BROKEN PLURALS IN MODERN IRAQI ARABIC

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Theresa McLaughlin Al-Azzawi
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David G. Lockwood
Major professor

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ABSTRACT

BROKEN PLURALS IN MODERN IRAQI ARABIC

By

Theresa McLaughlin Al-Azzawi

The problem of broken plurals (i.e., internal or interdigitated plurals, as opposed to the so-called 'sound' plurals, realized as inflectional suffixes) has never previously been solved satisfactorily for Arabic. Mary M. Levy (The Plural of the Noun in Modern Standard Arabic, Unpublished Ph.D. Dissertation, University of Michigan, 1971), while predicting the correct plural(s) for any given singular item via phonological rules and devices to handle exceptions, does not offer explanation for the peculiarities of the system (e.g., multiple plural association).

In this work the hypothesis posited by Talmy Givón ("Some Historical Changes in the Noun Class System of Bantu; Their Possible Causes and Wider Implications" in Papers in African Linguistics, Chun Wu Kim and Herbert Stahlke, eds., Urbana, 1971) to account for the noun class system of Bantu is used as a basis for the research into the apparently chaotic pluralization system of Arabic. The study is based on one subdialect of Arabic, namely Moslem Baghdadi Iraqi, which is a Bedouin dialect.

Theresa McLaughlin Al-Azzawi

This study finds that classes of Arabic nouns are associated with particular broken plurals on two bases. A number of plural classes are associated with broken plurals on the basis of culturally perceived semantic characteristics. This phenomenon reflects an older n-ary, non-anthropocentric, non-hierarchical system of one-to-one semanto-morphological correspondence. A few plural classes are associated with broken plurals on the basis of phonological shape, or canonical form. This phenomenon reflects a partial rearrangement of the system since the time of the hypothesized change to a binary, anthropocentric, hierarchical structure, which gave rise to the 'sound' grammatical masculine/feminine dichotomy.

The theory on which the study is based is that of stratificational grammar. One of the requirements of the theory, that "units" on one level (or stratum) are related only to "units" on immediately contiguous level(s) is found to be too stringent. A less rigid model is adopted in order to account for the direct relationships which seem to exist between the gnostemic and the morphemic strata of Iraqi Arabic.

BROKEN PLURALS IN MODERN IRAQI ARABIC

By

Theresa McLaughlin Al-Azzawi

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Committee Members:

Dr. David G. Lockwood, Chairman
Dr. Ruth M. Brend
Dr. Julia S. Falk
Dr. Ernest N. McCarus
Dr. Irvine Richardson

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DEDICATED

especially to

my husband
ASIM HASHIM AL-AZZAWI
without whose continual encouragement
and mature understanding I would never
have accomplished this end

and to

JULIA SABLESKI FALK
who unknowingly caused me to grow in
maturity and understanding

and to

WILLARD AND MARGUERITE BEECHER
whose book, Beyond Success and Failure,
inspired me to accept academia for
what it is and myself for what I am

and to

the chairman of my dissertation committee
DAVID GEORGE LOCKWOOD
a learned teacher and a friend

and ultimately to

my mother and father
HELEN MAHER AND ROBERT DORSEY MCLAUGHLIN

So oft in theologic wars,
  The disputants, I ween,
Rail on in utter ignorance
  Of what each other mean
And prate about an Elephant
  Not one of them has seen!

from the poem
  The Blind Men and the Elephant
by John Godfrey Saxe

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2. Major S

3. Suffix

4. Gemiti

5. Femini

6. FaMaal

7. FvMaL

8. CaFMa

9. The F

10. Liqu

11. Vowe

12. Fric

13. Stop

14. Nas

15. Pho

16. Alt
an

17. Al

18. Al

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LIS

Cl

Sp

Na

Vb

Lb

Ap

Ba

Fr

Ph

Zl

Vo

Vd

Ln

LIST OF SYMBOLS AND ABBREVIATIONS

Cl	closed	G	gnosteme
Sp	spirant	S	sememe
Ns	nasal	L	lexeme
Vb	vibrant	M	morpheme
Lb	labial	P	phoneme
Ap	apical	GN	gnoston
Rz	retracted	SN	semon
Fr	frontal	LN	lexon
Ph	pharyngeal	MN	morphon
Gl	glottal	PN	phonon
Vo	vocalic		
Vd	voiced	Sem	Defining Semantic Characteristic(s)
—	unspecified	Phon	Phonological (Surface Canonical) Form(s)
Ln	lengthened		

