAL of the base into MODALₓ and MODALᵧ. If the terminal string has MODALₓ, one of the modal verbs is inserted for it and the primary verb is inflected with -i; on the other hand, the presence of MODALᵧ either determines the form of the main verb and predicts a modal verb, or vice versa.

One of the important questions that remains unanswered in the above details is the account of semantic import of verbal sequences. What are recognized as sequences are definitely not a clustering of two verbs, having the meaning similar to the sum of the features of the two verbs. It ought to be emphasized that a verbal sequence contains two verbs, but the juxtaposition of the two verbs is only a superficial characteristic. Not all clusters of verbs are considered verbal sequences. Thus,

(17) Bill·e Jim·ne wat kərwa bolawyo
tale do call
"Bill called for Jim to talk"

(18) Bill·e Jim·ne wat kərwa didhi
tale do give
"Bill permitted Jim to talk"
Both the sentences have two verbs at the end but kerwa didhi of (18) is considered a verbal sequence and not kerwa bolawyo of (17).

This intuitive judgment is correlated with some interesting grammatical facts. First, it is possible to expand sentence (17) into (17a) without any change in the meaning, but not so with (18):

(17a) Bill·e Jim·ne wat kerwa maṭe bolawyo
tale do for call
"Bill called for Jim to talk"

*(18a) Bill·e Jim·ne wat kerwa maṭe didhi

Thus, verbal sequences are two forms of verbs which may not be separated by anything in between. The fact that nothing could intervene between two verbs is crucial, and it is this characteristic that sets off verbal sequences from verbal clusters. The difference may be seen clearly in ambiguous sentences like:

(19) Bill·e Jim·ne copdi wacwa didhi
book read give

Under one reading, sentence (19) means "Bill permitted Jim to read the book", where it has the structure similar to sentence (17).

(20)

[Diagram of the sentence structure]
The sentence (19) has also another reading, namely "Bill gave Jim a book to read" and thus is identical in structure to (18)

(21)

```
  S
 / \\  \
NP  VP
   / \  \\
Bill NP  PP  V
   / \     \\
Jim  Prep  didhi
     \    \\
      \   matè
       \  \\
S     NOM
      /   \\
Jim wat kar-
```

Another grammatical detail that explicates verbal sequences as units is found in conjunction.

(22) Bille Jim-ne pen didhi give

"Bill gave a pen to Jim"

Given sentences (22) and (19), we get

(23) Bille Jim-ne pen ane wacwa copdi didhi and read book give

"Bill gave Jim a pen and a book to read"

But we cannot conjoin (22) and (17) and get

*(24) Bille Jim-ne pen ane karwa wat didhi

This is so, because karwa didhi in (17) is a unit and the grammar does not allow two elements in the unit to be separated. It is thus meaningless and counter-intuitive to view
verbal sequences as a juxtaposition of two independent verbs.

Another possibility is to view them as a clustering of a main verb with a referential meaning + a modal verb that heightens or modifies the meaning of the main verb. Such a view is implicit in our description, as we have developed a node MODAL in the base. But it has a very undesirable consequence, namely that a lexicon is assumed to have two lexical entries that are phonologically identical and similar in some other features as well, but one of them is marked as a modal and another as a verb.

(25) Bill jaše "Bill will go"

(26) Bill awi jaše "Bill will come back"

That is, these sentences contain two different ja-, a primary verb in (25) and a modal in (26). Further, if we assume that a modal verb contributes subsidiary meanings to the main verb, then at some stage we will have to determine what each modal verb means and to inquire exactly what it contributes to the main verb. It is not clear, at present, whether there is any common denominator of meaning associated with a modal verb in all its occurrences or not.

Alternatively, it is equally possible to view verbal sequences as a compounding of two verbs, which involve evaporation of some of their features in the process. Instead of a systematic investigation of this possibility, we will limit our discussion to a few observations.⁹
Consider the following two sentences

(27) Bill· e Jim· ne doğwa· didho
     run     give

"Bill let Jim run"

(28) Bill· e Jim· ne doğ· aw· y· o
     run

"Bill had Jim run"

Sentence (27) has a verbal sequence doğwa didho with doğ- 'run' as the head verb and (28) has a causative form doğ· aw· y· o of doğ- 'run'. Many similarities could be noted between these two types of sentences. Both the verbal sequence doğwa didho (27) and the causative form doğ· aw· y· o (28) are recognized as single units on a par with any lexical item. A causative form is always a single word, but a sequence has two verbs. We have noted before that nothing could intervene between two verbs of a sequence and this fact provides some explanation for considering them as units. In addition to the intuition about doğwa didho and doğ· aw· y· o as indivisible units, the most striking similarities have to do with the way these sentences are understood, and the kind of restrictions that their verb phrases exhibit.

1) In both (27) and (28), we understand that Jim does the activity of running and therefore is a logical subject of doğ- 'run'. In order to express and account for this fact, it would be quite reasonable to expect sentences (27) and (28) to have very similar underlying structures, i.e., to have similar grammatical relationships. We have presented
the analysis of sentences like (27) in 4.2, where such "causative" sentences are shown to have the following underlying representation

(29)

This, by the grammatical transformation rules (T₁) that embed S₁ into S gets the surface representation like (30)

(30)

It is also clear that (27) contains the sentence Jim dod run 'Jim runs' and therefore will have the underlying representation something like (31)

(31)
ii) As noted before, perfective forms of verbs differ in their syntactic behavior.

(33) Bill dọdọyọ "Bill ran"

(34) Bill·e pustek wacyú "Bill read a book"

book read

Note that verb wacyú 'read' in (34) requires the agentive particle -e with the subject noun Bill and agrees in gender with the object noun pustek 'book'. The verb dọdọ- 'run' in (33) on the other hand simply agrees in gender with the subject noun Bill. To express these facts we assume that wacyú has a feature (+ERGATIVE), and dọdọ- (-ERGATIVE) and that general rules attach agentive-e to the subject and permute subject and object whenever a verb has a feature (+ERGATIVE) and the node TENSE is expanded into PERF.

If we examine sentence (28), we find it similar to (34). That is, the verb form dọdọ·aw·yọ in (28) has a feature (+ERGATIVE). Now if we are correct in assigning structure (29) to sentence (28), then dọdọ·aw·yọ, in fact, is made up of two verbs: a constituent verb dọdọ- which has a feature (-ERGATIVE) and a matrix verb

\[
\begin{align*}
(35) \quad & \text{dọdọ} \\
& [+V] \quad [+V] \\
& [++] \quad [+PRO] \\
& [++] \quad [+HELP] \\
& [++] \quad [+HELP] \\
& [-ERGATIVE] \quad [+ERGATIVE]
\end{align*}
\Rightarrow
\begin{align*}
(35) \quad & \text{dọdọ·aw} \\
& [+V] \quad [+] \\
& [++] \quad [++] \\
& [++] \quad [+HELP] \\
& [++] \quad [+HELP] \\
& [++] \quad [+ERGATIVE]
\end{align*}
\]

From the fact that the derived verb dọdọ·aw- has a feature (+ERGATIVE) not present in the constituent verb dọdọ-,
it follows that matrix verb must have the feature (+ERGATIVE).

\[
\begin{align*}
\text{(36) } \quad \begin{array}{c}
\text{dod} \\
\text{+V} \\
\text{--} \\
\text{--} \\
\text{[-ERGATIVE]}
\end{array}
& \quad \rightarrow \\
\begin{array}{c}
\text{dod} \cdot \text{aw} \\
\text{+V} \\
\text{--} \\
\text{--} \\
\text{+HELP} \\
\text{+ERGATIVE}
\end{array}
\end{align*}
\]

In the above rule, the feature (-ERGATIVE) of the constituent verb has disappeared. Other evidence of this kind is not difficult to obtain. We therefore can roughly generalize that in causative derivation,

(a) grammatical features of a matrix verb supersede, delete, or make redundant the features of a constituent verb.

