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SHONA MORPHOPHONEMICS

AND MORPHOSYNTAX

Derek Fivaz

I declare that this dissertation which is submitted for the degree of Doctor of Philosophy in the University of the Witwatersrand is entirely my own work, and that it has not previously been, nor will be, submitted for a degree in any other university.

18th December 1969 D Fivaz

Dissertation presented for the degree of Doctor of Philosophy in Bantu Languages and Linguistics, University of the Witwatersrand, Johannesburg.

December, 1969.

To that great figure in Bantu
linguistic studies,

C.M.D.

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LIST OF ABBREVIATIONS

a	adjective
adj.	adjective
adv./Adv.	adverb
ADV	adverbial slot
AP	adverbial phrase
Assoc.P	associative phrase
C	consonant
cl.	class
cop./Cop.	copulative
CP	copulative phrase
d	demonstrative
demon.	demonstrative
DEM	demonstrative slot
e	enumerative
enum.	enumerative
EXT	extension slot
G	gender slot
gc	gender concord
H	high tone
infin	infinitive
Inf.P	infinitive phrase
L	low tone
LOC	locative slot
LP	locative phrase
MR	morphophonemic rule
n	noun
n (subscript)	any number of
NEG	negative slot
NOM	nominalising slot
NUC	nucleus slot
OBJ	object slot
OP	"ownership" phrase
OWN	"ownership" slot
P	pronoun
poss./Poss.	possessive
POSS	possessive slot
PP	possessive phrase
Pres.P	presentative phrase
PRES	presentative slot

q	qualificative
QUAL	qualificative slot
QUANT	quantitative slot
R	root
RP	relative phrase
s	selector
SP	substantive phrase
T	tense slot
TMP	tonal morpheme pair
V	vowel
Vless	voiceless

[ ]	encloses phonetic notation	§	section
/ /	encloses phonemic notation	´	high tone
{ }	encloses morphemic notation	`	low tone
//	morphophonemic base form	∅	zero
( )	optional element	+	is followed by, plus
$\left\{ \begin{matrix} \\ \\ \end{matrix} \right\}$	encloses alternatives, so $\left\{ \begin{matrix} A \\ B \end{matrix} \right\}$ in A or B	±	may be followed by
		∓	either + or −
/	denotes alternants, so A/B is A or B	⇒	is realised as
:	is filled by, so A:b is A is filled by b	>	becomes, is realised as
		|	in the context of
I	1st person concord	~	varies with, allomorph
Is	1st person singular concord		
Ip	1st person plural concord		
II	2nd person concord		
IIs	2nd person singular concord		
IIp	2nd person plural concord		
III	3rd person concord		

$\left[\begin{matrix} \\ \\ \end{matrix} \right] \Rightarrow \left[\begin{matrix} \\ \\ \end{matrix} \right]$ is a means of rule conflation, there being a line-by-line correspondence of the units in the square brackets on both sides of the rule. Thus,

$$\left[\begin{matrix} A \\ B \\ C \end{matrix} \right] \Rightarrow \left[\begin{matrix} X \\ Y \\ Z \end{matrix} \right]$$

is a succint statement of the rules: A ⇒ X
B ⇒ Y
C ⇒ Z .

(Abbreviations and symbols relating to Appendix II are listed on pages 230 and 231.)

INTRODUCTION

This introduction is of necessity somewhat protracted. Insofar as the present study is a departure from traditional Bantu language description in this country, several topics require discussion. These include the current state of Bantu language description and the nature of the descriptive model which has been widely used hitherto, the nature of language and some consequent implications for grammatical description, as well as an outline of the scope and nature of this particular treatment of Shona grammatical structure. A consideration of these points therefore provides the necessary historical and theoretical context for this dissertation.

The provision of such a context is felt to be the necessary explanation of the reason for this departure in both extent and type from customary Bantu analysis. Fundamental assumptions as to the nature of language and the nature of linguistic analysis underlie every linguistic description, whether they are treated explicitly or not. Language description always involves interpretation, and it was De Saussure who pointed out the need for linguists to be conscious of "what they are doing."[1] In the context of South African Bantu linguistics, we have, for example, to justify the common implicit assumption that a "part-of-speech" analysis is in some sense the "core" of grammatical description.

Such justification has of necessity to be framed in terms of a general theory of language. Professor D.T. Cole, in his inaugural lecture, rightly pointed out the need for constantly keeping in touch with the developments in general linguistics, and that "one cannot, of course, discuss the linguistics of Bantu, nor of any other language or family of languages, without some reference to linguistic science as a

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1 Cited by Robert Godel in, "F. De Saussure's Theory of Language," Current Trends in Linguistics, Volume III, page 480.

whole and in general ..."[1] It is because general linguistic theory is relevant and important in every language description, that there is need for an appraisal of the basic assumptions that underly most of the work on the Southern Bantu languages to date.

The Doke Model

As the Bantu languages generally, Shona being no exception, are characterised by very considerable morphological complexity, it is scarcely surprising that Bantu linguistic studies have been very largely concerned with the analysis of morphologically complex word-type constructions. The best known model of Bantu description, that of Professor C.M. Doke, has been very well-developed and extensively applied in descriptions of the south-eastern Bantu languages particularly. Such studies have been characterised by the thorough description of word constructions, and by the neglect (almost complete until fairly recently) of syntax and tone.

The brief review of the main features and weaknesses of the Doke model given below is in no way to be taken as an underestimation of Doke's contribution to Bantu linguistic studies. Doke's work has been of the greatest significance in stimulating analysis and description by others, and his own contributions have been nothing short of monumental.[2] There can be no doubt that the model of description developed by him has served to greatly upgrade the standard of Bantu linguistic work in southern Africa and elsewhere. The state of Bantu linguistics over the last forty years has largely been that of applying his model to a widening circle of languages.

Doke early realised that the Bantu languages must be recognised as having their own unique structure, and that

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1 D.T. Cole, Bantu Linguistic Studies in South Africa, pages 9 and 15.

2 See D.T. Cole, op. cit., and M.A. Gleason's review of Doke's The Southern Bantu Languages, Language, Vol.32, No. 3, 1956, for some discussion of the significance of Doke's work.

they cannot successfully be described in terms of the classical Indo-European model. He rejected in particular the recognition of certain Indo-European word categories for Bantu and their accompanying principles of word segmentation. The category of preposition, for example, can only be established in Bantu if a certain method of segmentation is followed.[1] Doke is essentially concerned with a valid word taxonomy, and his insistence on certain principles of word division must be interpreted in the specific context of his rejection of the classical model for Bantu. Cole rightly summarises Doke's departure as a "new categorisation of Bantu 'parts of speech,' and appropriate new terminology and analytical and descriptive procedures, based on a new concept of Bantu word-division as determined by structural criteria of the Bantu languages themselves"[2] (emphasis mine).

> In The Southern Bantu Languages Doke says that the attempt to "find a truly Bantu mode for grammatical work ... entailed, among other things, a recognition of the conjunctive word as constituting the part of speech, the discarding of the terms case and preposition as not being applicable to Bantu languages..." as well as the recognition of certain distinctively Bantu categories (page 17). "Students of Bantu languages have experienced the difficulty of trying to use unaltered the moulds of classical and modern European grammatical systems, and considerable harm has been done to the study of Bantu languages by forcing foreign nomenclatures upon Bantu structure. Perhaps nowhere has this been more evident than in the methods of word-division which have been applied to some Bantu languages" (page 49).

The Doke model is so well-known as to require no detailed exposition here.[3] Some features, however, need

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1 In Shona, for example, /kuvanhu/ (to the people) must be segmented as /ku vanhu/ for /ku/, which has locative meaning, to match the preposition "to".

2 Op. cit., pages 8 and 9.

3 It is outlined in Doke's Southern Bantu Languages, pages 49 and 50, and the classic exemplification is his Textbook of Zulu Grammar. Shona has had a thorough Dokean treatment in Fortune's An Analytical Grammar of Shona.

specific mention. The most important of these is that conjunctive word-division is an essential feature on which the model depends.[1] Doke insisted on a word division based on the principle of word demarcation by stress. In the southern Bantu languages each word has only one stress (generally penultimate), and unstressed segments are therefore not words but parts of words.[2] It is these stress-demarcated segments which are the subject of Doke's grammatical taxonomy. Such segments are classified "according to the work which they do in the sentence," and "six fundamental parts of speech are recognised."[3] These parts of speech are then further sub-classified on a formal morphological basis. The classificatory scheme is clear and fits well the languages for which it was developed. Our current knowledge of the structure of the southern Bantu languages is largely that of the morphologically complex structures of word size which are covered by the Doke model. Several important aspects of linguistic structure are not covered by the model, and both Doke himself and Cole after him have lamented the lack of attention to tone and syntax in particular.[4]

Doke's departure from classical prescriptivism in Bantu description was a great step forward, although his model

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1 Gleason, talking of conjunctive and disjunctive writing in his review of Doke (op. cit., page 568, footnote), says, "The frequency with which orthographic revisions in Bantu languages have involved the adoption of conjunctive writing and the general success of these changes testify to the basic correctness of Doke's position, though not necessarily to the tremendous importance that he seems to attach to it."

2 It should be noted that in speech at normal speed penultimate stress is a phonological phrase marker. Only in citation forms or slow speech are the penultimate syllables of words stressed.

3 The Southern Bantu Languages, page 49.

4 Idem, page 7, and Bantu Linguistic Studies in South Africa, pages 14 and 15.

nevertheless reflects certain traditional notions about linguistic analysis.[1] These concern the nature of the minimal units in terms of which grammatical structure is described. Robins discusses such matters in a way which is directly relevant to Bantu linguistics.[2] He points out that traditionally the elements between which syntactical relations hold are considered to be words and word groups. Grammatical relations within words, on the other hand, are part of morphology. There is therefore a clear boundary between morphology and syntax, which implies that morphological analysis can be completed first and then a syntactic description added later. The alternative view, which has been developed only comparatively recently, is to regard the morpheme as the minimal unit of all grammatical description. Word units which may be recognised are merely one level of a homogeneously developed hierarchical system. In this approach the boundary between morphology and syntax is blurred.

Robins' summary of these two approaches is significant. He concludes that a "word-based syntax is more facilitated ... in languages wherein immediate constituents do not greatly cut across word boundaries, however established, and less facilitated ... in languages where such cross cutting (of which the English king of England's hat is a hackneyed example) is at all widespread. Put another way, the choice may in part depend on the degree to which in a particular language morphic and morphemic divisions do or do not coincide."

This dissertation is in part a demonstration of the fact that in Shona (which is in this respect by no means atypical

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1 Gleason hints at this in his review of The Southern Bantu Languages. "Linguists in the Doke tradition do not seem to have any technique for getting into a new grammatical outline. In this sense they adhere to the classical methods, having merely substituted a Zulu model for a Latin -- a quite meritorious substitution, but one far short of the best attainments in descriptive linguistics in both Europe and America."

2 R.H. Robins, "Syntactic Analysis," Archivum Linguisticum 13, 1961, also reprinted in Readings in Linguistics II.

of the southern Bantu languages) these divisions in several important cases do not coincide and that there is therefore no clear boundary between morphology and syntax. There are therefore important implications for the morphological taxonomy of the Doke model when it is treated as a first step in syntactic description.

It is important to note that in the Doke model the subject of grammatical analysis is phonological entities, for here lies the model's fundamental weakness as part of a comprehensive syntactic treatment. The implicit assumption underlying the model is that prime grammatical units (notably words) are demarcated by phonological juncture.[1] Although the Doke model is not based on any explicit linguistic theory, it follows essentially the same approach as that of the "phonological syntax" linguists in the United States who maintained that grammatical analysis should be based directly on junctorally demarcated segments.[2]

It cannot be assumed that there is a one-to-one relation between phonological words (that is, segments demarcated by some phonological feature) and grammatical words (that is, segments which are relevant to grammatical description). To do so would be similar in principle to assuming the feasability of a grammatical description in terms of syllables. Phonological segments of all sizes require formal treatment, but it cannot be assumed that they coincide with grammatical segments. In this connection, the Tagmemicists' insistence on the clear distinction between the phonological and grammatical hierarchies should be noted.[3]

A satisfactory description of Bantu syntax in terms of constructions whose constituents are phonological words can

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1 Junctural phenomena need not necessarily always be silence or open transition.