CHAPTER I

Introduction

1.1 The Topic

Broken plurals have posed a problem for analysts for centuries. The term 'broken plural' is used in most books on Arabic grammar to designate an internal plural. For example, the plural of *funduq* 'hotel' is *fanaadiq*; the plural of *gumar* 'moon' is *gmaara*; the plural of *ra'ad* 'thunder' is *ru'uud*. Such plurals are in contrast with the so-called 'sound' plurals, realized as inflectional suffixes. For example, the plural of *fattaan* 'tattle-tale' is *fattaaniin*; the plural of *malika* 'queen' is *malikaat*.

A parallel situation exists in English where the regular plural is realized as a suffix (frequently represented as -Z). There are instances of internal vowel alternation, however, such as *mouse*, *mice*; *man*, *men*, etc. It just happens that this type of pluralization occurs much more frequently in Arabic.

Traditional descriptions of Arabic contain many statements such as:

> No definite rule can be given for the formation of the plural. The plurals of nouns can only be learned individually, a task which is not so formidable as would at first appear.[1]

Structural descriptions do not offer much more insight.

Again we find statements like "In general the plural of each noun must be learned with the singular."[2] And, "There are some thirty possible patterns for broken plurals. Only a few of them are predictable from the singular...."[3]

A recent article by Talmy Givón[4] on the development of the noun class system of the modern Bantu languages, however, offers some interesting implications for the pluralization system of the Semitic languages. The following is Givón's hypothesis:

> a) The older classification of (proto) Bantu was an n-ary, non-hierarchical, non-anthropocentric multi-gender system of features; there was no further elaboration of the feature [animate] to yield [human]. There was a one-to-one correspondence between the semantic and morphological noun classification. (p. 41)

This system may be illustrated graphically by means of a feature-tree:

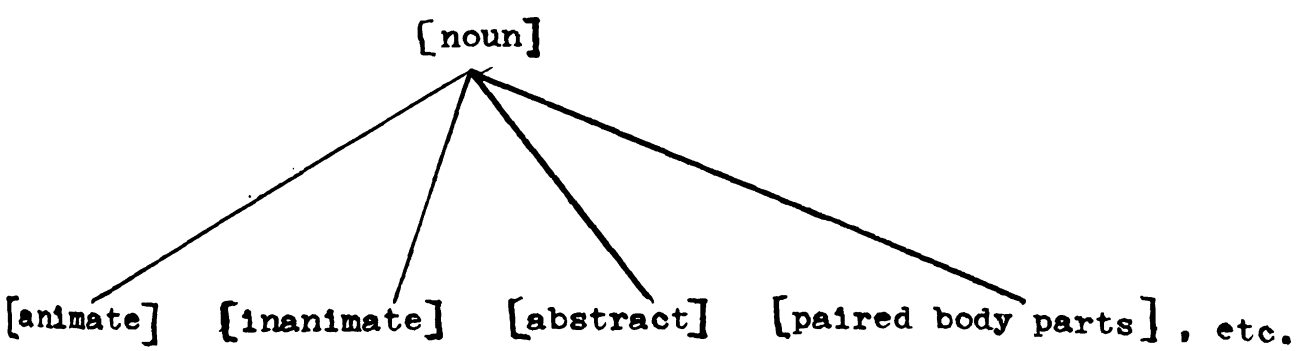


Figure 1

Non-Hierarchical Semantic Feature Tree

b) A re-analysis of the semantics underlying the noun universe then took place. The source of this re-analysis is not clear. This re-analysis centered around the subject specificity of verbs or, in other words, what nouns may perform what acts. Specifically, the position of humans within this schema was re-analyzed; the feature [human] was given an added specification of marking above and beyond animacy. Thus a hierarchized, bi-nary, anthropocentric system of semantic classification of nouns emerged, in which the category/feature [human] was placed at the top of the hierarchy of semantic markedness. (pp. 41-2)

