UNIVERSITY OF CALIFORNIA

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The Irula language, a close relative of Tamil

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

by

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1968

The dissertation of Gerard F. Diffloth is approved, and it is acceptable in quality and form for publication on microfilm

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1968

To the memory of Tante Simone

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LIST OF SYMBOLS AND TABLES

* : postulated (not directly observable)

: rewritten as

: + or -

-, : junctures

: is derived from

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ABSTRACT OF THE DISSERTATION

The Irula language,
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by

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Irula is a Dravidian language of the Tamil-Malayalam group (South-India), which has remained virtually unknown to this day. It has preserved many features which have been lost in Modern Tamil, such as Dentals after High Vowels in the Past tense, and six contrastive places of articulation for obstruents. It also presents a number of characteristic innovations such as: total loss of the Proto-South Dravidian retroflex approximant ɻ.

This account is based on field work among the Irulas of the Nilgiri Mountains over a period of nine months. The theoretical framework is the generative-transformational model as it was at the end of 1965.

Due to exceptionally difficult socio-linguistic conditions it was not possible to make full use of the model, particularly in the area of syntax. The most

important portion of this description is therefore devoted to phonology and especially to verb morphophonemics.

The main topics in phonology are the following:
1) The bewildering variety of verb forms is shown to be predictable on either syntactic or phonological grounds for the majority of verbs. Only a small number of verb roots need to be marked in the lexicon as belonging to one of two classes: Weak and Strong. Among the Weak class only a small number of verbs must be lexically marked as to their membership in one of two classes: [+in], [-in]. This will account for all verb forms except for a handful of irreducible exceptions.
2) An enunciative vowel u is added, not only at word boundaries, but also at many morpheme boundaries. In verbs, insertion of -ü- is shown to depend on class membership and phonological structure of the word.
3) Three series of obstruents are postulated in deep structure for all places of articulation: a voiceless series K, a voiced series G, and a prenasalized series ^{N}G. In surface structure, these correspond generally to voiceless germinated stops, e.g., kk, voiced simple stops, e.g., g, and clusters of homorganic nasal plus voiced stop, e.g., ng. When the rule inserting the enunciative vowel operates, Irula is then shown to have a CVCV pattern at certain levels of phonological

structure.

4) The six contrastive positions for obstruents: Labial, Dental, Alveolar, Retroflex, Palatal, Velar are shown to be reducible to four in deep structure. Alveolars and Retroflexes are derived from deep structure clusters of laterals (alveolar or retroflex) and dental obstruents. However, the six contrasting positions are needed at a fairly high level of structure and a feature of laminality is used for that purpose.

5) Some phonemes, such as v, do not have the same phonological properties in roots and in grammatical morphemes. The present generative model does not offer the possibility of stating generalizations which are true of grammatical morphemes only.

6) Several unrelated irregularities of patterning are reduced by reconstructing a phoneme r̈ in deep structure which is represented by Ø in surface structure. This reconstructed phoneme is most simply described as a retroflex approximant.

CHAPTER I

Introduction

INTRODUCTION

Irula is a Dravidian language belonging to the Tamil-Malayalam group. It has remained practically unknown to this day and is represented in scholarly literature by just a few poorly recorded word lists or by brief mention of it being a 'corrupt' form of Tamil.

During a stay of nine months in Coonoor (State of Madras) I collected material on this language and wrote a description of certain parts of its structure.[1]

I used the generative-transformational model of linguistic description in the state it was at the end of 1965, when I left for India. The theoretical framework of this dissertation is therefore basically that found in Chomsky's 'Aspects of a linguistic theory'.

I have not attempted to modify it but instead tried to point at a few undesirable consequences this model has for a description of Irula and exemplify the many insights it helps to give on the structure of the language.

I focused this description primarily on Verb morpho-phonemics which by their complexity reveal a good deal of the deep phonological structure of the language. The main problem in Irula phonology is the presence of six

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[1]I wish to express my gratitude to the American Institute of Indian Studies for awarding me a fellowship in order to go to India and do research there for a year and to the American Council of Learned Societies for supporting me while writing this dissertation.

contrastive positions for obstruents: Labial, Dental, Alveolar, Retroflex, Palatal and Velar. Such wealth is extremely rare in known languages of the world and Irula, along with a number of other South Dravidian languages, must be taken into account in order to build a universal phonological theory.

Many of the rules and structures postulated for Irula could be postulated almost without modification for Tamil, Malayalam and possibly other Dravidian languages. In addition to offering data for comparison, this description may throw some light on the problem of the historical relevance of deep linguistic structures.

CHAPTER II

The Irula tribe

Social, geographical and linguistic Situation

The Irulas of the Niligiris form a scheduled tribe numbering approximately 3000. The 1961 Census of India gives their exact number as 3252, of which 2765 are reported to live in the Coonoor taluk.

Their recent history seems to involve a slow movement away from the Nilgiri plateau where they are mentioned in the literature of the beginning of the century, down to the jungle slopes where they are now to be found. For instance, the Irulas were reported, even as late as 1909, to attend the weekly market at Kotagiri (Thurston, 1909). Nowadays, they practically never go there and only rarely to the one at Aravēnu, three miles below, but make very frequent and regular visits to the market at Mēṭṭupāḷayam, in the plains. The same could be said of their attendance at religious festivals.[1]

Even though they have moved away from the complex and changing interplay of tribes in the Nilgiris, they are still considered "tribal" by Indian society at large and do not go down to settle in the plains. Their hamlets, usually a dozen bamboo houses loosely scattered in small groups, are found in the steep slopes that are wet and fertile but too rugged for large plantations.

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[1]Already in the early accounts, Irulas seem to play a marginal role among Nilgiri tribes: cf. Harkness 1832 " The Todas do not consider the Erulars as forming part of the inhabitants of the hills, but they allow this designation to Curumbars" App. X p. XV

Most men and women are casual laborers in tea or coffee estates, where they earn extremely low wages. Another source of income is their own gardens, where they grow many kinds of fruits and some cereals. Jungle products are also much in use, especially honey and a wide variety of wild tubers.

Due to their work in the plantations, all have some knowledge of Tamil. The Government has set up for them a number of tribal boarding schools where children are taught to speak, read and write Tamil, while they usually speak Irula among themselves. Their position, material and social, is quite insecure, and this is reflected in their attitude towards their own language. They are generally reluctant to speak it in front of Tamilians, and since none of them speak any English my problem of communication with them was at first quite a difficult one. I was fortunate to secure the help of a teacher[2] at the tribal school, who had married an Irula woman and was thus accepted as one of them by the Irulas.

Even then, problems arose from the fact that they consider their language as being just 'bad Tamil'. This widespread stereotype has no linguistic relevance and

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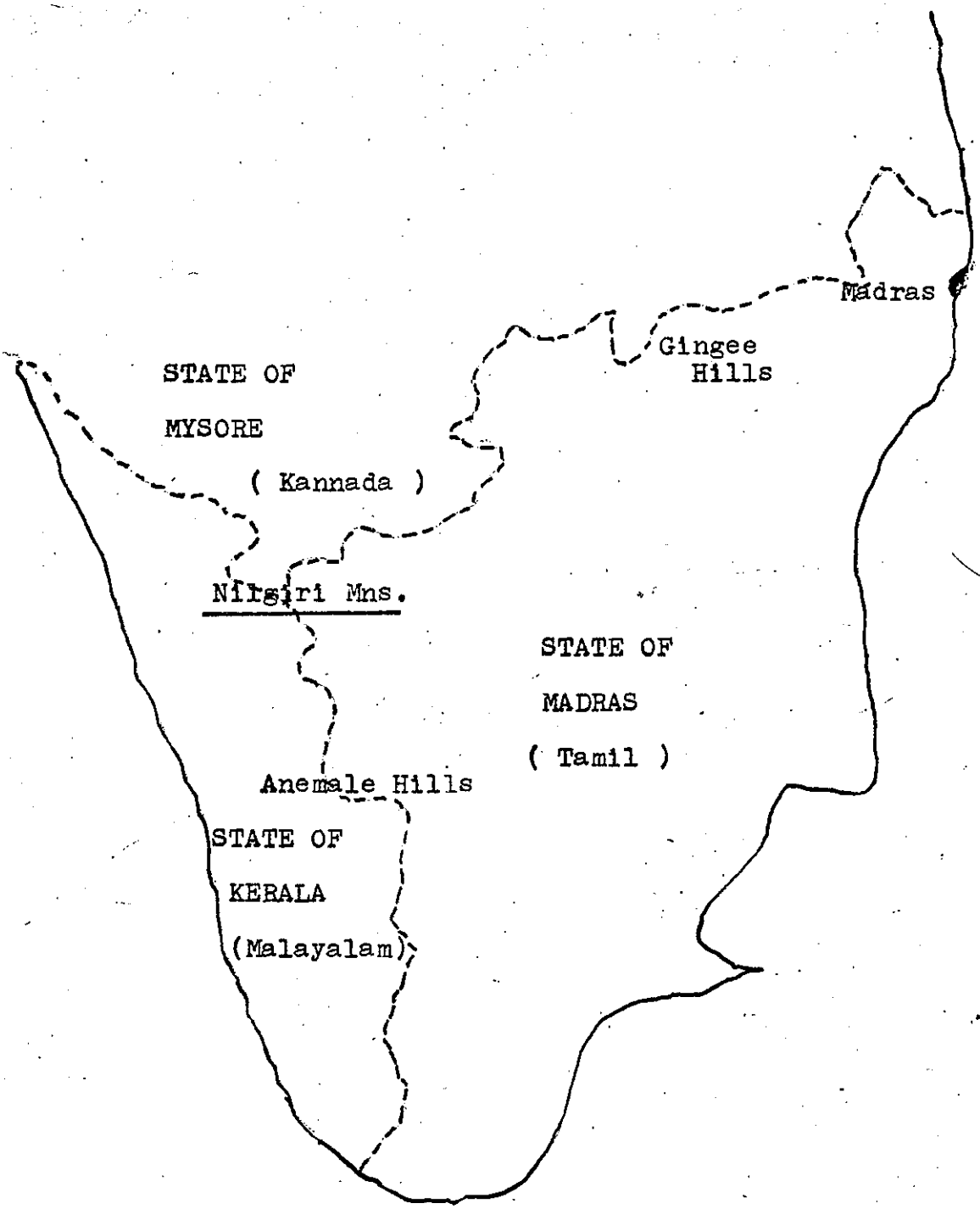
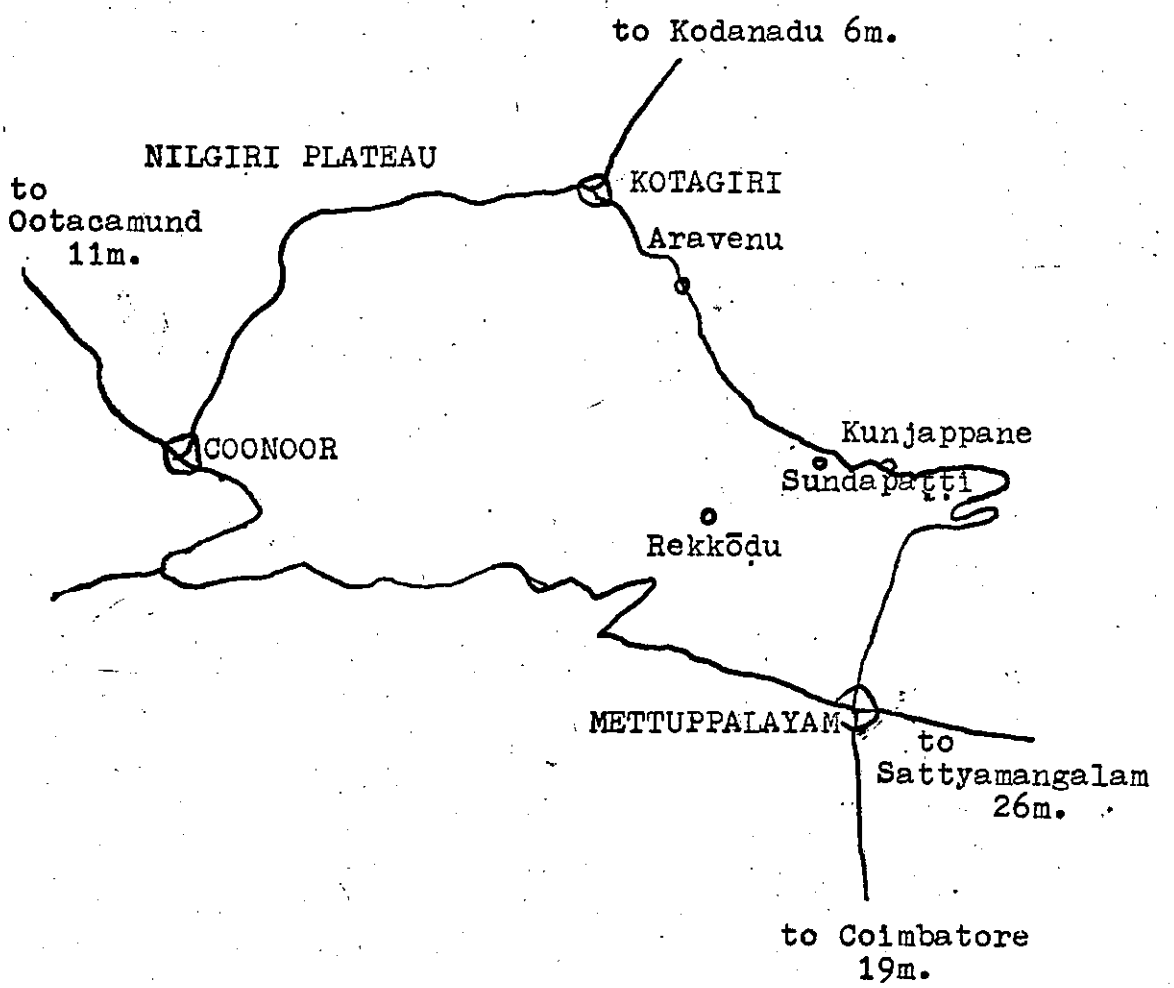
[2]I wish to express here my gratitude to A.K. Pandian for his tireless cooperation, short of which my project would have not been feasible, to my main informant Ponnan, the Irula children of the Government Tribal School of Kunjappane and all the other Irulas I met, who were always friendly and willing to help.

simply reflects social prejudices. It is perhaps typical of untouchables that Irulas would endorse these self-degrading stereotypes as if they were factual. As a result of this, my informants tended to yield under the slightest pressure of questioning, and to use Tamil patterns at random without trying to distinguish them from Irula patterns. This attitude proved disastrous when I tried to gain some insights into syntax or the semantics of grammatical categories. Even if this obstacle had been entirely removed, there was a certain reluctance on the part of my informants to start thinking about their language, or even to judge the grammaticality of utterances presented to them. Ultimately it is difficult to convince a man that this might be an interesting matter when his primary concern is having enough to eat the following day.

I had to concentrate therefore on the most accessible structures of the language: morphology, lexicon, and phonology, a fact which is reflected in the balance of my description.



Map of South India



(portion of)

MAP OF THE NILGIRIS

I focused my investigations in the area of the Kinjappane, Sundapaṭṭi and Āreyūr settlements. Kunjappane is located midway on the road between Kōtagiri and Meṭṭuppāḷayam. It has a tribal school with three teachers and about a hundred pupils. Being on a main road with bus service, it is open to Tamil influence. Sundapaṭṭi is just a few hundred yards away from Kunjappane, while Āreyūr is about two miles off into the jungle and rather difficult of access. The Iṟuḷa language, although basically uniform in the area, was found to be much freer of Tamil borrowings in Āreyūr, and my main informant, named /pönnä/ (Tamil ponnan, literally 'who has gold'), came from there.

Another linguistic community must be mentioned to complete the picture: the Pāl Kurumbas. This is the only Nilgiri tribe with which the Iṟuḷas have maintained regular contact: each Iṟuḷa settlement has a Pāl Kurumba whose title is /modäli/ (Ta. modal 'First'). He is generally the folk-doctor for the village. The Pāl Kurumba language has never been investigated, and my brief contacts with it revealed a number of Kannaḍa features. It is very probable that whatever Kannaḍa-like elements are found in Iṟuḷa have been borrowed from the Pāl Kurumba language.

As no systematic linguistic survey has ever been made of the Nilgiri area, or of South India in general,[3] it is

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[3]The Linguistic Survey's (GRIERSON, 1906) coverage of South India being extremely sketchy, the late Governor of Madras F.H. Grevely undertook to make gramophone recordings

important to check some of the connections that have been established between Irulas and other communities and to devise simple linguistic criteria for establishing a linguistic classification.

The term Irula (Erular, Erulavar, Iruliga)[4] is used to designate a number of social groups in the states of Madras, Kerala and Mysore:

a) The Irulas of South Arcot and Chingleput (North Arcot district manual p. 248), mostly in the Gingee Hills.

b) The Irulas of the jungle slopes of the Anemale hills near the village of Āttapaḍi (state of Kerala), sometimes called Vattekkāḍa Irulas by themselves or other Irulas in order to distinguish them.

c) Irulas of the Nilgiris, to be subdivided in two main groups--

1) Malenāḍu Irulas (or Maledēsa Irulas) found in the Eastern and Southern slopes of the Nilgiri plateau (Coonoor taluk),

2) Kasuvas or Kasavas (W. Francis, 1908, vol I p. 151) living in the Northern part of the Nilgiris from Masnigudi down the Moyar valley into Mysore state.

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of a wide variety of dialects in the Madras Presidency. A small selection of these recordings were transcribed and published (GRAVELY, 1927).

[4]The word Irula is usually connected with a Tamil root irul- (DED 2102) meaning 'darkness', but since the r of /iṟulä/ is alveolar and not dental one might suggest a more plausible connection with Ta. iṟavuḷar (DED 442) 'hill tribe'.

In addition, Irulas have been connected with Koravas (alias Yerukala), a wandering community of comb sellers and fortune tellers found all over the states of Madras, Andhra and probably even further.

Finally, a new connection can be proposed between Iṟuḷas and some Ūrāḷis. In the language of the Pāl Kurumbas, the word designating Nilgiri Irulas is /u:ra:y/. The change -ḷi- → -y- being regular in that language, we may reconstruct u:ra:y < *u:ra:ḷi. Among Nilgiri Irulas themselves, the term /ü:ra:ḷi/ is the title of an Irula whose function is to supervise marriages, decide on the dates of festivals, sowing times and harvests. Ūrāḷi is also very common as a community name in South India, but I found that the Ūrāḷis living near Sattyamangaḷam (see map) have the same proper names for designating the numerous caste subdivisions as do the Nilgiri Irulas.[5] These external data pointing to a relationship between the two groups are confirmed by linguistic evidence.

LINGUISTIC RELATIONSHIPS

The question of a linguistic connection between South Arcot - Chingleput Irulas and other groups must be left open as I could not gather any linguistic information on

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[5] I have recorded eight names of subdivisions among Ūrāḷis: uppiligärü, koḍuvärü, pë:ṟigärü, sambärü, pe:raḍavärü, vëḷḷagärü, pu:ṉgärü, kälkaṭṭi, a list which is probably not exhaustive. Among Irulas I collected the following names: koḍuvärü, sambärü, pe:raḍärü, vëḷḷagärü, pu:ṉgärü, källükaṭṭi, de:vāṉärü, kuṟuṇagärü, kuppärü, muḍugärü.

them.

With regards to Kasuvas, the only published material is in Gravely. The text found on page 36 (No. 126) shows absence of palatalization in verbs: seydutte 'I have done', nenattu 'thinking', which is a retention shared by Irula. The word tammā 'brother' may indicate the presence of the personal suffix -mā characteristic of Irula but it may more likely be explained as a borrowing from a language of the Kannada group; on the other hand, forms like: iddu 'being', irppa 'who is' are not found in other varieties of Irula. Unfortunately the text is too short and poorly transcribed to allow any conclusion.

It must be pointed out here that Irula belongs to the Tamil-Malayāḷam subgroup. This is apparent from two main features which serve as typical isoglosses for the subgroup:

1) palatalization of initial velars before front vowels except when the vowel is followed by a retroflex: ex. seyde 'I did' (lit. Ta. ceytēṉ, Mal. cey- 'to do' Kan. key-), segiḍā 'deaf man' (Ta. cevitaṉ, Kan. kivuḍa) where *k → c, but: kĕḍakke (Ta. kiṭakkiṟēṉ 'I lie down'), where *k is preserved before a retroflex consonant.

2) a particular system of verb classes with regards to tense morphophonemics, the Irula system being almost identical or directly derivable from that of literary Tamil and quite different from the Kannada system.

Example: the small class of verbs having their past in

- d - contains the same lexical items as the corresponding Tamil class. The same is true of the class of Irula verbs having their past either in - nd - or - tt - depending on the transitivity of the verb.

In spite of a certain number of Kannada features Irula is thus to be classified as basically Ta - Ma. This fact may be used to reject some relationships between Irula and other Nilgiri languages.

The language of the Kasava song (No. 127, p. 39) has preserved initial k before high vowels: kivikku 'to the ear' and shows the change initial *p → h, which are typical of the Kannada group. The few Kasuvas I have met only knew Kannada. The linguistic affiliation of the Kasuvas thus remains problematic. In fact the whole Wynad area is still linguistic terra incognita.[6]

The connection between Irulas and Yerukala-Koravas has been taken for granted by Andronov (1965) (pp. 11-12). The two dialects are however extremely different and mutually unintelligible. To choose only an obvious feature, the regular merger of *ṟ with g found in the many varieties of Yerukala-Korava separate them from other known South Dravidian dialects, Irula included.[7]

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[6]Several excursions in that area revealed to me three new Dravidian languages: Paṇiya (Ta. Mal. group), Sholaga (Ka. group) and Beṭṭa Kurumba (South Dravidian). According to all reports, the Mullu Kurumbas also have a language of their own. I could not secure any linguistic information on the Kāṭṭu Nāyakkar, Jēn Kurumbas and Wynad Chetṭis.

The remaining communities, namely:

1) Irulas as represented in the following publications: Breeks, Hodgson, Manual of Mad.Adm, Gravely (Nilgiri Irulas, Coimbatore Irulas)

2) Malenāḍu Irulas of the Nilgiris (subject of this dissertation)

3) Vaṭṭekāda Irulas near Āṭṭapaḍi (my own data)

4) Urāḷis near Sattyamangaḷam (my own data)

all share a number of linguistic features not found in other known dialects of the Tamil-Malayalam group spoken at present.

Such characteristics form a bundle of isoglosses which have historical relevance and may be used in further work in order to classify newly recorded dialects.

1) Lit. Ta. /ṟ/ : { /y/ before /i/ ; Ø elsewhere }

Ex. L. Ta. poṟutu 'sun': podu (Hodgson, Mad. Man. of Ad, Mal. Ir.)

paṟam 'fruit' : pammu (Mal. Ir., Vatt. Ir., Urali)

koːṟi 'fowl' : koːyi (" " ")

kuṟi 'hole' : kuyi (" ")

vaṟi 'path' : vayi (Gravely, Hodg. Ad. Mal Ir. Vatt Ir.)

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[7]This is based on my own field notes on Korava and several published Korava texts (BALFOUR 1851, GRIERSON 1906, M.M.A. 1885).