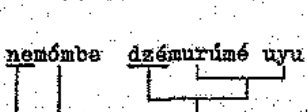
2 This approach is clearly exemplified in A.A. Hill's Introduction to Linguistic Structures. See especially pages 91 to 94. The approach appears to have been abandoned after heavy criticism.

3 One of the "basic assumptions of tagmemics" is "that language is trimodally structured into the semiautonomous but interlocking modes -- phonology, grammar, and lexicon." Robert E. Longacre, "Some Fundamental Insights of Tagmemics," Language, 41, 1, 1965.

easily be demonstrated as impossible. For example, in the Zezuru utterance:-

nemómbe dzémurúmé uyu
(with the cattle of this man)

the segments separated by spaces are phonological words whose penultimate syllables are stressed in slow speech. It is clearly impossible to describe the constituency relationships between these three words, if they are considered to be prime grammatical units. The phonological words /dzémurúmé/ (of the man) and /uyu/ (this) are qualifiers, but /dzémurúmé/ qualifies /mombe/ (cattle), and /uyu/ qualifies /murúmé/ (man). The constituency structure of the utterance can therefore be diagrammed as follows:-



The morphological segments /ne-/ and /dze-/ are not grammatically constituents of words, but rather of phrases. They are, on the other hand, phonologically part of words in that they are bound forms rather than free. It is clear that the simple kind of syntactic structure exemplified in the above utterance is outside the scope of the Doke model, which, after all, was not set up to handle syntactic facts of this kind. There are several other similar, and more complex constructions, in Shona, and in southern Bantu generally, which straddle the conventional morphology-syntax boundary.

It should be noted, however, that while the aim of Doke's model is the classification of phonological words as parts of speech, the model does deal, in some way, with syntax. The "six basic parts of speech" (viz. substantive, qualificative, predicative, descriptive, conjunctive, and interjective) do give some idea of the function, or syntactic distribution, of the words so labelled. But as the focus throughout is on the taxonomy of phonological words, no indication is given of constructions larger than the word. Coupled with a lack of general theoretical stimulus in South African Bantu linguistic

studies, the fact that some syntax is "built in" to the model is possibly a further inhibiting element contributing to the lack of concern with syntax.[1]

A further weakness of the Doke model is that tonal phenomena are not dealt with, although Doke of course recognised the importance of tone and drew attention to its grammatical function. It is, however, only comparatively recently that the grammatical significance of tonal patterning in the southern Bantu languages has begun to be explored. No doubt part of the reason for the exclusion of tone from Doke's grammatical model was the lack of some means of suitably categorising pitch differences. Gleason has pointed out the importance of the phoneme concept for the treatment of complex tonal phenomena.[2] Doke did not exploit this concept, as can be seen in his treatment of Zulu tone in terms of nine levels.

It would be unfair to criticise the Doke model as failing to meet objectives which Doke himself did not have in mind. The purpose of the model is clearly word taxonomy, and in this it is highly successful. However, if the model is considered as the first stage in an overall syntactic analysis the approach embodied in it has certain serious deficiencies, and these may be summarised as follows:-

1. The grammatical primes recognised are "parts of speech," or words, rather than sentences.

2. The words which are the subject of classification are phonological rather than grammatical segments,

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1 Doke himself did write a book on Zulu syntax, Zulu Syntax and Idiom, but it is of interest that this work, unlike his Textbook of Zulu Grammar, failed to stimulate like descriptions of other languages. Again the emphasis is on "parts of speech." Doke says that "syntax concerns itself with the functioning of the words in sentences and with the formations of the sentences themselves" (page 8). Unfortunately the bulk of the work is devoted to the former. Information on sentence structure is scattered through the book and one brief chapter is devoted to "Sentence Analysis." Doke felt that the "general framework used by many grammarians for English is adequate [for Zulu]" (page 6).

2 Op. cit., pages 569 and 570.

and several of these (such as advert, possessive, copulative, relative, and verb) straddle clear constituent boundaries.

3. Syntax, while not ignored, is clearly not seen as the major part of linguistic description.

It should be born in mind that the Doke model was developed in the sphere of anthropological linguistics and, as such, it is probably as significant a model as has been produced for any group of languages anywhere. Criticisms which arise from theoretical concerns do not minimise its importance and value as an anthropological taxonomic model. Doke's significance as a Bantuist is seen to be all the greater when it is remembered that he was not primarily a linguistic theoretician, nor had he worked in an environment of theoretical concern with the nature of language and of linguistic descriptions. He produced his model in the late 1920's, apparently practically alone and without outside theoretical stimulus.

General Approach in this Analysis

This description of Shona grammar has been produced with the following views of the nature of language:-

1. The units of discourse are sentences, not primarily words, and the formal properties of sentences are, therefore, the most challenging and of the greatest interest in linguistic description. Word taxonomy, important as it is, should be subordinated to syntactic investigation if it is to be well-motivated and non-arbitrary.[1] It must also be

[1] E.B. Van Wyk has pointed out that "it cannot be expected that a classification designed exclusively... for a morphological description will be equally useful when applied to a semantic, phonological or syntactical description," "Northern Sotho," Lingua, 17, 1967. This interesting article examines in some detail the various criteria that may be used in the classification of words, but again the focus is on words, rather than on word taxonomy as required by syntactic description.

stressed that, great as is the morphological complexity of the southern Bantu languages, the task of formally accounting for the syntactic facts of any of these languages is by far the most demanding undertaking. Of course in accounting for sentence structure, by whatever means, taxonomy is essential, but a syntactic description incorporating the necessary word taxonomy is not equivalent to a syntactic addendum to a word taxonomy.

2. All the sentences of a spoken language involve sounds and their systematically associated meanings. One of the major tasks in linguistic description is describing these systematic sound-meaning correlates. In order to do so, two levels of abstract entities must be utilised, the one being phonological (and "meaninglese") and the other grammatical (and "meaningful"). The relationship between entities of the two levels may be described in terms of "coding" or "realisation" rules. A full linguistic description therefore includes, in one form or another, grammatical entities and their associated rules, phonological entities and their associated rules, as well as rules relating the grammatical to the phonological entities, and so to phonetic sequences. These various kinds of entities and rules partly constitute the system of a language, the structure of any particular sentence being merely the utilisation and reflection of certain rules of the underlying system.

A language system includes more than rules governing the structure of individual sentences, however, and involves also the relationship of sentences to one another. The term "enate" has been proposed to designate the relationship of sentences which have the same structure, and the term "agnate" for the relationship between sentences having different structures but formally specifiable relationships.[1] A full description of the grammar of a language (i.e. its system) includes both a

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1 H.A. Gleason, Linguistics and English Grammar, chapter 9.

description of sentence structure and of agnation.[1]

3. Structural descriptions of the grammatical level must be at least partially formulated in terms of sentence constituency relations, relations of this kind being a universal feature of the sentence structure of all natural languages.[2] As constituent structure is a fundamental property of sentence structure, taxonomy must be subordinated to it. An autonomous taxonomy is syntactically unmotivated.

Scope and Nature of this Analysis

This grammatical analysis is of the Zezuru dialect of Shona.[3] The focus is on syntax which has received scant formal attention in South African Bantu linguistic studies so far. The analysis of tonal patterning, as well as of word structures, is integrated within one homogeneous exposition of certain areas of the grammatical system. The phoneme and the morpheme are the smallest units recognised in the two levels of representation referred to above. The morphophonemic rules which relate the two levels of representation are formulated in such a way as to reflect their widest applicability. A rigorous morphemic analysis is applied throughout, and this is probably the first such analysis with associated "powerful" morphophonemic rules that has been produced for any of the southern Bantu languages. Sentence structure is described in constituency terms, the particular variety employed being the "string constituent" or "slot-and-filler" type. The approach is therefore essentially taxonomic, and is of the "item and adjustment" kind.

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1 Sentence structure description necessarily utilises enata relationships. However Gleason points out that grammatical statements which do not take agnation into account "are incomplete and often needlessly difficult," Linguistics and English Grammar, page 209.

2 Paul Postal examines a number of contemporary models of syntactic description in his Constituent Structure: A Study of Contemporary Models of Syntactic Description. Despite superficial differences these are all characterised as constituent structure models.

3 Zezuru belongs to the central group of dialects and is spoken around Salisbury. A useful map showing dialect distribution is given in Doke's A Comparative Study in Shona Phonetics.

The constituent structure analysis presented here had its origins in a preliminary analysis of Zulu syntax produced some years ago.[1] The actions outlined there were applied more rigorously in subsequent work on Ndebele and then Shona. The first published analysis of this kind for a southern Bantu language was my Some Aspects of Shona Structure (1966).[2] A major shortcoming of this kind of analysis (in common with all purely surface structure studies) is the failure to account for sentence relationships of the agnate type. While this is essentially a "surface structure" description, the insights of transformational generative theory are felt to be very considerable. Limitations of time have prevented the further development of this study in transformational terms. Such an outline analysis of Shona tone is, however, appended to the main description, as tone in a taxonomic description presents several problems and a generative analysis provides an interesting contrast.

A further limitation of this study concerns the scope of coverage. Fortune's grammar[3] has a very comprehensive coverage of Shona word structures, and little would be added by merely reformulating much of this in sometimes only slightly different terms. The purpose here has not been primarily breadth of coverage of Shona structures, but rather the application of a certain kind of theory to some of the most important morphological and syntactic constructions. I trust that the result is both homogeneous and a contribution to our understanding not only of Shona, but of the nature of southern Bantu grammatical systems in general. Derivational processes are not described here at all, and certain compound verb forms are also not treated. This is, in short, only the beginnings of a comprehensive syntactic treatment.

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1 Chapter three of my Some Aspects of the Ideophone in Zulu, 1963.

2 At about this time Professor Fortune commenced a similar analysis of Shona, and a major publication in these terms is expected in the near future.

3 An Analytical Grammar of Shona.

Sources

Mr A.C. Hodza, Language Assistant in the Department of African Languages at the University College of Rhodesia, provided most of the utterances on which this analysis is based. Mr Hodza is middle-aged, and was born and brought up in a Zezuru-speaking area. His mother tongue is therefore Zezuru, although he has had extensive multi-dialect experience and has developed considerable sensitivity in this respect.

The utterances supplied by him were nearly all used as examples in teaching Shona structure to undergraduate Shona students, some of whom were Zezuru-speaking. This provided a useful check on their acceptability to other Zezuru speakers. Mr G. Kahari, Zezuru-speaking Lecturer in the same department, was consulted about some of the utterances used and provided additional confirmation of their acceptability.

CHAPTER ONE

PHONEMICS

1.0. The interpretation of the phonological system presented below provides one of the required levels of representation in accounting for Zezuru sound-meaning correlates, and is of a prefatory nature to the morphophonemic and morphosyntactic description which follows. While the Zezuru phonemic system presents several interesting features and problems in analysis, these are not extensively pursued here. Shona has been the subject of several phonological studies, and three fairly recent articles have offered noteworthy alternative analyses of Shona phonemics.[1] Reference should be made to the well-known and detailed phonetic work of Doke for exemplification of the segmental entities recognised below.

1.1. VOWELS

There are five vowel phonemes, whose sub-system is interpreted as displaying a front-mid-back : high-low set of contrasts. The vowels have no appreciable allophones.

	Front	Mid	Back
High	i		u
Low	e	a	o

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[1] The major work on Shona phonetics is that of C.M. Doke, A Comparative Study in Shona Phonetics, 1931. D. Fortune, An Analytical Grammar of Shona, 1955, pages 3 to 18 deals with phonology. The phonemic interpretation of Manyika stops is explored in Earl W. Stevick's "The Implosive-Explosive Contrast in Manyika," African Studies, 19, 2, 1960. Stevick in a subsequent article, "Two Bantu Consonant Systems," Language, 40, 1, 1964, has applied constituent structure analysis to Manyika. Frank Heny in a recent unpublished paper (no date), "Problems in the Phonemic Analysis of Zezuru," has reviewed some earlier interpretations and proposed several rather unconventional analyses.

In this interpretation of the system, all but one of the possibilities are exploited, and certain assimilatory morphophonemic changes are also most simply described.

nómurómé	(with the man)
namábhizá	(by means of the horses)
necígaro	(a chair also)

The vowel of {na-} assimilates in front-backness to the vowel of the noun prefix. If a three-by-three interpretation of the vowel system is adopted then the assimilation is both in front-backness and height.