We may illustrate this system graphically as:

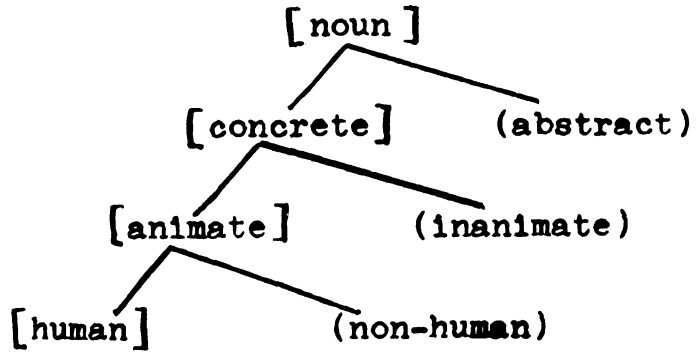


Figure 2
Hierarchical Semantic Feature Tree

The features at the left are the marked of the pair, while those at the right are the unmarked; with [human] being the most marked.

c) Largely in order to accommodate this new semantic classification the Bantu noun class 1/2 was then created -- de novo -- and human nouns from class 9/10 were slowly moved into it. (p. 42)

In Arabic we see a parallel situation. The Arabic so-called 'sound' plurals (i.e., regular, unbroken, or

affixed), -<u>iin</u> for the grammatically masculine nouns and -<u>aat</u> for the grammatically feminine nouns, seem to give evidence of 1) a newer plural class created for the purpose of accommodating a new semantic classification and 2) the creation of a still more marked grammatical category -- that of feminine (the masculine being unmarked). Semantically both are marked.



Semantic Gender Grammatical Gender

Figure 3
Masculine/Feminine Dichotomy

Justification for considering the feminine to be the marked of the two is found in the incorporation of borrowed words which are already semantically "marked" as non-native. Borrowed words which have not been completely assimilated (i.e., do not receive broken plurals on the basis of semantic features and/or canonical form) always receive the marked (or feminine) plural of the unmarked 'sound' plural category. That is, borrowed items fall into the unmarked or productive 'sound' plural category, but take the marked choice of the two plurals in this category -- the feminine.

> d) Since the old, multi-gender morphological classification of Bantu nouns had ceased to reflect the semantic facts, there was no compelling reason left for nouns to remain in any specific noun class -- except class 1/2. That is the change over from one prefix-agreement class to another would not have disrupted the semantic classification of the noun universe as it would have done prior to the semantic re-analysis. The moving of a noun stem from one agreement class to the other, done by slip of tongue, memory impediments, imperfect learning of children acquiring the language, would have presented no impediment to the acquisition or maintenance of the semantic system underlying the noun universe. Thus, non-human Bantu nouns have begun to slowly 'migrate' all over the noun class system, giving rise to the present day chaotic and largely language specific distribution. (p.42)

If this analysis were hypothesized for the Semitic languages as well, it would account for the apparently chaotic situation of the current pluralization system. Some singular items in Arabic have two or more plurals in "free" variation[5] -- although one of these plurals usually occurs much more frequently than the other(s).

It is Givón's contention that the morphology of plural formation in Semitic reveals an underlying <u>multi-gender</u> system upon which the more recent morphological/agreement genders seem to have been superimposed. Pluralization in the older system is not achieved by suffixation, which is more recent, but involves the interdigitation of plural morphemes with the CCC[6] consonantal system. This older system of pluralization borders on derivation but is associated with the inflectional phenomenon of pluralization.

This dissertation investigates Givón's hypothesis and its potential as an explanation for the Iraqi pluralization system.