There is however enough evidence to believe that the above generalization is not restricted to causative derivation but holds also for verbal sequences. Sentence (27) exemplifies this. It has a constituent verb dod- with a feature (-ERGATIVE), but because matrix verb de- has a feature (+ERGATIVE), the resultant sentence is an ergative construction. There are, of course, cases where the constituent verb is (+ERGATIVE) but the resultant sentence is non-ergative if matrix verb is (-ERGATIVE) as in sentence (37). The constituent verb wâci- 'read' is (+ERGATIVE) as in sentence (34) and matrix verb reh- 'remain' is (-ERGATIVE) as in sentence (38):

(37) Bill pustek wâci reh \cdot y \cdot o 
book read remain

"Bill has finished the book"
(38) Bill be diwas reh·y·o
two days
"Bill stayed for two days"

The generality of grammatical features of matrix verb
 superseding those of constituent verb is not limited to the
 feature ERGATIVE. Notice the following sentences:

*(39) Bill·e Jim·ne jaŋwa kehyü
   know tell
   "Bill told Jim to know"

(40) Bill·e Jim·ne jaŋi law·wa kehyü
   know bring tell
   "Bill told Jim to find out"

The verb kehyü 'tell' requires a (-STATATIVE) verb in the com-
 plement sentence. jaŋ- 'know' is (+STATATIVE) and is the only
 verb in the embedded complement sentence and therefore sen-
tence (39) is ruled out. In sentence (40), the embedded sen-
tence has a verbal sequence jaŋi law- 'find out' but
the sequence has (+STATATIVE) jaŋ 'know and (-STATATIVE) law-
'bring'. But as a consequence of the generalization that we
have noted in (a), the resulting sequence jaŋi law is (-STA-
TIVE) and therefore (40) is a well-formed sentence of the
language.

The similarities in intuition as indivisible units, in
interpretation, and in restrictions that they exhibit lead
us to believe that these similarities are not accidental pro-
 perties of verbal sequences and causative forms, but that
they have very similar derivation. If this is so, then the
structures (29) and (31) that we have assigned to sentences
(27) and (28) are correct, since the assigned structures explain similarities between two types of constructions, simplify the syntactic component by not positing any additional category either for sequences or causative forms, and provide greater generalization by deriving both kinds of constructions by almost identical rules.  

The analysis explicitly shows that both (27) and (28) have two verbs in their deep structures: a constituent verb doq- and a matrix verb, which is didho in (27) but an abstract verb \[\begin{array}{c}
+V \\
+\text{PRO} \\
+\text{HELP} \\
+\text{ERGATIVE}
\end{array}\] in (28). Such abstract verbs do not have any phonological properties and, therefore, by the application of transformation rules, (28) looks on the surface like a simple sentence with a single verb. All the traces of two basic verbs being involved in (29) have thus disappeared. The same rules apply to sentence (27), but it has the matrix verb didho with its own phonological properties. Therefore the surface structure of (31) has two verbs, since these transformations do not disturb phonological properties. 

In summary, the examination of internal structure of verbal sequences and causative forms thus reveals that they both involve a process of compounding of matrix and constituent verbs, and more generally a fact that Gujarati has a set of rules by which new verbs are created, rules by which more complex verbal sequences are built up out of simpler components. We have also noted two principles involved in
the process of compounding

i) grammatical properties of matrix verb supersede, delete or make redundant corresponding properties of constituent verb.

ii) phonological properties of both matrix and constituent verbs remain unchanged.

With respect to the semantic properties, meaning of a sequence does not coincide with the sum total of the meanings of individual verbs as they do in conjunction of two verbs.

(41) Bill jəi aw·y·o
go came

Sentence (41) is ambiguous because it can be derived by conjunction where it means "Bill went and came back". That is, semantic features of jə-'go' and of aw-'come' are retained. It can also be derived by the mechanism by which verbal sequences are derived and then it means "Bill finished going". That is, the semantic features of $V_1$, jə-'go' are retained but not all the features of $V_2$, aw- are present. We can thus add one more observation about verbal sequences, that

iii) semantic properties of constituent verbs are retained but some of the semantic properties of matrix verbs are deleted.

The last observation raises certain questions about the schemata of grammar. The framework that we are following assumes semantic interpretation of sentences to be dependent only on underlying representations and maintains
that transformations do not contribute to the meaning of a sentence. The details of causatives do not necessitate any modifications in the framework, simply because the matrix verb in deep structures of such constructions is an abstract entity, with a semantic feature (+HELP), but with no phonological or other semantic properties. The pre-compounding and post-compounding semantic content of matrix and constituent verbs therefore is the same. But this is not so in the case of verbal sequences. As is shown in the above example (41) Bill jei aw·y·o, "Bill went and came back" is not the same as "Bill finished going". In order to assign the latter interpretation—"Bill finished going"—to Bill jei awyo the semantic component needs to take into account not only the deep structure but also the feature-deleting process that we have noted in (iii). That is, the semantic component operates on a string that has undergone some transformations. This is then a weak feature of what otherwise seems to be a very insightful and advantageous proposal for the derivation of verbal sequences.

The weakness of our proposal is not in its inability to account for the data but arises because the proposal does not agree with the prescribed schema of grammar and raises questions with regard to the basis of the semantic component —and thereby, about the nature of grammar. But the recent studies show that what we have presented is not an isolated case; that there are many features of language that could be
described with greater generality by allowing some principled flexibility in the present framework.

For example, Chomsky has the following four rules among his rules for the fragment of the base component of English (Chomsky: 1965; pp. 106-107):

i) $$S \rightarrow NP \text{ Predicate Phrase}$$

ii) $$\text{Predicate Phrase} \rightarrow \text{Aux VP (Place) (Time)}$$

iii) $$\text{VP} \rightarrow \begin{cases} \text{(NP) (Prep Phrase) (Prep Phrase) (Manner)} \\ \text{V S} \\ \text{Predicate} \end{cases}$$

iv) $$\text{Predicate} \rightarrow \begin{cases} \text{Adjective} \\ \text{---} \end{cases}$$

The following two are among the Phrase-markers that this system of rules generates:

(42) $$\text{NP Aux Copula Adjective}$$

(43) $$\text{NP Aux Verb Adjective}$$

These structures account for sentences (44) and (45) respectively:

(44) The man is sad
(45) The man feels sad

Lakoff (1965) points out that rules proposed by Chomsky account for such sentences as (44) and (45), but fail to explain why sentences like (46) and (47) are felt similar,

(46) The man desires---
(47) The man is desirous---
Lakoff then draws attention to some striking similarities—
in fact, ten—between what are considered adjectives and
verbs (e.g. desire : desirous) in terms of their feature
composition, grammatical relationships associated with them,
contextual restrictions that they exhibit (e.g. some require
an animate subject), transformations that they undergo (e.g.
Adjective-shift (tall man: singing man), nominalization
(know > knowledge; noisy > noisiness), etc. and he has argued
that both adjectives and verbs should be considered members
of the same category. Recently, Ross (1967a) has argued on
similar grounds that what appear to be four different cate-
gories in Chomsky's proposal: namely, Aux, Copula, Adjective
and Verb as they appear in (42) and (43) should all be group-
ed under one lexical category, Verb.

What Lakoff and Ross are suggesting is that, in order
to-grasp similarities between certain structures and to
avoid complications in the description that results from the
repetition of essentially identical restrictions, we should
revise the present framework in such a way that it permits
us to have an item in the lexicon with certain selectional
and subcategorizational features, but free with respect to
categorial features.

Without inquiring about the validity of such an analy-
sis of English, 12 we present some evidence to justify the
above-mentioned revision in the description of Gujarati.
The verb ho-, discussed in 3.4, appears in auxiliary as well as copular functions:

(48) manes awto che  
  man  come  hoto  
                 hoše  
                 ho·e che  

"The man[is coming"

was
will be
is usually

(49) manes mâdo che  
  man  sick  hoto  
                 hoše  
                 ho·e che  

"The man[is sick"

was
will be
is usually

The verb phrase in (48) is analyzed into Verb Aux, and that in (49) into Adjective Copula, that is, che in (48) is an Aux but in (49), it is Copula.

The restrictions that we have noted before are not limited to either auxiliary ho- or copular ho-. Thus, the rules in 3.4 should apply to both of them. Further, they have identical syntactic behavior such as

i) che → ho·e in conditional sentences:

(48a) jo manes awto ho·e  
       If  man  come  

"If the man is coming"

(49a) jo manes mâdo ho·e  
       sick  

"If the man is sick"
ii) a deletion in Adjectivization:

(48b) awto manes
      coming man

(49b) mado manes
      sick man

iii) and a phonological rule: ho·Present NEG nethi

(48c) manes awto nethi
      "The man is not coming"

(49c) manes mado nethi
      "The man is not sick"

In order to state these facts in a maximally simple way, we must analyze all the occurrences of ho- as instances of copula. But then the Verb Phrase in (48) would have very strange constituents: Verb Copula.