	Front	Mid	Back
High	i		u
Mid	e		o
Low		a	

It should be noted that the vowel triangle:

i u
e o
a

is more a phonetic than a phonemic chart. If it is interpreted as displaying the systemic contrasts, there is then a five-by-three system, two thirds of the possibilities being unexploited.

1.2. CONSONANTS

1.2.1. Consonant System

There are several possible interpretations of the consonant system, depending on the relative weighting of symmetry (both allophonic and phonemic), economy, abstractness, and morphophonemic evidence. The chart overleaf and the associated consonant clusters treated in § 1.2.2. below reflect one of the various possible analyses.

			1	2	3	4	5
A	(a)		p	t		k	
	(b)		b	d		g	
B	(a)	(i)	f	s	š		
		(ii)		ṣ			
	(b)	(i)	v	z	ž		h
		(ii)		ẓ			
C			β	r	y	w	
D			m	n	ɲ	ŋ	

The rows and columns have the following feature values:-

A	stop	1	labial
B	fricative	2	alveolar
C	continuant	3	palatal
D	nasal	4	velar
(a)	voiceless	5	glottal
(b)	voiced		
(i)	without lip-rounding		
(ii)	with lip-rounding		

Doke described /h/ as "a strong throat-roughening of the vowel, ha differing from a in that roughening, for the effect of the voiced throat friction is observable throughout the duration of the vowel." He observes that "Vowels preceded by the letter h would be more correctly described as pharyngal vowels with some roughening indication above them ..."[1]

The stops /b/ and /d/ are phonetically implosive when not occurring in clusters, but are explosive in clusters. The explosive b and d not in clusters were described by Doke as differing phonetically from English b and d only in the amount of voicing.[2] They are here treated as clusters of /b/ and /d/ with /h/, as the immediately following vowel is

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1 A Comparative Study in Shona Phonetics, page 92.

2 Idem, pages 38 and 41.

pharyngalised. The contrasts /b/ : /bh/ and /d/ : /dh/ then parallel the contrasts /m/ : /mh/ and /n/ : /nh/.

The voiced velar stop, on the other hand, although immediately followed by a pharyngalised vowel, is not interpreted as /gh/. Morphophonemic alternations associated with the class 5 noun prefix indicate the following stop correlations, where /b/ and /d/ are implosive and /g/ is not implosive but is accompanied by pharyngalisation:-

p	t	k
b	d	g

mapángá	(knives)
bángá	(knife)
matémó	(axes)
démó	(axe)
makoré	(years)
goré	(year)

If pharyngalisation is in all cases treated as being distinctive, then /g/ occurs only in clusters, one of which is /gh/. In this interpretation of the stops, therefore, pharyngalisation is in most cases phonemic and assigned to /h/, but in one case is non-distinctive and conditioned.[1]

1.2.2. Consonant Clusters

The restrictions in consonant clustering exemplify several neutralisations of contrast.

Nasal clusters

mb	nd	ɲdž	ŋg
mv	nz		
	nz,		
			ɲq

[1] This analysis is one of the alternatives discussed by Stevick in "The Implosive-Explosive Contrast in Manyika."

Affricate clusters

pf	ts	tš
	tᵴ	
bv	dz	dž
	dᶎ	

/h/ clusters

bh	dh
mh	nh

/w/ clusters

The allophones of /w/ when in clusters are quite diverse and sometimes phonetically complex. There is also extensive phonemic overlapping in this interpretation.

pw [px pk]	tw [txʷ]		kw
bw [bɣ]	dw [dɣʷ]		gʷ
	sw [sxʷ]	šw [šxʷ]	
	ʂw [ʂxʷ]		
	zw [zɣʷ]	žw [žɣʷ]	hw
	ʐw [ʐɣʷ]		
mw [mɳ]	nw	ɲw [ɲɲʷ]	ŋw
	xw [xɣʷ]		
	tsw [tsxʷ]	tšw [tšxʷ]	
	tᵴw [tᵴxʷ]		
	dzw [dzɣʷ]	džw [džɣʷ]	
	dᶎw [dᶎɣʷ]		

Miscellaneous clusters

tšk	džg

1.2.3. Orthography

A phonemic orthography is employed subsequently, but differs in several respects from that used in the above phonemic outline. The correspondences are indicated below.

š	:	sh	dž	:	j	ŋ	: ng'
šw	:	shw	ndž	:	nj	ŋg	: ng
tš	:	c	v	:	vh	tšk	: ty
tšw	:	cw	β	:	v	džg	: dy
ž	:	zh	ɲ	:	ny	ꞵ	: sv [1]
žw	:	zhw	ɲw	:	nyw	z	: zv [1]

1.3. TONES

Two tonal phonemes, H and L, are recognis and these are represented by an acute accent (') and no accent or grave (`) respectively. The substrate domain of a toneme is the syllable, whether of V, CV, or C type.[2] The phonetic realisation of the tones is determined by two main types of conditioning factors.

1.3.1. Downdrift

The intonational feature of downdrift by a series of tonal terraces within a phonological phrase causes successively lower pitch realisations for both the high and low tones. Welmers has termed languages of this type "terraced level" and assigns the "drop" of non-low tones from one terrace to another to a third phoneme.[3] He therefore recognises three phonemes, one low and two non-low, the latter being "same as preceding non-low" and "lower than preceding non-low." The downdrift phenomenon has not yet been thoroughly investigated in Shona, but I prefer to interpret downdrift as an intonational feature and therefore recognise only two contrastive tonal phonemes. (See also length-stress, page 10.)

1.3.2. Other Conditioning Factors

Allotones of H

(a) Certain of the consonantal syllable onsets cause an immediately following H to be realised as a rising glide.

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[1] Both singly and in clusters.

[2] 'C' in 'CV' represents "consonantal onset." This may be a single consonant or a cluster of consonants. The only instance of C syllables is prefixal /m/ when a vowel has been morphophonemically elided. See page 58.

[3] Wm. E. Welmers, "Tonemics, Morphotonemics, and Tonal Morphemes," General Linguistics, 4, 1959.

These depressor onsets are listed below.

g	gúmí	[↙ ¯]	(ten)
zv	zvángu	[↙ _]	(mine)
z	zíno	[↙ ¯]	(tooth)
zh	kazhínjí	[_ ↗↗]	(many times)
h	háma	[↙ ¯]	(relation)
vh	ndakávhúnza	[_ ¯ ↗ _]	(I asked)
j	jíra	[↙ ¯]	(cloth)
mv	mvúra	[↙ ¯]	(water, rain)
nzv	hanzvádzi	[_ ↗ _]	(sibling of opposite sex)
nz	nzómbe	[↙ ¯]	(ox)
nj	njúma	[↙ _]	(hornless animal)
bv	bvémbe	[↙ _]	(watermelon)
dzv	kudzvúra	[_ ↗ ¯]	(to stamp)
dz	dzúngu	[↙ _]	(dizziness)
bh	bhóra	[↙ _]	(ball)
dh	dhúku	[↙ _]	(headscarf)
mh	mhépó	[↙ ¯]	(wind)
nh	nhámó	[↙ ¯]	(trouble)
bw	ibwé	[¯ ↗]	(it is a stone)
dw	dwé	[↗]	(of dripping (ideophone))
gw	igwáro	[¯ ↗ _]	(it is a letter)
zvw	rózvwá	[¯ ↗]	(perish!)
zw	izwí	[_ ↗]	(word)
zhw	zhwezhwézhwe	[_ ↗ _]	(crying of many children)
hw	hwahwá	[_ ↗]	(beer)
jw	ndakájwánya	[_ ¯ ↗ _]	(I crushed)
dzw	kukúdzwá	[_ ¯ ↗]	(to be honoured)
rw	irwá	[_ ↗]	(fight!)
dy	kudyá	[_ ↗]	(to eat)

(b) When a sequence of H's is immediately followed by word-final L the second and following H's of the sequence are successively higher in pitch. Without following word-final L a sequence of H's does not show this "crescendo".

mupórékédzi	[_ ¯ ¯ ¯ _]	(one who accompanies)
muchóréchédzo	[_ ¯ ¯ ¯ _]	(a sign or mark)

	muténgési	[_ ¯¯ _]	(one who sells)
cf.	kuténgésá	[_ ¯¯¯]	(to sell)
	muónéséro	[_ ¯¯¯]	(way of showing)
cf.	kuónésá	[_ ¯¯¯]	(to show)
	mushámbádzíro	[_ ¯¯ ⁄ _]	(way of hawking)
cf.	kushámbádzá	[_ ¯ ¯ ⁄]	(to hawk)

Allotones of L

(a) A L after a depressor onset is lower in pitch than a L after a non-depressor.

manhemú	[¯ _ ¯]	(evening)
mabhízá	[¯ _ ⁄]	(horses)
mogwenyá	[¯ _ ¯]	(cigarette lighter)

(b) A L tone after a H and following a non-depressor onset is realised as a falling glide which is most noticeable when on the penultimate syllable. A L tone after a H and following a depressor onset is realised as a level low.

ndhítenzi	[⁄ ◟ _]	(it is the master)
cf. íhama	[¯ _ _]	(it is a relation)
mítengi	[¯ ◟ _]	(it is a buyer)
cf. cídhinha	[¯ _ _]	(it is a brick)

(c) A L after a non-depressor onset and between two H's is raised in pitch. A L after a depressor onset and between two H's is only slightly raised.

vációnú	[¯ ¯ ¯ ¯]	(they saw it)
vázviónú	[¯ _ ¯ ¯]	(they saw it)
ndinómuónú	[_ ¯ ¯ ¯]	(I will see him)
vádzimái	[¯ _ ¯ _]	(mothers, women)
mukómaná	[_ ¯ ¯ ¯]	(boy)

(d) A sequence of L's, especially when final, becomes successively lower in pitch.

kutarisa	[— — — —]	(to look at)
kutevera	[— — — —]	(to follow)

kutambudza	[– – – –]	(to trouble)
kugadzira	[– – – –]	(to repair)

1.4. LENGTH-STRESS

The penultimate syllables of phonological words[1] in Shona are not characterised by the same degree of prominence as is the case, for example, in Nguni. Doke maintained that Shona has word-penultimate stress but denied the existence of penultimate length.[2] Fortune makes no mention of length or stress in his grammar, but in a later (unpublished) paper notes that "Ordinary statements and questions are characterised by a great [sic, greater?] degree of length on the penultimate syllable than other syllables."[3] That the phonetic interpretation of penultimate prominence is not obvious is seen in these different views of the phenomenon expressed by two of the leading figures in Shona linguistic studies.

While Shona is certainly more staccato than, say, Zulu, penultimate prominence does nevertheless seem to exist and is probably phonetically length-stress.[4] Fortune observes that penultimate length is clearly to be seen in the comparison of extended words, as in:-

Nǎ́zvandáí:tá
Nǎ́zvandáítí:ra
Nǎ́zvandáítísí:ra [5]

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1 These are the words resulting from a conjunctive word division.

2 "In Shona, penultimate length, as such, does not exist," and "Length is certainly not a feature of importance in this cluster of languages." A Comparative Study in Shona Phonetics, page 204.

3 "Some notes on Length in Shona," mimeographed student notes, undated. This paper is prefaced by the statement that "The following remarks do not pretend to be systematic in the least but indicate the need for further research."

4 This is also Stovick's interpretation. In his Shona Basic Course he says that this prominence is "a combination of extra force of articulation and extra duration" (page 4).

5 Op. cit.

He also notes that "The presence of penultimate length on statements and normal questions can also be more clearly heard when these are compared with questions expressed without an interrogative word." [1]

Babá úya nemó:mbe.	(Father brought the cattle.)
Babá úya nemómbe?	(Did father bring the cattle?)
Átiza nómusíka:ná.	(He ran off with the girl.)
Átiza nómusíkaná?	(Did he run off with the girl?)

He further reports that penultimate length is a prominent feature when messages are shouted, in certain formal styles of speech, [2] and in denoting emphasis. In some styles expressive length occurs on final syllables.

I interpret penultimate length-stress as an intonational component together with the terraced downdrift of tones discussed above (§ 1.3.1.). [3] The contrastive nature of these intonations is seen in the above statement and question forms. Fortune observes that, "The question is asked by

(1) raising the general overall pitch

(2) speaking more quickly (usually but not necessarily)

(3) dropping final high tones, either (a) single and (b) in an uninterrupted series

(4) dropping penultimate length." [4]

Intonation contours are therefore quite complex and involve components of several types.