There are also a few irregular developments of L. Ta. *r̤* especially in Vaṭṭekāḍa Iruḷa: L. Ta. kaṟuṅku 'tuber' : Vatt. Ir. kasüŋgü; L. Ta. kuṟal 'flute' : Vatt. Ir. kogalü; L. Ta. puṟu 'worm' : Vatt. Ir. pugu; L. Ta. maṟai 'rain' : Vatt. Ir. mage. The change *r̤ → g is, however, exceptional in Vatt. Ir. while the pattern indicated above is regular. Malenāḍu Iruḷa has only one case of *r̤ → g: L. Ta. niṟal : Mal Ir. nagälü; otherwise the change is regular: kaŋgü 'tuber', kwälü 'flute', pu: 'worm', me: 'rain'. In most modern dialects of Tamil and Malayalam, *r̤ is either preserved or merged with ḷ, depending on the region and social group. Changes similar to those of Irula are found in such distantly related languages as Kota, Toda, Beṭṭa Kurumba, Paṇiyan (r̤ → ɣ or ɣ), Pāl Kurumba but not Baḍaga. The change *r̤ → ø is probably an areal feature of the Nilgiri languages.

2) Absence of palatalization of dentals in the past tense morpheme after front vowels and /y/.

Ex. L. Ta. aṟintu iru 'understand!' : arindiru (M.M.A.)
L. Ta. kaṭittu 'biting' : kaḍittu (Gravely)
L. Ta. kuṭittēṉ 'I drank' : kuḍitte (Mal. Ir., Vatt. Ir., Urali).

All known modern dialects of Tamil and Malayāḷam, including the conservative Ceylon dialects and Tamil dialects isolated in Mysore, such as Sankēti, have undergone palatalization. This is true also of the Paṇiyan and

Korava languages. We thus have here the most obvious isogloss characterizing the Irula language within the Ta - Ma subgroup.

3) In morphology, the use of a familiar masculine gender -ma.

Ex.: Gravely: Coimbatore: immā 'this boy', ammātte 'that boy (Acc.)'

Nilgiri: biliyammā 'the elder (son)', cinnammā 'the younger son'

similar examples in Mal. Ir., Vatt. Ir., Urali.

4) The Present tense marker in -kk-/-g-.

Ex.: L. Ta. tiṉkiṟēṉ 'I eat' : tinke (M.M.A.) tiṉge (Mal and Vatt. Ir., Urali)

L. Ta. varukiṟatu 'it comes' : varugudu (Gravely, Mal and Vatt Ir., Urali)

Lit. Ta. kiṭaikkiṟatu 'it remains' : kiḍakkudu (Gravely), kaḍakkūdŭ (Mal and Vatt Ir., Urali).

Malayāḷam and some dialects of Tamil display partially similar features, but never completely the regular system of Irula.

Ex.: the Malayāḷam strong verbs have -kk- before the present marker -unnu- : kaḍikkunnu 'I bite' but weak verbs have - ∅ - : varunnu 'I come'. Colloquial Tamil has one verb with present in -kk- in the 3rd person singular neuter: irukkudu 'it is' as opposed to the regular -kkar-.

5) In the realm of lexicon, a noticeable peculiarity is the use of the verb mani (-tt-/-kk-) 'to speak' which has no apparent cognates in Tamil-Malayalam, nor in the data available in DED. Ex.: Hodgson; M.M.A.; maniade iru 'be quiet!' (lit. 'remain not-speaking'). Another Irula word without known Dravidian cognates is mattü 'lip'.

CHAPTER III

Syntax

A formal description of the syntax of any language requires not only a large amount of data and the possibility of constantly checking one's analysis, but also an informant who is inclined to scrutinize his own linguistic intuition and to report his findings accurately. Not having found such an informant among the Irulas, I had to use more traditional methods of enquiry such as collection of vocabulary, paradigms, texts, and transcription of recorded conversations.

The present account of Irula syntax and morphology will of necessity be fragmentary and informal. Instead of discussing and justifying a set of tentative rules based on unreliable evidence, I will simply offer a series of remarks and examples, moving from one topic to another without necessary connections. The purpose of this chapter is twofold.

First, it will introduce the grammatical categories referred to in the phonology chapters; second, it will offer examples for comparison with other South Dravidian languages and complement the evidence found in phonology.

WORD ORDER

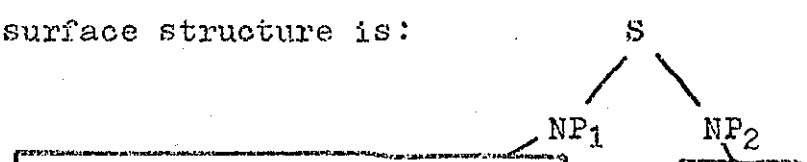
In Irula, as in Tamil, word order is quite free. For instance, all the six following permutations of A, B and C are acceptable:

A	B		C	
you	my	house-to	what-for	you came
ni:mü	näna	kü:rekke	ennakkü	vandiri

A	C	B		
ni:mü	ennakku	näna	kü:rekke	vandiri
ennakku	ni:mü	näna	kü:rekke	vandiri
ennakku	näna	kü:rekke	ni:mü	vandiri
näna	kü:rekke	ni:mü	ennakku	vandiri
näna	kü:rekke	ennakku	ni:mü	vandiri

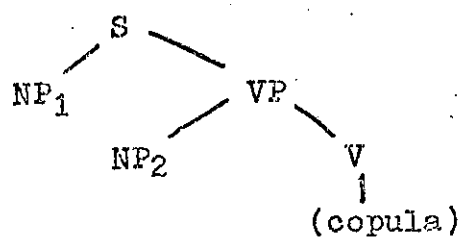
It is rather difficult to elicit sentences where the subject NP (here: ni:mü) is after the VP (here: vandiri). Such sentences are not ruled out when in isolation, but im embeddings, the subject NP must precede its verb. This would seem to point to a basic NP + VP word order in Irula.

In equational sentences there is no overt copula and the surface structure is:



Ex: na:mü mü:nda:lüttü kü:re öndüdä
we three peoples' house (is) one thing-indeed
"the house of all three of us is one; we all three live one house." In this case, the order of the two NP's is not free, the semantic consequence of the order NP_1NP_2 is: "NP_1 is a NP_2". The order NP_2NP_1 would have a meaning "NP_2 is a NP_1" quite different from the first. There seems to be some evidence for postulating a deleted copula in such sentences. Their deep structure

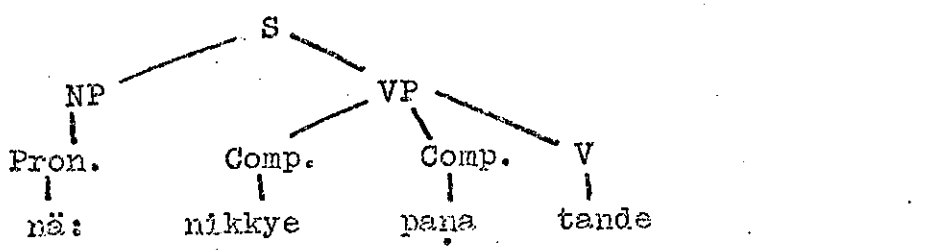
would then be:



So that in effect, equational sentences are but a subtype of the general NP + VP type and the semantic relevance of the order NP_1NP_2 again points to a basic NP + VP word order in Irula.

The existence of this basic order NP + VP is also evidenced by one of the transformations used for emphasis. By that transformation, the NP to be emphasized (whether it is a subject or one of the complements) is placed at the end of the sentence, after the main verb.

Ex: underlying string:



I gave you the money

transformed string:

nä: pana tande nikkye 'I gave <u>you</u> the money'

In addition to emphasizing, this transformation is also

used in the context of an entire discourse: it may introduce a new element which is at first indefinite and is then considered definite in the rest of the discourse.

Ex: ma:du po:yi püllü me:ndiṉa örü sö:leli
cow having gone grass grazed a grove-Loc
The cows went and grazed grass in a grove

The following sentence starts with: sö:lekkulḷe: ....'in the grove....'. Thus it is very common to have the first word of a sentence repeat the last word of the preceding sentence. Such an echo pattern can also be found with verbs or entire verb phrases:

Ex: na:mü kü:rekkye pö:ṉemü . po:yi....
we house-to went . having gone....

sö:lekkye po:yi varagü vëṭṭiṉemü. varagü
grove-to having gone firewood we cut . firewood
vëṭṭügaṭṭi...
cutting-while...
We went to the grove and cut some firewood. While we were cutting firewood...

GERUNDS

In the example above, the verb form po:yi was translated as a temporal clause: 'having gone'. This verb form, traditionally called gerund in Tamil and other Dravidian languages, consists of the verb root followed by

the past tense morpheme. It differs from the past tense form of the verb by lacking a personal ending. It is very common to find long strings of gerund constructions in a single sentence.

Ex: ade na:mü pa:ttü appära dü:rä o:ḍi
That-Acc we having seen very far having run
lä:ri añji vande:mü.
having shouted having feared came .
Seeing that, we ran far away, shouting and very afraid, and we came here.

Such a sequence of time adverbs usually implies a corresponding time sequence in the events described. As a consequence, these strings of gerunds must be described in deep structure as recursively embedded Time Adverbs without limitations on depth of embedding. There is evidence that each one of these time adverbs is actually a reduced sentence. For instance we may find various kinds of complements depending on each particular gerund.

Ex: (the gerunds are underlined)
appü // a: reṇḍü vë:ṇḍemü ëḍüttü // örü
those two animals <u>having taken</u> a
biliya örekkye koṇḍü po:yi // ade aṛüttü //
big stone <u>having brought</u> that-Acc <u>cutting up</u>
(animals)

kaṛi ma:ḍi // mü:ṇḍü na:lü aḍili iründü //
curry having made three days in-there having stayed
ve:le seydü // a: ü:rukkä:rärella ü:rikkye
work having done those villagers-all village-to
vandirukkä:rü.
were coming .

"Then those villagers took the two animals, brought a big stone, cut up the meat, made a curry, stayed there three days, did their work and were on their way home".

It may happen that the subject or some other NP of the embedded sentence is identical with an NP of the embedding sentence; in that case, one of them may be deleted by a stylistic transformation. In the example just given above, the four embedded sentences as well as the main sentence have a: ü:rükkä:rärella 'all those villagers' as subject in deep structure; in surface structure, all the subjects except the last have been deleted.

AUXILIARIES

Some verbal constructions seem to be analyzable as Gerund + Main Verb. Ex: tiṇḍükke 'I am eating' tiṇḍü is the gerund form of tiṇ- 'to eat' and -kke might be postulated as the first person sing present of a verb having Ø as one of the root allomorphs. The past tense of this verb is tiṇḍünde, in which -nde can be analyzed as a Ø root plus -nd- 'past tense', plus -e personal ending; the imperative singular is tiṇḍirü, which has: tiṇ-N_d-ir-

as morphophonemic representation. The normal pattern for imperatives being Root- $\emptyset$ we may postulate -ir- to be the active root of a verb which has $\emptyset$ allomorphs in other tenses. There are other similar verbs: tindonde 'I ate for myself', tindonge 'I eat for myself'. However there are several factors which would make an analysis of these forms as Gerund + Main Verb too cumbersome. For instance, the forms -nde, -kke etc... must follow immediately the preceding gerund, and both must have the same underlying subject, a restriction which is not obligatory in Gerund + Main Verb constructions.

Second, there are occurrence and order restrictions when several of these verbs are added to a gerund.

Ex: tindondunde 'I was eating for myself' (Refl + Prog) is grammatical, but the reverse order *tindundonde is not grammatical.

Third, these forms cannot occur as main verbs of a sentence. This last statement could be challenged on the grounds that there are independent verbs which have phonetic and semantic similarities to the forms in question: the verb ir- 'to be, to stay, to stand' (Pres. irükke, Past iründe, Imper. irü) could be shown to be related to the forms: Pres. -kke, Past -nde, Imper. irü, all sharing the meaning "progressive". Similarly, the verb kol- 'to get' (Pres. kollüge, Past konde, Imper. kollü) could be

associated with the form: Pres. -ọnge, Past -ọnde, Imper. -ko meaning reflexive or benefactive. The verb vĭḍ- 'to leave, to quit' (Pres. vĭḍuge, Past vĭṭṭe, Imper. vĭḍü) with the forms: Pres. -ugwe, Past -uṭṭe, Imper. -uḍu meaning 'perfective'. Finally the verb muḍi- 'to finish' (Pres. muḍikke, Past muḍitte, Imper. muḍi) with the forms: Pres. -mikke, Past -mitte, Imper. -mi also meaning 'perfective'.

However, in each of these cases, the phonetic developments are idiosyncratic and cannot be related even partially to any other phonological rule of the language, while the semantic differences would probably be more complex to describe than those found in metaphoric deviations for instance.

Finally, it might be possible to show that the main verb of the sentence is, in each case, the first morpheme; for example, in tiṉḍoṉḍunde 'I was eating for myself', the main verb is tiṉ- 'to eat'; but if we interpret the auxiliaries as main verbs, both tiṉḍ- and -oṉḍ- would have to be derived from embedded sentences and the main verb would be -nde 'I was'.

For these reasons, the special verb forms in question will be treated as Auxiliaries and introduced as such in the Phrase Structure rules, and not as a variety of Gerund + Main Verb constructions, i.e., embedded temporal clauses.

The same problem arises in dialects of Tamil. The same verbs--with the exception of mudi-, which seems to be used as auxiliary only in Irula--bear the same relationship to similar auxiliaries even though the phonological developments are not the same as in Irula.

A special status must be assigned to the Auxiliary verb po:- 'to go', on two accounts; first, it is added automatically as a meaningless form by the Negative Transformation in order to carry grammatical markers which are removed from the main verb. Ex: The affirmative conditional is expressed by: verb + Past + a as in : vanda 'if it comes' The negative conditional is expressed by adding the verb po: + Past + a to the negative gerund of the main verb: vanda + Neg → värа:de pö:na

come-Neg-Ger po:-Past-a

'If it does not come'

Second, the verb po: can also be used as an auxiliary, i.e. in the same type of constructions as those described above, with the meaning 'durative', but its occurrence seems to be limited to certain classes of verbs, whereas true auxiliaries can occur with any verb.

Ex: sattü pö:nä (literally: 'having died, he went')

'he is dead'

avänükkü	bäla	kaḍandümü	naḍakka
to him	strength	even-though-there-is	to walk

muḍiya:de pö:sü̈

not-being-possible it went

'Even though he was strong he couldn't walk'.

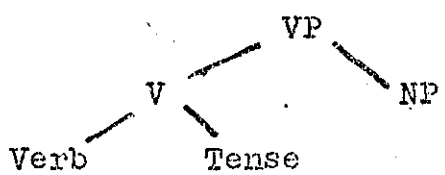
EQUATIONAL SENTENCES

As mentioned in the beginning of this chapter, equational sentences consist of two NP's without any verb:

Ex.: adü̈ mo:sa

that nuisance 'That is a nuisance'

There might be grounds however for postulating an underlying NP-VP structure in this sentence type. The VP would have the following structure:



and the V node would be deleted in case it dominates the formative "copula". This deletion would take place in the Transformational Component only and thus the Tense node and everything it dominates would be taken into account in the semantic component. The decisive test would therefore be to find if there is any meaning of tense implied in equational sentences. In spite of difficulties of inquiring into these questions in our particular field situation, the answer to this problem seems to be positive. For instance, a negative equational sentence can be embedded as a time adverb to form a gerund construction,

and one of the requirements imposed by the Gerund transformation is that the embedded sentence have a Past tense node.

Ex: avä sinnavä älla 'he is (was) not a young man' can be embedded in the following:

avä sinnavä illa:de sattü pö:na
he a-young-man not-being having-died went
'He didn't die young'.

A formal argument in favor of a deleted V in equational sentences could be built around the fact that manner adverbs can be inserted between the two NP's:

adü appära mo:sa 'that is very much a nuisance'
NP_1 NP_2
that much nuisance

appara being an adverb of quantity normally modifies a verb; by postulating an underlying verb, all adverbs can be said to always modify a verb. Another indication comes from the fact that equational sentences can be negated by adding the tenseless, personless negative verb alla, negation being otherwise restricted to verbs.

Ex: ivä modukkä älla 'he is (was) not an old man'
he old man-Masc is not
a: kä:latti ivä modukkä älla 'At that time he was not an old man'[1]

[1]The time adverb a: kä:latti is a sentence adverbial and cannot be taken as evidence of an underlying adverb.

We may therefore conclude that Irula does not have an overt copula, only a covert one. Other dialects of Tamil make use of various constructions with the verb irü- 'to be'. In Irula, this verb can be used in two different ways; first as an ordinary main verb with the meaning 'to stay, to remain still, to stand', second it can be used as a verb meaning 'there is, there was', and this only if the subject is animate.

Ex: a:ŋgü na:y irükkŭdü 'there is a dog there' (Literally: there dog is). If the subject is inanimate, another verb must be used: kaḍa-, which in addition to 'there is ' also means 'to be lying down, reclining' and can be used in that sense with any subject.

Ex: i:ŋgü raṇḍü mära kaḍakkiṇa 'There are two trees here' whereas a:ŋgü ma:ḍu kaḍakkŭdü means 'the cow is lying there', not 'there is a cow there'. The verbs irü- and kaḍa- with the meaning 'there is' are thus in complementary distribution.

When the subject is inanimate, another form can be used instead of kaḍa-: the tenseless, personless ada;

Ex: a:ŋgü örü pammü ada 'there is a fruit there'. None of these verbs ever come to be used as a copula in Irula.

The negative form of these verbs (irü-, kaḍa, ada) is the tenseless, personless ille:

Ex: a: kü:reli pana ille
that house=in money not
'There is no money in that house'.

Thus, we have two negative tenseless, personless forms used as main verbs: älla 'it is not', ille 'there is no'. The distinction is therefore kept even in the negative between the copular 'to be' and other stative verbs. In embeddings, however, forms derived from ill- are used for both meanings (see ex. p.). In most dialects of Tamil, except in a formal or archaic style of literary Tamil, this distinction between 'there is no' and 'it is not' has disappeared, ille having completely taken over both meanings.

NEGATIVES

The two negatives ille and älla have no overt tense marker. In the case of ille this is clearly a case of deletion resulting in ambiguity as to tense: both sentences a: kü:reli pana irükkudü 'There is money in that house' and a: kü:reli pana irundüdü 'There was money in that house' would have the same corresponding negative sentence: a: kü:reli pana ille 'There is (was) no money in that house.

Deletion of the tense node in Negative forms is also found in some other Irula verbs. One of them, ka:ne 'don't know' has no personal ending either: the root ka:n- means 'to see'. ka:nge 'I see', -e could be

analyzed as a first person singular ending, but it is used with all persons and has no more meaning than the -e of ille. For this particular verb ka:ṉ- the construction Verb root + e has the meaning: Negative, all tenses, all persons. The two other tenseless negative verbs of Irula have a personal ending agreeing with the subject: aṟiye 'I don't know', aṟiya 'you (Sg) don't know' etc... ma:ṭṭe 'I will not', ma:ṭṭa 'you (Sg) will not' etc... These are remnants of a once regular pattern in old Tamil where the negative was formed by omitting the tense marker.

In most modern Tamil dialects there is no tense distinction in the negative, but an empty morph (-kk-, -g-) is inserted between the verb root and the negative marker. On the other hand, Irula has an overt tense distinction Past Non-Past in the negative forms of all verbs excepting the few mentioned above.

	Declarative		Negative	
Non-Past	värüge	'I come'	varügäle	'I do not come'
	naḍakke	'I walk'	naḍakkäle	'I do not walk'
	pa:kke	'I look'	pa:kkäle	'I do not look'
Past	vande	'I came'	vandäle	'I did not come'
	naḍande	'I walked'	naḍan:däle	'I did not walk'
	pa:tte	'I looked'	pa:ttäle	'I did not look'

The constructions with Verb-Past-ale are not found anywhere else to my knowledge in the Tamil-Malayalam group and might represent an innovation in Irula. None of the negative forms ever show any personal ending agreeing with the subject of the verb.

TENSES

Past and Non-Past are the only two tenses expressed in the Irula verb. Most dialects of Tamil, including the literary language, have in addition a Future expressed by a labial affix. There are no traces of this future as a tense in Irula; non-past is used for referring to a present or a future action.

Some vestige of the Tamil future may be found in what we shall call the Injunctive. In addition to the normal Imperative consisting of the Verb root alone (Ex: söllü 'say!') or the Verb root plus a plural morpheme[2] (Ex: sölli 'say!' Pl.), Irula has another imperative expressed by a labial suffix: söllüvi 'Why don't you say', söllüviri 'Why don't you (Pl.) say'. The phonological form of this morpheme corresponds, in all the variants, to the Tamil future. Ex: timbiri 'Why don't you eat', naḍappiri 'Why don't you walk', pa:ppiri 'Why don't you look'. This imperative should rather be called Injunctive as it implies not a command but a suggestion.

Irula thus provides us with a case of historical connection between the future tense and the imperative mood. This is important in view of the fact that in many languages the imperative can be derived from an underlying Future.

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[2]There is also a 1st person pl. imperative: Ver root + Non Past + udi. po:gudi 'let's go', koḍukkudi 'let's give', tiṉgudi 'let's eat'.

PERSONAL ENDINGS

In declarative main verbs there is personal agreement between the subject and the verb. There are ten personal endings which distinguish the following categories: speaker, addressee, referee; referees are further divided into human and non-human referees; human referees are either Masculine or Feminine. Plural addressees and Plural referees have their own verb endings with a further distinction between human and non-human in the latter case.

		Pronoun Subject	Personal ending of verb
Sing	Speaker	nä:	-e(n-)
"	Addressee	ni:	-a(l-)
"	Referee Human Masc	-ä(n-)	-ä(n-)
"	" " Fem	-a(l-)	-a(l-)
"	" Non Human	-dü	-d(ü)
Plur	Addressee	ni:mu	-iri(y-)
"	Referee Human	-ärü	-ä:r(ü)
"	" Non Human	-dü	-ina(l-)

The so-called 'first person plural' could hardly be described semantically as referring to a 'plural speaker'; it is rather to be interpreted as the result of a coordination of pronouns. In the case of Irula there is only one 1st person plural pronoun, but two different verb endings which carry the distinction Inclusive vs Exclusive.

The Exclusive 1st person plural is derived from a

coordination of speaker and referee, with no further distinction between human vs. non-human, or Sing vs. Plur referees.

The Inclusive 1st person plural is derived from a coordination of speaker (and referee(s)) and addressee(s):

	Pronoun	Personal ending
Speaker + Referee(s)	na:mü	-e:mü
Speaker (+ Referee(s)) + Addressee(s)		-o

This semantic description of first person plurals will account for the syntactic fact that the coordinated pronouns in question, namely nä:nümü avä(nümü)[3] (Excl.), ('I and he'), and nä:nümü ni:(yümü)[3] (Incl.), ('I and you') condition the appearance of the Exclusive 1st person plural ending -e:mü, and of the Inclusive 1st person plural ending -o respectively.

It is worth noting that the pronouns themselves are not the direct conditioning factor for agreement with the verb: there is no distinction between Inclusive and Exclusive 1st person plural pronouns, na:mü serves for all cases. The form na:mü must therefore be derived from two underlying sources and is always ambiguous.

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[3]The endings -ümü indicate coordination. They are added to all coordinated elements. However, the last coordinated element can be left without the suffix -ümü. This is a situation quite different from the Tamil one where all coordinated elements have the ending -um without the possibility of omission in the last element.