Notice that awto in (48b) is transposed to an attributive position like any true adjective as in (49b). Further, it undergoes gender agreement rules, the same as adjectives, as in (50) and (51)

(50) manes mado ho·še·e
      man sick
      "The man might be sick"

(50a) stri mǎdi ho·še·e
      woman
      "The woman might be sick"

(51) manes awto ho·še·e
      "The man might be coming"

(51a) stri awti ho·še·e
      "The woman might be coming"
In order to express the fact, that contexts in which verbs and adjectives appear and the rules that they undergo are almost identical, we have to resort to some kind of flexibility in the lexicon that allows Gujarati verbs to be free with respect to the categorial features, (+V) and (+ADJ). By means of such a mechanism, then, the verbs that appear as a second member in the verbal sequences will be free with respect to the categorial features (+V) and (+M) and the lexical redundancy rules will delete their semantic features in appropriate context.

This leads us to the question of the nature of the lexicon. Learning sentences of a language does not mean remembering each sentence individually but internalizing a few principles of sentence construction in that language. But the same is not true about words of a language. We learn words by remembering pronunciation (phonological properties), meaning (semantic properties) and use (grammatical properties) of each word individually. And because words are also part and parcel of any language, it is assumed that a description of a language must contain a dictionary which lists the words of that language along with their phonological, semantic and syntactic properties.

In recent years it has become more and more clear that the dictionary need not specify all the properties of a lexical item because some properties are predictable. Thus the dictionary will have specification only of unpredictable
properties and a set of rules—universal and particular—that govern the predictable properties of lexical items.

It is observed that a single morpheme may have different 'meanings' in different environments. Chomsky (1965, p. 224) notes that in English the quantifiers have different semantic properties in different context. This accounts for the difference between (52) "Everyone in the room knows at least two languages" and (53) "At least two languages are known by everyone in the room". For such cases Chomsky posits a latency hypothesis by which it is assumed that both 'meanings' are latent in the deep structure but the set of transformations that produce sentence (52) filter out 'readings' other than the one associated with (52). Similarly with (53) also, the transformations filter out other readings that are latent in the deep structure.

It is obvious that the latency-hypothesis is the only possible solution for the above problem, once we assume that transformations do not contribute to the meaning of a sentence. But the mechanism that we are using in the phonological component is different from the one in the semantic component, though both are interpretive in nature. In phonology we begin with minimum information and rules add other information. Chomsky's proposal amounts to having a semantic component that begins with a maximum specification and rules filter out a portion of these specifications in certain
cases. Chomsky's proposal seems to be analogous to a phonemic theory that requires full phonetic specification in the dictionary. But as in recent works on phonology, a set of rules derive different allomorphs from a single specification for a morpheme; similarly, it should be possible to have a set of rules for semantics that accounts for different readings of a single morpheme in different environments. Further, it is equally conceivable that there are both atomistic (=segmental) and sequential redundancies, even in semantics. It is equally conceivable that there are semantic rules that delete, alter or add semantic features analogous to phonological rules. Thus, in the following sentences

(54) He likes light clothes.
(55) He likes light colors.
(56) He likes light weight.

The word light is ambiguous in (54) as it could be understood as light in color or light in weight, but light is not ambiguous in (55) and (56). In place of the path-matching proposal of Fodor and Katz (1963), it is equally possible that these facts are automatic consequences of feature-deletion rules which operate on the basis of the features of the sister node.
That is, light has only [+ color] in the environment of color.

At present we are ignorant about both the universal set of semantic properties and nature, form and functions of the semantic rules, and therefore the topic is not easy to discuss. However, it is reasonable to assume, and consistent with the arguments in the recent literature, that linguistic knowledge of speakers could be described by listing only unpredictable properties, and constructing rules for the predictable ones.

5.2: Gerund Constructions: In the previous section we have noted that sentences like (57) are ambiguous:

(57) Bill jei awyo
go come

This sentence may mean either (a) "Bill went and came back" or (b) "Bill finished going." We also discussed two possible phenomena--clustering and compounding. Sentences such as (57) could be derived by either of these phenomena; the former involves simple conjunction and is the basis for (a),
the latter involves conjunction along with certain feature deletion processes, and is the basis for (b). Traditionally, the ambiguity has been explained by analyzing jei awyo in (57) as a case of verbal sequence and therefore a source for (b), or as a gerund and verb construction and therefore a source for (a).

Both the verbs ja- 'go' and aw- 'come' also appear in (58):

(58) Bill jeine awyo

"Bill went and came back"

Clearly, sentence (58) has only one reading, and therefore a gerund plus verb construction in which the gerund form has -ine. Thus, in addition to verbal sequences, another exceptionally productive construction found in the language is the gerund construction. In the case of verbal sequences, a single sentence has two verbs, whereas in the gerund, theoretically there is no limit to the number of verbs that can occur in a sentence. Such a sentence has a main verb and other verbs with the inflectional particle -ί(ne). Thus, sentence (59) illustrates the occurrence of the main verb ješe 'will go' and the gerund nahine 'having bathed'.

(59) Bill nahine station.e ješe bathe go

"Bill, having bathed, will go to the station"

Though the morphological shape of the gerund form is simple and is correctly described in most of the grammatical descriptions of Gujarati, there are varied explanations about the nature of its function.
Before we investigate the details of the gerund construction in Gujarati, it is worth mentioning that such a construction is a pan-Indian linguistic feature. It is also one of those linguistic traits that has been observed from very ancient languages to the modern ones as well as from genetically different languages of India. The French linguist Bloch, in his discussion on parallel forms of Sanskrit, calls them 'gérondif'; Whitney in his Sanskrit Grammar refers to them as 'gerund'. In an attempt to recapitulate the behavior of such forms, various other terms have been suggested such as 'absolutive', 'indeclinable particle' (unlike other verb forms it is never inflected for person, number and/or gender), 'conjunctive particle' (conjunction of another sentence) 'adverbial particle' (addition of an adverb in a sentence). Emeneau, in his classic article, warns that "This form has neither morphologically nor in syntactic use anything to do with either Latin gerund or gerundive or particle; no really satisfactory term has yet been invented." He describes sentences containing gerunds as "constructions in which verb stems or nonfinite verb forms are strung together in series which are closed by a finite verb form." For the Gujarati gerund, we will briefly review the details from three descriptions. The first of these is some brief notes by Taylor. In what we have called gerund construction (60) and verbal sequence (61) he calls the first
verb a connective past participle (səbəndhek bhuț krudənt).

(60) Bill nāhine ġeyo
"Bill having bathed, went"

(61) Bill nāhi ţēkyo
bathe can
"Bill could bathe"

At one place (p. 90) he mentions that the two forms (e.g. nāhi, nāhine) are alternants. But later on (p. 115) he elaborates that in addition to the connective particle -i (nah-i), at times another connective particle -ne is added. Thus, for Taylor, the difference between forms like nāhi and nāhine is that in the first case there is only one connective particle -i, whereas the second form has two connective particles -i and -ne.

From his discussion and examples it is clear that Taylor fails to consider the gerund construction as different from what we have called verbal sequences. The forms such as nāhi, nāhine differ from each other not just in the presence or absence of ne. That it is possible to have some additional element placed between nāhine and ġeyo in sentence (62) but not between nāhi and ţēkyo in (63) should be considered as evidence that nāhine and nāhi belong to altogether different constituents.

(62) Bill nāhine station-e ġeyo
"Bill having bathed went to the station"

*(63) "Bill nāhi station-e ţēkyo"
The reason behind Taylor's observations seem to be that in many cases the ne of the gerund form does not appear, making the form superficially identical with the one found in verbal sequences. Thus (64) is a possible sentence.

(64) Bill nahi station e gayo

"Bill, having bathed, went to the station"

It is therefore one of the weaknesses of Taylor's discussion that he does not adequately distinguish between two divergent types of forms.

There is some justification in Taylor's analysis of -ne as a connective particle as one 'and' often takes the phonetic manifestation ne as in (65)

(65) Bill e ne Jim nahi σεκσε

and

"Bill and Jim will be able to bathe"

What Taylor seems to imply is that the ne that occurs between two noun phrases in (65) is the same ne that occurs in nahine in (63). That is, the gerund construction to him is essentially a conjunction.