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1 Op. cit. The examples following are given by Fortune, but without the glosses.

2 Stevick, op. cit. page 4, also states that, "In some styles of speech, the physical realization of accent is a quite noticeable prolongation of the vowel of the syllable."

3 L.W. Lanham outlines a similar interpretation for Xhosa in "The Tonemes of Xhosa: A Restatement," Studies in Linguistics, 17, 1963 (3 5).

4 Op. cit.

I have recorded one instance of minimal pairs of utterances which contrast only in presence or absence of penultimate length, but the interpretation of the phenomenon in these utterances is not clear.

ndí:pe	[˘–]	(shall I give?)
ndípe	[¯–]	(give me)
ndíó:ne	[¯˘–]	(shall I see?)
ndióne	[¯¯–]	(see me)

As further work on length-stress and intonation generally is needed, no indication of this feature is given in the examples cited in the chapters which follow.

CHAPTER TWO

TONAL GRAMMAR

2.0. INTRODUCTION

Tonal grammar, or the grammatical signalling conveyed by tonal sequences, merits special consideration as the grammatical significance of tone remains one of the most challenging frontiers for exploration in southern Bantu linguistic studies. This chapter serves to provide the perspective and approach taken on Shona tonal grammar in the morphophonemic and grammatical description which follows. A synopsis of the main features of Shona tonal structure contained in subsequent chapters is also given here in order to highlight what might otherwise be somewhat obscured by the many details treated there.

While a number of descriptions of tone in various southern Bantu languages have been produced over the last several years,[1] none of these treatments are rigorous morphemic analyses. Most, if not all, provide necessary information on tonal patterns or "profiles" in various constructions, but do not procede to the investigation of the morphological status of tone sequences. Shona has been made the subject of this kind of description by Professor C. Fortune (unpublished student notes), and information on Shona tonal patterning is also embodied in a recently published manual on the language.[2]

Although Shona has possibly the most transparent tonal system of all the southern Bantu languages, the grammatical significance of tone sequences is nevertheless extremely complex, and interpretation by no means obvious in all cases. The mere elicitation and recording of the sequences or

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1 Some of these are listed in the bibliography, page 241.

2 Derek Fivaz and Jeannette Ratzlaff, Shona Language Lessons, New Edition, 1969.

"profiles" that occur in various constructions is itself no mean undertaking, and verbal constructions are particularly demanding because of the great variety of tonal patterns occurring in different conjugational forms. It must, however, be stressed that the presentation of the tonal patterns in various constructions, however complex, is little more than a list. The interpretation of such patterning is of far greater significance in linguistic description. Little interpretation of tonal patterning in the southern Bantu languages, in any theoretical framework, has yet been offered, and such analysis is therefore a real frontier in what is still considered a somewhat exotic phenomenon.

2.1. MORPHEMIC ANALYSIS OF TONE PATTERNS

The morphological analysis of tonal phenomena is, in a taxonomic treatment, no different in principle from that relating to segmentals alone.[1] Welmers points out that tone languages differ essentially from others in that some morphemes in a tone language are realised phonemically by both segmental and pitch phonemes, whereas in non-tone languages morphemes always have segmental phonemic realisation.[2] In tone languages the phonemic realisations of morphemes are, therefore, of the

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1 The treatment of tone in a transformational-generative approach is rather different and this is due to the TG distinction between deep and surface structure. "Grammatical" tonal phenomena which are treated as contrastive in a taxonomic approach are treated as "surface" structure in a TG approach, and nearly all such tonal patterning can be accounted for by low-level phonological rules. See Appendix II for an outline of a TG treatment of Shona verb tones.

2 Wm. E. Welmers, "Tonemics, Morphotonemics, and Tonal Morphemes," 1963. He defines a tone language as one in which "both pitch phonemes and segmental phonemes enter into the composition of at least some morphemes," and states that, "The distinctive characteristic of a tone language is that some of its morphemes (usually nearly all of them) contain both segmental phonemes and pitch phonemes."

following types:-

(a) by combinations of segmental and pitch phonemes
(b) by segmental phonemes alone
(c) by pitch phonemes alone.

Such languages of course differ in the extent to which they use (a) rather than (b) and (c), the latter two being interdependent.

Morphemes may have discrete phonemic realisation, in which case every phoneme in a sequence may be uniquely assigned to a morpheme. In some cases, however, the phonemic realisation of morphemes is not discrete, and a particular sequence of phonemes may be the realisation of two or more morphemes in such a way that the phonemes involved cannot be neatly assigned to each of the morphemes involved. In either case, tonal phonemes may be part of the realisation of some morphemes. In the morphemic analysis of any particular phonemically transcribed utterance there are two main questions to be answered:

(a) Which morphemes are represented in the sequence?
(b) By which sequences of phonemes are each of the morphemes signalled, that is, how may the phonemes be assigned (discretely if possible) to the morphemes signalled by the string?

If the morphemes are discretely signalled, a segmentation into morphs is of course possible, otherwise such a segmentation is not possible.

Shona tones are always part of discrete realisations, but the assignment of tone sequences to morphemes is nevertheless by no means straightforward in all cases. The main difficulty is that of determining the morphemes that must be recognised in an utterance. The problem is increased by the sometimes extensive tonal differences shown by similar grammatical forms. Are the various different tone sequences "allos" (i.e. conditioned variants) or "emes" (i.e. contrastive tonal morphemes)? If languages were non-redundant, minimally

contrastive logical systems, the answer to this problem would be simple. As languages are not, we have to be prepared to find grammatical forms signalled by more than one morpheme, as well as forms which are signalled by one morpheme only but with accompanying conditioned perturbation in the phonemic shape of some of the other morphemes in the construction.

In Shona there are few sets of different structural forms which show strictly minimal contrasts. There are usually segmental and tonal differences. Compare the following:-

1. mùnhù (a person)
2. múnhú (it is a person)
3. nèmúnhù (with a person).

The question is, what is the morphemic assignment, or status, of the LL, HH, HL tones on /munhu/? In the analysis adopted here only one tone of one of these sequences is interpreted as the sole phonemic realisation of a morpheme. The remaining tones are part of realisations along with certain segmentals, as follows:-

1. mù nhù {mu-nhu}
2. mú nhú {cop-mu-nhu}
3. nè mú nhù {ne-mu-nhu}

The relationship of /mù-/, /mu-/, and /mú-/ (in examples 1. to 3. respectively) is an allomorphic one, as is the relationship of /-nhù/ and /-nhú/.[1] There appears to be no justification for recognising more morphemes than those indicated.

Comparing the following set of verbal forms the same sort of question arises,

4. kùténgá (to buy)
5. ndícátèngà (I will buy)
6. hàndícàténgà (I will not buy)

---

[1] Although the best way of describing these variations is not in terms of allomorphs but in terms of "adjustments" to base forms.

Clearly the difference between these forms is signalled by the morphemes [ku-], [-ca-], and [ha-]. But what is the morphemic status of the HH, LL, HL tones on /-tenga/, and what of the tonal variation on /-ca-/ and /ndi-/? As in examples 1. - 3. above, the segmentation of tones and segmentals is considered together, and only certain tone sequences (viz. those on /-tenga/) are interpreted as being the sole realisation of morphemes. The analysis adopted is the following:-

4. kú téngá

5. ndí cá tènga

6. há ndí cá tènga

The different tones on /ndi-/ and /-ca-/ are treated as morphophonemic variants.

2.2. AUTONOMOUS TONAL GRAMMAR

The possibility of assigning all tonal sequences to morphemes whose realisation is only tonal is raised in a recent article on Tswana by Professor D.T. Cole.[1] The question is posed as to "whether the tone-pattern on a given verb stem is to be regarded as inherent in the radical, i.e. as an integral and inseparable phonological component of the radical, or whether it is to be treated as a separate morphological entity."[2] Cole favours the second of these possibilities, and concludes that "the verbal radical, stripped of all prefixes, tense suffixes and suprafixes, has no tone."[3] The same treatment is extended via infinitives (class 15 verbal nouns) to all nouns. The conclusion of this approach is that, "The linguistic structure of Tswana comprises two intricately inter-woven and interdependent but not segmentally congruent morphological systems, the substrate

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1 Desmond T. Cole, "Tonal Morphology in Tswana," Ethnological and Linguistic Studies in Honour of N.J. Van Warmelo, 1969 (pages 39 to 45).

2 Idem, page 43.

3 Idem, page 43.

and the superstrate, and, because of the segmental non-congruence, these cannot always be adequately described within the framework of a single expository system."[1]

At this stage in the analysis of the tonal systems of the southern Bantu languages all possible approaches are clearly worth exploring and, as analysis of this kind undoubtedly avoids many of the complexities present when only one integrated morphological system is recognised, a full description of Tswana structure in these terms is awaited with interest. However, several interesting questions arise in connection with autonomous tonal grammar, and even without a fuller description there appear to be certain problems and difficulties which merit consideration. These are discussed briefly in Appendix I. It is sufficient to note at this stage that if autonomous tonal grammar can be justified on theoretical grounds, there are then a priori restrictions on the possibilities of the phonemic realisations of morphemes, and Welmers' characterisation and definition of tone languages do not hold.

2.3. OUTLINE OF SHONA TONAL STRUCTURE

Following the approach outlined in § 2.1. above, we assign certain, but not all, tone sequences to morphemes whose realisation is only tonal. Comparatively few morphemes of this kind are recognised, and most tone sequences are treated as being part of morpheme realisations together with consonants and vowels. (Where tonal morphemes occur, their accompanying substrate morphemes of course have toneless realisations.) It is also clear that Shona, in common with the other southern Bantu languages, is characterised by considerable alternation in the phonemic realisation of its morphemes, regardless of the kind of phoneme combinations utilised in their realisation. Morphophonemic alternations may involve segmentals, tones, or both.

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1 Idem, page 45.

In an outline of Shona tonal structure there are therefore two features which require discussion:-

(a) The various kinds of phoneme combinations utilised in morpheme realisations

(b) The kind of morphophonemic alternations, and in this context particularly those of a tonal nature, characteristic of morpheme realisations.

Such an outline of course presumes some knowledge of Bantu segmental structure, and as the Doke model is well known the Dokean terminology will on the whole be used.

2.3.1. Types of Phonemic Realisations of Morphemes

2.3.1.1. Tonal and Segmental Morpheme Realisations

(a) Stems

Many pairs of both nominal and verbal stems are distinguished only by tonal differences, and tonal properties must therefore be indicated, along with segmentals, in the lexicon. This may be done in either of two ways:-

(i) by marking the tone of each individual syllable

(ii) by abandoning a strictly phonemic notational system and resorting to the more abstract indication of tone class membership.

The first of these methods is required when morpheme lexical tones are completely unpredictable, and the second when some or most of the tones are predictable.

In Shona the particles[1] and all stems other than verb stems have unpredictable tones, and the tone of each syllable of these forms must therefore be indicated in the lexicon. In the following examples boundaries between morphemes whose

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1 The particles are ideophones, interjections, conjunctions, and adverbs. They are characterised by their morphological simplicity as most are single morphemes.

realisation is partly segmental are indicated by full stops (periods), although all such boundaries in morphologically complex steme are not indicated.

gwádi	ideophone	(of fitting)
kecé	"	(of clicking)
toro	"	(of running away)
úmbúrú	"	(of rolling)
hóngu	interjection	(yes)
áiwa	"	(no, indeed)
makórókótó	"	(congratulations)
yówé	"	(of regret, pain)
así	conjunction	(but)
kunyange	"	(although)
kudá	"	(perhaps)
kana	"	(if)
zva	"	(when)
mu.mwe	enumerative	(another)
mu.mwé	"	(one, the same)
va.tatú	adjective	(three)
va.shánu	"	(five)
mu.sí	noun cl. 3	(smoke)
mu.dzi	" 3	(root)
m.bíra	" 9	(rock rabbit, coney)
m.bira	" 9	(xylophone)
zana	" 5	(hundred)
z.aná	" 21	(huge child)
mu.gwagwa	" 3	(road)
mu.katí	18	(inside)
mu.súo	" 3	(doorway)
mu.dzímú	" 3	(ancestral spirit)
mu.sangano	" 3	(gathering of people)
mu.garíró	" 3	(way of living)
mu.nyárádzi	" 1	(comforter)

mu.kúwáshá	noun cl. 1		(son-in-law)
mu.kómaná	"	1	(boy)
mu.fúndísi	"	1	(minister of religion)

Nouns whose stems are vowel-commencing, apart from deverbative stems and a few exceptions, are of interest as the first tone of these stems is always L. This L is the tone of the noun class prefix, the latter being non-syllabic because of vowel co-occurrence restrictions.

	mwaná /mù-aná/	(child)
cf.	mwana [cop-mu-ana]	(it is a child)
	cotó /cì-otó/	(fireplace)
cf.	coto [cop-ci-oto]	(it is the fireplace)

In contrast to noun stems, the tones of the vast majority of verb stems are very largely predictable if the first tone of the verb root when occurring in the infinitive construction, inter alia, is known.[1] There are only two tone classes of verb roots, high and low. Stems whose roots are of the low class have all low tones in forms such as the infinitive, while those whose stems are of the high class have all but the fourth and subsequent tones, if any, H.