1.2 Previous Scholarship

The previous scholarship on Arabic broken plurals is quite limited. There has been only one dissertation using a modern linguistic theory, namely Levy (1971). In her transformational-generative treatment of Modern Standard Arabic plurals Levy divides the singular items which take broken plurals into taxonomic classes on the bases of the features rational, masculine/feminine, and of their phonological shape (i.e., canonical form). The most frequently occurring plural for a given class is predicted by a major plural rule. The less frequently occurring are predicted by minor rules, and exceptional cases are predicted by exception features. The "elsewhere" plurals (i.e., the sound plurals) are ordered after the broken plural rules and apply to any item which has failed to meet the structural description of broken plural rules (either inherently or via exception features). Levy admits, however, that though her rules predict the correct plural(s) for any given item, they do not explain the peculiarities of the system. She suggests that the theory of markedness may ultimately offer this explanation.

A second recent transformational description is found in Brame (1970). In his treatment of Arabic phonology,

he deals almost exclusively with verb morphology. He provides many interesting observations on the phonological aspects of Arabic, but does not deal with the overriding concern of this thesis -- the relationship of semantics to the noun morphology.

Other publications of interest, but which offer no real explanation are: Erwin (1963) -- a structural description; Fleisch (1961), Kuryłowicz (1961), Lekiaschwili (n.d.) and Murtonen (1964) -- traditional descriptions, the last three being diachronic. Despite their diachronic viewpoint, however, these works offer no real insights into the semantic history of the pluralization system, but deal only with aspects of its fluctuations according to canonical form.

There have been no works on Arabic within the stratificational framework and no published work using semantically (or gnostemically) defined morphological classes.

The present study attempts to shed some light on the present-day pluralization system of Iraqi Arabic (and perhaps indirectly on the system of Arabic pluralization for the dialects in general). Specifically, it offers some explanation for the apparent peculiarities of the system (over and above predictions). At the same time work in this area makes some contribution to the meta-theory, inasmuch as a study of this nature, which indicates a rather direct relationship between semantics and

morphology, has never been attempted within the stratificational framework. The direct relationship between morphology and meaning was hinted at in Lamb (1971a) where he states that "morphotactic classes which are needed to specify the occurrence of morphemes in derivational constructions are often semantically defined.... It suggests that there must somehow be direct links from morphemes to meaning ...."

1.3 Modern Iraqi Arabic

Modern Iraqi Arabic is a term commonly used to refer to the Muslim Baghdadi dialect of Iraqi Arabic. Iraqi Arabic belongs to the group of Arabic dialects called Eastern Arabic. While members of this group share certain characteristic features, the group as a whole is not homogeneous.

The Muslim Baghdadi dialect is a nomadic or Bedouin dialect, sometimes referred to as galat ('I said') to distinguish it from the Christian and Jewish dialects of the same city, which are sedentary, and which use the form qaltu ('I said') instead of the form given above. As the city of Baghdad is divided, so is the rest of Iraq. The galat/qaltu dialect split of the country is not based on religious affiliation, however, but rather on geography. The cities to the north, like Mosul, are in the qaltu dialect group, while the cities to the south, like Basra, as well as the outlying farm districts, share the nomadic

features of the galat dialect group.

The term Modern Iraqi Arabic as used herein refers, as is usual, to the Muslim Baghdadi Iraqi dialect of Arabic.

1.4 Data

The source of data used in the research is threefold. First, A Dictionary of Iraqi Arabic: Arabic-English (Woodhead and Beene: 1967) was used to compile lists of singulars and plurals and their meanings.[8] Secondly, the acceptability of these plurals was checked with two Baghdadi Iraqi informants -- one of whom has been in the United States for some time and one of whom has recently returned from Baghdad. As a check on plurals in context, Spoken Arabic of Baghdad: An Anthology of Texts (McCarthy and Raffouli: 1969) was used.

The informants were also consulted as to their intuitions about semantic classifications.

Transliteration of the data was not necessary since most dialectal studies are written in the Roman alphabet in order to make the dialectal variations more evident. It was only necessary to coordinate the various methods of transcription. (See Section 2.4.2 for a chart of Modern Iraqi Arabic consonantal and vocalic phonemes.)