Regarding third person endings, there is some amount of laxity in the human vs. non-human distinction; more precisely, it is not uncommon to find a human subject with a non-human verb ending: avä vandŭdŭ 'he came'. Even gods, usually classified as humans, can condition a non-human verbal ending.

This tendency is reflected in other parts of the grammar as well; for instance, there is a regular pattern in Irula where the gender endings of the pronouns can be added on to Adjectives and relative participles to form nouns: adŭ sinna ko:da 'that's a small monkey' (sinna is an adjective here), adŭ sinnadŭ 'that is small'

that small-Neut

(sinna-dŭ is a noun). In case such a noun is used in an NP-NP equational sentence, there is agreement between the gender ending of one NP and the inherent gender of the other NP (see last example). But it is quite common to find inherently human nouns agreeing with non-human gender endings:

Ex: a: sinnadŭ nänna oggwe
that small-Neut my mother
'That small (thing) is my mother'.

THE FAMILIAR ENDING

In addition to the gender endings already mentioned, there is another ending which can be added to Adjectives

and Relative Participles to form nouns: the younger or familiar Masculine -ma.[4]

Ex: imma kettama 'This one is a bad boy'.
This-Masc fam. bad-Masc fam.

This ending follows the same morphophonemic patterns as other nouns in -a; Accusative in -atte, Dative in -akke, Locative in -atti(li), Emphatic form in -a:la, Interrogative form in -a:lo.

The ending -ma is also found in the word tamma 'Younger brother', which can be derived from a deep structure tan-, a reflexive pronoun used as prefix in many kinship terms, and -ma 'younger-familiar Masculine'. The presence of this personal ending in Irula has the following consequence, that for all Masculine nouns, membership in the class younger than speaker vs. older, or familiar vs. respected must always be specified in the lexicon.

IMPERSONAL PASSIVE AND CAUSATIVE

As described so far, the main verb consists of, in reverse order, a personal ending, a tense marker, optionally an auxiliary preceded by gerunds, and a verb root. There are two more grammatical categories which may be marked in

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[4]No equivalent Feminine ending could be elicited from my informants, who were all males.

a main verb: impersonal passive vs. active, and active vs. causative.

All verb roots belong to one of two morphological classes later referred to as Weak and Strong. A large number of verb roots may belong to either; in that case the formal distinction is used to carry a grammatical meaning. The strong category has the meaning of active and transitive: both object and subject are expressed.

Ex: nä: ti:ye pogette
I fire-Acc Verb-Strong-Past-Pers
'I kindled the fire'.

The weak category has the meaning of impersonal passive: the semantic object plays the syntactic role of a subject while the subject is not expressed:

Ex: ti: pogendüdü
fire Verb-Weak-Past-Pers
'There was a kindling of fire'.

The difference from an ordinary Passive is that the semantic subject is not expressed under the guise of a manner adverb.

This grammatical dimension has often been referred to in Tamil as Transitive vs. Intransitive. This is not appropriate, because certain Tamil verbs can have double accusatives in the Strong category and a single accusative

in the Weak category.

This is true of Irula as well: the verb me:y- 'to graze' is such a case. nä: ma:de pülle me:tte

I cow-Acc grass-Acc feed-Past-1st person

'I fed the cow grass' (double accusative and strong past tense), ma:dü pülle me:ndüdü

cow grass-Acc graze-Past-3rd neuter

'There was a grazing of grass by the cow, the cow grazed grass' (single accusative and weak past tense). In this latter example the verb is transitive although weak.

In some cases, this grammatical dimension could be interpreted as causative vs active, the weak form being taken as basic: satti dendüdü 'The pot broke' (Weak form) nä: sattiye dette 'I caused the pot to break' 'I broke the pot' (Strong form). This interpretation is rejected here because there already is a fully regular causative pattern in Irula which can be superimposed on the impersonal passive/active dimension.

Ex: nä: ti:ye pogevisine

I fire-Acc poge-vis-in-e

smoke-Caus-Past-1st person

'I am the cause that there is a kindling of fire'

nä: avane ti:ye pogeppisine

I He-Acc fire-Acc poge-ppis-in-e

smoke-Caus-Past-1st person

'I am the cause that he kindled the fire' 'I made him kindle the fire'. The difference between these two causative constructions is that in the second the subject 'he' who kindles is stated, while in the first, the subject who kindles has been deleted by the Impersonal passive transformation, and the overt subject na: is only the indirect subject of the kindling. This causative -vis- -ppis- can be used with all Irula verbs. It will be later referred to as the regular causative.

There is another marker which has been referred to in Tamil as a causative and which is restricted to certain verb roots: Ex: källü rullügüdü 'The stone rolls' nä: källe ruṭṭüge 'I cause the stone to roll' 'I roll the stone'.

The exact meaning of this marker is difficult to ascertain; however, a strong argument can be built, on purely formal grounds, for assigning this marker to the Impersonal Passive vs Active dimension. First it does not exclude the use of a regular causative: rullüvisüge 'I am the cause that there is a rolling' and ruṭṭüvisüge 'I make someone roll something' are both grammatical. Second, this pattern, which will be referred to in phonology as Sporadic causative, is limited in use to roots having certain phonological characteristics, namely roots ending in certain consonants or in -a. As will be

seen later, these roots have all the phonological properties of weak verbs, so that the Strong/Weak distinction which serves to represent the Impersonal Passive/Active dimension for many verbs cannot be applied to them; as a result, both patterns are in phonological complementary distribution. In fact, it is quite possible that historically the Sporadic causative which affects the root has served as a model for the Impersonal Passive/Active which affects the tense marker; in some cases both are expressed by the same phonological process: denasalization of Nasal + Stop clusters.

Ex: ni:ngine 'I quit' (Intr.)

ni:	- N_k	- in	-e
V. root	impersonal passive	Weak Past	1st person

ni:kkine 'I abandoned' (Tr.)

ni:	- k	- in	-e
V. root	Active ('Sporadic Causative')	Weak Past	1st person

mudindüdü 'It stopped' (Intr.)

mudi	N_d	- d
V. root	Weak Past	3rd Neut.

muditttüdü 'It stopped' (Tr.)

mudi	- t	- d
V. root	Strong Past	3rd Neut.

These two patterns are described as one in the syntax but called by different names in the phonology.

NOUNS

The morphology of Irula Nouns is much less complex than that of verbs. Morphophonemic alterations are quite rare in nouns, and scattered in such a way as to yield little information on the deep phonological structure of the language. Consequently, our investigation of nouns and noun phrases has been quite cursory.

There is in Irula a regular pattern of nominalization: any verb may be transformed into an abstract noun by suffixing the non-Past marker and the Neuter personal ending. Ex: tiṉgüdü

tiṉ	- g	- d	
eat	Nonpast	Neuter	
'eating'			

The dative of the nominalized form is the regular way to state 'purpose'. Ex: tiṉgüdükkü

tiṉ	-g	-d	-k
eat	Nonpast	Neuter	Dative
'in order to eat'			

This form has a morphophonemic variant--a:kkü: tiṉga:kkü 'in order to eat'.

Morphologically, there are five cases in Irula: Nominative (-∅), Accusative (-e, eṉe), Dative (-(ü)kkü, -ikkye), Locative (-i, -ili), Associative (-o:ḍe). These overt cases represent a much more complex system of grammatical relations between Nouns and the main verb

which we have not investigated. For instance, the Dative represents at least the two following functions: Indirect object and locative of direction; the Locative represents locative of situation and Instrumental.

The question of what constitutes a case in Irula is quite unclear, as it is in many other Dravidian languages. For instance, there are complex noun formations which may be analyzed as well attested syntactic constructions.

Ex: ka:diliründü
ka:d - iliründü
forest - from
'from the forest'

where the ending -iliründü may be analyzed as the locative -ili followed by the gerund -iründü of the verb ir- 'to be', the whole expression then having the literal meaning 'having been in the forest'.

The deep structure of the possessive ending -ttü

Ex: tandettü kü:re
father - Poss house
'father's house'

may reveal that this ending is not to be considered a 'case' at all. Instead of indicating the grammatical relation between the noun and the main verb it may represent the result of an embedding related in some way to relative clauses and adjectival constructions.

CHAPTER IV

Texts

Family Story

mundi bëgü na:ḷükkü munde / namma kuḍumbattili

before much day-Dat before our family-Loc

etteppä ette ella öre ëḍattiliründü ottume

grd-fa grd-mo all one place-Loc-be-Ger togetherness

a:yi ellä:rümü iründe:mü //

become-Ger all-Plur-and be-Past-1st plur exclusive

From ancient times in our family, all our ancestors were living together in one place.

adükkü parage na:mü ettappä ette satta

Deic-Neut-Dat after we gd-fa gd-mo die-Past-Rel

parage ammä oggwe aṇṇä akka ma:mä

after father, mother, ol. bro, ol. sis, mo's bro,

ma:mi accä doḍappä na:m

mo's bro's wife fa's yo. bro, fa's el. bro we

ellä:rümü öre ëḍattili iründe:mü

all-Plur-and one place-Loc be-Past-1st plur exclusive

Then, after the grand-parents had died, my father, my mother, my elder brother and sister, my maternal uncle and his wife, my paternal uncles and I were all living in one place.

adükkü parage ma:mä ma:mi vë:rü

Deic-Neut-Dat after mo's bro, mo's bro' wife other

kü:rekkye po:yvïṭṭä:rü

house-Dat go-Perfective-Past-3rd plural

After that, my maternal uncle and his wife went to another

house.

parage ammä oggwe satta parage nä:nü
after fa mo die-Past-Rel after I
aṇṇä attige na:mellä:rümü öre kü:reli
el. bro el. bro's wife we-all-Plur-and one house-Loc
iründe:mü
be-Past-1st plur-excl.
Then, after my parents had died, my elder brother, his wife and I all lived in one house.

parage aṇṇä attige vë:re kü:rekkye
after el. bro el. bro's wife other house-Dat
po:yvïṭṭü nä:nü tamma accä acci
go-Ger-Perf-Ger I yo. bro fa's Yo. bro. f.y.b's wife
na:mu añja:ḷü örü kü:reli iründe:mü
we five-people one house-in were
Then my elder brother and his wife went to another house and my younger brother, my uncle and his wife and I we all five lived in one house.

parage accä acci ivärü raṇḍa:ḷümü
after fa's yo. bro f.y.b's wife Deic-Plur Two-people-and
sattüṭṭü nä:nümü tammamü näṉa pëṇḍümü
die-Ger-Perf-Ger I-and yo. bro-and my wife-and
näṉa sïrüve raṇḍü na:m añja:ḷümü örü kü:reli
my child two we five-people-and one house-Loc

irükke:mü

be-Pres-1st plur excl.

Then my uncle and his wife both died, and my wife, my two children, my younger brother and I, all five are in one house.

dodappäntü	annä	rekko:ḍili	irükkä //		
fa's el. bro- Poss	el. bro	Araikodu-Loc	be-Pres-Masc		
avä örörü	na:ḷü	namma	kü:rekkye	vandü	
he one-day	day	our	house-Dat	come-Ger	
vandüpo:gä //					
come-Ger-Aux-Pres-Masc					

My uncle is in Araikkodu, he comes to our house and visits us once in a while.

Riddle

örü	ta:ymü	örü	pëde	örü	vay	pö:nä:rü//
a	mother-and	a	daughter	a	way-Acc	go-Past-3rd Plur-Hum

A woman and her daughter were walking on a path

adükkü	pimbe	örü	tandemü	örü	muṇa	pö:nä:rü //
that-to	after	a	father-and	a	son	go-Past-3rd Plur Hum

Then came a father and his son

po:gaṭṭi /	ännе	bëgü	dü:ra	pö:nä:rü //
go-Inf-while	Deic-thus	much	distance	go-Past-3rd Plur Hum

They kept going that way for a long distance

po:yi / appü vay pïrügüdü

go-Gerund Deic-then way split-Non past-3rd Sing Neuter

Then the path bifurceted

appü / i: tande pëde pö:nä vaye

Deic-then Deic father daughter go-Past-Rel way-Acc

pö:nä //

go-Past-3rd Sing Masc

Then this father went on his daughter's way

ta:y pö:na vaye muŋa pö:nä //

mother go-Past-Rel way-Acc son go-past-3rd Sing Masc

The son went on his mother's way (lit: the son went the way which the mother went).

muŋa po:yi / ta:ye kaṇdüpïḍittä //

son go-Gerund mother-Acc see-Ger catch-Past-3rd Sing-Masc

The son found his mother.

tande po:yi / pëdene kaṇdü pïḍittä //

father go-Ger daughter-Acc see-Ger catch-Past-3rd Sing Masc

The father found his daughter.

ta:ye muŋa se:ndoṇdä //

mother-Acc son join-Ger-Benefactive-Past-3rd Sing Masc

The son united with his mother.

tande po:yi pëdene se:ndondä //

father go-Ger daughter-Acc join-Ger-Ben-Past-3rd Sing Masc

The father united with his daughter.

se:ndü munakkü a:nü pïlle parandudüttü //

join-Ger son-Dat male child be born-Ger-Compl-Past-3rd Neut Sing

A male child was born to the son.

tandekkü pënnü pïlle parandudüttü //

father-to girl child be born-Ger-Compl-Past-3rd Sing Neut

A female child was born to the father.

appü tandettü pïllekkümü munattü pïllekkü

Deic-then father-Poss child-Dat-and son-Poss child-Dat

enna more a:güdü //

what relationship become-Pres-3rd Sing Neuter

What will be the relationship between the father's child and the son's child?

Funeral Rites. N 142-5

tande sattu pö:nä /

tande-Nom sa:-Ger po:-Past-Cond

father having-died if-it-comes

When the father dies,

mu:tta- magäne sa:ttirakkü vekkonu //

mu:-Past-Rel mag-Masc-Acc sa:ttiram-Dat ve-Inf-Mode

who-was-older son for-rite must-keep

(we) must get the elder son for the rites.

ṣa:ttira ma:ḍüga /

sa:ttiram- ma:ḍ-Pres-Nomin(-Dat)

rite in-order-to-make

To perform the rites,

ve: mära: nä:lü vëṭṭivandü /

ve: maram- num veṭṭ-Ger-var-Ger

banana tree four having-cut-having-come

he cuts four banana trees,

avärtü kü:re modäl naṭṭü /

Deictic-Polite-Poss ku:re Postpos naḍ-Ger

of-that-one house before having-planted

plants (them) in front of his (father's) house,

märümagaḷe ni:rükkü po:ga sölli /

maru-mag-Fem-Acc nir-Dat po:-Inf sol-Ger

daughter-in-law for-water to-go having-told

asks his wife (the daughter-in-law) to fetch water,

ni:r(ü) koḍandü / adükkoḷḷe

ni:r- koḍa-Ger Deic-Neuter-Dat-Postpos

water having-taken during that

while she is getting water,

magä pa:ṇḍi ëḍüttü /

mag-Masc-Nom pa:ṇḍi- eḍu-Ger

son a-cereal having-taken

the son takes some cereals,

kaḷakke recci / adükkoḷḷe

kaḷam-Dat recc-Ger Deic-Neut-Dat-Postpos

on-threshold having thrown during-that

scatters it on the threshold,

ni:rükkü pö:ṉava vanda

ni:r-Dat po:-Past-Rel-Fem var-Past-Cond

to-water the-one(fem)-who-went if-comes

and when she comes back

magä vandü geje kaṭṭi

mag-Masc-Nom var-Ger geje- kaṭṭ-Ger

son (having-come) ankle-bells having-tied

the son ties ankle bells,

vëṭṭekke varoṇu //

veṭṭe-Dat var-Mode

to-outside must-come

and must come outside.

ado:de sa:ttira mudindüdü //

Deic-Neut-Postpos sa:ttiram-Nom mudi-Past-2nd Sing Neut

with-that rite finished (intr)

With this ends the ceremony.

adükkü pimbe sattavänükkü

Deic-Neut-Postpos sa:-Past-Rel-Masc-Dat

after-that of-the-one-who-died

sondakkä:rärükke sölluga po:ṇu //

Adj-ka:r-Plur-Dat sol-Inf po:-Mode

to-his-own-ones in-order-to-tell must-go

After that we must go tell the dead man's relatives.

avärella vanda:dükkü pimbe

Deic-Plur-Quant var-Past-Nomin-Dat Postpos

these-all after-their-having-come

sa:vü ëḍükkoṇu //

sa:-Nomin- eḍu-Inf-Mode

corpse must take

They all come and take the body away.

sa:ve ḳoṇḍu-po:yi

sa:-Nom-Acc koḷ-Ger-po:-Ger

corpse having-got-having-gone

They take the corpse

ma:plega maṭṭü kuyi vëṭṭoṇu //

ma:ple-Plur Postpos kuyi- vett-Mode

son-in-laws only hole must-cut

and the sons-in-law dig a hole.

Snake Lore

na:ga pa:mbü biliya pa:mbü a:yutta

naga snake big snake a:-in#uḷd-t-a

become-Ger#Perf.-Past-if

nälla naḍü ja:ma pännaṇḍü maṇikkü täṉa täṉa

good middle night twelve hour-Dat own own

pütṯe vĭṭṭü vĕṭṭekkye po:yi me:ygaṭṭi

ant-hill-Acc leave-Ger outside-Dat go-Ger graze-while

me:yga ṭaymili maṭṭü a: källe

graze-Pres-Relative time-Loc only that stone-Acc

kakki vekkäṉa //

spit-Ger ve-k-an-a

keep-Pres-3rd Sing Masc- Emphatic

When the cobra becomes big he leaves his ant-hill in the middle of the night and goes out; while he grazes and only then, he spits his stone and keeps it.

kakki vekküda a: pa:mbü //

spit-Ger ve-k-d-a that snake

ve-Pres-3rd Neut Sing-Emphatic

That snake spits it and keeps it really.

kakki vettü a: pa:mbü emmaṭṭü

spit-Ger keep-Ger that snake Interrogative-only

süṯṯügüdo pakkakkuḷḷe maṭṭü

sult-g-d-o area-Dat-inside only

roam-Pres-3rd Neut Sing-Inter.

vëḷicca a:güda

light a:-g-d-a

become-Pres-3rd Neut Sing.-Emphatic

He spits it and keeps it and only roams inside the area where the stone gives light (Literally: having spit, having kept, wherever it will roam will be only inside the area where light becomes).

vëḷicca:ga ëda pa:mbü po:yi

veḷica-a:-g-a place snake go-Ger

light-become-Pres-Relative

me:ndü vanda oḍäṉe källe maṟü

graze-Ger var-Past-Relative moment stone-Acc. new

paḍi tiṉduṭṭü täṉa püṯṯükkü

time tiln-^{N}d-uḷd-d own ant-hill-Dat

eat-Ger-Perfective-Ger

po:ygüda

po:-in# -g-d-a

go-Ger-Perf-Pres-3rd Neuter-Emphatic

When (we) come to the place where there is this light and the snake has come to graze, it will eat the stone again and go back to its ant-hill.

a: kallü na:mü vandü ëḍükkoṇünda
that stone we come-Ger eḷd-k-oṇu-eln-^{N}d-a
take-Inf-must-Say-Past-if

a: pa:mbü ännе kakki vettuṭṭü
that snake thus spit-Ger keep-Ger-Perf-Ger

po:ga ṭayme pa:ttü a: ṭaymili dä
go-Pres-Relative time-Acc pa:r-t that time-Loc Emph.
See-Ger

po:yi nälla de:yira kaḍanda a: källe
go-Ger good boldness get-Past-if that stone-Acc

po:yi ëḍükkila:ḷa
go-Ger eḷd-k-ila:ḷ-a
take-Pres-may-Emphatic

If (you say that) we must take that stone, we may take it and go only if we have great courage at the very time when we see that the snake has spat and kept his stone.

källe ëḍüttuṭṭa a: pa:mbükkü kaṇṇü
stone-Acc eld-t-uld-d-a that snake-Dat eye
take-Ger-Perf-Past-if

teriya:de po:güdü
know-Neg-Ger go-Pres-3rd Neut Sing

If we take that stone the snake cannot see (literally: to that snake, the eyes not knowing it goes).

kallü na:mü kayili ëdükka
stone we hand-Instrumental take-Inf.

muḍiya:dündü sönna vandü na:mü
may-Neg-3rd Neut-say-Ger say-Past-if come-Ger we

a:ppi:ye koṇḍüpo:yi a: källikkye uda:liye
cow-dung-Acc get-Ger-go-Ger that stone-Dat on top

ërinduṭṭa källüttü vëḷicca aḍaŋgi
throw-Ger-Perf-if stone-possessive light extinguish-Ger

po:güdü /
go-Pres-3rd Neut
If you say that we cannot have that stone with our hand, we bring cow dung and throw it on top of that stone, and the light of the stone goes out.

appu i: pa:mbükkü kaṇṇü teriya:de eŋgeŋgeyo
then this snake-Dat eye not knowing where-where-Inter.

po:ygüdü
go-Ger-Perf-Pres-3rd pers Neuter
Then this snake cannot see and wanders anywhere.

appü na:mü källe pimbe po:yi ëḍüttoṇḍü
then we stone-Acc after go-Ger eḷd-t-oḷ-^{N}d
take-Ger-Benef-Ger

vandügila

var-^{N}d- -g-ila

come-Ger-Perf-Pres-may

Then, after that, we go, take the stone for ourselves

and we may come back.

CHAPTER V

Morpheme Structure Rules

The role of morpheme structure rules is to spell out all the redundant phonemic features which have been omitted in the phonemic representation of roots in the lexicon.

When full advantage is taken of all the redundancies, this phonemic representation is reduced to a minimum number of specified features:

$$\left[\begin{array}{l}-\text{Seg}\\ \left[\begin{array}{lll}-\text{Son} & & -\text{Son}\\ & +\text{Comp} & \\ +\text{Grave} & & +\text{Grave}\\ +\text{Diff} & & +\text{Diff}\\ -\text{Strid} & & -\text{Strid}\\ +\text{Tense} & +\text{Tense} & -\text{Tense}\\ & & +\text{Nasal}\end{array}\right]\\ -\text{Seg}\end{array}\right] = \text{pa:mbǔ}$$

'snake'

$$\left[\begin{array}{l}-\text{Seg}\\ \left[\begin{array}{lll}-\text{Son} & & -\text{Son}\\ & -\text{Comp} & \\ +\text{Grave} & +\text{Grave} & +\text{Grave}\\ -\text{Diff} & +\text{Diff} & -\text{Diff}\\ +\text{Tense} & -\text{Tense} & -\text{Tense}\\ & & -\text{Nasal}\end{array}\right]\\ \left[\begin{array}{l}-\text{Seg}\\ -\text{Comp}\end{array}\right]\end{array}\right] = \text{kuga:-}$$

'to sit'

This level of representation is indeed very abstract, and it is only at the end of the Morpheme Structure rules that we reach a representation approaching more closely a traditional morphophonemic transcription.

In describing and justifying the Morpheme Structure rules of Irula we shall first establish the morphophonemic inventory and the features necessary to distinguish all morphonemes (Section A), then we shall spell out the redundancies due to their cooccurrence restrictions (Section B).

A) INVENTORY

Some systematic phonemes retain their basic feature specification throughout the phonological component and can therefore be identified and described from direct observation of utterances. Others undergo more or less radical changes in some or all positions, and their contrastive function is not always apparent from direct observation. We shall start by stating the inventory and feature specifications of the first, obvious type of phonemes, and then add those for which the distinctive features are not easily established and require some discussion.