While the infinitive shows this clear dichotomy of high and low verb roots, the assignment of the stem tones occurring in the infinitive as part of the phonemic realisation of the stem is not straightforward. The reasons for this are the following:-

(i) The contrast displayed between otherwise homophonous stems is between high and low sequences, whereas nominal stem tones display contrasts syllable by syllable.

(ii) The H and L sequences in the infinitive of stems having high and low roots respectively are subject to extensive

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1 Verb stems consist of: verb root - extension(s) - final suffix, the latter being /-a/ or /-e/ in Zezuru.

replacement in different forms in the conjugation. Notice, for example, the tone sequences occurring on the verb stem /-tarisa/ in the following examples:-

kutarisa	LLL	(to look)
tarísá	LHH	(look!)
havácátarísa	LHL	(they will not look)
ácátárisa	HLL	(he will look)
kana acitárísa	HHL	(if he looks)

The tone sequence on infinitive stems is simply one of the several sequences occurring in the various conjugational forms. All of these sequences, including the infinitive tones, are interpreted as tonal replacive morphemes. This is clearly the simplest taxonomic treatment, as the alternative analysis, that of treating the different sequences as conditioned variants, requires a morphophonemic statement of extreme complexity.

As the contrast between high and low verb roots must be lexically indicated, resort must be made to an abstract indication of tonal properties in terms of tone class membership.

Root	Tone Class	Infinitive	
-b-	H	kubá	(to steal)
-bv-	L	kubva	(to leave)
-teng-	H	kuténgá	(to buy)
-bvunz-	L	kubvunza	(to ask)
-cer-	L	kucera	(to dig)
-cer-	H	kucérá	(to draw water)
-fur-	L	kufura	(to graze)
-fur-	H	kufúrá	(to blow)
-batsir-	H	kubátsirá	(to help)
-taris-	L	kutarisa	(to look)

There are, however, a small number of verb roots for which the above simple indication of class membership is an insufficient indication of their tonal properties. These roots require an indication of the tones on each syllable. The examples I have encountered all appear to belong to the high class, and they are given below in their infinitive forms.

kufúka	(to cover with a blanket)
kufára	(to be happy)
kudzíya	(to warm)
kutúra	(to set down a heavy load)
kufúnda	(to study)
kudíbha	(to dip)
kudúwa	(to shout)
kudúhwa motó	(to light a fire)
kudóka	(to set, of the sun)
kunyáráre	(to be quiet)
kusímúdza	(to lift)
kusímúka	(to stand up)
kutónhóra	(to be cold)
kutúrúkira	(to translate, interpret)
kushámwaridzana	(to be friendly with)
cf. shámwarí	(friend)

The tonal patterning of these roots in the various conjugational forms has not been extensively investigated, and they are therefore not treated in subsequent chapters.

(b) Affixes

Nearly all syllabic affixes, both nominal and verbal, have segmental and tonal realisation, the only exceptions being the following:-

(i) Verb extensions and final suffixal verb morphemes. These have toneless realisation as their tones are assigned together with those on the verb root to distinct conjugational morphemes whose realisation is only tonal.

(ii) The past tense morpheme [-a-] which carries the subject concord tone.

(iii) Class prefixes when occurring with the relative and copulative morphemes, in the latter case only when the phonemic realisation is by tone alone.

	nḿ.mu.rúmé	(with the man)
	wḿ.mu.rúmé	(the man's)
	ku.mu.rúmé	(to the man)
	ku.tengesa	(to sell)
	ndi.cá.tengesa	(I will sell)
	ha.ndí.ca.tengesa	(I will not sell)
	ndi.ngá.tengese	(I may sell)
	mu.rúmé	(a man)
cf.	mu.rume	(it is a man)
	ma.pfeni	(baboons)
cf.	ma.pféni	(they are baboons)
	vá.no.gara Haráre	(they live in Salisbury)
cf.	va.nó.gara Haráre	(they who live in Salisbury)
	á.cá.bvunza	(he will ask)
cf.	a.cá.bvunza	(he who will ask)

It should be noted that first and second person forms are treated as being morphemically distinct in the principal and relative, although they are often tonally identical.

	ndi.nó.tenga	[ndi-no-...]	(I buy)
cf.	ndi.nó.tenga	[rel-ndi-no-...]	(I who buy)
	mu.ngá.bvunze	[mu-nga-...]	(you may ask)
cf.	mu.ngá.bvunze	[rel-mu-nga-...]	(you who may ask)

2.3.1.2. Tonal Morpheme Realisations

(a) Relative

The relative morpheme is in all cases realised as a L tone which replaces the tone of the subject concord.

	va.nó.gara	(they who stay)
cf.	vá.no.gara	(they stay)

	à.ngá.tènge	(he who may buy)
cf.	á.nga.tènge	(he may buy)

(See also the examples given from the middle of page 23.)

In the past tenses the relative tone is carried by the past tense morpheme {-a-}, as the subject concord has non-syllabic realisation because of vowel co-occurrence restrictions.

	v.à.ká.dya	(they who ate)
cf.	v .a.kà.dya	(they ate)
	v.à.tènga	(they who bought)
cf.	v .a.tènga	(they bought)
	nd.à.ká.bvunza	(I who asked)
cf.	nd .a.ká.bvunza	(I asked)

(b) Copulative

The copulative morpheme is realised as a H tone replacing the L tone of the class prefix with most nouns[1], and with adjectives, enumeratives, and infinitives.

	mu.kadzi	(it is a woman)
cf.	mu.kádzi	(a woman)
	ma.bwé	(they are stones)
cf.	ma.bwe	(stones)
	mu.kuru	(he is big)
cf.	mu.kúrú	(big)
	mu.mwé	(he is another one)
cf.	mu.mw	(another)
	mu.mwe	(he is the same one)
cf.	mu.mwé	(the same)

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[1] Nouns of classes 1a, 2a, and 2b have copulative allomorphs /ndhí-/ (1a) and /ndhà-/ (2a, 2b), and nouns of classes 5 and 9 have copulative allomorph /i-/.

(c) Conjugational Morphemes

The tones on a verb stem (root-extension(s)-final suffix) are assigned to a conjugational morpheme whose realisation is only tonal. There are altogether eleven such morphemes which constitute a paradigmatic class, and they replace one another in different conjugational forms. Most of these tonal morphemes are restricted either to the high class of verb roots or the low class, but a few occur with both.

ku.bvunza	(to ask)
nd.à.bvunza	(I asked)
kana nd.á.bvunze	(if I asked)
u.sá.bvunze	(don't ask!)
ku.tengesa	(to sell)
nd.a.i.tengesa	(I sold)
á.tengesa	(he sold)
ha.ndí.nga.tengese	(I may not sell)

2.3.1.3. Segmental Morpheme Realisations

In those cases where morphemes have only tonal realisations the accompanying substrate forms have toneless realisations. See § 2.3.1.2. above for specification and examples.

It should be noted that non-syllabic class prefixes (n., syllabic because of vowel co-occurrence restrictions) do not have the expected purely segmental realisations in some cases. These instances are the following:-

(a) Noun prefixes before most non-deverbative vowel-commencing stems. The first vowel of the stem carries the tone of the class prefix. See page 20 for examples.

(b) The subject concord before the past tense morpheme {-a-}, in which case the latter carries the concord tone. See page 24 for examples.

2.3.2. Tonal Morphophonemics

In § 2.3.1. above the morphemic assignment of tone sequences is outlined, but no indication is given there of the nature or type of morphotonemic alternations which may occur. Morphemes whose phonemic realisation is wholly or partly tonal are subject to such perturbations, and many of the latter also show simultaneous segmental alternation (with which we are not concerned here). The main morphotonemic changes which occur are typologically listed below.

2.3.2.1. Inflected Nucleus Tonal Raising and Lowering

The tone sequences in certain nominal words when inflected by any of a small set of affixal morphemes are subject to raising or lowering according to the following rules:-

(a) The first L of an unbroken sequence of L's (a sequence being one or more) becomes H.

(b) An unbroken sequence of H's becomes low.

These morphotonemic changes occur in the following instances:-

(a) noun stems following the class 2a noun prefix, the latter being the only noun prefix with H tone

(b) after the adverbial, possessive, and copulative inflecting morphemes in the case of:-

(i) nouns, other than those of classes 2a and 2b, and other than 1a adverbially inflected nouns

(ii) adjectives

(iii) enumeratives

(iv) demonstratives

(v) pronouns without initial {i-}, only when adverbially inflected

(vi) infinitives.

It should be noted that the tone sequences in these cases are subject to perturbation irrespective of the morphemic status of the individual tones in the sequences.

	vámámbo	2a noun	(chiefs)
cf.	mambo		(chief)
	vákondo	"	(hammer-head birds)
cf.	kóndó		(hammer-head bird)
	némvura	adv. - noun	(with the water)
cf.	mvúrá		(water)
	nevášhoma	adv. - adj.	(with a few)
cf.	vashoma		(a few)
	nemúmwe	adv. - enum.	(with another)
cf.	mumwe		(another)
	neúyu	adv. - demon.	(with this one)
cf.	uyu		(this one)
	nokúcera	adv. - infin.	(by digging)
	rekúcera	poss. - infin.	(the one for digging)
cf.	kucera		(to dig, digging)
	rátezvára	poss. - noun	(father-in-law's)
cf.	tézvára		(father-in-law)
	ndhíshe	cop. - noun	(it is the chief)
cf.	ishé		(a chief)
	múti	cop. - noun	(it is a tree)
cf.	muti		(a tree)
	ímvura	cop. - noun	(it is the water)
cf.	mvúrá		(water)
	címwé	cop. - enum.	(it is another one)
cf.	cimwe		(another)
	címwe	cop. - enum.	(it is the same one)
cf.	cimwé		(the same one)
	ndheúyu	cop. - dem.	(it is this one)
cf.	uyu		(this one)

	kúdya	cop - infin.	(it is the food)
cf.	kudyá		(food)

2.3.2.2. Dissimilation

There are both nominal and verbal morphemes that show tonal dissimilation, or polarity, to some part of their tonal environment.

(a) Nominal Morphemes

The adverbial, possessive and copulative inflecting morphemes show dissimilation to the first tone of many inflected nominals. This is, however, only after application, where relevant, of the inflected nucleus tone rule outlined in § 2.3.2.1. above. There are therefore two morphotonemic changes, one to the nucleus and one to the inflecting morpheme, and these changes are ordered.

	némvura	adverbial	(with the water)
cf.	mvúrá		(water)
	sesádza	"	(like sadza)[1]
cf.	sadza		(sadza)
	uéimwé	"	(like the same one)
cf.	imwé		(the same one)
	není	"	(with me)
cf.	iní		(me)
	wómukúrú	possessive	(of the big one)
cf.	mukúrú		(the big one)
	dzevánhu	"	(of the people)
cf.	vánhu		(people)
	dzemúmwe	"	(of another one)
cf.	mumwe		(another)
	dzémumwé	"	(of the same one)
cf.	mumwé		(the same one)
	ndhoúyu	copulative	(it is this one)
cf.	uyu		(this one)

[1] A type of stiff maize porridge.

	ndhoúnó	copulative	(it is this one here)
cf.	úno		(this one here)

(b) Conjugational Morphemes

While a few conjugational morphemes have invariant tone, many (other than those whose realisation is only tonal; viz. those occurring on the verb stem) show tonal dissimilation with the tones of surrounding morphemes. There are three types of polarity.