FOOTNOTES

Chapter I

1. John Van Ess (1938).

2. Wallace M. Erwin (1963).

3. Mary Catherine Bateson (1967).

4. Talmy Givón (1971). Of course, Givón's hypothesis is but one of several interpretations possible. The outcome of any research is always dependent upon the initial hypothesis/hypotheses one chooses to work with. (See Malcolm Guthrie, "Variation in the Range of Classes in the Bantu Languages" in La Classification Nominale dans les Langues Négro-Africaines, pp. 341-53, Paris, Center National de la Recherche Scientifique, 1967 for an alternate hypothesis in which classes 1/2 are posited as being as old as some of the non-anthropocentric classes.

5. No variation is absolutely "free". Context (i.e., social situation, style, etc.) usually plays a crucial role in determining which variants are to occur.

6. The triconsonantal pattern is the most common. However, there are also bi- and quadriconsonantal patterns.

7. The feature [rational] may be defined as "of or pertaining to those creatures in the animalia hierarchy able to reason, i.e., humans."

8. Regarding the question of the relationship of the collective noun to its corresponding noun of unity, it was decided that since this relationship was derivational, collectives would not be considered in the description of inflectional pluralization -- either sound or broken -- even though broken pluralization borders on being derivational in nature. For example,

collective	tuffaah	apple(s) (in general)
noun of unity	tuffaaha	an apple
plural	tuffaahaat	apples (more than two)

while tuffaah in a certain sense may be considered to be in a type of plural relationship with tuffaaha, this relationship was excluded from discussion in the present study. Also excluded was the dual.

CHAPTER II

Preliminaries

2.1 Theoretical Approach to the Topic

2.1.1 Background

The theory to be used as a framework for the description is that of stratificational grammar. It was shown by William J. Sullivan (1969) in his recent dissertation that stratificational theory fulfilled all the practical and philosophical criteria he set up as necessary prerequisites for the consistency of a theory with the philosophy of science. He states that the philosophy of science "demands that the theory be oriented toward seeking in analysis a description of the system underlying the raw data, and that it should provide a mechanism for describing that system." Further, "since the system sought is the set of interrelationships of the items of the analysis, the description must consist of a network of relations." (p. 75)

Stratificational theory surely fulfills this last requirement since the major tenet of stratificational theory is that language is a network of relationships.

Units, if they can be said to exist within such a framework, can only be fully defined via a definition of the entire system of which they are a part. Within a stratificational description, however, units exist only outside of language proper (i.e., in meaning and sound).

Language[1] itself consists solely of the relationships relating sound to meaning and tautologically vice versa. In order to discuss certain pertinent points in the network of relationships it becomes convenient to speak of them as "units" and sometimes to give them names, e.g., morphemes, phonemes, etc. It must be understood, however, that any such reference to "units" in the description which follows is solely in the sense of points in the network of relationships, and that the terms morphemes, morphemic signs, etc. are only mnemonic devices for referring to these points. They are purely for the convenience of the analyst in describing and the reader in comprehending.

It is humanly impossible to actually discuss the entire system of relationships each time one refers to a point in such a system. Thus such labels become a practical necessity.

In establishing stratificational grammar within the spectrum of twentieth century linguistic theories, one must look to the two most important precursors to the theory -- Louis Hjelmslev and Charles Hockett.[2]

In his Prolegomena to a Theory of Language, Hjelmslev introduced the notion of language as form, intervening between the content continuum at one end and the expression continuum at the other. These continuums he labeled purport (i.e., content purport and expression purport). The content- and expression-form are independent of, and

stand in arbitrary relation to, the respective purports, forming them into content- and expression-substance. For illustration, Hjelmslev used the example of a net (the form), casting a shadow on an amorphous mass (the purport). The pattern outlined by the shadow divides this mass in a certain way creating the substance. A graphic display might offer better explanation. (In the top half of Figure 4 the rays are projecting upward and in the bottom half downward.)