Though Trivedi does not mention it explicitly, he has assumed that the gerund construction is different from a verbal sequence. The two types of constructions are discussed at different places (pp. 202-203; 219-220). The interesting aspect of his discussion about gerund forms like nahine (61) is that he refers to them as Adverbial participles. Taylor's approach focuses strongly on phonetic similarities, which in turn provide a basis for grouping verbal sequences.
and gerund constructions in one category as well as for considering ne of the gerund form a connective particle. Trivedi is concerned with the semantic import, that is, with the function of the form in a sentence. He observes that in the following sentence

(66) Bill nahine gayo
    "Bill, having bathed, went"

The gerund form nahine indicates that the activity of bathing has taken place prior to the one indicated by the main verb, i.e., gayo 'went'. To him, then, gerund forms function as adverbs and therefore he calls them Adverbial participles (swyeyi bhut krudent).

Trivedi's analysis groups these forms into a broad category of adverb. But it is equally important to determine the type of adverb the gerund forms represent. Trivedi has not pursued this inquiry. But his discussion about the semantic import of these forms--namely, priority of one activity over another--indicates that gerund forms are Time Adverbs. This is in essence the view, though not the explicit designation, of Trivedi. Accordingly, (67) and (68) will have identical structures associated with them.

(67) Bill nahine ješe
    "Bill having bathed will go"

(68) Bill sâje ješe
    evening
    "Bill will go in the evening"
Cardona's short description (p. 137) incorporates the adverbial theory proposed by Trivedi. According to him, gerund forms are "adverbial phrases ending in clitic ne in sentences resulting from the combination of two sentences." With regard to the semantic import, Cardona observes that "this construction designates sequential action." In order to prove his point he then gives two sentences and their paraphrases

(69) kam kērine gher jao
work do home go
"Do your work and go home"

(69a) tame kam kero, ene pečhi gher jao
you and then
"You do your work and then go home"

(70) tame tar kērine awyə?
you telegram come
"Did you go send a telegram?"

(70a) tame tar kēryo, ene pečhi awyə?
"Did you send a telegram and then come back?"

The examples imply that a single sentence (69) is derived from two sentences posited in (69a).

If we were to formalize these observations we would be justified in assuming that Taylor introduces expressions that have a gerund form by a conjunction of two sentences followed by a gerund process that deletes the Aux of the embedded sentence and adds -i(ne) instead as represented below:
By the conjunction of the Pred-Phrases of (71) we get (71a)

(71a) Bill [nah·se]  eone [station·e ješe]  eone  
PRED-P  
PRED-P

The operation that deletes the AUX of the first PRED-P and inserts -i, converts (71a) into (71b)

(71b) Bill [nah·ine  station·e ješe]

"Bill having bathed will go to the station"

The motivation for treating the gerund as connective is the phonological similarity between the -ne that appears in the gerund and the one that appears in conjunctions. But more important than that is the fact that such a derivation provides some explanation for the synonymy between (71a) and (71b) by assigning the same underlying form (71) for both of them.

Trivedi and Cardona, on the other hand, assume the following underlying structure:
By the application of the Identical NP-Deletion rule, we get

(72a) [nahše pechi],₇₉m Bill station·e ješe

The gerund process then deletes the AUX of the embedded sentence as well as the adverbial element pechi 'after' and inserts i(ne) giving (72b)₁₆

(72b) Bill nahine station·e ješe

"Bill having bathed will go to the station"

It should be mentioned that in addition to the synonymy between (72a) and (72b) that is implied, there are other traits in favor of considering nahine a time adverb.

(73) Bill \[
\begin{align*}
(a) & \text{nahine having bathed} \\
(b) & \text{thoda wakhet pechi after some time} \\
(c) & \text{sēware in the morning} \\
(d) & \text{kyare when}
\end{align*}
\] station·e ješe
As is shown in (73), (a), (b), (c) and (d) are all privileged to occur in the same slot. Of these (b) and (c) are clearly time adverbial elements. Furthermore, (d) is a question word that inquires about the Time Adverb and is the appropriate question for inquiring about (73a), (73b) or (73c). Thus the analysis of nahine as a time adverb could be justified on semantic as well as syntactic grounds.

Though the above remarks show preference for Trivedi's analysis, it should be emphasized that neither of the analyses is counter-intuitive. In fact, these competing theses under closer examination appear to be two sides of the same coin. Conjunctive expressions quite often imply temporal order. English sentences like the following

(74) Susan got married and had a baby.
(75) Susan had a baby and got married.

will, if derived by conjunction, have the underlying forms

(74a) [Susan got married]s and [Susan had a baby]s
(75a) [Susan had a baby]s and [Susan got married]s

This analysis corresponds to Taylor's description of Gujarati gerund (see (71).)

Chomsky\textsuperscript{17} has pointed out a problem with the above analysis, namely that the two sentences postulated for the underlying structures are the same in both cases and both undergo the same transformational rules, yet the resultant sentences are not at all synonymous. The nonsynonymy in this case arises from the order of the two underlying
sentences. But such information is impossible to represent in the present schema of grammar. One therefore would be inclined to postulate fundamentally different structures such as (74b) and (75b)

(74b) "Susan got married" ADV "Susan had a baby"
(75b) "Susan had a baby" ADV "Susan got married"

(74b) and (75b) now correspond to the structure Cardona and Trivedi have assumed for the gerund forms (see (72)). And there is some motivation in treating the gerund forms as Adverbials. A sentence with a gerund form undoubtedly implies sequential action.

(76) "Bill nahine station.e jaše bathe go"
(77) "Bill station.e jeine nah.še go bathe"

Sentence (76) explicitly means that Bill will bathe and will go to the station in that order, whereas (77) is taken to mean that Bill will first go to the station and then will take a bath. It is therefore, impossible to treat (76) or (77) as derived from a conjunction of two sentences in a framework of grammar that maintains that transformational operations are meaning-preserving. Thus, given the two theories--connective and adverbial--concerning the gerund forms, the adverbial theory would be considered preferable in the transformational framework. But this is all a matter of how information of this sort can be presented in a structural description and not of whether the information is correct or incorrect.
However, there is one aspect in which the published descriptions of the gerund can be called deficient. Often the gerund form indicates the manner in which the main activity has been carried out. The following sentences illustrate the point:

\[(a)\text{ caline walk} \]
\[(b)\text{ dožine run} \]
\[(c)\text{ kewi rite} \]

(78) Bill \{\text{ by walking } \} \text{ station e ješe}
\{\text{ by running } \}
\{\text{ how } \}

Bill \{\text{ by walking } \} \text{ will go to the station"}

Notice that in sentence (78) the gerund forms \text{ caline} 'by walking', \text{ dožine} 'by running' assert that the manner in which Bill will go to the station is \text{ caline} in (a) and \text{ dožine} in (b). In addition the corresponding question will have the question word \text{ kewi rite} 'in which way, how'. These gerund forms, therefore, should properly be identified as Manner Adverbs.

That gerund forms could be either Time Adverbials or Manner Adverbials is obvious from the ambiguous nature of the following sentence.

(79) Bill \text{ khaine paysa kharc·e} \text{ eat money spend}

Here, the gerund form \text{ khaine} could be interpreted as indicating that the activity of eating precedes the activity of spending—in which case the sentence is understood to mean "Bill will eat and then spend his money." The form could
also be interpreted as indicating the means by which the 
activity designated by the main verb is performed. The sen-
tense then means "Bill, by eating, will spend money."

It will be seen from the above account that gerund forms 
do not involve a unique process of either Conjunction or Ad-
verbialization indicating time. Gerund forms also involve 
adverbialization indicating manner, as is seen in (78). This 
provides an explanation for the ambiguity of sentences like 
(79). Both the Time Adverbial and the Manner Adverbial gerund 
forms are derived through the application of identical trans-
formation rules; they differ only in that the former are domi-
nated by Time Adverb and the latter by Manner Adverbs in their 
underlying forms.
FOOTNOTES

1Bahl, Kali Charan: A Study in the Transformational Analysis of the Hindi Verb (mimeographed), South Asia Language and Area Center, The University of Chicago; Burton Page: "Compound and Conjunct Verbs in Hindi" BSOAS (1957); L-M.P. Rueside: The Marathi "Compound Verb" Indian Linguistics (1958); and F.C. Southworth: "The Marathi Verbal Sequences and their Co-occurrences" Language (1961) are some of the important studies that have appeared in recent years.

2Ref. Taylor pp. 102-104; Trivedi pp. 202-204.

3Ref. Cardona pp. 118-133.

4Ref. Cardona p. 120.

5Ref. Cardona p. 121.

6These modal verbs and primary verbs with which they combine are exemplified quite exhaustively by Cardona pp. 125-30 and also summarized in a chart, pp. 131-133.