(i) Progressive dissimilation

E.g. present habitual {-no-}

ndinódyá	(I eat)
vánodyá	(they eat)
vanódyá	(they who eat)

E.g. negative {-si-}

ndisingatónge	(I who do not buy)
ndisingátónge	((if) I do not buy)
ndisingábvunzé	(I who do not ask)
ndisingábvunzé	((if) I do not ask)

The third example here shows that polarity is progressive rather than regressive.

(ii) Regressive dissimilation

E.g. negative {-nga-}

ndisingadyé	(I who do not eat)
ndisingádye	((if) I do not eat)
ndisingábvunzé	(I who do not ask)
ndisingátarise	(I who do not look)

E.g. future {-ca-}

handícayá	(I will not give)
handícábvunzé	(I will not ask)
handícatónga	(I will not buy)

(iii) Polarity with the verb root tone class

Some conjugational morphemes show polarity with the basic tone class of the verb root, irrespective of the actual tones it bears.

E.g. remote past {-ka-}

ákadyá	H root	(he ate)
ákábvá	L root	(he left)
ákábvúnza	L root	(he asked)
ákaténgá	H root	(he bought)

E.g. future {-ca-}

ácadyá	H root	(he will eat)
ácábvá	L root	(he will leave)
ácábvúnza	L root	(he will ask)
ácaténgá	H root	(he will buy)

There is considerable complexity in this dissimilation because certain of the conjugational morphemes vary in the type of dissimilation shown, depending on whether the subject concord is 1st - 2nd or 3rd person, and on whether the verb is principal, participial, or relative.

E.g. potential {-nga-}

(i) In the principal positive, and with 1st or 2nd person subject concords, {-nga-} shows progressive dissimilation.

ndingábvé	(I may leave)
tingádye	(we may eat)
ungábvúnze	(you may ask)

(ii) In the principal positive, with 3rd person subject concords, {-nga-} shows dissimilation with the tone class of the verb root.

ángadyé	H root	(he may eat)
ángábvé	L root	(he may leave)
ángábvúnza	L root	(he may ask)
ángaténgé	H root	(he may buy)

(iii) In the principal negative [-nga-] shows regressive dissimilation.

handíngadyé	(I may not eat)
handíngabvé	(I may not leave)
handíngábvunzé	(I may not ask)
handíngaténge	(I may not buy)

2.3.2.3. Tonal Spreading

The eleven conjugational morphemes which occur on verb stems each show conditioned variation in the length of tonomorphs which occur in any one conjugational form of the verb. In the following infinitive forms, for example, the tonomorphs H, HH, HHH occur with the high roots, and the tonomorphs L, LL, LLL with the low roots.

kudyá	(to eat)	kubvá	(to leave)
kuténgá	(to buy)	kubvunzá	(to ask)
kuténgésá	(to sell)	kutarisa	(to look)

Which of the three H tonomorphs occurs is of course dependent on the number of syllables in the verb stem, and the same applies to the L tonomorphs. There are then only two tonal morphemes involved in this case:-

/H ~ HH ~ HHH/ and /L ~ LL ~ LLL/.

Further examples showing the conditioned variation associated with others of these tonal morphemes are the following:-

ndíchádyá	((if) I will eat)	ndíchábvé	((if) I will leave)
ndíchaténga	((if) I will buy)	ndíchábvunzá	((if) I will ask)
ndíchaténgesá	((if) I will sell)	ndíchátarisa	((if) I will look)

The tonal morphemes occurring in these forms have allomorphs:-

/H ~ HL ~ HLH/ and /H ~ L ~ LHL/.

2.3.2.4. Tone Passing

Shona is not characterised by the same degree of morphemic imbrication as is the case, for example, in Nguni,[1] Sukuma,[2] or Kikuyu.[3] There are only two, very similar, instances in which tones which are part of morpheme realisations do not occur with their associated segmentals but are displaced to the segmentals of adjacent, but distinct, morphemes.

(a) Before most non-deverbative vowel-commencing noun stems the noun prefix tone is displaced to the first syllable of the stem. The noun prefixes in these cases have non-syllabic realisation as their vowels are morphophonemically deleted or consonantalised in order to prevent vowel co-occurrence. See page 20 for examples.

(b) Subject prefix tones are displaced to the past tense morpheme {-a-}, the subject prefixes similarly having non-syllabic realisation in this case. See page 24 for examples.

The morphophonemic rules involved are therefore ordered, the tonal displacement rule applying before the segmental rules which delete or consonantalise the vowels of the class prefixes.

2.3.2.5. Concord-class Affixes

In a morphemic analysis of the different series of concord-class affixes (discussed fully in § 3.1. below) accounting for the tonal alternants on these forms presents some problems. Both H and L tones occur on the class morphemes. Only in the

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1 L.W. Lanham, The Comparative Phonology of Nguni, no date (mimeographed), and D. Rycroft, "Tone in Zulu Nouns," African Language Studies IV, 1963. The interesting tonal displacement I have observed in Ndebele, whereby tones are passed in certain highly restricted consonantal and word-position environments, is altogether missing in Zezuru.

2 I. Richardson, The Role of Tone in the Structure of Sukuma, SOAS, University of London, 1959.

3 Lyndon Harries, "Some Tonal Principles of the Kikuyu Language," Word 8, 1952.

case of relative verbal forms (where the subject concord has a L tone), and in the case of copulative nominal forms (where the class prefix has a H tone), are tonal morphemes recognised. The remaining H and L tonal forms are treated as morphophonemic alternants together with the toneless forms occurring with the relative and copulative morphemes. The situation is fairly complex and this analysis is not altogether satisfactory. The problem is discussed in § 2.4. below.

2.3.2.6. External Sandhi

Across certain word boundaries (e.g. verb + noun) the following automatic tonal perturbations occur:-

(a) ...H + LL... ⇒ ...H + HL...

Ákaténgá mómbe (he bought a head of cattle)
cf. mombe (a head of cattle)

(b) ...HH + H... ⇒ ...HL + H...

vácaténga bángá (they will buy a knife)
cf. vácaténgá (they will buy)

2.4. UNSATISFACTORY FEATURES OF THIS TAXONOMIC ANALYSIS

Criticisms of this tonal analysis on the grounds of complexity are, of course, of no particular significance in the absence of other considerations such as coverage, theoretical adequacy, diachronic implications, and so on. It is clear that whatever alternative analyses are possible (such as autonomous tonal grammar or transformational generative analysis), these will also involve a high degree of complexity and abstraction.

There are, however, several specific respects in which this kind of taxonomic analysis of Shona tone (and probably of southern Bantu tone generally) presents certain problems, and these are discussed briefly below. These difficulties all appear to fundamentally inhere in an analysis

which is insufficiently abstract and which, in particular, does not recognise the transformational "deep : surface" distinction. Appendix II provides a transformational generative analysis of one of the complex, and taxonomically problematic, areas of Shona tonal structure, viz. verb stem tones, by way of contrast with this purely surface structure analysis.

2.4.1. Lexical Entries

While the nature of the lexicon which accompanies a linguistic analysis has been the subject of little formal investigation in the descriptive linguistic tradition, it seems clear that taxonomic lexical entries are no more abstract than phonemic or morphophonemic (i.e. in terms of morphophonemes). It has been pointed out above (pages 20 and 21) that there is an extensive class of morphemes, namely verb roots, for which lexical tonal properties cannot be phonemically indicated, and the tonal features of these forms must be much more abstractly indicated in terms of tone class membership. If verb roots have no indication of tonal properties in the lexicon, the contrastive semantic nature of otherwise homophonous pairs cannot be satisfactorily explained. Such contrasts are clearly conveyed by tonal differences.

2.4.2. Tone Conjugational Morphemes

The assignment of verb stem tones to tonal morphemes is unsatisfactory for three reasons.

(a) Eleven such morphemes must be recognised, but it is impossible to attribute any sort of consistent "meaning" to these forms. There are also no verb forms which contrast solely on the basis of these morphemes. In what sense are they then "morphemic"? The only other taxonomic alternative, that of treating the different tonal sequences which occur in the various conjugational forms as conditioned variants would require extremely complex distributional statements in terms of morphological and syntactic features.

(b) With a paradigmatic class of eleven "morphemes" which have phonemic realisations in terms of combinations of only two tones there is considerable overlap between the various morphemes. This is particularly the case with one and two tone sequences for which there are, of course, very limited sequence possibilities. In what sense are these morphemes "contrastive"?

(c) The tonal patterning on the verb stem clearly depends on:-

(i) the tone class of the root

(ii) the tense and other conjugational morphemes (e.g. negative) which occur in the verbal form

(iii) the syntactic bracketing of the sentence, i.e. that property of subordination, coordination, etc., which determines whether a particular verb is principal, participial, relative, or subjunctive.

This implies that verb stem tones are conditioned in a rather complex and perhaps unusual way. If the different tone sequences occurring are dependent on the above features then they cannot be realisations of various morphemes, which are, by definition, contrastive.

2.4.3. Concord-class Tones

A morphemic analysis of the concord-class forms results in considerable conflation (discussed fully in § 3.1. below), but parallelism in the tones of the class affixes in different constructions cannot be accounted for by means of one homogeneous analysis. The situation with regard to the tones of these forms is briefly as follows:-

	Nominal	Predicative
Noun	L	H
Adjective, Enumerative	L	H
Verb	L	L I, II H III } principal

Clearly the nominal (relative) form of verbs is derived from the predicative.[1] On the other hand, and despite the exact tonal parallelism in the class morphemes, the nominal form of nouns is basic and the predicative is derived from it. The nominal or predicative forms of adjectives and enumeratives could be regarded as basic and the other derived from it, but the overall solution remains heterogeneous. The generalisation we would wish to express about the tonal facts of the above forms can only be given at the expense of not explaining certain other interesting facts.

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1 If we say that there is no derivation involved, and maintain that they both simply occur, we can say little about their relationship. Many parallelisms of structure, and many constituent properties of sentences, cannot then be satisfactorily handled. In particular, we are unable to account for that essential property of many of the sentences of natural languages, namely recursion, which permits speakers to produce infinitely many, and infinitely long sentences.

CHAPTER THREE

MORPHOPHONEMICS

3.0. GENERAL APPROACH

The term "morphophonemics" is here used to refer to that part of linguistic description which is concerned with the interrelationship of the phonological and morphological strata. The approach adopted on the nature of this interrelationship follows that sketched out by Hockett in A Manual of Phonology[1] and elaborated on in much greater detail in a later article.[2] This may be briefly summarised as follows.

The vast stock of morphemes in a language is given realisation (in speech) by various combinations of a relatively small number of minimal phonological elements, which latter are here regarded as being phonemes. Owing to the variable phonemic shape of many morphemes, morphemes are not composed of phonemes.[3] In accounting for the relationship between phonemes and morphemes, either of two kinds of entity have traditionally been used. The first of these is the morphophoneme, which is a kind of pseudo-phonemic element. The second is the morph, which is a pseudo-morphemic element. In relation to phonemes and morphemes, both of these elements involve "composed of" and "represented by" relations. Morphemes are either conceived of as being represented by morphs which are in turn composed of phonemes, or as being composed of morphophonemes which are represented by phonemes.

Morphophonemic statements in terms of morphophonemes or morphs are equivalent as they both invoke the

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1 Pages 14 to 16.

2 "Linguistic Elements and Their Relations," Language, Vol. 37, No. 1, 1961.

3 See pages 29 and 30 of Hockett's article for a succint statement of the problem.

relations of representation (R) and composition (C), for the former in the order CR, and for the latter in the order RC. Hockett calls the relationship between phonemes and morphemes the relation P, which may be explained in either CR or RC terms. The relation P is to be understood as "is programmed into", so that morphemes are "programmed into" sequences of phonemes. He maintains that "... in dealing with a specific language the important thing is to describe as clearly as possible the details of the relation P, regarding morphs, morphophonemes, or any other variety of intervening variable merely as a means to the end."[1] In some languages it might well be convenient to set up more than one intervening variable in explaining the relation P.[2] But in all cases where intervening variables are utilized, such elements "... are ARTIFACTS OF ANALYSIS or CONVENIENCES FOR DESCRIPTION, not elements in a language" (emphasis Hockett's).[3]

The morphophoneme provides what is essentially an "adjustment" technique in explaining the relation P. By means of its morphophonemes a morpheme is phonemically "adjusted" to fit its environment. In the morph approach, on the other hand, the morpheme is conceived of as a class of allomorphs. The appropriate allomorph is selected for each environment in which the morpheme occurs. The choice is therefore between what Gleason has termed "adjustment" and "sub-selection".[4]

> Gleason has pointed out[5] that Hockett, in his well-known article, "Two Models of Grammatical Description,"[6] doesn't adequately distinguish between "adjustment", where the process itself is not significant grammatically, and "process", where the process is

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1 Idem, page 35.