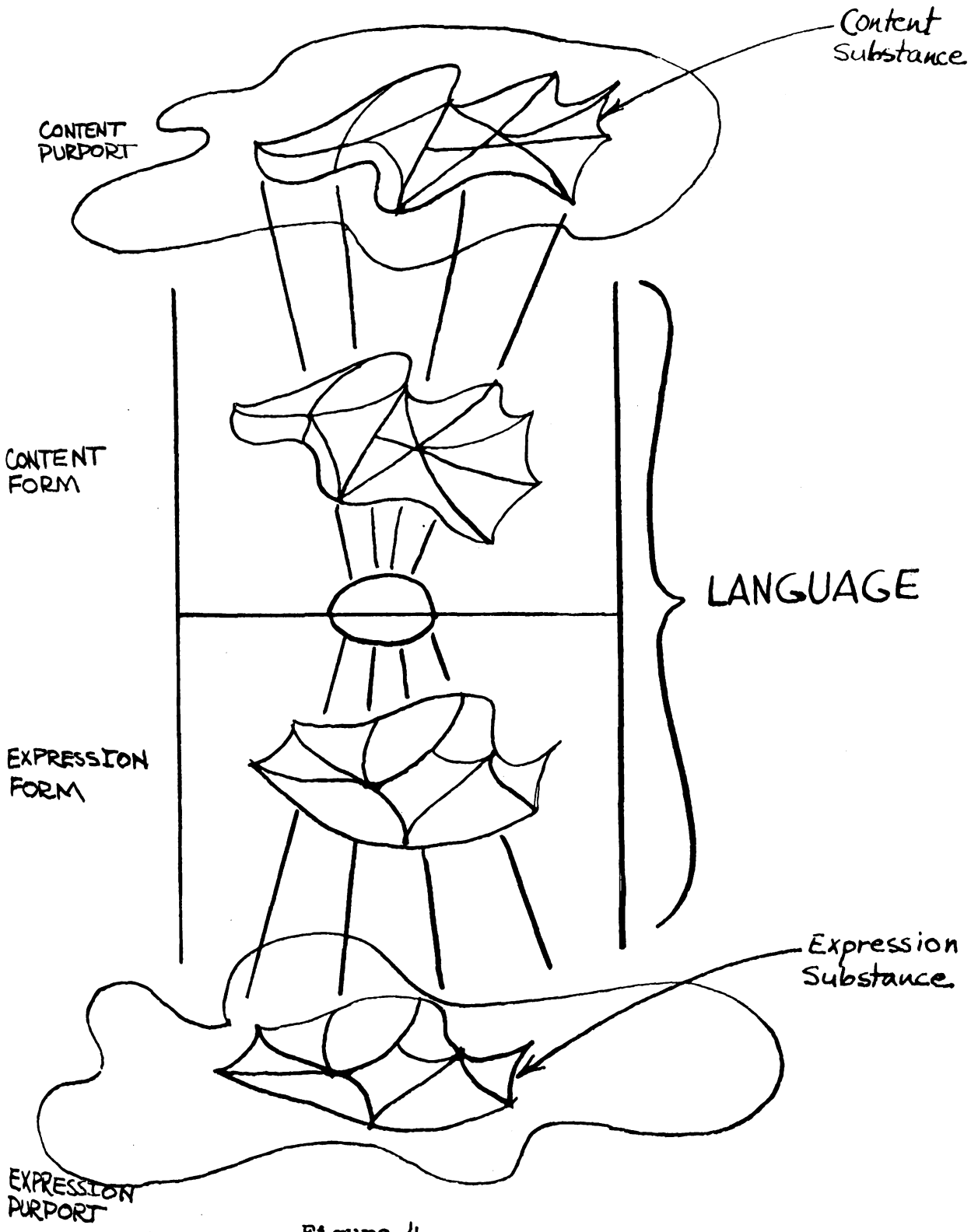


Figure 4

Hjelmslev's Model of Language

Notice that the dichotomy is the same as that posited by de Saussure (1959) in his two sides of the linguistic sign.

The major difference between Hjelmslev and Lamb is that the relationships Lamb posits are more primitive than the ones Hjelmslev posits.