7Cardona, in fact, discusses five types of sequence. There is another construction in the language that appears to have structure similar to d) Root·wa Modal, but where MODAL is either pad- 'fall' or joi- 'need' (Ref. Cardona pp. 121-122).
(a) Bill.ne pusteko kheridwa pađ.e
    books    buy

"Bill is required to buy books"

(b) Bill.ne pusteko kheridwa joi.e

"Bill must buy books"

Note that in both (a) and (b) we have Bill.ne but the
d-type sequences do not require obligatory NP-ne

*(c) Bill.ne pusteko kheridwa mënđe
    books    buy

(d) Bill pusteko kheridwa mënđe
    books    buy

"Bill begins to buy books"

Further kheridwa in sentence (d) remains constant and is
analyzed as Root·wa, but that of (a) and (b) changes accord-
ing to other nouns in the sentence, and therefore has a
structure: Root·w·Gender.

(e) {Bill
    Mary
    balek
    child}    {radio
    pen
    typewriter}    kheridwa mënđe
    buy

(f) {Bill
    Mary
    balek
    child}    ne    radio

    kheri·d·w 0

    i 0  {pad} .e

    p

    joi·e

In addition to these differences in kheridwa pađe in
(a) and kheridwa mënđe in (b), we would like to draw atten-
tion to some strong evidence showing that kheridwa pađe type
sequences are not verbal sequences but are instances of NP
Verb constructions. First, it is possible to replace pađ-/
joj- by ho- in (f) and still get well-formed sentences.
The details of derivation with *ho-* are discussed in 3.5. That derivation analyzes *radio kheridwo* in (g) as a Noun Phrase which is the same in (f).

(g) Bill•ne radio kherid•wo ho•ș•e
    buy

"Bill might want to buy a radio"

That is, the set of rules that derive sentences like (g) also derive sentences like (f) as well as the following sentences:

(h) Bill•ne taw ho•ș•e
    fever

"Bill might have fever"

(i) Bill•ne radio joi•ș•e

"Bill might need a radio"

(j) Bill•ne dukh peď•ș•e
    calamity

"Bill might suffer"

Notice also the structural and semantic similarity between (j) Bill•ne dukh peď•ș•e "Calamity might befall Bill" and (f) Bill•ne radio kheridwo peď•ș•e "Radio-buying might befall Bill" (i.e. Bill will have to buy a radio).

In addition to these three modal verbs that Cardona has listed, I would like to draw attention to *kar-‘do’* of such sentences as:

(a) Bill•e Jim•ne cal•t•o kar•y•o
    walk    do

"Bill made Jim walk"

which has the following underlying structure according to our discussion in 4.2, and especially footnote 8 therein.
We have decided to do so for a variety of reasons. The material is quite huge and therefore is itself a topic of much wider study. For example, it is not clear whether verbs that occur as a second member of a sequence are a closed class or an open one. It is not difficult to encounter a new combination. There are many dialectal and stylistic variations too. Even the set of rules that are involved in sequences that are found in my speech and those reported in the grammar is far from clear. Further, there are sequences which are employed with various types of connotative meanings, that are hard to systematize. These details are deeply rooted in semantics and require good control over semantic features. For example, following are some of the sentences with the verb aw- 'come', that will give some idea about the magnitude of the problem in discovering features of a single lexical item.

(a) Bill aw·y·o "Bill came"
(b) Bill·ne
  \{taw
    fever
  \}
  \{wicar
    thought
  \}
  \{umelko
    feeling
  \}
  "Bill had a \{fever
    thought
    feeling
  \}.

(c) Bill·ne
  \{udhares
    cough
  \}
  \{sepnu
    dream
  \}
  "Bill had a \{cough
    dream
  \}.

(d) Bill·ne cesma aw·y·a
glasses
  "Bill got glasses, i.e., got bad eyes"

(e) Bill·ne khemis aw·y·û
shirt
  "The shirt fit Bill"

(f) restamâ
    \{ek kuwo
      well
    \}
  \{ek mendir
    temple
  \}
  "A \{well
      temple
  \} appeared on the way"

(g) nel·mâ pani aw·y·û
pipe-in water
  "Water appeared in the water-pipe"

(h) ţepal·mâ kagalo aw·y·a
mail-in letters
  "Letters came in the mail"
We feel that our proposal for the derivation of verbal sequences is not limited only to V₁ + wa V₂ type but also holds for other types that we have noted at the beginning of this section. I must, however, confess that I have no idea about the particular mechanism involved in each case. Probably factors such as TENSE of the constituent verb, features of the matrix verb etc. play an important role in the derivation of different shapes of these sequences. For example, in the following sentences

(a) Bill khato rehyo
    eat   remain
    "Bill kept on eating"

(b) Bill khai rehyo
    "Bill finished eating"

It is quite conceivable that differences between (a) and (b) stem from TENSE being expanded into IMPF in (a)--i.e., kha+ IMPF and PERF in (b)--i.e. kha+PERF.

Note that even in V₁+wa V₂-type sequences, any of the three verbs--de- 'give', mend- 'begin' and lag- 'start'--can be inserted for V₂, but not all resulting sentences have the same grammaticality.

(c) Bill·e Jim·ne doğwa didho
    run
    "Bill permitted Jim to run"

(c₁) Bill·e doğwa didho
    "Bill let (X) run"

*(d) Bill·e Jim·ne dod·wa mendyo
(d₁) Bill doğwa mendyo
    "Bill started to run"
(e) Bill Jim·ne doğ·wa lagyo
    "Bill helped Jim run"
(e₁) Bill doğwa lagyo
    "Bill began to run"

Each pair of sentences has some V₂: -de in (c, c₁), mend-in (d, d₁) and lag-in (e, e₁). Of these (c) and (c₁) are synonyms - that is, (c₁) is acceptable only as a truncated versions of (c). Between (d) and (d₁), (d) is completely ungrammatical whereas both (e) and (e₁) are acceptable and they mean different things. This is so because de-requires matrix and constituent subjects not to be identical, mend-requires them to be identical and lag-is not restricted to any of these conditions.

The details about verbal constructions that have the structure V₁ V₂ but are different from verbal sequences are discussed in the following section of this chapter.

For a critique of this position ref. Chomsky (1968).
For details about clustering and compounding, ref. the previous section.

Cardona: p. 137.

It is this structure that is associated with sentences such as
(a) wərsad pədɛ xeχuto kam şəru kərʃe.
    rain fall after farmers work begin do

"Farmers will begin the work after it rains"

Notice that the language also has sentences like (b)

(b) bi wawxə xeχuto kam şəru kərʃe
    seeds sow after farmers work begin do

"Farmers will begin the work after sowing the seeds"

Though (a) and (b) have similar surface structures they are understood in different ways. Furthermore, (c), a gerund construction corresponding to (b), is synonymous with (b) but (d), a gerund construction corresponding to (a), is unacceptable.

(c) bi wawine xeχuto kam şəru kərəse
    "Having sown seeds, farmers will begin the work"

*(d) wərsad pədine xeχuto kam şəru kərəse

The explanation for (a) and (b) being understood differently as well as for (d) being ungrammatical is that (b) has an underlying structure (e).

(e) \[\text{[kheχuto bi wawxə]} \text{ pəchi}_\text{Tm kheχuto} \]
    kam şəru kərəse

Thus (e) has an NP (kheχuto) in the embedded sentence that is identical to the NP of the matrix sentence. No such additional NP is possible in the underlying form of (a). Sentences (a) and (b) are understood differently because the first NP wərsad 'rain' of (a) is dominated immediately by the embedded sentence whereas the first NP bi 'seeds' of (b) is dominated by the VP--the NP immediately dominated by the
embedded sentence in this case is deleted, -- being identical to the NP of the matrix sentence.

The explanation for the ungrammaticality of (d) lies in a constraint on the gerund rule. It does not apply to all the sentences dominated by Adverb, but only to those embedded sentences that have their subject NP identical to the subject NP of the matrix S. Sentence (b) has the underlying form (e) which satisfies the above-mentioned condition of the gerund rule and so we get (c). The underlying structure of (a) does not satisfy the condition and therefore (d) is ungrammatical. This detail has to do not only with a condition of the gerund rule but also with the ordering of rules. (c) is derived from (e) by the application of the gerund rule and the identical NP-deletion rule in that order. These two processes are treated as two types of gerunds in Chapter 2, T6.