I) SONORANTS

Sonorants include vowels, semivowels, nasals and liquids; all other sounds, namely stops and fricatives are - sonorant and will be referred to as obstruents.

Among sonorants vowels and glides have the feature [-cons], liquids and nasals, causing an impediment of the flow of air in the central part of the oral cavity have the feature [+cons].

Vowels are distinguished from glides by the feature of vocalicity. The only obvious glide is a palatal [-grave] y.

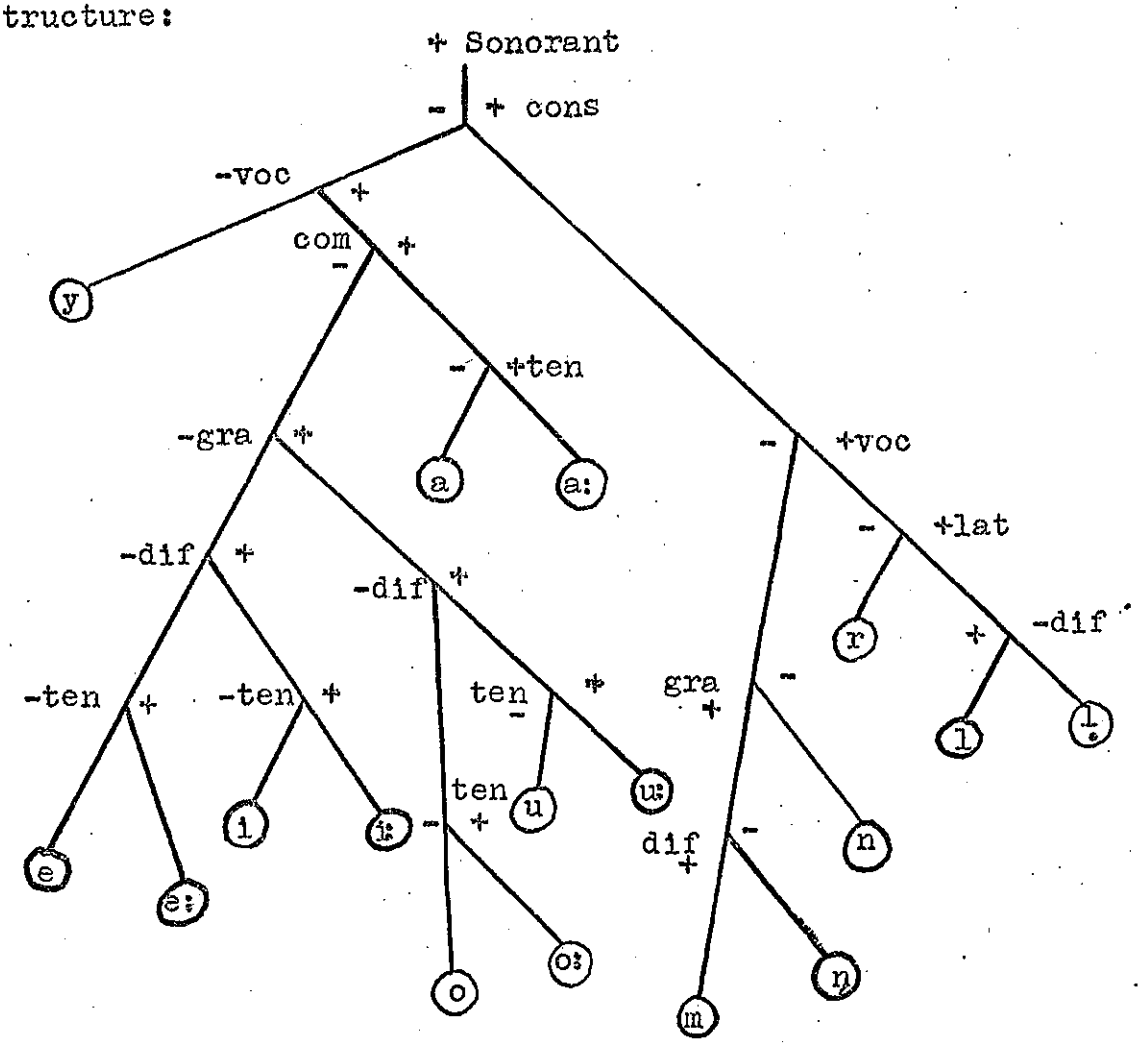
Among vowels, three degrees of opening are possible: degree 6 /a/, degree 5 /e,o/, degree 4 /i,u/. Vowels of degrees 5 and 4 will be distinguished from vowels of degree 6 by the feature of compactness. All vowels can be either long or short.

Among the consonantal sonorants nasals are distinguished by requiring the velum to be lowered in order to have spontaneous voicing; liquids do not require such lowering. Accordingly, nasals are [-voc], liquids [+ voc]. There are three nasal phonemes; m, n, ŋ. Of these, ŋ has a rather special status: it has a contrastive function in only one word so far as our data is concerned: muŋa, the common word for 'son'; all other occurrences of the sound ŋ are predictable. The nature and phonemic status of the retroflex nasal will be discussed when similar issues are raised for retroflex and alveolar obstruents.

Liquids are either laterals or trills [-lat]. In superficial structure there are two trill phonemes; however, one of them is a positional variant of an alveolar obstruent,

as we shall see later. Thus there is only one trill in deep structure. Two laterals have to be distinguished in deep structure: a pre-alveolar lateral and a post-alveolar, or 'retroflex', lateral. Since the dividing line in place of articulation between + diffuse and - diffuse in consonants is the alveolar ridge, the two laterals of Irula can be distinguished by the feature of diffuseness.

So far we have the following Sonorants in deep structure:



II) OBSTRUENTS

There are two main problems regarding the inventory of obstruents in Irula: determining a) the number of phonemic series: voiced, voiceless, fricative, stop, etc... b) the number of contrastive places of articulation.

a) Series of Obstruents

We could try to apply to Irula the taxonomic description often used for Tamil obstruents. In this treatment there is only one series of obstruents for which the features of tenseness and voice are redundant with position in the word. To wit: obstruents are tense voiceless stops word-initially and when geminated, they are voiced stops after nasals, and voiced or voiceless fricatives or flaps, depending on place of articulation, intervocalically. This pattern has been called Caldwell's Law (Caldwell 1875) and is reflected in the orthography of Tamil.

Tamil obstruents (colloquial Madras Tamil):

/k/ k in /kk/ and /kv/-
g in /nk/
h in /vkv/

There is evidence, however, that this is not the most economical and explanatory description for the Irula obstruent system. Irula has a fairly large number of words with initial voiced stops:

ba:vä	male cousin	bottü	spot on forehead
biliya	big	burüde	gourd

dua	god	go:cci	cabbage
dogükke	I make a hole	görakke	snoring
du:ŋgügüdü	it is hanging	geje	ankle bells
ja:ya	trance, divination	godi	blood-sucking serpent
jö:li	matters of concern	gudi	temple

The contrast with voiceless stops in that position could be handled by reconstructing geminated stops for the latter in deep structure:

pa:mbü = /ppa:mpu/ 'snake'; ba:vä = /pa:van/ 'cousin'

This solution would have the defect of introducing initial consonant clusters which would be found nowhere else in the language.

If on the other hand we accept a contrast of tenseness initially in deep structure we might explore the possibility of accepting it in all positions. Since there is no contrast between geminated and single voiceless stops medially, gemination could be described in a late phonetic rule as a redundant feature depending on tensity. We would then have /g/ (- tense) → [g] contrasting with /k/ (+ tense) → [kk] in intervocalic position and /g/ (- tense) → g with /k/ (+ tense) → [k] initially.

This approach will be very useful in the description of Irula verb morphophonemics. Geminated voiceless obstruents are closedly related to single voiced obstruents:

-kk- vs -g- : Present tense morpheme

pogekküdü 'it kindles' pogegüdü 'it is kindled'

-pp- vs -v- : Injunctive

pogeppi 'why don't you kindle' pogevi 'be kindled'

-tt- vs -d- : Past tense

pa:tte 'I saw' ëde 'I cried'

-pp- vs -v- : Causative

pogeppisüge 'I make him kindle' pogevisüge 'I make it be kindled'

Derivational morphology also supports this solution:

vede 'seed' vittine 'I sowed' (-d- vs -tt-)

o:ḍine 'I ran' o:ṭṭine 'I drove' (-ḍ- vs -ṭṭ-)

By recognizing tensity as a deep structure feature we can now state the alternations above as being changes in one feature only, and not changes in the number of segments.

The fact that obstruents following nasals are always voiced stops must now be integrated in this description. This could be done by a redundancy rule precluding voiceless stops in that position. However, several facts point to a different solution. First of all, nasal and stop clusters are always homorganic just like geminated voiceless stops are in a sense homorganic clusters. Furthermore, geminated voiceless stops (in deep structure: [+ tense] obstruents) alternate with nasal plus voiced stop clusters:

ni:ŋgine ni:kkine 'I quit' (intr.) -- 'I abandoned'(tr.)

ḍendüdü ḍettüdü 'it broke (intr.)-- 'it broke' (tr.)

nï:nde nï:ṭṭe 'I became lean' -- 'I stretched something'

Instead of describing these patterns as cases of nasal infixation we could follow the same reasoning as we have in the treatment of geminated stops. Namely: consider nasal plus stop clusters as forming one segment in deep structure, differing from + tense obstruents by one feature only. We would then have the following system:

$$/k/ \rightarrow \begin{cases} kk \\ \#k \end{cases} \qquad /^{N}g/ \rightarrow \; ŋg \qquad /g/ \rightarrow \; h$$

^{N}g being a complex symbol representing a single segment.

What features will now distinguish these three series k, ^{N}g, g? We may notice (see: verb morphophonemics) that g and ^{N}g form a natural class as opposed to k. Verbs having a tense allomorph of the k series will have all their tense allomorphs in that series, while others will have allomorphs of either g or ^{N}g series depending on the particular tense:

kodükke, kodütte, kodüppi (I give, gave, why don't you give)

mëregüdü, mërendüdü, mërevi (it disappears, disappeared, why don't you disappear)

There are very few exceptions to this, and in addition, very few alternations between the g and ^{N}g classes. We may therefore assign the feature [+ tense] to the k series and [- tense] to both ^{N}g and g series. This decision is also the most natural since the phonetic output of both ^{N}g and g series are voiced, while the output of the series k is always voiceless.

The real advantage of this solution is seen elsewhere in the grammar. Namely: once kk and ŋg clusters have been reduced to single segments there are no other obstruent clusters in the language. In deep structure, all obstruents are either intervocalic, preceded by a semivowel, or next to a juncture, and belong to one of three series: tense, prenasalized, lax.

This tampering with segmentation is the first serious departure from a simple, obvious mapping of deep structure to surface structure. More important departures are necessary when we consider places of articulation in obstruents.

b) Places of Articulation

For all three series there are, in surface structure, six contrastive places of articulation:

	Labial	Dental	Alveolar	Retroflex	Palatal	Velar
k series	pp	tt	t̲t̲	ṭṭ	cc	kk
N_g "	mb	nd	n̲d̲	ṇḍ	ñj	ŋg
g series	b/v	d	r̲	ḍ	j/s	g

Labials: appü 'then' ka:mbi 'look, will you'

Dentals: mattü 'lip' mandi 'black monkey'

Alveolars: nagäṭ̲ṭ̲ü 'yesterday' pän̲d̲i 'pig'

Retroflexes: kaṭṭü 'cut' vaṇḍi 'bullock cart'

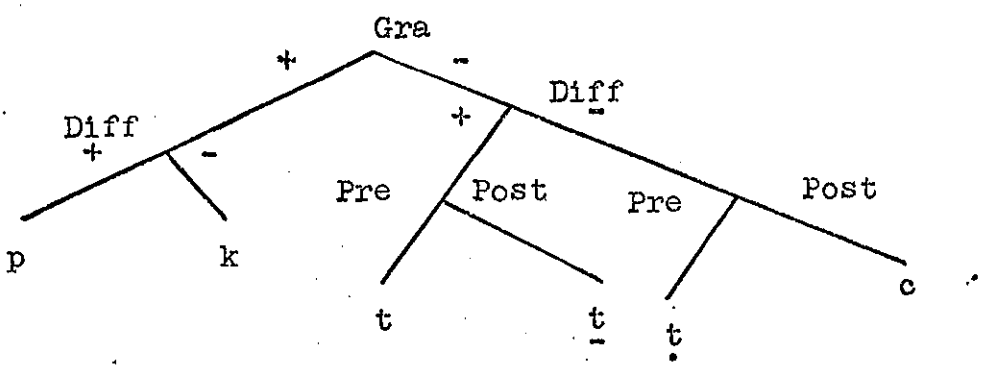
Palatals: accä 'father's yo. bro.' añji 'five'

Velars: pa:kkü 'nut' roŋgi 'sleeping'

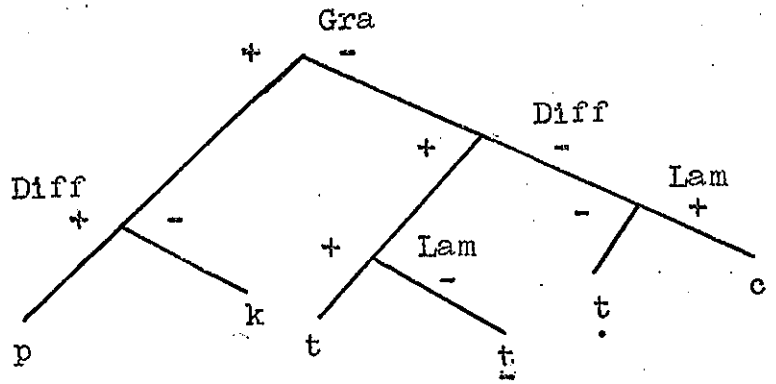
Irula, and several other South Dravidian languages, constitute therefore a clear counter-example to some assumptions in early distinctive feature theory regarding the number of contrastive places of articulation in human languages.

One solution would consist in treating the dental and alveolar series in one subclass, and the retroflex and palatal in another. The distinctive feature used within each subclass would have to be something like front vs back or pre- vs post-, defined relatively within the subclass. Thus the six positions would be reduced to four basic ones:

p, (t̪t̪), (ṭc), k



As a variant of the preceding solution, one could find absolute articulatory features instead of relative ones. As will be explained later (p. 127) the feature of laminality would distinguish the dentals from the Alveolars and the retroflexes from the palatals. We would then have:



Both of these solutions may be adequate statements of surface phonological structure, but for deep structure they do not provide us with the natural classes that are needed to describe certain morphophonemic alternations.

Several grammatical morphemes which have a dental obstruent as underlying form have alveolar and retroflex variants after alveolars and retroflexes:

Past tense

--basic form	-nd-	as in	marande	'I forgot'
variant	-ɳɖ-	after -l-	kä:lü	'come out!'
			kä:ɳɖe	'I came out'
		after -n-	i:nü	'give birth!'
			i:ɳɖe	'I gave birth'
variant	-ɳ̣ɖ̣-	after -ḷ-	nï:ḷü	'stretch!'
			nï:ɳ̣ɖ̣e	'I stretched'
		after -n̤-	ka:n̤ü	'look!'
			kaɳ̣ɖ̣e	'I saw'
--basic form	-tt-	as in	muḍitte	'I finished 9th'
variant	-ʈʈ-	after -l-	nö:lu	'fast!'

			nö:t̲t̲e	'I fasted'
		after -r-	kur̲ü	'pound!'
			kü t̲t̲e	'I pounded'
variant	-ṭṭ-	after -l̤-	kë:l̤ü	'hear'
			kë:ṭṭe	'I heard'
		after -d̤-	këd̤ü	'be destroyed'
			këṭṭe	'I was destroyed'

Sporadic Causative

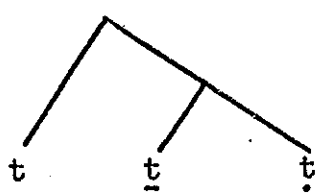
--basic form	-tt-	as in	kad̤attin̲e	'I made someone lie down'
variant	-t̲t̲-	after -n̲-	tin̲n̲ü	'eat!'
			ti:t̲t̲in̲e	'I fed'
variant	-ṭṭ-	after -l̤-	mu:l̤ü	'(fire) raise!'
			mu:ṭṭin̲e	'I kindled (fire)'
		after -d̤-	o:d̤ü	'run!'
			o:ṭṭin̲e	'I drove something'

Furthermore, there are no cases where a classification of retroflexes with palatals would serve any purpose. This is rather compelling evidence for classifying dentals, alveolars and retroflexes together in deep structure. Within this D.A.R. class, the latter two, alveolar and retroflex, form a separate subclass. The main evidence for this lies in the fact that neither of these places of articulation are possible word-initially. We will also see later (p. 119) that alveolar and retroflex obstruents as well as sonorants affect the preceding vowel in a complementary way which can be easily described if

Retroflexes and Alveolars form a natural subclass.

There is another type of evidence for this, namely: Alveolar and Retroflex obstruents never appear in underlying forms of any non-lexical morpheme. This generalization, which is as real and important as any other generalization made about lexical items in morpheme structure rules, cannot at present be stated in a generative grammar. By thevery organization of the phonological component, no generalization can be made about grammatical morphemes which would not also apply to lexical morphemes. This restriction on the form of grammars is not only arbitrary but quite unreasonable, for it is clear that Irula, for instance, has a different phonological inventory for roots and affixes. We shall return to this point later in this chapter.

If we accept the classification (t (t̪ṭ))



the problem of finding appropriate features within that class and without becomes rather difficult. This is where the requirements of naturalness on the one hand and universality of distinctive features on the other are in conflict.

Some of the morphophonemic alternations suggest a different way out. We can see that some retroflex obstruents result from clusters of laterals and dental

obstruents. Since a rule to this effect is necessary for Irula, we might make its application very general and derive all Alveolar and Retroflex obstruents from such clusters; alveolars would be derived from alveolar lateral plus dental clusters, retroflexes from retroflex lateral plus dental clusters.[1]

This solution has the advantage of explaining at no cost why there are no Alveolar or Retroflex obstruents initially (with the exception to be dealt with on p. 140): the rule excluding initial clusters automatically accounts for this fact.

Nothing has been said so far of retroflex nasals which are superficially phonemic. The fact that they do not occur initially suggests that we might treat them the same way as we did retroflex obstruents; if ṇ is derived from an l̤n cluster, the fact that it cannot be initial is automatically accounted for.

c) Fricatives

There are two fricatives, v and s, which are to be recognized as systematic phonemes even though they contrast with the corresponding voiced stops b and j only in a few positions.

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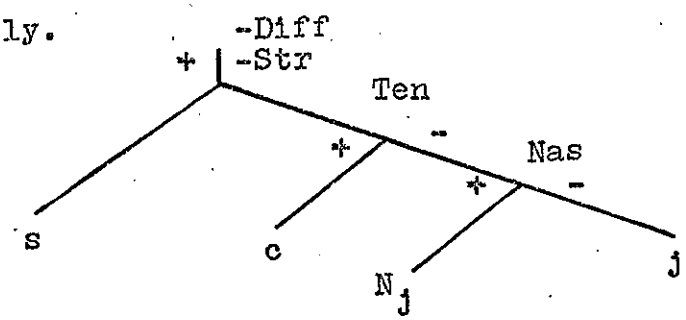
[1]The postulated laterals might help establishing derivational relationships between lexical items which are usually not considered to be related. Ex: koḍ- 'to give' has the deep structure kol̤d- and may now be related to kol̤- 'to get'.

The case of s is rather simple to handle as there are no alternations with either c or ^{N}j or j. The feature of stridency will distinguish s from other $\left|\begin{matrix}\text{-diffuse}\\ \text{-grave}\end{matrix}\right|$ sonorants (ie., palatals), j being the lax and non-nasal counterpart of c and ^{N}j respectively.



The problem with v is a bit more complex. It does contrast with b just as s contrasts with j:

bennü = 'body' jölle = 'a tick (insect)'

vëṭṭekke = 'outside' söllü = 'speak!'

On the basis of this, one could describe v as a strident grave diffuse sonorant, b being the lax and non-nasal counterpart of p and ^{N}b respectively. But there are morphophonemic alternations between p, ^{N}b and v which will require some adjustments when we describe the distribution of these labials.

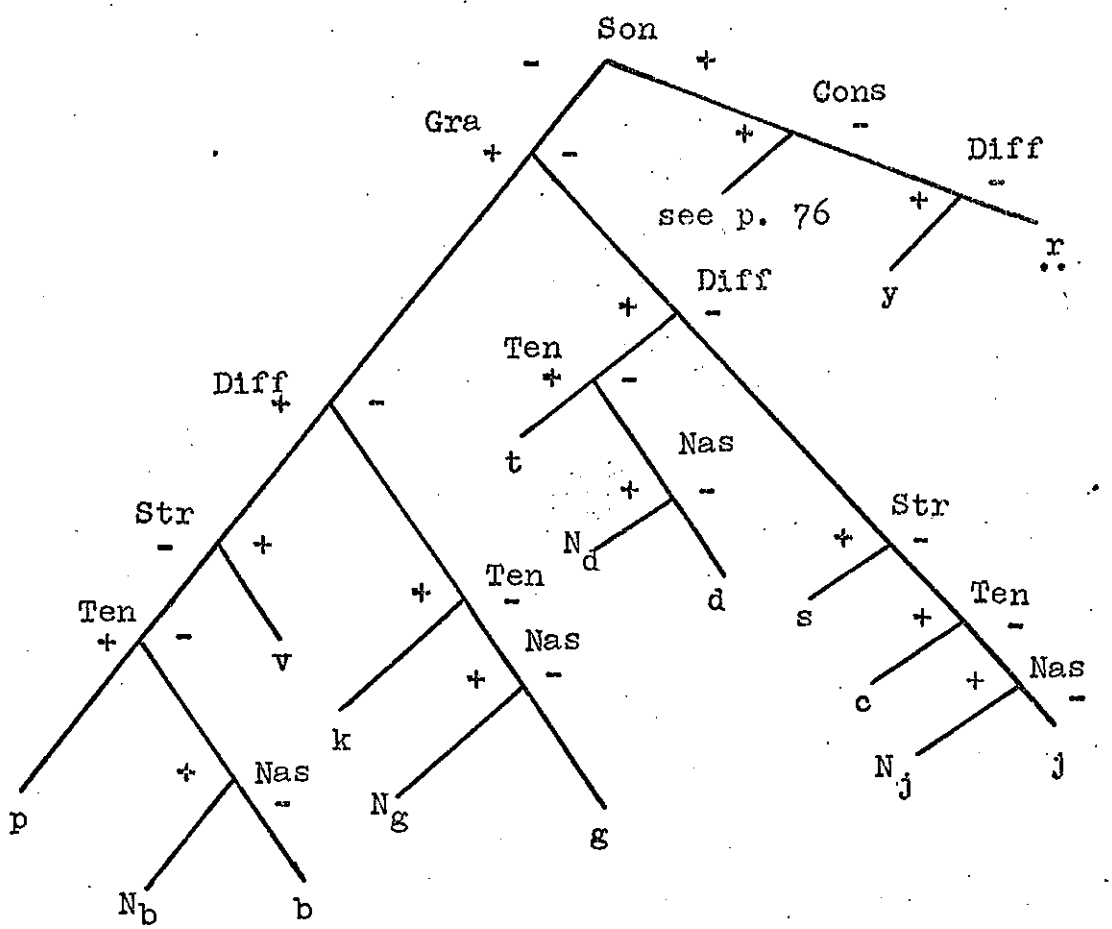
III The reconstructed ṛ

There are a number of structural gaps and irregularities in Irula which point to the existence in deep structure of a systematic phoneme which is deleted by a phonetic rule in all its cases of occurrence. These gaps

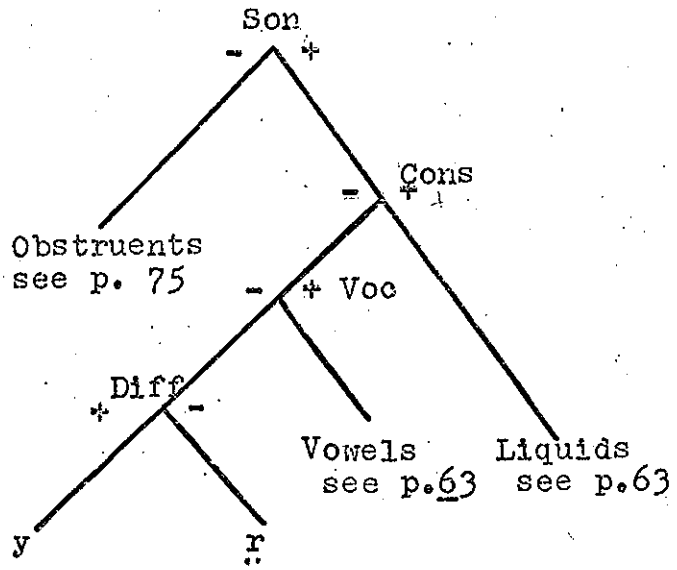
and irregularities will be pointed out in due course and will provide evidence for classifying this 'ø' phoneme as a retroflex approximant noted ɾ. Accordingly, its feature specifications are: + Son

- Cons
- Voc
- Diff

The systematic phonemic inventory of Irula can be presented in the form of tree diagrams or feature charts where all and only those features which are necessary to maintain all contrasts are specified:



DEEP STRUCTURE SONORANTS



B) Distribution

The following rules which state redundancies due to cooccurrance restrictions between phonemes will allow us to greatly reduce the number of features to be specified for particular lexical morphemes. We shall start by stating redundancies involving particular phonemes and work our way up to the most general statements about more and more abstract natural classes.