The second precursor, Hockett, laid the groundwork for the notion of intervening levels or strata.[3] That is, language cannot be viewed as a simple dichotomy of form into content and expression, since there exists overwhelming justification for the existence of at least one stratum relating morphemes to phonemes. Subsequent studies have shown that similarly morphemes, in general, are not directly related to meaning, thus establishing form as having several levels of structure (i.e., strata).

In his article, "Linguistic Elements and Their Relations", Hockett considered the following relationship between morphemes and phonemes:

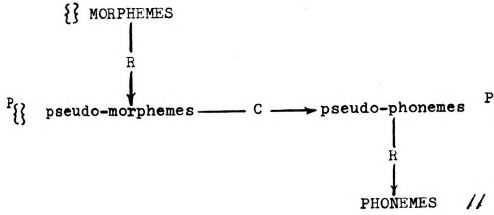


Figure 5
Hockett's Model of the Relationship
of Morphemes to Phonemes

The pseudo-morphemes may be re-termed allomorphs and the pseudo-phonemes morphophonemes. The relationships are those of representation (R) and composition (C). Although it is clear that a level exists between classical morphemes and classical phonemes, Hockett gave this level no linguistic status.

One familiar with stratificational theory can easily see the development from this to the morphemic level in the stratificational framework. "Units" the size of the traditional morpheme were re-termed lexons (i.e., the components of lexemes). "Units" the size of traditional allomorphs were re-termed morphemes (i.e., the tactical units of the morphemic stratum), and "units" the size of the morphophoneme were re-termed morphons (i.e., the components of morphemes). The phoneme became the stratificational phoneme which was the same size level as the traditional

phoneme but at a higher level of abstraction (i.e., it was not a biunique level). The relationships in stratificational grammar are those of realization and composition. Since a tactics defines a stratal system, or, in other words, a stratal system cannot exist without a tactics, a tactics was introduced to generate the well-formed combinations of morphemes. The stratum so defined formed an intervening level between the classical morpheme and the classical phoneme, thus solving the anomaly emerging from Bloomfield that

> A morpheme is composed of phonemes.

and at the same time,

> A morpheme has allomorphs.

The stratificational restatement of Hockett's model is given below.