17 Chomsky at the Summer Institute of Linguistics at UCLA, 1966.

18 The ambiguous nature of 'and' is discussed by philosophers as well. For example, Staal mentions: "The 'and' of a natural language such as English has at least two kinds of meaning. Firstly, 'and' is equivalent to the logical connective in that it is symmetric, i.e. it is used is such a way that 'A and B' has the same meaning as 'B and A'. This 'and' may be called 'and\(_1\)' . In other meanings of English 'and' where we may call it 'and\(_2\)' , there is no such symmetry. There, the meaning of 'A and\(_2\) B' need not be the same as that of
'B and₂ A'. For example, one meaning of 'and₂' could be equated with 'and₁ subsequently!', another with 'and₁ in consequence'. This was noted more than a decade ago by Ryle, who also drew attention to the fact that:

(1) She took arsenic and fell ill
(2) She fell ill and took arsenic
do not have the same meaning."
6: CONCLUDING REMARKS

As has been mentioned at the outset, this is a description of the syntactic processes of Gujarati with an emphasis on verbal constructions in terms of the principles of generative grammar. Chapter 2 fives an outline of the core system of Gujarati, while chapters 3, 4, and 5 are devoted to a discussion of different verb forms and their sources. The work is concerned with derivation of different verb forms, but instead of adhering to the principles of "morphemic analysis" an attempt has been made to re-examine them with syntactic considerations in mind. This has forced us to discuss details of other facets of the language as well.

In previous descriptions of Gujarati, these verb forms were treated as combinations of verbal roots and inflectional suffixes. As the forms were assumed to be relevant only to the verb-morphology, various references to published sources in our discussion show that they have concentrated on describing the morphological processes of derivation by assuming two or more morphemes associated with these forms. These accounts gave primary consideration to phonological properties—i.e. to phonological similarities and dissimilarities between the terminal elements of surface structure. In spite of some significant statements found in such treatments, some
of the inner regularities, relationships between forms that are diverse in appearance only, and many points of syntactic significance have remained unnoticed and undescribed.

In a recent review Mridula Durbin finds Carbona's treatment of Gujarati verbs "more confusing than revealing." (p. 416). She correctly observes that Cardona's description "keeps comparable processes apart and puts together dissimilar phenomena under one category with no justification." She then gives two tables, one showing Cardona's analysis (Table 1) and another table (Table 2) that shows how she would like the same verb forms to be analyzed.
Neutral:  
Root + E  
Neutral imperative, Root + E

Temporal: 
Present (?)  
Past (?)  
Future, Root + $E + E$  
Future imperative, Root + $j + E$

Conditional:  
Root + $t$

Aspectual:  
Perfective, Root + $y + G$  
Imperfective, Root + $t + G$

Temporal auxiliaries:  
Main verb + _ch-
Main verb + _ho-

Modal auxiliaries:  
$V_1 + Modal V$

Infinitive:  
Root + $w + G$

Perfective verbal adjective:  
Root + $el + G$

**TABLE 1** (Cardona's analysis)

**SIMPLE VERB FORMS:**
Neutral:  
Root + E  
Neutral imperative, Root + E

Temporal:  
Future, Root + $E + E$  
Future imperative, Root + $j + E$

Conditional:  
Root + $t$

Aspectual:  
Perfective, Root + $y + G$  
Imperfective, Root + $t + G$

Infinitive:  
Root + $w + G$

Perfective verbal adjective:  
Root + $el + G$

**COMPLEX VERB FORMS:**
Temporal auxiliary:  
Main verb / _ch-
Main verb + _ho-

Modal auxiliary:  
$V_1 + Modal V$

**TABLE 2** (Durbin's Analysis)
As is apparent from Table 2, Durbin classifies these forms into two groups: simple forms and complex forms. Further, she has grouped four kinds of verb forms under Aspectuals because they all agree in gender and number with the noun that they are constructed with. The line of her arguments is definitely in the right direction since the factors that she would like to emphasize are 'processes' and 'phenomena'. One does, however, have doubts about various aspects of her classification; it would not be surprising to find a more revealing classification than the one presented in Table 2 by giving primary consideration to syntactic and semantic characteristics of sentences in which these forms occur.

I have attempted to provide an account of the same aspects of the language but have assumed that, in addition to the surface structure, these forms have deep structure. The deep structure of a sentence has formatives—as its terminal elements. These formatives are grammatical morphemes such as PAST, FUTURE, ABLE, etc. and lexical formatives which are either actual like doq 'run', kharid 'buy', etc. or abstract like TIME, PLACE, [+HELP] etc. Thus the present treatment concentrates on two aspects in the formation of verbal constructions: i) the assignment of abstract representation made up of different kinds of formatives, and construction of rules of which the different verb forms are automatic consequences., and ii) the investigation of constraints on combinations of different formatives.
Grounds for the analysis thus shift from consideration of the phonological properties of a morpheme to the consideration of semantic and syntactic characteristics. Interpretation and paraphrases reveal semantic characteristics. Syntactic characteristics are provided by co-occurrence restrictions, relatedness and grammaticality. Because of these different parameters, the results often differ radically from those of previous descriptions. For example, the causative morpheme has similar phonological shape, \( aw \), in (1) and (2).

(1) Bill Jim\linebreak ne kagel  lækhawše \linebreak letter write  
"Bill will help Jim write a letter"

(2) Bill Jim\linebreak ni pase kagel  lækhawše \linebreak "Bill will employ Jim to write a book"

But we must consider the semantic characteristics that are apparent from the glosses of the two sentences and the syntactic characteristics that (1) has postposition \(-ne\) and (2) has \(-ni\) pase. These provide justification for considering \( aw \) of (1) different from that of (2) in spite of their phonological similarities.

The reverse case--that of two morphemes formerly considered dissimilar but here shown to be the same formative--is a complex form of the type \( awe \ che \ 'is coming' \). Notice that (3) and (3a) differ only in the auxiliary verb

(3) chokro awelo che "the boy has come" \linebreak boy come

(3a) chokro awelo ho\linebreak to "The boy had come"
(4) chokro awe che "The boy is coming"
(4a) chokro awto ho·t.o "The boy was coming"
(3b) chokro awelo nethi "The boy has not come"
(4b) chokro awto nethi "The boy is not coming"
(3c) awelo chokro "The boy who has come"
(4c) awto chokro "The boy who is coming"

In (4) and (4a), awe and awto are phonologically different, yet the semantic relationship between (3) and (3a) is similar to that of (4) and (4a). Further, awto shows up in negative sentence (4b) as well as in adjectivization (4c). For these reasons, we have assigned similar structure to awe of (4) and awto of (4b) in spite of their phonological dissimilarity.

In our discussions, we have shown that explanations based purely on phonological similarities and dissimilarities are deficient in several respects. We have further demonstrated that problems have a better solution with interesting consequences, and that we gain insight into syntactic processes, if we concentrate on underlying formattives and construction of rules.

There are many topics that have been touched on throughout the course of chapters 3 to 5. However, it is possible to distinguish roughly four types and two 'subtypes' of processes involved in the derivation of different verbal constructions: The first type is a simple one, combining the tense and aspect formattives provided by the base component.
(Ref. Chapter 3 ii), iii) and iv). In the course of our discussion of this simple process of derivation, we noted the following points: 1) The endings are dependent on other constituents of the sentence and are introduced transformationally. ii) Combinatory restrictions of the formatives can be explicated by analyzing aspects such as Imperfect, Perfect, and Pluperfect as subcategories of Past (Chap. 3.2). This automatically explains the temporal as well as aspectual connotations of some forms, and also shows the regularity in distribution of complex forms (verb form and auxiliary form). iii) The language has an IMPF-deletion rule (Ref. T15). The existence of such a rule is supported by syntactic, dialectal, and comparative evidence. Finally, iv) The language has only one auxiliary verb ho- instead of two (ref. ch- and ho- in Table 2 of Durbin); we have shown that the 'irregularity' of ho- is describable in terms of precise constraints, most of which stem from the IMPF-deletion rule (Chapter 3.4).

The second type of derivation contains formatives from the base, and operation of certain transformational rules (Chapter 3.5). This accounts for forms that could otherwise be expressed by introducing three aspects in the base: Volitional ([5] Bill awwano che "Bill is to come"), Obligatory ([6] Bill ne awwanu che "Bill has to come"), and Desiderative ([7] Bill ne awwun che "Bill wants to come"). We have argued that the forms which at the surface level are a verb, e.g. awwun in (6) is at a deeper level a noun phrase.
derived by the process of nominalization. That is, some of the processes here may well be identical to those which result in (8) \textit{Bill-ne be ãkh che} "Bill has two eyes." It should be emphasized that even in this process of derivation, most of the rules required to explicitly relate verbs such as \textit{aw} 'come' to \textit{awwû, awwanû}, are independently motivated. That is, they are required to account for other syntactic aspects of the language.