1) b and v

The question of b and v must be taken up again here. The difficulty lies in that, although b is the most natural phoneme to be classed with p and ^{N}b as a $\left|\begin{matrix}\text{-tense}\\ \text{-nasal}\end{matrix}\right|$ obstruent,

there are morphophonemic alternations which show that v is in deep structure the -nasal-tense counterpart of p and ^{N}b respectively:

kodüppi	'give, will you'	värüvi	'come, will you'
kodüppisine	'I made him give'	varüvisine	'I made him come'
timbi	'eat, will you'		
timbisüge	'I made him eat'		

At the same time there are no alternations between b and any other labial phoneme, or any Irula phoneme for that matter. This latter fact may be due to the rather special status of b in Irula.

The distribution of b is peculiar in that it only occurs in lexical morphemes, never in grammatical elements, whereas v occurs in both types of morphemes.

The simplest solution would be to describe b as a $\left|\begin{matrix}\text{-tense}\\ \text{-nasal}\end{matrix}\right|$ obstruent in all its occurrences: as for v it may be derived from two sources: in lexical morphemes where no alternations occur, v may be described in deep structure as a voiced strident; in grammatical morphemes where b does not occur, v will be classed as a $\left|\begin{matrix}\text{-tense}\\ \text{-nasal}\end{matrix}\right|$ obstruent:

*b → /b/ in lexical morphemes
*b → /v/ in grammatical morphemes

*v → /v/ is only found in lexical morphemes

The difficulty with this solution is, as we mentioned above, that there is no way of stating rules which occur

only in grammatical morphemes, such as the -v-/-pp- morphophonemic alternations. It is necessary therefore to list all the grammatical morphemes where such phenomena occur. It so happens that the problem is fairly simple in Irula since there are only two grammatical categories (causative and injunctive) where this alternation appears, but they still have to be listed and cannot be included under some general label.

In historical terms this situation may be accounted for in the following way: it is quite probable that all the cases of b (and j) are found in borrowed words; since grammatical morphemes are not borrowed so easily, no b appears in such morphemes in Irula. If no such borrowings had occurred, /v/ would be the normal output of the $\left|\begin{matrix}\text{-tense}\\ \text{-nasal}\end{matrix}\right|$ labial obstruent. Since lexical borrowing has occurred, this is only true in grammatical morphemes. There is very little chance of finding morphophonemic evidence for *b → v inside roots because the initial or medial phonemes of a root are generally unaffected by affixation. In other words, morpheme structure phonology is less conservative than affix phonology.

Even though this historical explanation is only a probable one, it is also quite a reasonable supposition and many similar situations might be expected to arise in languages of the world. The impossibility of stating that some processes occur only in grammatical morphemes

may therefore be a serious shortcoming of the present generative metatheory.

2) Cooccurrence Restrictions

Before describing by rule the cooccurrence restrictions between major natural classes, it must be pointed out that many features will be specified by universal rules that need not be stated in any particular grammar. Such are for instance: [-son] → [+cons], which follows from the very definition of these features; similarly [-son] → [-voc] Among sonorants, the only natural class marked [+nasal] is the class $\left|\begin{matrix}+\text{cons}\\-\text{voc}\end{matrix}\right|$. All other classes are [-nas] . There are good chances that this too is a universal and not a peculiarity of Irula, since it is doubtful that any language has nasal vowels or semivowels in deep structure. The feature of consonantalness is contrastive only in the [+son], all other classes being [+cons] : [-cons] → [+son] .

Monosegmental roots consist of a long vowel. The length of the vowel is part of a more general rule which assigns length to the vowel of open syllables before certain junctures. This latter rule being dependent on lower level junctural patterns will be stated in the phonological rules. For the moment, monosegmental roots will simply be described as vowels:

$$R_1 \quad \underset{1}{-\text{seg}} \;/\; \underset{2}{+\text{seg}} \;/\; \underset{3}{-\text{seg}} \longrightarrow \left|\begin{matrix}+\text{son}\\-\text{cons}\end{matrix}\right|_2$$

The feature of vocalicity that would distinguish it from a semivowel will be added in a later rule.

Plurisegmental roots cannot have initial consonant clusters; in other words, if the first segment is a consonant the second is a vowel:

$$R_2 \quad -seg \left| \begin{matrix} +cons \\ 1 \end{matrix} \right| \rightarrow \left| \begin{matrix} \\ 1 \end{matrix} \right| \begin{matrix} -cons \\ +voc \end{matrix} \left|\right.$$

This rule does not cover the case of initial semivowels and thus lets open the possibility of clusters such as: yt- ym-, etc. These clusters are not only unacceptable in Irula but semivowels do not occur in initial position at all. These two facts can be described in one rule:

$$R_3 \quad \begin{matrix} -seg/-cons/ \rightarrow /+voc/ \\ 1 \qquad\quad 1 \end{matrix}$$

which prevents the occurrence of initial semivowels. Among obstruents, most phonemes can occur initially, except c and the whole series of prenasalized obstruents:

$$R_4 \quad -seg \left| \begin{matrix} -son \\ -tense \end{matrix} \right| \rightarrow \left| \begin{matrix} -nas \\ \\ 1 \end{matrix} \right|$$

This latter rule neutralizes the opposition of nasality for initial lax obstruents. In order to prevent initial c- the following rule is necessary:

$$R_5 \quad -seg \left| \begin{matrix} -son \\ -grave \\ -diff \\ -strid \\ 1 \end{matrix} \right| \rightarrow \left| \begin{matrix} -tense \\ \\ 1 \end{matrix} \right|$$

Thus the only contrast indicated in the lexicon is between + and - strident, while in surface structure the contrast is between s and j, since both c and ^{N}j have been precluded by the two preceding rules.

The only consonant clusters in Irula lexical morphemes are of the type lateral + Dental.

Ex: Deep structure ln l̤n ld l̤d l d l̤ d lt l̤t

Surface " n n̤ r d̤ nd n̤d tt t̤t

Otherwise the pattern (c)vcv... is the only possibility.

This statement may be formalized in two steps. First, an obstruent, if not initial, is preceeded by either a vowel or a lateral., ie.,

$$R_6 \qquad \begin{bmatrix} +seg \\ 1 \end{bmatrix} \begin{bmatrix} -son \\ 2 \end{bmatrix} \rightarrow \begin{bmatrix} +son \\ -cons \\ +voc \end{bmatrix}_1$$

ie, an obstruent may be preceded by a vowel;

$$R_7 \qquad \begin{bmatrix} +seg \\ 1 \end{bmatrix} \begin{bmatrix} -son \\ 2 \end{bmatrix} \rightarrow \begin{bmatrix} +son \\ +cons \\ +voc \\ +lat \end{bmatrix}_1$$

ie, an obstruent may be preceded by a lateral.

These two statements can be collapsed in one rule:

$$R_8 \qquad \begin{bmatrix} \alpha cons \\ 1 \end{bmatrix} \begin{bmatrix} -son \\ 2 \end{bmatrix} \rightarrow \begin{bmatrix} +son \\ +voc \\ \alpha lat \end{bmatrix}_1$$

Second, non-grave nasals are always preceded by a lateral. This accounts for the fact that there is only a two-way distinction between non-grave nasals medially

(n̲<ln vs n̤<l̤n) and only one possible non-grave nasal initially:

$$R_9 \quad \begin{vmatrix} +\text{seg} \\ \end{vmatrix}_1 \begin{vmatrix} +\text{son} \\ +\text{nas} \end{vmatrix}_2 \rightarrow \begin{vmatrix} +\text{son} \\ +\text{cons} \\ +\text{voc} \\ +\text{lat} \end{vmatrix}_1 \begin{vmatrix} \\ \end{vmatrix}_2$$

When these two exceptions are out of the way, we may state the more general rules which have the effect of creating a cvcv... pattern. Namely:

a) a vowel cannot be followed by another vowel

b) any segment which is neither a vowel nor a nasal, is followed, if anything, by a vowel.

The first of these two statements cannot be presented simply in a single rule, and even if segmented it cannot be completely formalized. This is due perhaps to its negative nature: there is no natural class including all sounds which are 'not a vowel' in the present distinctive feature theory.

All we are able to say is this: if a non-consonant follows a vowel, it must be a semivowel and not a vowel,

$$R_{10} \quad \begin{vmatrix} -\text{cons} \\ +\text{voc} \end{vmatrix}_1 \begin{vmatrix} -\text{cons} \end{vmatrix}_2 \rightarrow \begin{vmatrix} +\text{son} \\ -\text{voc} \end{vmatrix}_2$$

and: if a vocalic segment follows a vowel, it must be a liquid and not a vowel,

$$R_{11} \quad \begin{vmatrix} -\text{cons} \\ +\text{voc} \end{vmatrix}_1 \begin{vmatrix} +\text{voc} \end{vmatrix}_2 \rightarrow \begin{vmatrix} \\ \end{vmatrix}_1 \begin{vmatrix} +\text{cons} \\ +\text{son} \end{vmatrix}_2$$

No further redundancy can be expressed about the segment following a vowel which has not already been stated.

The last step towards a cvcv... pattern consists in stating that all consonants except laterals are followed, if anything, by a vowel.

R_{12} $\left|\begin{matrix}+\text{cons}\\-\text{lat}\end{matrix}\right|_1 \left|+\text{seg}\right|_2 \longrightarrow \left|\ \right|_1 \left|\begin{matrix}-\text{cons}\\+\text{voc}\end{matrix}\right|_2$

Semivowels are not necessarily followed by a vowel.

Ex: /berg/ → /bëgü/ 'much'

Whenever a semivowel is followed by a segment other than a vowel this segment must be an obstruent:

R_{13} $\left|\begin{matrix}+\text{son}\\-\text{cons}\\-\text{voc}\end{matrix}\right|_1 \left|-\text{voc}\right|_2 \longrightarrow \left|\ \right|_1 \left|-\text{son}\right|_2$

There cannot be any cluster longer than semivowel + obstruent; the next segment, if there is any, must then be a vowel. This is also true of clusters involving liquids + obstruents or liquids + nasal. The generalization that can be extracted from this is that obstruents are always followed if anything by a vowel.

R_{14} $\left|-\text{son}\right|_1 \left|+\text{seg}\right|_2 \longrightarrow \left|\ \right|_1 \left|\begin{matrix}+\text{son}\\-\text{cons}\\+\text{voc}\end{matrix}\right|_2$

The same can be said of nasals:

$$R_{15}\ \left|\begin{matrix}+\text{cons}\\-\text{voc}\end{matrix}\right|_1\ \left|+\text{seg}\right|_2 \rightarrow \left|\ \right|_1\ \left|\begin{matrix}+\text{son}\\-\text{cons}\\+\text{voc}\end{matrix}\right|_2$$

This concludes the Morpheme Structure component of Irula phonology. The fact that there are relatively few MS rules can be explained thus: our morphophonemic reconstruction of Irula roots is such that practically all systematic phonemes have equal freedom of occurrence within the cvcv... pattern, with theexception of clusters beginning with liquids and semivowels.

CHAPTER VI

Phonological Cycle

Morphophonemic Rules (using grammatical conditioning)

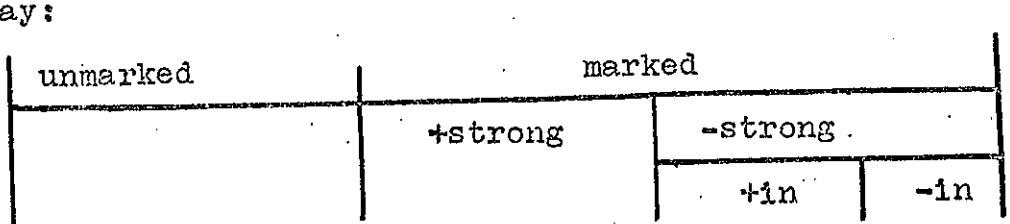
VERB MORPHOPHONEMICS

It is in the morphophonemics of the verb that we find the greatest number and variety of rule-governed alternations. It is here, therefore, that we may turn to in order to find evidence for deep phonological structure and natural classes of phonemes.

Superficially, the forms of the Irula verbs display a bewildering variety (cf. table of verb forms p. 87), which would seem to require a complex system of verb classification. By fully exploiting the possibilities of rule ordering and grammatical conditioning, we propose an analysis where the great majority of verbs needs no classificatory marker in the lexicon at all. That is to say that most of the verb forms are grammatically or phonologically predictable.

A small number of verbs have to be marked in the lexicon with the feature Weak vs Strong, and among the weak verbs, a handful must be marked with the feature (+in). See p.93 . Finally, isolated irregular cases must be especially marked in the lexicon.

Thus, in order to describe the morphophonemic alternations, verbs will be classified in the following way:



Exceptions indicated by special markers.

STRONG VERBS AND WEAK VERBS

Among the morphemes that can be suffixed directly to the verb root we shall consider first the Tenses (Pres and Past), the Injunctive (cf. p. 34) and the regular Causative ($Caus_1$). Scanning through a list of verbs, we notice that whenever a vewb has /-kk-/ in the Present (or Infinitive), it regularly has /-pp-/ in the Injunctive. Correspondingly, verbs having /-g-/ in the Present show a /-v-/ or a /-b-/ in the Injunctive. We can take advantage of the regularity of these correspondances by setting up two classes of verbs: Strong and Weak. Membership in either of these classes will be the conditioning factor for the appearance of /-kk-/, /-pp-/ on the one hand, and of /-g-/, /-v-/ ~ /-b-/ on the other. The two classes, Strong and Weak, exhaust the entire set of Irula verbs. This classification is therefore a useful one, and we may now look for other related phenomena which could be accounted for by membership in either class.

The regular Causative ($Caus_1$) is such a case. Strong verbs (/kk/, /pp/) have a /-pp-/ empty morph inserted between the verb root and the Causative marker /-is-/. Ex: kodüppisine 'I made (him) give'. Weak verbs (/g/, /v~b/) have /-v-/, or /-b-/ inserted in the same place or no insertion at all. Ex: värüvisine 'Imade him come', i:mbisine 'I made her give birth', mï:lisine 'I made him

save someone'.

Before we look to the past tense for further confirmation of the usefulness of these two classes, we may notice a large number of pairs of verbs related by the Impersonal Passive transformation: in every case the 'active' verb belongs to the Strong class, the Impersonal Passive to the Weak class. Ex: mudi:kke 'I'll finish it' mudigüdü 'it is finished'. This means that all these verbs can be left unmarked in the lexicon as to their membership in the Weak or the Strong class: the Impersonal Passive transformation will introduce these markers.

Furthermore, among the verbs which do not take part in the Impersonal Passive transformation, the majority of the transitive verbs belong to the Strong class, and the majority of the intransitives to the Weak class. Verbs following that pattern need not be marked in the lexicon either. A simple rule R_X can be added after the Impersonal Passive transformation, which will assign verbs with a superficial object to the Strong class and verbs without one to the Weak class.

Both types of causatives ($Caus_1$, 'regular', p.40 ; and $Caus_2$, 'sporadic', p.41) have superficial direct objects (derived from subjects in deep structure) and yet all their tense forms are characteristic of weak verbs. Ex: nä: avänę padü-tt-ü-g-e 'I make him suffer' (with the sporadic -tt- $Caus_2$ marker);

nä: avänne adü ḍe-pp-is-ü-g-e 'I made him break it' (with the regular -pp-is- $Caus_1$ marker).
Thus a special rule must be added in order to assign the feature -Strong to verbs having either Causative. It has to be placed after R_X in order to supersede it.

The remaining verbs, ie, Strong intransitives (Ex: jiri-kkye 'I laugh) and Weak transitives (Ex: ëṛi-g-e 'I throw something') have to be so marked, so that they do not undergo the Impersonal Passive transformation. They must also skip the rule R_X, which would assign the wrong strength feature. The only way to have these verbs classed as to strength is to mark them in the lexicon. They are the only verbs for which this is required, and they constitute a small minority among Irula verbs.

PAST a) STRONG VERBS

Turning now to the past tense, we find that Strong verbs generally have a -tt- morph: muḍi-tt-e 'I finished it' (muḍi-kk-e 'I finish'); however, a small number of verbs have -nd-: taṛa-nd-e 'I opened it' (taṛa-kk-e 'I open it'), paṛa-nd-e 'I was born' (paṛa-kk-ä 'he is born'). All these verbs end in /-a/ and all verbs ending in /-a/ display this same phenomenon, regardless of voice or transitivity. Therefore, all verbs ending in /a/ will be left unmarked in the lexicon and a rule will presently assign them to the Strong class, except in the Past, where they will be assigned to the Weak class.

Adopting the feature [+Strong] and [-Strong] for the two classes, we have the following:

CLASSIFICATION OF VERBS IN -A-

$$R_{16} \quad \text{Verb} \left[\begin{array}{l}+\text{Son}\\-\text{Con}\\+\text{Voc}\\+\text{Gra}\\-\text{Dif}\\+\text{Com}\\-\text{Ten}\end{array}\right] - \begin{Bmatrix}\text{TEMP}\\ \text{CAUS}_1\end{Bmatrix} \rightarrow [+\text{Strong}]$$

$$R_{17} \quad \text{Verb} \quad /a/ \; - \; \text{PAST} \rightarrow [-\text{Strong}]$$

Verbs ending in a long /a:/ are very rare and do not follow this pattern: ka:-kk-e 'I guard (tr.)', ka:-tt-e 'I guarded'; kuga:ge 'I sit', kuga:nde 'I sat'; mälla:ge 'I turn the face upwards', mälla:nde 'I turned the face upwards'.

In the case of monosyllabic roots in -a: a problem arises; open monosyllables always having long vowels, the feature of length will be applied by a later redundancy rule; the vowel of a verb like ka:- to wait' will be unmarked as to length at this level and this rule (class of verbs in -a-) will apply if not modified. One way around this would be to restrict this rule R16 to polysyllables; a more revealing rule would however be based on a different analysis: there is scant and scattered evidence that the short -a of the verbs in question, like

many other final short vowels in dissyllabic roots, is a derivational marker and not part of the verb root, whereas the unmarked -a of ka:- is part of the root. We may therefore introduce a juncture between the verb roots and the derivational -a which will trigger the phonological rules R_{16}, R_{17}:

$$R_{18}\quad \begin{vmatrix} \text{Verb} \\ +\text{son} \\ -\text{cons} \\ +\text{voc} \\ +\text{grave} \\ -\text{diff} \\ +\text{comp} \\ -\text{tense} \end{vmatrix} \; - \begin{Bmatrix} \text{TEMP} \\ \text{CAUS}_1 \end{Bmatrix} \rightarrow \; [+\text{Strong}]$$

$$R_{19}\quad \begin{vmatrix} \text{Verb} \\ +\text{son} \\ -\text{cons} \\ +\text{voc} \\ +\text{grave} \\ -\text{diff} \\ +\text{comp} \\ -\text{tense} \end{vmatrix} \; - \text{PAST} \rightarrow \; [-\text{Strong}]$$

A very small subclass of verbs has similar properties: monosyllabic verbs ending in laterals and having a short vowel are [+Strong] except in the Past where they are [-Strong]. Ex: mel-lü 'chew', me-kk-e 'I chew', me-nd-e 'I chewed'; nil-lü 'stand!, wait!', ni-kk-e 'I'll wait', ni-nd-e 'I waited'. Since these contrast in all forms other than the past with weak verbs having the same phonological structure (köl-lü 'kill!', köl-lü-g-e 'I'll kill', kö-nd-e 'I killed'), and since there are no strong verbs in CVL-, the first set of verbs can be lexically marked

[+Strong] and the second [-Strong]; then an adjustment will be necessary to account for the past tense forms of the first set:

$$R_{20} \quad \begin{matrix} \text{Verb} & [+\text{Strong}] \\ C & V\ [+\text{Lat}] \end{matrix} - \text{PAST} \rightarrow [-\text{Strong}]$$

Finally, there remain a few isolated cases of verbs which have +Strong forms except in the past, where we find /-nd-/: ir-ü-kk-e 'I am', ir-ü-nd-e 'I was', irü 'be!' mo:-kk-e 'I smell (tr.)', mo:-nd-e 'I smelled', mo: 'smell!'. These verbs will be marked [+Strong] in the Lexicon, with a rule feature: [-R_{21}] which will prevent them from having a /-tt-/ past tense. Their past cannot be simply labelled [-Strong] because, given their phonological structures, the results would be *i-nd-e 'I was' and *mö:-n-e 'I smelled' (see R 43and R25); they are therefore doubly irregular, and in addition to [-Strong] for the past they must be marked in the lexicon with the rule features [-R 25]for mo:- and [-R 43]for irü-.