2 Such a language is discussed by Hockett, idem, pages 34 and 35.

3 Idem, page 42.

4 In lectures at the Hartford Seminary Foundation, 1963.

5 Idem.

6 Word 10, 1954, pages 210 to 231; also in Readings in Linguistics, pages 386 to 399.

> significant. Three models, rather than Hockett's two must be recognised. The relationship of morphemes to phonemes may therefore be stated in terms of sub-selection, adjustment, or process.[1]

In many cases morphophonemic statements (i.e. the relation P) may be formulated just as easily in terms of adjustment of morphemes to fit their environment as in terms of sub-selection of the appropriate allomorph for each environment in which a morpheme occurs. However, in some languages, or for certain kinds of alternation in a language, morphophonemics may be much more elegantly stated in the one way rather than in the other. This may be illustrated from Shona, or S.E. Bantu generally.

Consider, for example, the morphophonemic alternation in the following Shona nouns:-

rupasá	mat
mhasá	mats
rukova	river
kova	rivers
rutivi	side
nhivi	sides.

The singular prefix, {ru-}, here has as its only phonemic form /ru-/. The plural prefix has been symbolised as {N-}. The stems show phonemic variation from singular to plural, and this alternation, together with that shown by {N-}, has customarily been described in adjustment terms, as follows:-[2]

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1 It is interesting to note that in descriptive linguistics the trend has been towards a homogeneous and consistent "element" approach to linguistic descriptions. Processes of both the "adjustment" and "process" types have been discarded in favour of "allos" (allophones and allomorphs), which are a kind of inter-stratal element. See Gleason, Linguistics and English Grammar, pages 51 to 54, for a brief discussion of this development. One well-known linguistics text illustrates the trend. The first edition of Nida's Morphology dealt with morphophonemics in terms of processes, but the second in terms of allomorphs.

2 See for example Fortune's An Analytical Grammar of Shona, page 83.

N- + p > mh
N- + t > nh
N- + k > h

An equivalent allomorphic statement of the same facts is far less satisfactory.

The morpheme {N-} has allomorphs /m- ~ n- ~ ø /.

/m-/ occurs with stems which commence with /p/ when occurring with the prefix {ru-}

/n-/ occurs with stems which commence with /t/ when occurring with the prefix {ru-}.

/ø/ occurs with stems which commence with /k/ when occurring with the prefix {ru-}.

The stems occurring in the above nouns have the following allomorphs:-

/pasá ~ -hasá/	mat
/kova ~ -hova/	river
/tivi ~ -hivi/	side.

The first allomorph in each case occurs with the prefix {ru-}, and the second with the prefix {N-}.

Problems of a slightly different kind are raised by the following nouns:-

bángá	knife
mapángá	knives
démó	axe
matémó	axes
jékó	sickle
macékó	sickles.

An adjustment description is as follows:-

The singular prefix is {Ø-}.[1]
The plural prefix is {ma-} whose phonemic realisation is /ma-/.

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1 This arbitrary symbol was first used by Professor D.T. Cole to represent the class 5 prefix in those Bantu languages (such as Shona) in which the prefix has no overt phonemic form but causes a morphophonemic change in the noun stem.

The morpheme {ɦ-} causes the following morphophonemic changes in the initial consonant of the noun stem:-

ɦ- + p > b
ɦ- + t > d
ɦ- + c > ɟ

In terms of allomorphs, two alternative kinds of treatment are possible.

(a) The singular prefix is ∅.
The stems have allomorphs which are phonologically conditioned, e.g. /bángá ~ -pángá/.

(b) The singular prefix is {ɦ-} which has as its only allomorph the component of voicing.[1] The stems have only one allomorph.

The first of these allomorph solutions is unsatisfactory (for reasons not discussed here), as the singular prefix is either {∅-}, or there is no prefix. The second of these solutions forces recognition of distinctive features as the minimal phonological entities in a language.[2] But this solution is in any case a more complex statement than the adjustment alternative above.

As morphophonemic statements in terms of allomorphs or adjustments are equivalent, we are free to choose either, depending on the nature of the alternation being described. The cases illustrated above are most naturally described in adjustment terms. There is also one interesting case of morphophonemic alternation which must be described in this way. In this instance certain tone sequences in a number of different constructions are perturbed,[3] but as the sequences involved sometimes straddle morpheme boundaries, this would require an

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1 The voiced counterparts of /p t c/ are /b d ɟ/.

2 Cf. a parallel English example in use (verb) : use (noun). Hockett, op. cit., pages 43 to 45, feels that cases like these argue for the recognition of minimal phonological entities smaller than phonemes.

3 See § 3.2. below, (page 91).

allomorphic statement of extreme complexity. Most other instances of morphophonemic alternation can easily be stated as adjustments. There is only one kind of alternation which is more easily described by means of allomorphs.[1] A homogeneous morphophonemic description is presented in this work in which all alternations are described in adjustment terms.[2]

In the morphophonemic description below, morphemes are cited in convenient morphophonemic "base forms" on which the morphophonemic rules operate. The symbols used in these base forms sometimes virtually represent morphophonemes, although the concept of morphophonemes is not explicitly exploited. In these morphophonemic "base form" representations of morphemes phonological information is conveyed, and such citations are therefore distinguished from morphemic citations, where phonological facts are irrelevant. Morphophonemic representations of morphemes are enclosed in double slashes, / /, while morphemic citations are enclosed in braces, { }. The usual form of stating morphophonemic rules will be:-

/xy/ ⇒ /xz/ | __ R
/xy/ | __ S

This is to be read as: The morpheme whose morphophonemic base form is /xy/ is phonemically realised as /xz/ in the context of a following R, and /xy/ in the context of a following S. As many Shona morphemes simultaneously show both segmental and suprasegmental morphophonemic variation, the two types are usually described separately for the sake of clarity and simplicity.

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1 This involves allomorphs of the tonal morphemes on verb stems, see § 3.4.3. These allomorphs are phonologically conditioned by the number of syllables in the stem and therefore differ in the number of tones involved.

2 It need hardly be stressed that statements made in these terms are not to be taken as implying any particular historical development. See Lounsbury, § 1.1.3, of "The Method of Descriptive Morphology," Oneida Verb Morphology (also in Readings in Linguistics) for discussion of this point.

Following the approach to morphophonemics outlined above, gramm x should be described without reference to morphophonemic alternants. Lounsbury, in an early work, puts this quite clearly, "Tactics is not concerned with the phonemic forms of morphemes, whether they are constant or variable..... the morphemic structure of forms can be described apart from their phonemic forms."[1] Hockett has reiterated the same point by saying that "The grammar of a language involves morphemes, but not phonemes and not the relation of morphemes to phonemes."[2]

In the grammatical description which follows this chapter no morphophonemic statements will be given, although, where necessary, reference will be made to the morphophonemic rules given in this chapter. As morphophonemic questions are irrelevant in the presentation of grammar,[3] examples will be given in a morphemic transcription, and to facilitate reference to actual Shona forms, all examples will also be given in phonemic transcription. In the morphemic transcription morphemes will generally be cited in the same form as their morphophonemic "base forms", but this is no more than a convenience.[4] It should constantly be born in mind that morphemes are abstractions, and citations in braces, { }, have no intrinsic phonemic reference.

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1 Op. cit., Readings in Linguistics, page 383.

2 "Linguistic Elements and Their Relations," page 36.

3 Although, of course, morphophonemics and questions of grammar are sometimes heuristically closely interwoven.

4 By comparison of the two transcriptions, the morphophonemic rules involved may easily be inferred in most cases.

3.1. GENDER CONCORDS

Every noun in Shona is a member of one or other of twenty two grammatical classes, each class being distinguished by a characteristic prefix. Several different kinds of words,[1] as well as certain other constructions,[2] incorporate concords which show agreement with the noun prefixes. There are almost as many concords in each of these other series as there are noun prefixes, and some series have in addition forms for first and second persons.[3]

The noun prefixes are given numbers (1 to 21) in general accordance with the Meinhof system of numbering, and all the other corresponding concords are similarly numbered. A few classes are added to Meinhof's noun classes, and two noun classes have Meinhof's numbers reversed (ka- is now 12, and tu- is now 13). The noun prefixes and all the concord series are here called "gender concords."

There are altogether eleven series of gender concords which occur in the different constructions. The morphemic status of the corresponding members of each series has never been formally investigated in a comprehensive manner.[4] If all the concord series are compared (see Table 1 overleaf), the phonological similarities between the corresponding members are striking.

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1 Viz. nouns, adjectives, enumeratives, quantitatives, demonstratives, selectors, and pronouns.

2 Viz. possessives (prefixes and "stems"), and what are traditionally called "verbs" (subject and object prefixes).

3 Exemplification of these points is considered unnecessary at this stage as the facts are in principal typical of all the S.E. Bantu languages and are well known.

4 This is true for all the S.E. Bantu languages, although several years ago I produced a morphemic analysis of the Rhodesian Ndebele gender concords (unpublished). The implication in grammars of these languages is that each gender concord series is distinct. See, for example, the treatment of gender concords in chapters III, V, VI and VIII in Fortune, An Analytical Grammar of Shona.

Table 1 Gender Concord Series[1]

	Noun	Adj.	Enum.	Obj.	Subj.	Quant.	Dem.	Sel.	Pron.	Poss. Prefix	Poss. Stem
Is	--	--	--	-ndi-	ndi- ~ nd-	nd-	--	--	ini	--	-ngu-
Ip	--	--	--	-ti-	ti- ~ t-	t-	--	--	isú	--	-ddu-
IIs	--	--	--	-ku-	u- ~ w-	w-	--	--	iwé	--	-kó-
IIp	--	--	--	-mu-[2]	mu- ~ m-	m-	--	--	imí	--	-ihyu-
Class 1	mu- ~ mw-	mu-	mu-	-mu-	a- ~ w-	w-	-yu	u-	-yé	w-	-kú-
1a	∅	--	--	--	--	--	--	--	--	--	--
2	va- ~ v-	va-	va-	-va-	va- ~ v-	v-	-va	va-	-v-	v-	-v-
2a	vá-	--	--	--	--	--	--	--	--	--	--
2b	à-	--	--	--	--	--	--	--	--	--	--
3	mu- ~ mw-	mu-	mu-	-u-	u- ~ w-	w-	-yu	u-	-w-	w-	-w-
4	mi- ~ mw-	mi-	mi-	-i-	i- ~ y-	y-	-yi	i-	-y-	y-	-y-
5	ɬi-	ɬi-	ri-	-ri-	ri- ~ r-	r-	-ri	ri-	-r-	r-	-r-
6	ma-	ma-	ma-	-a-	a- ~ ∅	w-	-ya	a-	-w-	∅	-w-
7	ci- ~ c-	ci-	ci-	-ci-	ci- ~ c-	c-	-ci	ci-	-c-	c-	-c-
8	zvi- ~ zv-	zvi-	zvi-	-zvi-	zvi- ~ zv-	zv-	-zvi	zvi-	-zv-	zv-	-zv-
9	N-	N-	i-	-i-	i- ~ y-	y-	-yi	i-	-y-	y-	-y-
10	dzi-	--	dzi-	-dzi-	dzi- ~ dz-	dz-	-dzi	dzi-	-dz-	dz-	-dz-
11	ru- ~ rw-	ru-	ru-	-ru-	ru- ~ rw-	rw-	-rwu	rwu-	-rw-	rw-	-rw-
12	ka- ~ k-	ka-	ka-	-ka-	ka- ~ k-	k-	-ka	ka-	-k-	k-	-k-
13	tu- ~ tw-	tu-	tu-	-tu-	tu- ~ tw-	tw-	-twu	twu-	-tw-	tw-	-tw-
14	hu- ~ hw-	hu-	hu-	-hu-	hu- ~ hw-	hw-	-hwu	hwu-	-hw-	hw-	-hw-
15	ku-	ku-	ku-	-ku-	ku- ~ kw-	kw-	-ku	ku-	-k-	kw-	-k-
16	pa-	pa-	pa-	-pa-	pa- ~ p-	p-	-pa	pa-	-p-	p-	-p-
17	ku-	ku-	ku-	-ku-	ku- ~ kw-	kw-	-ku	ku-	-k-	kw-	-k-
18	mu-	mu-	mu-	-mu-	mu- ~ m-	m-	-mu	mu-	-m-	m-	-m-
21	zi- ~ z-	--	--	--	--	--	--	--	--	--	--

[1] Only the main segmental allomorphs are shown.