The third type of derivation involves the combination of two verbs of which one is a lexical morpheme and the other a PRO-form. This is exemplified in Chapter 4 in the treatment of imperative and causative forms. Since sentences with either imperative or causative forms have an element that is 'understood,' these forms are derived by positing pro-forms in their underlying structure. This general process has two subtypes, in terms of the reflexes of the pro-form. In case of imperatives, the pro-form is deleted, whereas it fuses with the lexical morpheme in case of causatives. We have also proposed, on the basis of semantic and syntactic evidence, to distinguish between two kinds of imperatives: WISH-type and COMMAND-type; and also two kinds of causatives: HELP-type and EMPLOY-type. Further, a significant relationship between the presence of the postpositions -\textit{ne} and -\textit{ni pase} in HAVE-constructions and the causative constructions have been demonstrated (ref. Chapter 4.11)
The fourth type of derivation also involves the combination of two verbs as in the third type, but unlike the third type, here both verbs are lexical morphemes. This type of derivation is exemplified in Chapter 5 in the description of verbal sequences (e.g. (8) Bill khai rehyo, "Bill finished eating") and gerund constructions (e.g. (9) Bill nahi(ne) station-e gevo, "Bill having bathed has gone to the station.") The verbal phrase in both cases has two verbs both in the surface structure as well as in the underlying structure. But in the case of gerund constructions the meaning of the verbal phrase is almost equal to the sum of the meanings of the two verbs that the phrase is made of, whereas this is not so in the case of verbal sequences. For this reason this type of derivation can be considered as made up of two subtypes: clustering, in the case of gerund constructions, and compounding, in the case of verbal sequences. Three principal characteristics of compounding that differentiate it from clustering are: i) grammatical properties of the matrix verb supersede, delete or make redundant corresponding properties of constituent verb; ii) phonological properties of both matrix and constituent verbs remain unchanged; and iii) semantic properties of constituent verbs are retained, but some of the semantic properties of matrix verbs are deleted (Chap. 5.1). We have also suggested that the same process of compounding operates in the derivation of causative forms. But there is a difference between a causative construction and a verbal sequence, because the input is two lexical morphemes.
for verbal sequences, as opposed to a lexical morpheme and a pro-form for causative forms.

Thus, the ground gained in the restatement of Gujarati verbal constructions in terms of a more recent descriptive approach is quite remarkable; yet one qualification must be added to this investigation. Anyone working in the field realizes that there is an uninterrupted flow of fresh ideas and suggestions about the transformational-generative framework. It is at times disheartening to realize that in addition to differences of opinions about the proper analysis of certain constructions (e.g. whether yes-no questions are derived from two sentences or one), there is no general agreement about such primary things such as the following: i) What constituents are deep structure phenomena and what are surface structure phenomena (e.g. Chomsky [1965] has AUX in the deep structure; but for Rosenbaum [1966] it occurs in surface structure). ii) What information should be supplied by the lexicon and what information by the grammar. This controversy, under the dichotomy of the lexicalist's position vs. the transformationalist's position is discussed in Chomsky [1968] and also in Lakoff [1968]); or iii) How should the linguistic facts be organized (Chomsky [1965] vs. Fillmore). After shifting from one proposal to another I have decided to omit any further consideration of these suggestions; I present an analysis that is more or less consistent with the principles proposed in Chomsky (1965), only occasionally showing evidence that favors any of the above.
suggestions (e.g. discussion on verbal sequences). At present however I have no basis for discarding any of the above-mentioned alternatives. It is equally possible to construct a far more revealing set of rules by incorporating one or more of the ideas of the post-Aspect literature.

It should be clear to anyone that the work is neither exhaustive nor definitive even for those aspects that are treated here at some length. This is the first treatment of Gujarati in this framework; and as is true with most beginning works, the formulations posited here are very tentative, and more of a suggestive nature than conclusive. It is a report of the possible analysis and insights at the present stage of the investigation. The extension of the study will require not necessarily the formulation of a few more rules, but in very many cases probably the modification of the present rules into new and deeper rules.

At various points there are repetitions of examples in the discussions of different facets of the language. As the language is little known, I have allowed such repetitions hoping that they will assist in following the analysis.

Yet, even in its present shape, it is hoped that this study will be of general interest to linguists since it exemplifies the theory of generative grammar through a less-known language. Hopefully it will also be of interest to specialists of Indic linguistics for some new insights into the structure of Gujarati.
APPENDIX

Unmarked Nouns.

The category GENDER functions in the grammar in various ways. Gujarati has a three gender system: masculine, feminine and neuter. A noun has one of these genders; either overtly or inherently. Most animate nouns have an overt marker as in:

(1) chokr-o 'boy' (masculine)
(2) chokr-ı 'girl' (feminine)
(3) chokr-û 'child' (neuter)

The masculine and feminine gender in such cases are correlated with the sex. The neuter, on the other hand, is unspecific about the sex and often indicates the sense of diminutive in size. Other nouns have inherent gender:

(4) masculine: radio; kan 'ear'
feminine: pen; jibh 'tongue'
neuter: typewriter; nakh 'nose'

Gender also participates in agreement rules (ref. T₁₇ and T₁₈). Certain verbal forms and adjectives are required to agree with one particular noun in gender. Thus, we have three different forms of the adjective sar-:

(5) saro chokro 'good boy'
(6) sari chokri 'good girl'
(7) sarû chokr-û 'good child'

In sentences (8), (9) and (10), we have three different forms of the verb a-w-, governed by the gender of the subject noun.
(8) Jim aw·y·o  
"Jim came"
(9) Mary aw·y·i  
"Mary came"
(10) balek aw·y·u  
"The child came"

The agreement rule that spreads gender to the verbs is slightly complicated. Notice the following:

(11) Mary\(\{\) pen\(\} \rightleftharpoons \) typewriter 
Jim\(\{\) Radio\(\} \rightleftharpoons \) kharid·y\(\{\) r
kharid·y\(\} \rightleftharpoons \) u

" The child\(\{\) bought a \(\{\) radio \(\} \rightleftharpoons \) pen\(\} \rightleftharpoons \) typewriter

In this schema - which, in fact, collapses nine sentences - we have different forms of the verb kharid- but they are not governed by the gender of the subject-noun. The forms are different according to the gender of the object noun. Gender thus divides the verbs into two groups according to whether their perfective form agrees with the subject or object.

This particular behavior of Gender is observed as the defining characteristics of intransitive and transitive verbs.\(^1\) That is, verbs that have their perfective form agree with subjects are intransitive and those that have agreement with object are transitive; sentences with transitive verbs have their subject-noun followed by -e and such sentences are referred to as Agential Construction in contrast to subject construction\(^2\) or Ergative opposed to non-ergative construction.\(^3\) It should be pointed out that not all transitive verbs behave similarly in this respect. Thus, the verb law-
'bring', though a transitive verb (as it has an object) never participates in the ergative construction: (Refer Chapter 2; especially T_9 and the discussion following the rule).

(a) Bill pen law·ğu·e
    "Bill will bring a pen"
*(b) Bill·e pen law·y·i
(c) Bill pen law·y·o
    "Bill brought a pen"

We have also noted in 5.2 that Gujarati employs verbal sequences in which a verb carrying referential meaning is followed by another verb with temporal and modal meanings:

(12) Jim
Mary
bašek
awi ṭek·y. [\(\hat{\circ} \)]
\(\hat{1} \)
\(\hat{0} \)
"Jim
Mary
The child\}
was able to come"

awi ṭek- is an instance of a verbal sequence having referential verb aw + modal verb ṭek-. The referential verb has a constant phonological shape, but the modal verb ṭek- has different forms that agree with the subject in gender.