Now that the exceptions are out of the way we can make a general statement about strong verbs: all their tense markers, the Injunctive marker and the Regular Causative marker are voiceless stops:

$$R_{21} \quad \text{Verb}\ [+\text{Strong}] - \begin{Bmatrix} \text{TEMP} \\ \text{INJ} \\ \text{CAUS}_1 \end{Bmatrix} \rightarrow - \begin{bmatrix} -\text{Son} \\ +\text{Con} \\ -\text{Voc} \\ +\text{Ten} \end{bmatrix}$$

Ex: maṇi-kky-e 'I speak', maṇi-kky-a va:ṇa 'don't speak!'
maṇi-tt-e 'I spoke', maṇi-pp-i 'why don't you speak'
maṇi-pp-is-ü-g-e 'I made (him) talk'

PAST b) WEAK VERBS

Weak verbs show less uniformity than strong ones: the Injunctive has two basic allomorphs: /-v-/ and /-b-/; the Regular Causative has three: /-v-/, /-b-/, and . The Past tense forms are even more diversified and we have to set apart certain classes of verbs before we can make generalizations about the weak past, then about weak tenses and finally make an overall statement for all verb forms (see R 26).

There are two basic forms for the Past tense and this fact may support a two-way classification of weak verbs: Class A weak verbs have a Past in -in- or -n-; Class B weak verbs have various kinds of obstuents.

Ex: class A: duḷ-ḷ-in-e 'I jumped' pa:ḍ-in-e 'I sung'
ä:-n-e 'I became'
class B: pa:y-nd-e 'I kicked' a:-ṇḍ-e 'I ruled'
na-ṭṭ-e 'I planted' kü-tt-e 'I pounded'
kä:-nd-e 'I went out' tin-d-e 'I ate'
kaṇ-ḍ-e 'I knew' koy-d-e 'I plucked'

The importance of this classification is confirmed by the behavior of the regular causative: Class A verbs have a ø morph between the root and the causative marker /-is-/:

dul̤-l̤-Ø-is-ü-g-e 'I made (him) jump

pa:d̤-Ø-is-ü-g-e 'I made (him) sing'

a:-y-is-ü-g-e 'I make (him) become'

Class B verbs have a /-v-/ inserted in the same place:

pa:y-v-is-ü-g-e 'I make it kick',

nad̤-ü-v-is-ü-g-e 'I make (him) plant'

kur-ü-v-is-ü-g-e 'I make (him) pound'

The fit between the two sets of phonemena is not perfect, however; verbs ending in laterals never have a /-v-/ in the causative, regardless of whether their past is in /-in-/ or not. Ex: mï:l̤-ü 'save!' mï:-n̤d̤-e 'I saved' mï:l̤-is-ü-g-e 'I made (him) save someone' (compare with dul̤- above).

We still have basically two classes of weak verbs:

Class A: Past in /-in-/, $Caus_1$ in /-is-/;

Class B: Past in obstruent, $Caus_1$ in /-v-is-/ with a special adjustment for verbs ending in laterals. Let us mark Class A weak verbs with the feature [+in] and Class B weak verbs with [-in]. We notice that this feature can usually be predicted from the phonological structure of the verb root: all weak verbs ending in an obstruent are [+in] with the exception of monosyllabic roots having a short vowel and ending in -d̤ or -d̤. Ex: du:ŋg-in-e 'I was hanging', tupp-in-e 'I spat', kë:r-in-e 'I cleaned rice', pa:d̤-in-e 'I sung'; but pe-tt-ü-d-ü 'it gave birth'

(root: *peld-), pa-ṭṭ-e 'I suffered' (root: *paḷd-). The latter two verbs are weak in spite of their voiceless Past tense morph: their Presents and related forms are weak: pe̱r-ü-g-ü-d-ü 'it gives birth', paḍ-ü-g-e 'I suffer', and thus contrast with strong verbs having the same phonological structure: Ex: koḍ-ü 'give!', koḍ-ü-tt-e 'I gave', kod-ü-kk-e 'I give'.

The majority of weak verbs ending in non-obstruents are [-in]. There are a few unpredictable cases, however, with verbs ending in laterals or nasals: Ex: 'to get' is [-in]: koḷ-ḷ-ü-g-e 'I get' ko-ṇḍ-e 'I got', whereas kaḷ- 'to steal' is [+in]: käḷ-ḷ-ü-g-e 'I steal' kaḷ-ḷ-in-e 'I stole'.

Similarly: tin- 'to eat' is [-in]: tin-d-e 'I ate', whereas tum- 'to sneeze' is [+in]: tum-m-in-e 'I sneezed', ka:ṇ- 'to see' is [-in]: kaṇ-ḍ-e 'I saw' and na:ṇ- 'to be ashamed' is [+in] na:ṇ-in-e 'I was ashamed'.

About a dozen such cases could be adduced which will have to be marked in the lexicon, for the feature [-in].

There remains finally a small subclass of monosyllabic weak verbs ending in a long vowel with an apparently irregular past: po: 'to go' pö:-n-e 'I went', a;- 'to become' ä:-n-e 'I became', tu:- 'to spill' tü:-n-e 'I spilled', u:- 'to fart' ü:-n-e 'I farted'. These verbs can be assigned to the class [+in] on the basis of a) phonetic similarity of their past tense to that of the

[+in] verbs, b) identity of the $Caus_1$ marker: po:-y-is-ü-g-e 'I made him go' (-y- being added automatically in place of ∅), c) Gerund in-i: po:-y-i 'going' (see remark on the gerund, p. 103).

We can now present the subclassification rules for weak verbs in their definite form and order:

SUBCLASSIFICATION RULES

1) Weak verbs ending in a liquid or nasal will be assigned a feature [+in] or [-in] in the lexicon.

2) These verbs will also have a rule feature $\begin{bmatrix}-R22\\-R23\\-R24\end{bmatrix}$ so that they keep their original + or - in feature.

3) R_{22} [-Strong] → [-in]

4) R_{23} Verb [-Strong]

$$-Seg \mid (+Seg) \mid \begin{matrix}-Con\\-Ten\end{matrix} \mid +Con \mid +Con \mid \rightarrow [-R_{24}]$$

ie, (C)V$\begin{Bmatrix}d\\\dot{d}\end{Bmatrix}$ do not follow the coming rule and remain [-in]

5) R_{24} Verb [-Strong] [+in]

$$\left|\begin{matrix}-Son\\+Con\\-Voc\end{matrix}\right| - \rightarrow$$

ie, weak verbs ending in obstruents are [+in]

6) R_{25} Verb [-Strong] [+in]

$$-Seg \mid (+Seg) \left|\begin{matrix}+Son\\-Con\\+Voc\\+Ten\end{matrix}\right| - \rightarrow$$

ie, weak (C) V:- verbs are [+in]

PHONOLOGICAL RULES

The most general statement that can be made about the phonological form of tenses and the regular causative is that they consist of tense or lax obstruents, tenseness or laxness depending on the strength of the verb:

$$R_{26} \quad \text{Verb } [\alpha \text{ Strong}] \rceil - \lceil \begin{Bmatrix} \text{TEMP} \\ \text{CAUS}_1 \end{Bmatrix} \rightarrow - \begin{vmatrix} -\text{Son} \\ +\text{Cons} \\ -\text{Voc} \\ \alpha \text{ Ten} \end{vmatrix}$$

The Present, and the infinitive derived from it, always has velarity in all its forms:

$$R_{27} \quad \text{Verb} \rceil - \lceil \text{PRES} \rightarrow - \begin{vmatrix} +\text{Gra} \\ -\text{Dif} \end{vmatrix}$$

The Injunctive and the regular causative are characterized by labiality:

$$R_{28} \quad \text{Verb} \rceil - \lceil \begin{Bmatrix} \text{INJ} \\ \text{CAUS}_1 \end{Bmatrix} \rightarrow - \begin{vmatrix} +\text{Gra} \\ -\text{Dif} \end{vmatrix}$$

This rule must be qualified in the case of [+in] verbs .

$$R_{29} \quad \text{Verb } [-\text{Strong}]\ [+\text{in}] \rceil - \lceil \text{CAUS}_1 \rightarrow - | \emptyset$$

The past, and the gerund derived from it, are generally represented by dentals, or obstruents derived from dentals:

$$R_{30} \quad \text{Verb} \rceil - \lceil \text{PAST} \rightarrow - \begin{vmatrix} -\text{Gra} \\ +\text{Dif} \end{vmatrix}$$

In addition to having the feature [-Ten] from rule R_{26} weak verbs have, in general, a [+Nasal] feature in the past tense, ie, the past tense morph is generally /-nd-/ in surface phonology:

$$R_{31} \quad \text{Verb} \; [\text{-Strong}] \;] - [\; \text{PAST} \;\rightarrow\; - \,|\text{+Nas}|$$

The fact that /-nd-/ is the equivalent for weak verbs of /-tt-/ for strong verbs, and the complementary distribution between /-nd-/ and /-d-/ in weak verbs are some of the reasons why superficial clusters of Nasal + Stops were classed in deep structure with Voiced stops [-Ten] and opposed to voiceless stops [+Ten].

Rule R_{31} must now be corrected to allow for past tense forms in /-d-/. Let us eliminate first those verbs whose past tense is non-nasal in surface phonology but can be derived from the deep regular past tense marker /-nd-/. For instance, verbs ending in nasal consonants, e.g., tiṉ- 'to eat', ka:ṇ- 'to see' have an apparent non-nasal lax obstruent as past tense: tiṉ-ḏ-e 'I ate', kaṇ-ḍ-e: 'I saw', the dental of the past being assimilated to the preceding nasal of the root. However, in the deep structure, alveolarity and retroflexion are not features of the nasal itself but of a preceding lateral; the lexical representation of these verbs is *tilN-, *ka:ḷN-. Thus the underspecified nasal N could well be deleted before

the obstruent of the past tense morph which could be marked [+Nas] as it is in R_{31}. The derivation would be: tiln- d → til-^{N}d → ti^{N}d → tind. Loss of nasals before obstruents is not an ad hoc construction; it can be integrated in a regular pattern of consonant cluster simplification affecting other sequences of sonorant + obstruent. Verbs ending in nasals are thus no obstacle to the generality of R_{31}.

A very small number of monosyllabic verbs have their past in /-d-/. Ex: sey-d-e 'I did', koy-d-e 'I plucked', ney-d-e 'I wove', pey-d-ü-d-ü 'it rained', kë-d-e 'I washed the floor', ë-d-e 'I cried', ur-ü-d-e 'I stripped (a tree of its leaves)'. The first four verbs have the form CVy- and there are no other weak verbs having this form. In fact there are no other weak verbs answering the formula (C) V W (if W means semivowel). We might take advantage of this gap and reconstruct a hypothetical semivowel at the end of the verbs kë- and ë-.

It could be argued that reconstructing a liquid (e.g., a retroflex trill ṛ) would also be possible and would be paralleled by attested forms such as urüde: 'I stripped'. However, as we shall see later, an 'enunciative vowel' (ü) is inserted between consonant clusters, but not between clusters of semivowels and consonants: this explains the -ü- of ur-ü-d-e. Now, the reconstructed phoneme is to be deleted after the rule

inserting -ü- (p.132). If this postulated phoneme were a liquid we would expect *keüde, *eüde, *keüge, *eüge. These forms are not attested. On the other hand, reconstructing a semivowel requires no additional modification of the rules in order to generate kёde, ёde, kёge, ёge, etc... and we shall adopt this solution. We will see later that there are independent grounds for reconstructing a retroflex sound (p.142), so that the two verbs in question could have ker̤- and er̤- as phonological representation in the lexicon. We thus have the following rule:

R32
$$\overset{\text{Verb}}{\text{-Seg} \mid (\text{+Seg}) \mid \text{-Tense}} \quad \overset{\text{Past}}{\begin{vmatrix} \text{+Son} \\ \text{-Con} \\ \text{-Voc} \end{vmatrix}} - \quad \longrightarrow \quad - \overset{\text{Past}}{[\text{-Nas}]}$$

The verb ur- remains a problem; it is a unique case in that verbs having similar phonological structures do not have the -d- past tense: ta-nd-e 'I gave' (verb root: tar-). It has to be marked with a special feature, e.g., [-R31] and included in R32.

Another subclass of weak verbs lacks nasality in the past, namely the class of verbs in (C) V $\begin{Bmatrix} \dot{d} \\ \underline{d} \end{Bmatrix}$ mentioned above; since they have been assigned the feature [-R 24] we may then take this feature as descriptive of the class:

R33
$$\overset{\text{Verb}}{}\ \overset{\text{-R24}}{\rceil} - \overset{\text{Past}}{\lceil} \quad \longrightarrow \quad - \ [\text{-Nas}]$$

Finally, the whole class of [+in] verbs seems to present a gross violation of rules R26, R30, and R31.

Ex: ma:ḍ-in-e 'I made' ma:ḍ-i 'having made' (Gerund)
On closer examination, the differences are not so drastic as they may seem at first. The second segment of the -in- tense marker has many features in common with the regular weak -nd- tense marker, namely: consonantality, nonvocalicness, nasality, acuteness and diffuseness. The difference lies in 1) the sonorancy feature 2) an extra vowel segment -i- (see R 35).

By this description, some [+in] verbs, namely monosyllabic verbs ending in a logn vowel, which have been considered irregular (see p. 95) are actually shown to have a regular past so far as rules R_{26}, R_{30} and R_{31} are concerned.

This means that these verbs will skip rule R_{35} by which an -i- is inserted before the nasal of the past. The Gerunds of these verbs do however show an -i- just as all other [+in] verbs: po:yi 'having gone'. This is the only case in the language where genunds and pasts must be distinguished as following different rules.[2]

$$R_{34} \quad -\text{Seg} \mid (\text{Seg}) \left| \begin{matrix} +\text{Son} \\ -\text{Con} \\ +\text{Voc} \\ +\text{Ten} \end{matrix} \right| - \text{PAST} - \text{PERS} \rightarrow [-R_{35}]$$

The general rule may now be stated:

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[2]The Past has been differentiated from Gerunds in rule R_{34} by mentioning the personal ending PERS which is absent in Gerunds.

R_{35}

$$\text{Verb} \begin{bmatrix} \text{-Strong} \\ \text{+in} \end{bmatrix} - \text{Past}_1 \rightarrow - \begin{vmatrix} \text{+son} \\ \text{-cons} \\ \text{+voc} \\ \text{-grave} \\ \text{+diff} \\ \text{-comp} \\ \text{-ten} \end{vmatrix} \begin{matrix} \text{Past} \\ 1 \\ \text{-son} \end{matrix}$$

This rule applies when the sequence of phonological segments representing the terminal symbol verb is immediately followed by the symbol Past, with an automatic - morpheme juncture in between. This description will not fit such sequences as Verb-$Caus_1$Past at the first run through the cycle.[3] However, at the second run through, all the causative markers will have been given phonological shapes, and, by deletion of appropriate junctures these markers will become part of the phonological representation of the terminal symbol Verb. As a consequence, provided that they have already received a marker [-Strong] by virtue of the causative transformation, they will meet the conditions of R_{24} and be assigned the feature [+in] by that rule. This is due to the fact that all types of causative markers end in obstruents: -tt- for $Caus_2$ and -is- for $Caus_1$. They will then receive in R_{35} the proper Past tense marker /-in-/.

Ex: padüttine 'I made (him) suffer',

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[3]It has not been possible to decide exactly which phonological rules, besides R_{35}, are to be applied cyclically. Such decision would have to rely on two types of data which I could not collect in sufficient amounts: 1) a systematic investigation of syntactic patterns and their relevance to junctural phenomena, 2) careful judgments on the part of the informant as to the styles of various prononciation of the same sentence.

ḍeppisiṉe 'I made (him) break (it)'.

In surface structure, the Gerund is simply a Past immediately followed by a word juncture, ie, without personal ending. The gerund of [+iṉ] verbs has an /-i/ marker: maːḍ-iṉ-e 'I made', Gerund maːḍ-i 'having made' and this may seem to be irregular. In fact, due to a late phonological rule which deletes final [-Grave] nasals (R54), this formation is completely regular in Irula:[4]

R_{36}

Verb	- Past	→	#
maːḍ	- iṉ #	→	maːḍi

INTERNAL JUNCTURE IN VERB FORMS

For most verb roots and most tenses and modes we find a vowel /-ü-/ inserted after verb roots and temporal or modal formatives. In some cases we also find gemination of the final consonant of the root: kol- (verb root) 'to kill', köl-l-ü-g-e 'I kill'; this gemination is not found in the verb root as the past tense form shows: *kol-nd-e könde 'I killed'; a fact which justifies having kol- and not *koll- as a basic form.

These two phenomena are not limited to verb forms: they are typical of the language as a whole and are found

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[4]This loss of final nasals in all positions is peculiar to Irula. In Tamil dialects, final nasals generally nasalize the preceding vowel and are then deleted. It would thus be possible to account for loss of -n in Tamil gerunds as a general phonological rule, not as a grammatically determined morphophonemic change; all that would be required is denasalization of final -i, a rule which may have historical reality.

in all kinds of forms, irrespective of grammatical category. They are a regular feature of word-final position, but may also represent morpheme boundaries.

Ex: kal # → källü 'Stone' (Nominative)

ka:ld - Dat # → ka:d - k # → ka:dükkü 'to the forest'

Cases of ü insertion and consonant gemination in verb forms do not therefore belong to this part of the phonological component, but to a much lower level. In fact, some of the cases of gemination (e.g., of voiced stops) belong to phonetic free variation rules that are beyond the scope of the present description.

Returning to verb classes, we notice that weak verbs of the [+in] class have /ü/ insertion and consonant gemination in all their forms. In this, they contrast with weak verbs of the [-in] class which show these phenomena in only some of their forms:

kal- 'to steal' [+in] : kallüge, kallinge 'I steal, I stole'

kol- 'to get' -in : kollüge, but konde (< kol-nd-e without ü insertion or consonant gemination) 'I get, I got'

na:n- 'to be ashamed' [+in] : na:nüge 'I am ashamed' (< na:n-g-e)

ka:n- 'to see' [-in] : ka:nge 'I see' (< ka:n-g-e without ü insertion).

The phonological similarity of the verbs given, and their dissimilar behavior show that the conditioning factor for u insertion and consonant gemination is class membership

and not phonological structure.

$$R_{37}\quad \text{Verb } [+\underline{in}]\ ]\ -\ \begin{Bmatrix}\text{PRES}\\ \text{INJ}\\ \text{CAUS}_2\end{Bmatrix} \longrightarrow \quad]\ \#$$

$$1 \qquad 2 \qquad\qquad 1 \qquad 2$$

The juncture introduced here has exactly the same effect as a word-final juncture, even in the details of the conditioning for ü insertion and consonant gemination. For instance, ü is inserted at the end of a word unless the next begins with a vowel.[5] Ex: appupille 'there is no salt now'. In slowed-down, word-by-word diction: appu, uppu, ille. 'now salt not'. The same pattern is found in [+in] verbs: the Past tense begins with a vowel: -in-, therefore ü is not inserted but consonant gemination still occurs: sol- 'to say' söllüge 'I say' sölline 'I said'.

There is no use therefore in having two different junctures for the same effect. Rather, the same juncture (#) will be introduced and will operate at different runs through the cycle: first after certain verb roots, second in another cycle, at the end of words.

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[5] In many cases however -ü is inserted even though the next word begins in a vowel:
Ex: a: kü:reli ella bi:dilimü urümbu irundina
in that house in all places (emph.) ant(s) there were
'In that house there were ants everywhere'. The ü of bi:dilimü is inserted because it precedes a major break in the sentence. The rule for ü insertion is therefore applied cyclically to larger and larger constructions until we reach certain junctures which correspond to major syntactic constituents.

Verbs of the [+in] class are not alone in having the # juncture introduced between the root and the tense markers; there is a small class of verbs which appear to be irregular in that the vowel of the root is long in all forms except the Past tense, where it is short:

Ex:	no:-g-ü-d-ü	'It hurts'	no-nd-ü-d-ü	'It hurt'
	ve:-g-ü-d-ü	'It burns'	ve-nd-ü-d-ü	'It burnt'
	le:-g-e	'I roam'	le-nd-e	'I roamed'

We have seen (p.95) that monosyllabic weak verbs ending in a long vowel formed a class of their own with a special tense form. Since all the verbs given above are weak, one might consider that the long vowel of non-past forms is not the underlying form of the verb root, but rather the short vowel found in the past tense. The class above would then be characterized by weakness and a monosyllabic verb root ending in a short vowel; a strong verb like re- 'to grind' does not show any vowel length alternation, re-kk-e 'I grind' re-tt-e 'I ground', so that weakness is a necessary feature of the class considered. Moreover, when we consider word-final phonology, we realize that there is nothing irregular in this vowel length alternation: final short vowels are automatically lengthened in monosyllables.

By introducing a word-final juncture in non-past forms, we will get a long vowel in these forms, and the short underlying vowel will be preserved in the past:

$$\text{R40}\quad \overset{\text{Verb}}{\text{-seg}}\ \ \overset{[\text{-Strong}]}{(\text{+seg})}\ \ \underset{1}{\begin{bmatrix}\text{+Son}\\ \text{-Con}\\ \text{+Voc}\\ \text{-Ten}\end{bmatrix}} - \underset{2}{\begin{Bmatrix}\text{PRES}\\ \text{INJ}\\ \text{CAUS}\end{Bmatrix}} \rightarrow \underset{1}{\ }\ \ \Big|\ \ \underset{2}{\#}$$

Two verbs present an apparent exception to this rule by not having vowel lengthening in the non-past forms: ë-g-e 'I cry' ke-g-e 'I clean the floor', but we have seen (p. 99) that there are arguments for reconstructing a semivowel at the end of these verbs. This reconstruction would avoid having to describe these two verbs as exceptions to rule R43 , and would thus permit a greater economy. This is the kind of justification that can be produced in favor of an apparently arbitrary reconstruction of underlying forms: creating regularity in several unrelated parts of the grammar.

IRREGULAR VERBS

A) There are a few scattered cases of vowel length alternations in past and non-past forms of roots:

sa:-g-e	'I'll die'	se-tt-ä	'she died'
ka:ŋ-g-e	'I see'	kaṇ-ḍ-e	'I saw'

Although there is apparent regularity (long vowel in non-past, short vowel in past, as in the subclass described above), this alternation cannot conveniently be integrated in the pattern described above; these two verbs have to be treated as exceptions and marked with a

special lexical feature. The first verb 'to die' has to be marked even further in order to account for the vowel quality change.

B) Verb roots used as auxiliaries show notorious phonological irregularities.

Reflexive-Benefactive: Present -oŋg-, Past -oṇd-, Imper -ko

Ex: tiṇdoŋge, tiṇdoṇde, tiṇdükko 'I eat, I ate for myself, eat for yourself'.

Completive: Present -ug-, Past -uṭṭ-, Imper -uḍü

Ex: tiṇdugwe, tiṇduṭṭe, tiṇduḍü 'I eat, ate, eat! completely!'

Perfective: Present -kk-, Past -nd-, Imper -irü

Ex: tiṇdükke, tiṇdünde, tiṇdirü 'I eat, ate, eat!'

These auxiliaries have a remote connection with independent verb roots found elsewhere in the language: namely, koḷ- 'to get' (Pres. koḷḷüge, Past koṇde, Imper. koḷḷü) for the Reflexive;

vïḍ- 'to leave, to quit' (Pres. vïḍüge, Past vïṭṭe, Imper. vïḍü) for the completive;

ir- 'to stay, to remain, to stand' (Pres irükke, Past iründe, Imper. irü).

The imperative forms of the auxiliaries are almost identical to those of the verbs mentioned, and in addition, and the past and present tense forms show the same kind of morphophonemic alternations as those of the verbs.