[2] This occurs as alternative to /-ku-/, the latter with simultaneous suffixal inflection /-yi/.

3.1.1. Gender Concord Morphemes

For most of the gender concord series the forms occurring in any one class are phonemically identical or very similar. In class 7, for example, /ci-/ occurs in most of the series and /c-/ in the remainder. We obviously cannot justify an analysis which recognises eleven different class 7 ci- or c- morphemes. These two forms, moreover, are in simple phonologically conditioned complementation, as /c-/ occurs before vowels and /ɕi-/ generally before consonants. They are therefore simply variant phonemic representations of the same morpheme {ci}.

It should also be noted that most of the allomorphic variation recognised across the different series is identical with the allomorphic variation which occurs within certain of the series. In the case of the noun prefix of class 7, for example, both /ci-/ and /c-/ occur, and these have the same distribution as is noted above. The class 7 subject prefix similarly has the forms /ci-/ and /c-/ with the same distribution.

For each class, those concords in the different series which have identical phonemic forms, or similar forms which occur in complementary environments, are treated as variant representations of a single morpheme. A list of basic concord morphemes is established in which (abstract) morpheme representations for each class are entered. Phonemic representations of these morphemes are then accounted for by morphophonemic rules in the usual manner. This can easily be done for classes 1a, 2, 2a, 2b, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, and 21.

The remaining persons and classes are not as straight-forward as they display a greater diversity of forms in the different series. Class 1, for example, has the forms /u-/, /a-/, /mu-/, /-ye/, and /-kẹ́/. If these are treated as allomorphs, which is possible,[1] their distribution is

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[1] Gregersen, in his transformational treatment of Bantu concord, Prefix and Pronoun in Bantu, handles agreement by concord-copying rules, and therefore treats most, or perhaps all, of the phonemically diverse concordial forms as morphophonemic variants.

morphologically conditioned in a rather complex manner. Such forms are therefore treated as separate supplemental morphemes which replace those of the basic series in the constructions concerned.

Following the above procedure, a basic series of concord morphemes is recognised, together with several subsidiary series of supplemental morphemes for certain persons and classes. Forms in the basic series are not regarded as historical primes from which the forms in the subsidiary series have developed by a process of morphemic split. Neither does the basic series in classes 1, 3, 4, 6, and 9 reflect the fact that it is the noun that governs concord. It is unnecessary to reflect this fact in a chart whose purpose is only to set out all the gender concord morphemes of the language. In classes such as class 1 the form occurring most frequently is the one assigned to the basic series.

Table 2, overleaf, represents the conflated gender concord morpheme chart. It must be borne in mind that these forms are subject to morphophonemic rules, both segmental and tonal (§§ 3.1.3. and 3.1.4. below), for their phonemic realisation. The morpheme series are numbered a, b, c ... h, and are referred to in this way in the grammatical description which follows this chapter. Morphemes in series b to h replace the corresponding morphemes of the basic series in the constructions indicated at the head of each column. Notice that certain replacement morphemes are shared by more than one series. These morphemes are: class 1 {mu-} (e,f,g,h); class 3 {mu-} (e,f,g); class 4 {mi-} (e,f,g); class 5 {[illegible]-} (e,f); class 6 {ma-} (e,f,g); class 9 {N-} (e,f). Notice also that the morpheme {-ku-} of IIs in series h is shared with IIp as an alternative to {-mu-}. When denoting IIp it occurs with simultaneous suffix inflection {-yi}.

Table 2

Gender Concord Morphemes

	a	b	c	d	e	f	g	h
	Basic	Subject	Pronoun	Poss. nucleus	Noun	Adj.	Enum.	Object
Is	ndi-		ìnî	-ngù	–	–	–	
Ip	ti-		ìsû	-îdû	–	–	–	
IIs	u-		ìwé	-kó	–	–	–	-ku-
IIp	mu-		ìmî	-ínyú	–	–	–	/
1	u-	a-	-yè	-kè	mu-			
1a	–	–	–	–	∅	–	–	–
2	vu-							
2a	–	–	–	–	vé-	–	–	–
2b	–	–	–	–	à-	–	–	–
3	u-				mu-			
4	i-				mi-			
5	ri-				ì-			
6	a-				ma-			
7	ci-							
8	zvi-							
9	i-				N-			
10	dzi-					–		
11	ru-							
12	ka-							
13	tu-							
14	hu-							
15	ku-				–			
16	pa-							
17	ku-							
18	mu-							
21	–	–	–	–	zi-	–	–	–
RP	–	–	–	–	–	–	–	-zvi-

RP denotes "reflexive prefix."

Blank for any person or class in series b to h indicates that the person or class is as for series a. A dash indicates that the person or class has no member for that series. A slash indicates that more than one morpheme occurs.

3.1.2. Classes 9 and 10

Special consideration must be given to classes 9 and 10 in the noun and adjective series. In nouns, both /N-/ and /dzi-/ occur, while in adjectives only /N-/ occurs.[1] The problem concerns the interpretation of /N-/ and its relationship to /dzi-/.

The situation with noun forms is as follows:-

/N-/ occurs with both singular and plural meaning.

mbúdzí	(goat)
mbúdzí	(goats)
nyóká	(snake)
nyóká	(snakes)

/dzi-/ occurs in two nouns with a plural meaning.

dzimbá	(houses)	cf. imbá	(house)
dzimbó	(songs)	rumbó	(song)

The traditional treatment of these noun prefixes has been to assign /N-/ to both class 9 and class 10.[2]

9	N-	(singular)
10	N-/dzi-	(plural)

The implication is that the class 10 forms are allomorphs. Because the concord system as a whole reflects the distinction between singular and plural, the assignment of singular /N-/ to one class and plural /N-/ to another results in a homogeneous system of singular - plural correlatives. The assignment of the plural /N-/ to class 10 would, moreover, appear to be borne out by the occurrence of class 10 concords in agreement.

Mbúdzí dzángu dzínofura pánó.
(My goats gnaze here.)

There are, however, certain arguments against the traditional analysis. These lead to recognition of a single

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1 /N-/ is manifested by a morphophonemic change to the first consonant of the noun or adjective stem. See MR 15, page 69.

2 See An Analytical Grammar of Shona, pages 83 and 88.

morpheme {N-} (class 9) and a distinct morpheme {dzi-} (class 10). The evidence and arguments for this analysis are provided below.

3.1.2.1. The treatment of /N-/ and /dzi-/ as allomorphs of the class 10 morpheme {N-} implies that they do not contrast in meaning. There are, however, nouns which show a semantic contract dependent on the occurrence of /N-/ rather than /dzi-/.

nzira idzi	(these paths)
dzinzira idzi	(these many (confusing) paths)
nyáti	(buffaloes)
dzinyáti	(many buffaloes)
hova	(rivers)
dzihova	(many rivers)

/N-/ and /dzi-/ cannot be regarded as allomorphs without denying the status of the morpheme as the minimal meaningful unit. In the above examples /N-/ denotes simple plural, and /dzi-/ denotes multiplicity.

There are also examples involving the superimposition of other class prefixes onto /dzi-/, and, as above, /dzi-/ conveys the significance of multiplicity rather than plural.[1]

madzinyangá	(many horns)	cf. manyangá	(big horns)
		nyangá	(horn, horns)
madzimuto	(many kinds of soup)	mamuto	(thick, badly-cooked soup)
madzimishá	(many villages)	mamishá	(villages)
		mishá	(villages)
madziminya	(lots of left-over food)	maminya	(bad left-overs)
		minya	(left-overs)

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1 Fortune, op. cit., page 90, also gives examples of this kind. He notes that these forms with /dzi-/ are "distributive plurals."

3.1.2.2. In the first group of examples given in § 3.1.2.1. above the prefix /dzi-/ is functioning derivatively.[1] If /N-/ and /dzi-/ are both class 10 forms, then one allomorph (viz. /N-/) occurs non-derivatively, while the other (viz. /dzi-/) occurs derivatively with all but two stems.[2] It should be noted that none of the other noun prefixes occur both non-derivatively and derivatively with the same stems.[3]

3.1.2.3. No speaker of Zezuru can tell whether nouns with /N-/ are singular or whether they are plural.

hámá	(relative, relatives)
mbúdzí	(goat, goats)
nyóká	(snake, snakes)

The noun prefixes serve, inter alia, to provide the contrast between the categories of singular and plural.

munhu	(person)
vanhu	(people)
muti	(tree)
miti	(trees)
cigaro	(chair)
zvigaro	(chairs)

If /N-/ is assigned to both class 9 and class 10, there is the rather anomalous situation of a singular-plural pair of morphemes being identical, whereas elsewhere the singular: plural contrast is conveyed by the morphemes. Noun prefixes 9 and 10 would be, in other words, an isolated instance of contrasting morphemes having the same phonological form.

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1 Several of the noun prefixes have both a non-derivative and a derivative function. Fortune (op. cit., pages 54 and 55) terms these "primary" and "secondary function" respectively.

2 The two non-derivative forms are /dzimbá/ (houses) and /dzimbó/ (songs).

3 See Fortune, idem, § 144 (1), pages 76 and 77.

3.1.2.4. While the system of class numbering of the gender concords serves a synchronic descriptive purpose, it also reflects a historical situation. The Bleek-Meinhof numbering was devised to serve the purpose of comparative and historical work, and the Shona class prefixes numbered in this way are reflexes of the postulated proto-Bantu class morphemes correspondingly numbered. If the connotations of the Meinhof numbering system are preserved, the assignment of the singular /N-/ to class 9 and the plural /N-/ to class 10 implies that they are reflexes of the proto class 9 and 10 morphemes respectively. Proto class 9 is postulated as *ni-, and proto class 10 as *li-ni-. If there is a class 10 /N-/ in Shona it must be a reflex of *li-ni-. However, /N-/ is clearly a reflex of *ni-, and if we trace it to *li-ni- we must say that it is really ∅-N-. If the reflex of *li- is ∅, then /N-/ is a reflex of the class 9 *ni-.

3.1.2.5. In view of the above points, the analysis adopted here is the following:-

Class 9	{N-}	number unspecified, i.e. singular or plural
Class 10	{dzi-}	plural, non-derivatively with two stems; multiplicity, as a derivative prefix.

What has happened in Shona is that certain semantic contrasts have been restructured. Class 10 might well have been the normal plural correlative of class 9 and class 11, as in:-

imbá	9	(house)
dzimbá	10	(houses)
rumbó	11	(song)
dzimbó	10	(songs).

But the tendency has been to neutralise the singular:plural contrast in class 9, and those class 9 nouns which are only singular or plural, survive as remnants of the earlier system of correlative pairing. It is interesting that many class 9 nouns which do still have correlatives in other classes tend to mean "number unspecified."

rumbabvu	11	(rib)
mbabvu	9	(rib, ribs)
rutsanga	11	(reed)
tsanga	9	(reed, reeds)

In adjectives class 9 {N-} has no plural correlative, and, as with nouns, has the significance of "number unspecified." Class 10 {dzi-} does not occur at all.

húrú	(big one, big ones)
mombe ndíki	(a small head of cattle, small cattle)
dzimbá húrú	(big houses)
nzira mhamhí	(a broad path, broad paths)

3.1.2.6. Apart from adjectives, class 10 {dzi-} occurs in all the other gender concord series. The intended semantic number of class 9 nouns and substantival adjectives is conveyed by the concordial agreement with the noun or adjective, in much the same way as the number of "sheep" in English is indicated by concord morpheme in the verb, or by article or demonstrative. Class 9 agreements with a noun or adjective indicate a singular meaning, and class 10 agreements a plural meaning.

Mbúdzi yángu ínofura pánó. (My goat grazes here.)	9 - 9 - 9
Mbúdzi dzángu dzínofura pánó. (My goats graze here.)	9 - 10 - 10
Imbá húrú yákánáka. (A big house is nice.)	9 - 9 - 9
Dzimbá húrú dzákánáka. (Big houses are nice.)	10 - 9(adj.) - 10
Húrú yákánáka. (A big one is nice.)	9 - 9
Húrú dzákánáka. (Big ones are nice.)	9(adj.) - 10

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