(13) Jim
Mary
bašek
\(\hat{c} \)
\(\hat{e} \)
\(\hat{1} \)
\(\hat{0} \)
radio
pen
typewriter
kheridi ap·y. [\(\hat{\circ} \)]
\(\hat{1} \)
\(\hat{0} \)
"Jim
Mary
The child\}
helped to buy a\{radio
pen
typewriter

In sentence (13) the modal verb ap- of the sequence kheridi ap- has different forms but it agrees with the object and not with the subject as in (12). This is further supported by (14),
(14) Jim
Mary
bâlek
pen
typewriter
khêridi šek'y

"Jim
Mary
The child"
was able to buy a
radio
pen
typewriter

In (14), though the main verb khêrid- is transitive, the sequence khêridi šek- like awi šak- of (12) agrees with the subject-noun. That is, we have two kinds of modal verbs: the šek- type that does not participate in ergative constructions and the ap-type that does participate in such constructions.

The verb ker- 'make do' is transitive, since it occurs in the ergative construction in the past.

(15) Bill·e a kam keryû
this work

"Bill did this work"

However there are cases where ker does not occur in the ergative construction even in the past. Thus, Cardona (p.119) gives a sentence:

(16) wersad akho diwes peďya keryo
rain whole day fall did

"It rained all day"

In this sentence, keryo is a perfective form but it agrees with the subject. The subject wersad is furthermore not followed by -e as Bill is in (15). It is also pointed out by Cardona that (17) is also a possible sentence of the language.

(17) wersad·e akho diwes peďya keryû

"It rained all day"
This is a very interesting observation. What is a possible explanation of such a phenomenon? In sentence (16) pedya keryo is a verbal sequence in which the verb kar agrees with the subject noun worsad and thus we get a non-ergative construction. But (17)—an ergative construction with the identical verbal sequence as (16)—is also a possible sentence of the language. The verb ker—thus is neither sek—type, participating only in non-ergative constructions nor ap—type, participating only in ergative constructions. By (16) and (17) Cardona seems to point out the idiosyncratic characteristic of ker—when it occurs as a second member of the verbal sequence. But notice the following sentences:

(18) Bill·e akho diwes chapû wâcya keryû whole day newspaper read
   "All day Bill read the newspaper

*(19) Bill akho diwas chapû wâcya keryo
(20) Bille akho diwas doqya keryû
   "Bill ran all day"

*(21) Bill akho diwas doqya keryo

The acceptability of (18) and (20) and not of (19) and (21) shows that though Cardona's observation is right for the examples he cites, it is not a general characteristic throughout the language; that is, the verbal sequence Vya ker does not participate both in ergative and simple constructions in all its occurrences; the verb ker—does not always have the above-mentioned idiosyncratic characteristic.
Though sentences (15) – (21) are in contrast to Cardona’s valuable observations, they however do not explain why both (16) and (17) are possible sentences and why (18) and (19) are not.

(22) diwo akhi rat sēlaya keryo
    a lamp whole night burn
    "The lamp burned all night"

*(23) diwa·e akhi rat sēlaya keryû

(24) pāni akhi rat ōpēkya keryû
    water
    "Water dripped all night"

*(25) pāni·e akhi rat ōpēkya keryû

In these examples (22) and (24) are acceptable and (23) and (25) are not. This is just the reverse of examples (18) – (21). That is (18) and (20) are ergative sentences and, hence, acceptable; but (19) and (21) are non-ergative and therefore not acceptable. Whereas in (22) – (25), sentences (22) and (24) are non-ergative and acceptable, sentences (23) and (25) are ergative and therefore not acceptable.

But sentences (18) to (21) differ from (22) to (25) in one important respect; in the first set there is an animate subject, whereas in the second set the subject is inanimate. Therefore, the possible explanation of these facts seems to be that kær- as a second member of the verbal sequence is idiosyncratic because it participates in ergative constructions when the subject is animate, and does not when the subject is inanimate.
Such a postulation still does not explain why non-ergative (16) and ergative (17) both are possible sentences of the language unless we say that there are two lexical entries **wərsad**, animate in (17) and inanimate in (16), or, that the noun **wərsad** is both animate and inanimate. To set up two lexical entries, identical in phonological shape as well as in their referential meaning, seems very unnatural and intuitively wrong. Further, in addition to **wərsad**, there are many other lexical entries that behave like **wərsad**.

\[(26a)\] sury
\{'sun\}'
\[cendr\]
\{'moon\}'
\[tara\]
\{'star\}'
\[prəkəšya kəryo\]
\{'shine\}'

"The sun"
"The moon"
"The star"

shone continuously"

\[(26b)\] sury
\[cendr\]
\[tara\]
\[prəkəšya kəryǔ\]

\[(27a)\] nədi ubheraya keri
river overflow

"The river overflowed continuously"

\[(27b)\] nədi·e ubheraya kəryǔ

\[(28a)\] pəven phûkaya kəryo
wind blew

"The wind blew continuously"

\[(28b)\] pəven·e phûkaya kəryǔ

\[(29a)\] semudr ghumghyuva kəryo
ocean make noise

"The ocean made noise continuously"
(29b) semudr·e ghughevyə keryə

That is, whatever solution we posit for wersad is also applicable to other items such as sury, cendr, semudr.

Alternatively, we can set up a category of nouns in which all the members are both animate and inanimate. Interestingly, the members of this category are also in one semantic category—a category of natural elements. Thus, their identical syntactic behavior accompanied with their membership in one semantic category provides some justification to introduce the category of natural elements into the grammar. To say that members of this category are both animate and inanimate means that they are unmarked for animateness.

Then, the grammar has a set of nouns such as Bill, Mary, ghodo 'horse' etc. which are marked [+animate]; another set of nouns such as papi 'water', diwo 'lamp' khuruši 'chair which are marked [-animate] and a third set of nouns like wersad 'rain', sury 'sun', cendr 'moon' etc. which are unmarked for animateness.⁴

Though sentences (16) and (17) have identical glosses, they are not completely synonymous for me. This is true for sentences (26a) - (29a) and (26b) - (29b). The above characterization provides an explanation for this fact. The unmarked wersad gets [-animate] in (16) and [+animate] in (17). Thus, sentences (23) and (25) are also possible in poetry or stylized narrative. In terms of rules, such a discourse then changes [-animate] to [+animate]. This is called Personification in figure of speech.
That the grammar has three subsets of nouns, [+animate], [-animate] and unmarked, is further supported by other constructions of the language. Thus, in the discussion on causative constructions in Gujarati we have argued that:

(30) bāṛṇū khulše
    door open+future
    "The door will open"

is in fact an object+verb construction. The underlying sentence is:

(31) X bāṛṇū khólše
    "X will open the door"

(31) has a related ABLE-construction ("passive")

(32) X-thī bāṛṇū khulše
    "X will be able to open the door"

And by the deletion of X-thī we get (30). Note that (33) to (35) are perfectly acceptable sentences of the language but (36) to (38) - though they seem to have the same relationship that (32) has to (31) - have varied degrees of grammaticality.

(33) Billthī bāṛṇū khulše

(34) pewenthī bāṛṇū khulše
    wind

(35) cawithī bāṛṇū khulše
    key

(36) Bill bāṛṇū khólše

(37) pewen bāṛṇū khólše

*(38) cawī bāṛṇū khólše
The process that relates (33) and (34) to (36) and (37) respectively also relates (35) to (38). But (38) is a deviant sentence and the source of the deviance is the feature composition of cawi, a [-animate] noun.

The natural hypothesis, that there are three categories of nouns, is further supported by the fact that given sentences like:

(39) sury ugyo
    "The sun arose"

(40) choŠ ugyo
    "The plant grew"

only (40) has an expanded version in (40a) but no (39a) corresponding to (39)

*(39a) NP·e sury ugaŠyo
(40a) NP·e choŠ ugaŠyo
    "NP grew the plant"

That is, (40) is a derived construction but (39) is a primary construction which allows unmarked nouns to be a subject.

The language also has sentences such as:

(41) sury 'dubyo
    "The sun set"

(42) Bill 'dubyo
    "Bill sank"

But only (42) can participate in ABLE construction.
*(41a) sury thi ɖub-a-yu
(42a) Bill thi ɖub-a-yu
"Bill could sink"

Sentences (39) and (40) illustrate how unmarked nouns like sury differ from [-animate] nouns such as choq; (41) and (42) exemplifies the difference between the unmarked noun sury and [+animate] Bill.6
FOOTNOTES

1Cardona p. 109.
2Cardona p. 119.
4For a different analysis of a similar situation in English refer Hall, Barbara Subject and Object in Modern English Ph.D. dissertation, M.I.T. 1965.
5Ref. the discussion in 4.2 and also footnote 8 of Chapter 4.
6The details of this appendix were presented under the title "The Role of Unmarked Nouns in Gujarati Grammar" at the 1968 American Oriental Society annual meeting in Berkeley.
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