By giving auxiliaries the same underlying phonological forms as the corresponding verbs, the tense morphophonemics

need no special statement. The modifications of the roots in certain tenses can be assigned to the presence of a special juncture between Verbs and auxiliaries.

PERSONAL ENDINGS

Personal endings are added on to the tense morph without causing any morphophonemic alternations.

There are only three notable exceptions to the above statement. They are limited to the two verbs po:- and a:- and to the auxiliary -uḍ-. Instead of having a regular -(ü)-d-ü as a Neuter Singular, one finds pö:sü 'it went' (instead of *pö:n̲üdü), ä:sü 'it became' (instead of *ä:n̲adü), and -uḍüttü (instead of *-uṭṭüdü).

The centralized vowels of the first two verbs should be taken as indication that this morphophonemic irregularity is to be described at a very low level, certainly later than the Vowel centralization rule where the underlying -n̲- of the past accounts for the centralization of the preceding vowels.

The case of -uḍüttü can be handled as a metathesis of the Tensity feature. Such a rule will have to be placed after the rule which changes viḍ-d into vïṭṭ (R44).

The underlying phonological shapes of all other personal endings can be found in forms where they are not final. In interrogative forms, for instance, the personal ending is followed by -o: tandeno 'did I give'?, pö:n̲aḷo 'did you (sg.) / she go?'

värügäṇo 'will he come?' dendado 'did it break?'

tande:mo 'did we (excl.) give?' pa:ttiriyo 'did you (pl.) see?'

vandä:ro 'did they (hum.) come?' roṇginiṇaḷo 'did they (non-hum.) sleep?'

(I never succeeded in eliciting a non-final form for the Inclusive 1st plur. personal ending.)

The basic forms are thus:

		SING	PLUR	
1st		-eṇ-	Incl.	-o
			Excl.	-e:m-
2nd		-aḷ-		-iri-
3rd	Masc	-äṇ-		-ä:r-
	Fem	-aḷ-		
	Neut	-d-		-inaḷ-

In final position, -Grave nasals and liquids will be lost and short vowels lengthened according to regular rules:

		SING		PLUR
1st		-e	Incl.	-o
			Excl.	-e:mü
2nd		-ä		-iri
3rd	Masc	-ä		-ä:rü
	Fem	-a		
	Neut	-dü		-iṇa

CHAPTER VII

End of the Phonological Cycle

Phonetic rules (no grammatical conditioning)

There is a definite tendency in Irula to achieve a CVCVCV pattern in deep structure and in surface phonology, even though this is obscured by various factors. There is a level however where this regular pattern can be shown to exist: it is located somewhere between the MS rules and the phonetic rules. The following section of phonology will be applied at a point in the derivations where all grammatical elements, as well as lexical formatives, have been given some phonological shape. It will reduce all consonant clusters and describe the assimilation processes involved in such reduction, and finally will insert vowels in appropriate places. Thus, after the removal of junctures, all strings will be hereby given the form CVCVCV. Later rules will then destroy this pattern by introducing new, superficial clusters.

REDUCTION OF NASALS

In surface structure we find a set of homorganic Nasal + Voiced Stops clusters which are derived in the majority of cases from single segments marked in deep structure: $\left|\begin{matrix}\text{-tense}\\ \text{+nasal}\end{matrix}\right|$. There is another source in deep structure for these surface clusters, namely deep structure clusters of Nasal + Obstruent. Ex. /tiŋge/ < tiln-g-e 'I eat'; /ka:ŋge/ < ka:ln-g-e 'I see'; /timbi/ < tiln-b-i 'eat, will you?'; /ka:mbi/ < ka:ln-b-i 'look, will you?'. In this first series of

examples we see that the nasal assimilates in place of articulation to the following obstruent. But in the following set the reverse assimilation takes place: the stop becomes homorganic with the preceding liquid. Ex: /tinde/ ⩽ tiln-d-e 'I ate'; /kande/ ⩽ kaln-d-e 'I saw'. We may notice that the stops of the first set are velars or labial [+grave] whereas those of the second set are dentals [-grave] .[1] Furthermore, the dentals [-grave] of the second set assimilate, not to the preceding nasal, but to the liquid that precedes it, a rule which is independently motivated (ref. p. 128). In fact the nasals of the second set can be described as assimilating to the following stop just as those of the first set: ln-d → lnd → lnd → nd. In order to embody this generalization in a rule we might take advantage of the fact that most surface structure homorganic Nasal + Stop clusters are derived from deep $\left|\begin{matrix}\text{-tense}\\ \text{+nasal}\end{matrix}\right|$ segments ('nasalized obstruents'). This process can be made general by deriving all such clusters, including those now under scrutiny, from nasalized obstruents. Deep structure clusters of Nasal + Obstruent will here be reduced to unisegmental nasalized obstruents before a surface structure rule splits them again into Nasal + Stop homorganic clusters.

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[1] As a structural gap, there are no deep clusters of Nasal + Palatal.

$$R_{41}\ \begin{vmatrix} +son \\ +cons \\ +nas \end{vmatrix}\ \begin{vmatrix} -son \\ +cons \\ -voc \end{vmatrix} \longrightarrow \begin{vmatrix} \emptyset \end{vmatrix}\ \begin{vmatrix} +nas \end{vmatrix}$$

1 2 1 2

I.e., Nasal Segments are deleted before all obstruents and give them their nasality feature.

We have the following derivation:

ka:ln-g-e → ka:l^{N}ge → ka:^{N}ge → ka:ŋge 'I see'

tiln-b-i → til^{N}bi → ti^{N}bi → timbi 'eat, will you'

kaln-d-e → kal^{N}de → ka^{N}de → kande 'I saw'

tiln-d-e → til^{N}de → ti^{N}de → tinde 'I ate'

The diversity of assimilation processes in the two series of examples is thus shown to be only apparent. By the same token the rule R_{61} producing Nasal + Stop homorganic cluster is shown to be of general application throughout the language.

REDUCTION OF TRILLS

Clusters of Trill + Consonant are reduced in most environments: pa:r- 'to look', pa:kke 'I look', pa:tte 'I looked', pa:ppisüge 'I made him look', pä:rü 'look'. valar- 'to be growing', valar-g-d → valagudu 'it is growing', valar-^{N}d-d → valandüdü 'it was growing', valar-t-in-e → valattine 'I grew it' (sporadic causative).

There are verbs, however, which keep the /r/ of the root in some forms and have an u inserted after it, while in other forms the r is deleted: se:r- 'to join',

se:r-g-e → se:rüge 'I join', se:r-^{N}d-e → se:nde 'I joined'; tar- 'to give to 1st and 2nd person' tar-g-e → tärüge 'I give', tar-^{N}d-e → tande 'I gave'.

There are two conditioning factors involved in the preservation of /r/ in the non-past forms: 1) monosyllabicity 2) membership in the weak class. The verb pa:r- is monosyllabic but strong, valar- is weak but disyllabic.

The simplest description os this phenomenon is to mark monosyllabic weak verbs in -r with the rule feature $[-R_{43}]$ when they are followed by anything but the Past, and this will prevent deletion of the r before consonants. The enunciative ü will be introduced later on, as it regularly is, to prevent consonant clusters.

$$R_{42}\quad \text{Verb}\ [-\text{Strong}]\quad -\text{Seg} \mid (+\text{Seg}) \mid +\text{Seg} \mid \begin{matrix}+\text{Son}\\+\text{Con}\\+\text{Voc}\\-\text{Lat}\end{matrix} \mid - \begin{Bmatrix}\text{PRES}\\\text{INJ}\\\text{CAUS}\end{Bmatrix} \rightarrow [-R_{43}]$$

Trills are deleted before consonants:

$$R_{43}\quad \begin{matrix}+\text{Son}\\+\text{Con}\\+\text{Voc}\\-\text{Lat}\end{matrix} \quad +\text{Con} \quad \longrightarrow \quad \emptyset$$

1 2 1

REDUCTION OF OBSTRUENTS

Another type of reduction of consonant clusters may not appear to be one at all at a superficial glance: verbs having the structure (C) V$\begin{Bmatrix}\text{d}\\\underline{\text{d}}\end{Bmatrix}$ have a past tense in

-d- (see p. 93 for examples); the deep structure representation will therefore have clusters such as: ldd and l̤dd. The surface structure representation is: -t̲t̲- and -t̤t̤- respectively. Ex: peld-d-d → pet̲t̲üdü 'It gave birth', nal̤d-d-e → nat̤t̤e 'I planted'. Apart from the deletion of the lateral, which will be dealt with later, what is involved here is a rule which has the effect dd → tt. This could hardly be described as 'reduction of consonant cluster'. But since superficial /tt/ is represented by a single segment /t/ in deep structure the derivation is actually dd → t → tt, where the deep cluster dd is in fact reduced to a less deep single consonant -t-.

The first part of this process is stated now:

$$R_{44}\quad \begin{bmatrix} -\text{Son} \\ +\text{Con} \\ -\text{Voc} \\ -\text{Gra} \\ +\text{Diff} \\ -\text{Ten} \\ -\text{Nas} \end{bmatrix}_1 \begin{bmatrix} -\text{Son} \\ +\text{Con} \\ -\text{Voc} \\ -\text{Gra} \\ +\text{Diff} \\ -\text{Ten} \\ -\text{Nas} \end{bmatrix}_2 \rightarrow \begin{bmatrix} \quad \end{bmatrix}_1 \begin{bmatrix} +\text{Ten} \end{bmatrix}_2$$

It may seem uneconomical to delete one segment only to reintroduce it later on, and this may be used as an argument against treating geminated voiceless stops as single segments in deep structure. But granting that there is independent justification for the resegmentation rule (see p. 67), the rule above would be no more complicated in one analysis than in the other; the only difference

would be that the left hand side would read: +Ten | +Ten instead of +Ten. The argument is therefore unconvincing. The advantage of the solution adopted here will be seen in the ü insertion rule where the CVCVCV pattern is shown to exist, a fact which is brought about by many cluster reduction rules like the one above.

REDUCTION OF LATERALS

Excluding for the moment clusters of Laterals + Dentals (see p.124), laterals are deleted before voiceless grave obstruents. Ex: mel-k-e mekke 'I chew' (verb root mel- : mellü 'chew!'); ke:l̥-k-e → ke:kke 'I hear' (verb root ke:l̥- : kë:l̥ü 'listen!').

$$R_{45} \quad \left|\begin{matrix}+\text{Cons}\\+\text{Voc}\\+\text{Lat}\end{matrix}\right| \left|\begin{matrix}+\text{Cons}\\-\text{Voc}\\+\text{Gra}\\+\text{Ten}\end{matrix}\right| \rightarrow \left| \varnothing \right|$$

1 2 1

It may seem that all these consonant cluster reductions could be shown to be similar, and the reduction rules collapsed into one greater generalization; however, since the environments in which these reductions occur are quite diverse, any rule that would try to generalize would either be very complex or require many qualifying statements. In addition, there is an even more general process applying to consonant clusters, namely, insertion of the enunciative vowel u. We are treating here cluster reduction as an exceptional process in the general

background of dissociation by ü.

ALVEOLARS AND RETROFLEXES

The obstruent system of Irula is particularly crowded in the dental-palatal region. Excluding the palatals for the moment (see p.126), a three-way distinction in place of articulation: Dental-Alveolar-Retroflex has to be maintained between sounds which are otherwise identical. This raises a problem as to which phonetic clues can be picked up in the process of everyday communication.

The sounds of the dental series are clearly distinct from those of the two others. They are not truly apicals and should rather be described as lamino-dentals: the blade comes in contact with the upper teeth, while the tip of the tongue protrudes in the space left open between higher and lower incisors. This provides a clear visual clue for the observer in addition to a very recognizable sound effect.

The distinction between alveolars and retroflexes is much more subtle and difficult to hear. 'Retroflex' is the traditional term for describing the pan-Dravidian stops in question; however, for Irula and some Tamil dialects it is not wholly appropriate (cf. Albert). The tongue tip is not curled so as to let the under part touch the roof of the palate; rather, the whole tongue is drawn backwards and contracted, while the tip touches the curve of the palate between the roof and the alveolar ridge. Thus, domal might

be preferred to 'retroflex': it is in line with the terms alveolar, dental, velar, etc. in that it indicates a place of articulation, not a shape of the tongue which in any case is not found in this language. I have kept the traditional term for readability. As for alveolars, the tongue is not drawn backwards as it is for retroflexes, and the tip comes in contact with the alveolar ridge. To this rather subtle articulatory and acoustic distinction the quality of the preceding vowel adds a good deal of redundancy in the manner described below.

VOWEL CENTRALIZATION

The entire vowel system of Irula displays a dichotomy, each non-low vowel having a centralized correspondant: to back rounded vowels u, u:, o o:, correspond centralized rounded vowels: ü, ü:, ö, ö:, to front unrounded vowels i, i:, e, e: correspond centralized unrounded vowels ï, ï:, ë, ë:.

There is a good deal of variation in the degree of centralization or fronting of these vowels. This variation is stylistic: little or no centralization is considered better style than full centralization. In relaxed, informal talk, centralized unrounded vowels ï(:), ë(:), can go quite far back, and rounded ones, ö(:), ü(:) can become quite fronted.[1]

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[1]Irula children who were asked to spell words like sölline wrote ಸೊಳ್ಳೆ, celline with a front -e- to note the centralized -ö-.

The feature centralized can be chosen as a phonetic feature to describe all centralized vowels, all cardinal vowels being assigned the feature [-Cent].

In this set of phenomena, a and a: behave as back vowels; they have a fronted correspondent, æ , æ: here noted ä, ä: for consistency. The occurrence of the low front vowels ä, ä: is conditioned by the same factors as that of ö(:), ü(:). The same feature [+Cent] will therefore be chosen to mark ä(:) as being fronted. In order to simplify the centralization rule, a(:) will be classed momentarily as a back vowel:

$$R_{46} \left| \begin{array}{l} -\text{Cons} \\ +\text{Voc} \\ -\text{Comp} \end{array} \right| \longrightarrow [+\text{Grave}]$$

Examples:

	ALVEOLARS		RETROFLEXES	
Front vowels i	sirikkye	'I laugh'		
	ninükkü	'to you'	ï kïṇarü	'a well'
	nila	'moon'	kïḷi	'parrot'
	tinde	'I ate'	ïṭṭi	'point of arrow'
i:	ni:rü	'water'	ï: nï:ḷügüdü	'it is elongated'
	ti:ttüge	'I feed'	nï:ṭṭe	'I stretched'
e	elumbu	'bone'	ë vëlli	'money, silver'
	kerümine	'I coughed'	ëdukke	'I take'
	mende	'I chewed betel'	ëṇṇe	'oil'
	nenette	'I thought'	këṭṭa	'bad'
	netti	'forehead'		

e:	te:nü	'honey'
	e:rü	'a plow'

ë:	të:ḷü	'scorpion'
	më:ḍü	'hill top'
	kë:ṭṭe	'I heard'
	vë:ṇḍü	'a beast'

Back vowels:

ä	pändi	'pig'
	pällü	'tooth'
	nänükkü	'to me'
	mära	'tree'

a	vaṇḍi	'bullock cart'
	kaḷa	'threshold'
	kaṇṇü	'eye'

ä:	ä:rü	'who'
	nä:lü	'four'
	ä:ne	'elephant'
	pä:tte	'spider'

a:	na:ḷü	'day'
	ka:ṇe	'I don't know'
	pa:ṭṭi	'grandmother'

ö	sölline	'I said'
	pönnä	'Ponnan, pr. name'
	könde	'I killed'

o	oḷikkye	'I hide sth.'
	koḍü	'give'
	toṇḍe	'throat'
	oṭṭi	'stick'

o:	sö:le	'grove'
	pö:ne	'I went'
	kö:riṇe	'I cleaned rice'

o:	to:ḷü	'armpit'
	ko:ḍa	'mankey'

ü	püṭṭü	'ant hill'
	püllü	'grass'
	kürivi	'bird'
	künni	'a bee'

u	suṭṭe	'I shot'
	ruḷḷü	'roll!'
	kuḍi	'drink!'
	uṇṇi	'a tick'
	ruṇḍü	'rolling'

ü: { kü:re 'house'; mü:n̪dü 'three'; pü:ne 'cat' } u: { gu:ḍü 'ant hill'; tu:ɳḍa 'fishing line'; ku:ʈʈüge 'I take along' }

(N.B.: examples for r are given later; see p.123)

The conditioning factor for vowel centralization is, in a first approximation, the place of articulation (Alveolar vs Retroflex) of the following consonant

Front vowels are centralized before retroflexes (examples with l̤, ɳ, ɳḍ, ʈʈ)

$$R47 \quad \begin{bmatrix} -\text{cons} \\ +\text{voc} \\ -\text{grave} \end{bmatrix} \rightarrow [+\text{cent}] \quad / \_\_ [-\text{diff}]$$

Back vowels, including the low vowels a and a:, are centralized before alveolars; (examples with r, l, n̪, n̪d̪, t̪t̪)

$$R48 \quad \begin{bmatrix} -\text{cons} \\ +\text{voc} \\ +\text{grave} \end{bmatrix} \rightarrow [+\text{cent}] \quad / \_\_ [+\text{diff}]$$

Here again we may notice that Alveolars and Retroflexes form a subsystem in which they complement each other and where dentals (or any other series of consonants) have no part to play. This natural class (alveolars + retroflexes) is characterized in the deep structure by the presence of one of the two laterals which requires only three Distinctive Features. The rule can thus be very simply stated:

$$R49 \quad \begin{bmatrix} -\text{cons} \\ +\text{voc} \\ \alpha\text{grave} \end{bmatrix} \rightarrow [+\text{cent}] \quad / \_\_ \begin{bmatrix} +\text{cons} \\ +\text{voc} \\ \alpha\text{diff} \\ +\text{lat} \end{bmatrix}$$

In other words: if diffuseness of the liquid agrees with gravity of the preceding vowel, the later is centralized.

Before stating the Vowel Centralization rule in its final form, some adjuctment is necessary for the trills.

THE TWO R'S

The Alveolar Lenis Non-nasal, represented in deep structure by the cluster ld should come out as an alveolar stop d, but it actually does not and has a unique development. It loses its obstruent character and becomes a trill in surface structure, which will be noted r to distinguish it from the trill r which is a realization of the liquid r found in deep structure. Since r is a Diffuse Liquid in deep structure, and r comes from a cluster of Diffuse Liquid + Stop the effect of both r's on the preceding vowel should be the same when rule R_{49} is applied. This is not the case, however. When it becomes a trill, r (<ld) changes at the same time its feature of Diffuseness; it is opposed to r by becoming [-Diffuse]. As a result of this, the effect of each r on the preceding vowel is always different; in fact there is complementary distribution of the Centralization feature before the two r's, as shown in the following examples:

R		R	
ïṛuḷä	'Irula'	iründe	'I was'
ëṛi	'throw!'	erüme	'buffalo'
vë:ṛü	'another'	ve:rü	'root'

kari	'meat'	käri	'charcoal'
korendü	'being reduced'	söre	'gourd'
kurüge	'I pound rice'	kürivi	'bird'

The centralization pattern found before r is exactly that which is found before l. This is why it will now be marked [-Diffuse] like the retroflexes. Within the realm of trills, r and r pattern like l and l respectively within the realm of laterals. Phonetically, the difference between r and r does not lie in the number of flaps nor in the intensity of articulation nor in a flap-trill distinction, but in the position and shape of the tongue. r is pronounced as an alveo-dental with the tongue flat, r as a back alveolar with the tongue retracted. In the communication process, it is the quality of the preceding vowel which is the most striking clue for identifying the r's.

Reduction of LD Clusters

$$R_{50} \begin{vmatrix} +Son \\ +Con \\ +Voc \\ +Dif \\ +Lat \end{vmatrix} \begin{vmatrix} -Son \\ -Gra \\ +Dif \\ -Ten \\ -Nas \end{vmatrix} \longrightarrow \emptyset \begin{vmatrix} +Son \\ +Voc \\ -Dif \\ -Lat \end{vmatrix}$$

The two r's are now distinguished by the feature of diffuseness, like the two l's. Instead of restricting the vowel centralizing environment to laterals we can now extend it to include all liquids since they all have identical effects on the preceding vowel. We can thus spare stating [+lateral] as environment in the vowel

centralization rule.

A complete statement of vowel centralization has to mark cardinal vowels with the feature [-Cent] in order to keep a difference between i and ï, e and ë, etc... This could be worked into the vowel centralization rule. But we will see later that an alveolar n may be deleted in the phonological cycle and yet leave the preceding vowel centralized (see p.131); in order to avoid making vowels cardinal again at the next cycle, we have to move the rule introducing [-Cent] higher than the phonological cycle. That is, all vowels will be marked as cardinal [-Cent] in the Phonological redundancy rules.

The vowel centralization rule can now be stated here as described on p.122with a slight modification, namely:
a) the features cons and voc in the second segmat are not specified +, +,but simply β,β,(i.e., either +, + or -,-). This was devised in order to include not only the liquids but also the reconstructed retroflex semivowel r̈ (-cons, -voc) as will be explained later (p.143).
b) the feature [-lam] is required in the second segments for reasons to be stated on p. 128.

$$R_{51}\ \begin{vmatrix} -\text{Cons} \\ +\text{Voc} \\ \alpha\text{Gra} \end{vmatrix}\ \begin{vmatrix} \beta\ \text{Cons} \\ \beta\ \text{Voc} \\ \alpha\ \text{Diff} \\ -\text{Lam} \end{vmatrix} \longrightarrow \begin{vmatrix} +\text{Cent} \end{vmatrix}$$

1 2 1 2

One of the reasons for introducing liquids before dentals in the underlying structure was to simplify the statement of the vowel centralization rule. We may now state the rule producing retroflex and alveolar obstruents. The Cluster Alveolar liquid + Dental obstruent gives an Alveolar obstruent; Retroflex liquid +Dental obstruent gives a Retroflex obstruent. Alveolar and retroflex nasals are derived in the same manner. The problem now comes of assigning features to these new segments. The dividing point in the palate for diffuse and non-diffuse consonants is the alveolar ridge, so that alveolar obstruents must be marked [+Dif], while retroflex consonants are marked [-Dif]. This can be described very conveniently as assimilation of diffuseness to the preceding lateral. This is not sufficient, however, to make all the necessary distinctions: a new feature X must be used in order to distinguish dentals from alveolars and retroflexes from palatals:

	Dentals	Alveolar	Retroflex	Palatal
Diff	+	+	-	-
X	+	-	-	+

It would be advantageous to use the same feature X to make both distinctions in order to keep down the total number of features used. Since the point of articulation on the palate has already been used to establish the feature of diffuseness, we have to look for another type

of phonetic evidence for feature X.[2] The manner of articulation, being the same complete occlusion, does not provide any differentiating factor. The part of the tongue involved in the closure is not the same for all four stops and may provide the basis for a feature distinction: Dentals use both the tip and the blade of the tongue, Alveolars and Retroflexes use the tip but not the blade, Palatals use the blade, not the tip:

	Dental	Alveolar	Retroflex	Palatal
Tip	yes	yes	yes	no
Blade	yes	no	no	yes

Use of the blade seems to be the criterion we need: it distinguishes at the same time dentals from alveolars and retroflexes from palatals. A feature of Laminality does not seem an unreasonable addition to the universal set of distinctive features: the use of the blade probably has a number of articulatory correlates, such as flattness of the whole tongue, whereas the use of the tip (and not the blade) is related to tongue curving (in order to avoid blade contact). The shape of the tongue in turn modifies the shape and volume of the resonating cavity behind and in fron of the closure and

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[2] If one insists on using place of articulation as a criterion, one will have to resort to features defined in relative, not absolute terms; for instance: +X has a primary constriction further back than the corresponding -X. The general theory of distinctive features can be kept simpler if a feature can be found that does not require an entirely new kind of definition.

has an effect on neighboring vowels. A detailed phonetic study of the Irula centralizes vowels would be necessary to substantiate this and perhaps reject the feature of centralization as the distinguishing feature.

Our distinctive feature analysis of Irula obstruents will be thus:

	Dentals	Alveolars	Retroflexes	Palatals
Grave	-	-	-	-
Diffuse	+	+	-	-
Laminal	+	-	-	+

The rule reducing clusters of Liquids + Obstruents will be quite simple: the lateral causes laminalization of the following obstruent, and the diffuseness of the lateral is carried over to the obstruent:

REDUCTION OF LATERAL + DENTAL

$$R_{52} \quad \begin{bmatrix} +\text{Con} \\ +\text{Voc} \\ \alpha\text{Diff} \\ +\text{Lat} \end{bmatrix} \begin{bmatrix} +\text{Con} \\ -\text{Voc} \\ -\text{Gra} \end{bmatrix} \rightarrow \quad \emptyset \quad \begin{bmatrix} +\text{Lam} \\ \alpha\text{Diff} \end{bmatrix}$$

1 2 1 2

Note that due to redundancy rule R_9 all non-grave Nasals are affected by this rule except initially: there are no medial n's not preceded by laterals. This accounts for the fact that there is only a two-way contrast between non-grave nasals in medial position: alveolar versus retroflex.

The absence of initial clusters in deep structure

automatically precludes the occurence of initial retroflex and alveolar obstruents in surface structure. For the same reason, initial non-grave nasals can only be dental. In actual pronounciation, the first n of a word like nan̲ükkü 'to me' is pronounced slightly more forward than the second.

THE ENUNCIATIVE VOWEL

As noticed above, p.99 , there is in Irula a regular pattern of vowel insertion between consonants and in word-final position. When they are pronounced in isolation, all words ending in a consonant (i.e., a segment marked [+Cons]) are given an extra vocalic segment generally called in other Dravidian languages 'enunciative vowel' (BRIGHT, 1958). In most environments this vowel has a high centralized quality with optional lip rounding; in casual speech it may even become high mid, although it is never as open as a schwa. There is an optional phenomenon of vowel harmony which may give it a back rounded quality when the preceding vowel is short back and rounded: Ex: koḍü or koḍu; this becomes compulsory when, in addition, the last consonant is a labial: Ex: kombu 'horn', but not *kombü.

The underlying form of the enunciative vowel will therefore be most economically described as being a centralized rounded back vowel (ü̈).

There is only one exception to this insertion of ü, namely for polysyllabic words ending in an -n. In word-final position the -n is deleted, and the word now ending in a vowel does not receive the enunciative vowel. Since deletion of final n takes place after the vowel centralization rule, we may find centralized vowels in final position, without any apparent conditioning. Ex: avä 'he' vandä 'came, 3rd masc. sing.'

The underlying final -n reappears in such forms as avänа 'he, indeed' vandäno 'did (he) come?'.

Monosyllables keep their final -n and thus will later receive an enunciative vowel: mi:nü 'fish', pe:nü 'louse'. The first pronoun has an underlying form: na:ln-; in surface phonology, when not followed by any suffixes, it is represented by two free variants: nä: and na:nu. It would be desirable to show that these two variants arise from the application or non-application of rules already found in the grammar instead of having two underlying forms in the lexicon. The form nä: can be obtained by application of the rule deleting final nasals. The irregularity lies in the fact that this rule does apply even though this word is monosyllabic. Since rule features simply suspend the application of a whole rule and cannot be used to suspend a part of the conditioning environment stated in a rule, deletion of final n must be described in two steps: a first rule states that

monosyllables are assigned a rule feature [-R54] that prevents deletion of final n's, then final n's are deleted, regardless of the number of syllables; the variant nä: is obtained by an optional rule feature [-R54] preventing the application of the first of these two rules and thus causing the second to apply. This feature [-R54] is a lexical peculiarity of the morpheme na:ln '1st person sing'.

$$R_{53}\quad -\text{Seg}\quad (+\text{Seg})\quad +\text{Seg}\ \left|\begin{matrix}+\text{Seg}\\+\text{Cons}\end{matrix}\right|\ \left|\begin{matrix}+\text{Seg}\\+\text{Cons}\end{matrix}\right|\ -\text{Seg} \rightarrow [-R_{54}]$$

$$R_{54}\ \left|\begin{matrix}+\text{Son}\\+\text{Cons}\\-\text{Voc}\\-\text{Gra}\\-\text{Dif}\end{matrix}\right|\ \# \rightarrow \emptyset$$

The vowel ü can now be added to all final consonants, but before we do this we must notice that this rule also applies in many non-final positions.

In addition to word-final position, the enunciative vowel is also inserted inside words whenever two consonants happen to cluster. Since there are no consonant clusters at this level of structure, this can only happen across morpheme boundaries after junctures have been removed. Ex: koḍükke 'I give' (koḍ-k-e). These two types of vowel insertion, final and interconsonantal, can be described under one single rule by assigning the feature [+Cons] to word boundaries and internal junctures, and having a rule that introduces ü between any two consecutive segments marked [+Cons]

$$R_{55}\quad \begin{vmatrix} +\text{Cons} \\ 1 \end{vmatrix} \begin{vmatrix} +\text{Cons} \\ 2 \end{vmatrix} \rightarrow 1 \begin{vmatrix} +\text{Gra} \\ +\text{Dif} \\ -\text{Comp} \\ -\text{Ten} \\ +\text{Cent} \end{vmatrix} 2$$

However, if we inspect speech sequences longer than the word we notice the same phenomena occurring again and again: an ü is inserted in word-final position, only if the next word begins in a consonant; if it begins in a vowel, the enunciative vowel does not appear. This means that the feature [+Cons] is not assigned to all word junctures but only to those that correspond to certain major syntactic units such as the clause or the sentence. Ex: nä: vandü, o:d̥ipö:n̲e 'well, I ran away' lit: 'I, having come, having ran, went'.

The rule introducing the enunciative vowel is still in the cyclical part of the rules. It applies again and again wherever the deletion of a juncture causes two consonants to abut, and, in longer stretches, wherever a consonant is followed by a juncture marked [+Cons].

Rule R_{55} does not specify the features of sonorancy consonantality and vocalism for the new segment ü. These features can now be specified as part of a very general rule which states that when two consonants are separated by one segment, that segment is a vowel:

	1	2	3				3
R56	+Cons	+Seg	+Cons	⟶	1	+Son -Cons +Voc	

This is the most general statement that can be made in order to describe a CVCV pattern in Irula. It would have to be complemented by a series of rules that prevent vowel clusters across morpheme boundaries.

Hiatus is generally prevented by insertion of a semivowel between the two vowels: koḍu + i⟶koḍuvi 'give!'(Pl) aṟi + e:⟶aṟiye 'I don't know'. The general pattern is insertion of v after back vowels, insertion of y after front vowels, but there are many irregularities in this and our data are not sufficient to describe these processes accurately. In addition to semivowels, liquids are also inserted after -a to prevent hiatus: for instance, ḷ is generally inserted after final a. Ex: mära 'tree' märaḷo 'is it a tree'.

Individual morphemes also have variants that prevent vowel clusters: the accusative has a basic form -e, but

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Pronouns like avä 'he (there)', ava 'she (there)', ivä 'he (here)', iva 'she (here)', evä 'which one (masc.)', eva 'which one (fem.)' could be analyzed as deictics a- i- e- followed by personal endings -ä, -a, the intervocalic -v- being explained as an insertion to prevent hiatus. However -v- is never inserted after the high vowels i- and e-; furthermore, an expression like evaḷavü 'how much' (ev-aḷavü 'what measure') could be used to postulate underlying forms with an inherent -v for the deictics: av- iv- ev-. If this reconstruction has historical significance it may help explain Old Tamil forms such as ah-tu 'that', ih-tu 'this' (h stands for the Tamil letter ∴ āytam).

after words ending in -e it has an allomorph -ne. Ex: tele 'head' telene 'head (Acc)'.

PHONETIC RULES

LABIALIZATION - PALATALIZATION

In Irula, non-Nasal velars are affected by the preceding vowels in different ways; Voiceless Velar Stops are strongly palatalized when preceded by a front vowel, while Voiced Velar Stops are strongly labialized after back vowels. In addition to changing the place of articulation, (k more front, g more back) these processes also give them an audible glide release: -kky- and -gw- respectively. We will consider this to be the prominent factor and describe it by introducing -y- and -w- in the proper places. These glides will in turn become the conditioning factor for adjusting the place of articulation of the preceding stop, a process which we will consider as belonging to performance and outside the domain of this description.

Ex: po:gwe 'I'll go', togwäre 'dhal', vandugwe 'I come' (Perfective) (var-nd-u-g-e)

kü:rekkye 'at home' kaḍikkyüdü 'it bites'

añjikkye 'I fear'

These two complementary phenomena can be described in one rule. We have to place this apparently low phonetic adjustment rule relatively high in the phonetic rules in

order to rake advantage of the fact that -kk- and -g- are still represented as one segment each; the general rule describing palatalization-labialization can thus be made much more simple than otherwise.

Labialization:

R_{57}

-Con	+Cons	+Voc	→	+Son
+Voc	+Gra			-Con
	-Dif			-Voc
+Gra	-Ten			+Gra
-Cent	-Nas			
1	2	3	2	3

Palatalization:

R_{58}

-Con	+Con	+Voc	→	+Son
+Voc	+Gra			-Con
-Gra	-Dif			-Voc
-Cent	+Ten			-Gra
	-Nas			
1	2	3	2	3

The feature [-Cent] has to be mentioned in the rule in column 1 since centralized vowels have no labializing or palatalizing effect on the following velar obstruent. Ex: mëkku 'bee's wax' (comes from an underlying merk-)

The two above rules can be collapsed into one:

Labialization-Palatalization

R_{59}

-Con	+Con	+Voc	→	+Son
+Voc	+Gra			-Con
αGra	-Dif			-Voc
-Cent	-αTen			αGra
	-Nas			
1	2	3	2	3

Literally: if the tenseness of a velar stop disagrees with the gravity of the preceding vowel, a glide having the gravity of the vowel is added after the stop.

RESEGMENTATION OF OBSTRUENTS

Obstruents were all assigned one segment in deep structure. In surface structure, all Tense obstruents are represented by two segments. Non-nasal Tense obstruents are represented by two identical segments, except initially where they preserve their basic unisegmental representation.

KK Clusters

R60
$$\underset{1}{+\text{Seg}} \quad \underset{2}{\begin{bmatrix} -\text{Voc} \\ +\text{Cons} \\ +\text{Tense} \\ -\text{Nas} \end{bmatrix}} \longrightarrow \underset{1}{[\;]} \quad \underset{2}{[\;]} \quad \underset{2}{[\;]}$$

i.e., a new segment, identical to 2 is inserted before 1.

Lax Nasal obstruents will have one Lax Obstruent segment, later to become voiced, preceded by an homorganic nasal. No statement is necessary about the position in the word where this rule may apply.

NG Clusters

R 61
$$\underset{1}{\begin{bmatrix} -\text{Voc} \\ +\text{Cons} \\ -\text{Tense} \\ +\text{Nas} \end{bmatrix}} \longrightarrow \underset{1}{[\;]} \quad \underset{1}{\begin{bmatrix} -\text{Nas} \end{bmatrix}}$$

Homorganicity is automatically insured by our convention about numbering segments:

Ex: pa:^{N}b → pa:mbü 'snake'

ka:ḷn-g-e → ka:ḷ^{N}ge → ka:^{N}ge ka:ŋge 'I see'

These two rules can be collapsed:

RESEGMENTATION RULE

$$R_{62} \quad \overset{1}{+\text{Seg}} \; \overset{2}{\begin{bmatrix} -\text{Voc} \\ +\text{Cons} \\ \alpha\,\text{Tense} \\ -\alpha\,\text{Nas} \end{bmatrix}} \longrightarrow \overset{1}{\begin{bmatrix} \; \end{bmatrix}} \; \overset{2}{\begin{bmatrix} \; \end{bmatrix}} \; \overset{2}{\begin{bmatrix} \\ -\text{Nas} \end{bmatrix}}$$

We can see now that there are two possible sources for surface structure nasals:

1) deep structure segments marked $\begin{bmatrix} +\text{Son} \\ +\text{Con} \\ -\text{Voc} \end{bmatrix}$ which remain unchanged in surface structure, ex: na:ln 'I'

2) deep structure segments marked $\begin{bmatrix} -\text{Son} \\ -\text{Tense} \\ +\text{Nasal} \end{bmatrix}$ which have just now been resegmented: $\begin{bmatrix} -\text{Son} \\ -\text{Tense} \\ +\text{Nasal} \end{bmatrix} \begin{bmatrix} -\text{Son} \\ -\text{Tense} \\ -\text{Nasal} \end{bmatrix}$

The first of these two segments is phonetically similar to the nasals mentioned above (1).

Both types of nasals should have the same feature specifications in surface structure; a rule is therefore needed to change the sonorancy of the second type of nasals:

$$R_{63} \quad \begin{bmatrix} -\text{Son} \\ +\text{Nas} \end{bmatrix} \longrightarrow \begin{bmatrix} +\text{Son} \end{bmatrix}$$

It has now become possible to state several rules which operate in the environment of intervocalic single consonants.

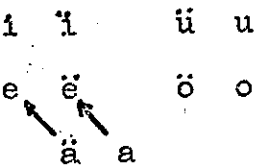
VOWEL METAPHONY

(1) Raising of a

There are no contrasts between short a and short e in the environment: before single consonants + short e; only e or e are found in this position.

Ex: tele 'head', ele 'cave', kere 'river',
përe 'drum' mërette 'I concealed',
mele 'hill' (in songs), vele 'net', vëde 'cake'

Since e and e show in these examples the same distribution as they would if they represented an underlying e, we could simply state this as a redundancy rule showing neutralization of a and e. A first difficulty would be to state 'a single consonant' in the deep structure, since superficial clusters, pp, mb, etc... are represented there as single segments, but worse problems would arise when we would come across a form like pëde 'daughter', where the centralized vowel has no apparent justification. In addition, the second e in all these examples is a derivational suffix; we can therefore expect the occurrence of other forms of the same roots witha different suffix where the underlying and historical /a/ would reappear. For these reasons we will state the rule: a → é / ___ Ce. This however does not account for a form like pëde . The rule will simply raise both a and ä and merge them with ë and e respectively.



Raising of a is thus shown to be a low phonetic rule, at any rate lower than the vowel centralization rule.

$$R_{64}\ \begin{bmatrix} +\text{Voc} \\ -\text{Cons} \\ +\text{Comp} \\ -\text{Tense} \\ \alpha\text{Plain} \end{bmatrix}_1 \begin{bmatrix} +\text{Seg} \end{bmatrix}_2 \begin{bmatrix} +\text{Voc} \\ -\text{Cons} \\ -\text{Comp} \\ -\text{Diff} \end{bmatrix}_3 \rightarrow \begin{bmatrix} -\text{Comp} \\ -\text{Diff} \\ -\alpha\text{Plain} \end{bmatrix}_1$$

b) Lowering of high vowels

The lowering of high short vowels i, u to e, o, and ï, ü to ë, ö is described at this level for the same reason as was invoked for the raising of /a/: it involves 'a single consonant' as a conditioning factor.

The fact that it is described as a grammatical rule at all requires some justification. The conditioning environment is: before a single consonant followed by a short a or e. Here again, this a or e constitutes in most cases a derivational suffix. There are therefore cases of alternation in a few root morphemes: Ex: vede 'seed' vittine 'I sowed'; korette 'I shortened' kurükkine 'I shorted'; ode 'clothes' udutte 'I wore', where the underlying high vowels reappear when the derivational suffix is other than a or e. In these, admittedly rare cases, the vowel lowering

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The Proto-Dravidian vowels for these roots have been reconstructed as -i, -u and -u respectively; cf. DED 4428, 1537, 502.

rule will permit establishing a connection between related words by deriving them from the same root + different suffixes. These roots have a high vowel in the lexicon, whereas other roots which do not show alternations in similar conditions, ex: kölegä:rä 'criminal' köllü 'kill!', receive a mid-vowel in the lexicon. Roots which do not show any evidence one way or the other, and these are the majority, will simply be left unspecified in the lexicon as to highness of the vowel. The present rule will assign the feature -Diff to them.

$$R_{65}\ \begin{bmatrix}+\text{Voc}\\-\text{Cons}\\-\text{Comp}\\+\text{Diff}\\-\text{Tense}\end{bmatrix}\ \begin{bmatrix}+\text{Seg}\end{bmatrix}\ \begin{bmatrix}+\text{Voc}\\-\text{Cons}\\-\text{Grave}\\-\text{Diff}\\-\text{Tense}\end{bmatrix} \Rightarrow \begin{bmatrix}-\text{Diff}\\1\end{bmatrix}$$

LOSS OF INITIAL VOWELS

It was stated in morpheme structure rules that there were no initial clusters, thus no initial retroflexes or alveolars. It is no longer the case in surface structure: there are some initial retroflex d's:
Ex: ḍakke 'areca nut' ḍombu 'cliff, river bank'
ḍe- 'to break' ḍe- 'to pickle'

Historically, all these words had an initial short mid or low vowel. In looking for gaps in the patterns of distribution of these vowels before ḍ in Irula, the number of examples and counterexamples is so small that several

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The Proto-Dravidian vowel for this word is reconstructed as *-o; cf. DED 1772.

different rules can be postulated in order to account for initial ḍ's.

The following evidence may be adduced in order to reconstruct an initial vowel: if the weak verbs ḍe- 'to break (impersonal passive)' and ḍe- 'to pickle' were monosyllabic in deep structure we would expect a long vowel in the non-past forms as in: ve:güdü, no:güdü, le:güdü (see p. 106). However, these verbs only have short vowels in all their forms: ḍegüdü 'it breaks' ḍegoṇu 'we (must) pickle'. This means that either these forms are irregular with regards to (R_{40}) or that their deep structures are not monosyllabic. We choose the latter hypothesis. The simplese rule corresponding to a pattern gap will state that an initial short non-diffuse vowel is deleted before d plus the same vowel

	1	2	1		2	1
R_{66}	-Cons +Voc -Dif -Ten	+Cons -Voc -Gra -Dif -Lam		→	ϕ	

The reconstructed lexical forms of the examples cited above will therefore be: *aḷdake *oḷdom^{b} *aḷde.

The need for such a rule might be questioned since there is very little chance of finding a morphophonemic alternation where the postulated initial vowels would reappear. We will consider it justified however on the grounds that these cases of initial ḍ's are the only

exceptions to the redundancy rule preventing initial clusters; since these exceptions follow a pattern, i.e., can be described in far more economical terms than listing, a lower rule can account for them and the general redundancy rule be preserved.

These three rules: raising of a, lowering of high vowels, loss of initial vowels have many features in common: they require similar environments and cause mergers or elisions of short vowels (non-mid become mid, mid and low disappear). The details of the rules are however so diverse that no generalization can regroup them.

LOSS OF R̈

Most of the occurrences of centralized vowels have been explained so far as an outcome of the vowel centralization rule. There are words however which seem to have exceptional centralized vowels in that they do not contain the normal conditioning environment. Ex: ëge 'I cry', ëde 'I cried', ëa:de 'don't cry', këttü 'neck', kï:e 'down', ë:ndine 'I got up', vëyi 'path', vï:nde 'I fall', këngü 'tuber', mëkkü 'bee's wax', këde 'I washed', këge 'I wash', bëgü 'much', këa 'mushroom', etc.

We may notice that in all these cases, the unexpected unrounded vowels are front high and mid vowels, i.e., those centralized vowels which are normally found before a retroflex. If we now look at such items as këa, kï:e, which display vowel clusters in spite of the overwhelming

predominance of CVCV patterns, it becomes apparent that by postulating a deleted retroflex consonant between the two vowels the deep structure of the language is made more regular. In addition, we may thus reduce to more regular patterns such cases of vowel clusters as: koälü 'flute' where the first vowel is uncentralized and back, as one would expect before a retroflex. Finally, we saw in the treatment of verb morphophonemics that certain verbs with a superficial final vowel are classed with verbs having a final semivowel in deep structure. (see p. 99). All these apparently irregular phenomena can be regularised very simply by deleting a Retroflex Semivowel in all its occurrences. This solution has the drawback of complicating the vowel centralization rule: the conditioning environment must now include semivowels as well as Liquids. The natural class Semivowel + Liquid is characterized by Sonorancy and agreement in sign between the consonantal and the vocalic features (i.e., +Con +Voc or -Con -Voc); in short $\begin{vmatrix} +\text{Son} \\ \alpha\text{Con} \\ \alpha\text{Voc} \end{vmatrix}$. This explains the final form of the vowel centralization rule, p. 125.

The reconstructed semivowel r̈ has the following feature specifications: +Son, -Con, -Voc, -Gra, -Lam, -Dif, -Ten, -Nas, in deep phonology. The two nongrave semivowels are distinguished in deep structure by the feature of Diffuseness, but since we have introduced

semivowels in the relevant environment for vowel centralization, we must now keep y out of the rule, since it has no effect on the preceding vowel. This is done by specifying the feature of laminality by a redundancy rule and by mentioning [-Lam] in the relevant environment for vowel centralization. The set of features mentioned in column 2 of that rule thus characterizes the natural class: Alveolar and retroflex Liquids and semivowels.

DELETION OF R:

$$R_{66} \quad \begin{vmatrix} +\text{Son} \\ -\text{Con} \\ -\text{Voc} \\ -\text{Dif} \end{vmatrix} \rightarrow \emptyset$$

The underlying forms of the examples given above will therefore be: e̤r- 'to cry', ke̤rt 'neck', ki:̤r-e 'down', e:̤r-nd- 'to get up', ve̤ri 'path' (the y of vëyi being automatically introduced), kṳral 'flute', ki̤r-e 'goat', vi:̤r- 'to fall', ke̤r^{N}g- 'tuber', me̤rk- 'bee's wax', ke̤r- 'to wash', be̤rg- 'much', ki̤ra- 'mushroom'.

Conclusion

This is, by necessity, an incomplete account of the Irula language. The generative model permits one to carry analyses to such depth and with such delicacy that obtaining data of high quality becomes a major problem I was not able to surmount entirely.

The main points outlinedin the abstract and justified in the body of the dissertation seem, nevertheless, reasonably well established. These structures which are interesting in themselves for the elaboration of a general linguistic theory are also quite relevant to studies in other Dravidian languages. If the deep structure of a language reflects fragments of its earlier structures we might ask several questions about the history of Dravidian languages. For instance, are not the Alveolar and the Retroflex series of obstruents historically derived from Dentals? What is the historical relevance of our three series of obstruents, voiceless voiced, prenasalized? I do not wish to suggest any

answer one way or another, but these are questions which can now be asked in a very detailed fashion.

The study of such obscure languages as Irula, even though toilsome may give a standing point from which we may gain new perspectives on better known languages like Tamil.

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