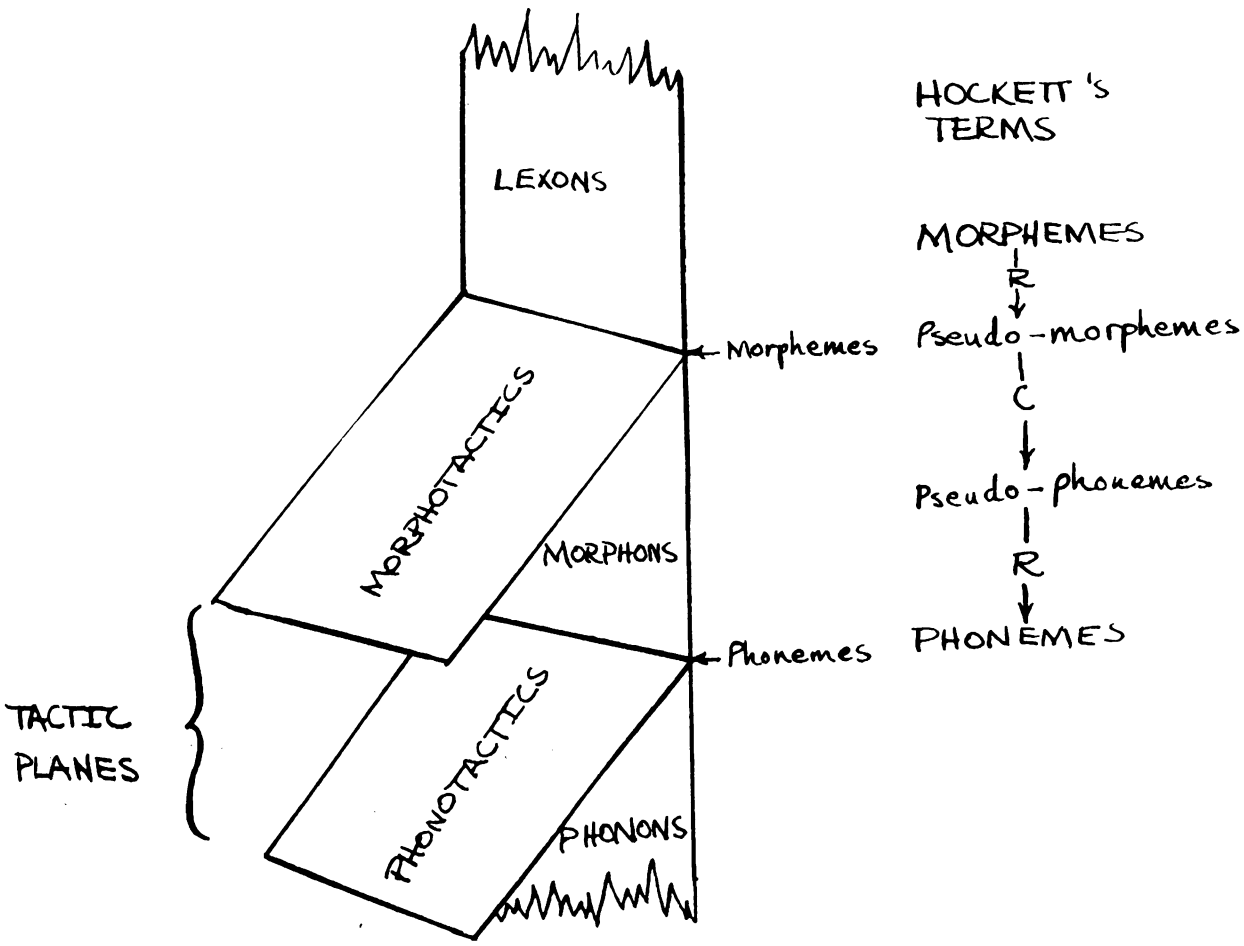


Figure 6
A Stratificational Restatement
of Hockett's Model

This was only the beginning, however. Since Hockett's article appeared, linguists working within the stratificational framework have found ample evidence to warrant the hypothesis of still further levels of structure, each level being structured in a similar manner. The present levels posited for language are listed below.

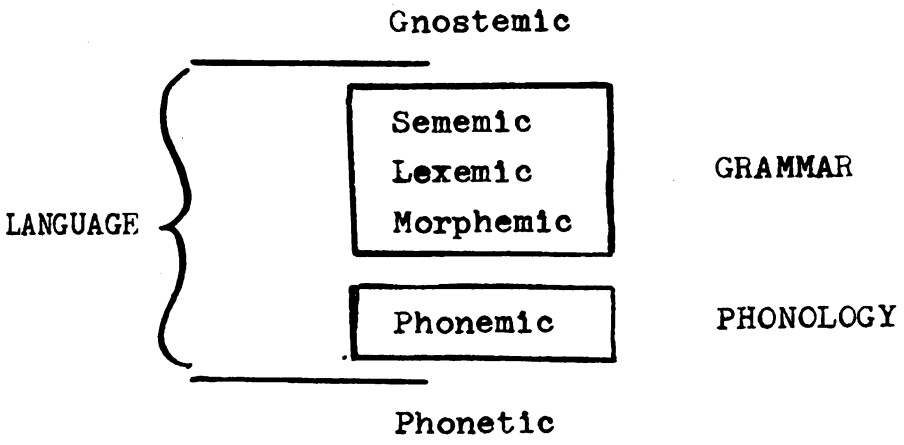


Figure 7
The Present Stratificational Model of Language

This shows a neat division between grammar and phonology but one must not forget that the system is an interwoven whole. The gnostemic and phonetic strata are presently thought to be, if not outside language entirely, at least at the periphery.

2.1.2 Axioms and Primitives

There are certain primitives out of which a stratificational description is constructed and certain axioms upon which the theory is based.

The first of these axioms is

A.1 All human knowledge and thus all human activities including language may be described by means of a few logical relationships. It is the ability to structure his universe by means of these relationships that is innate in man.

As Hjelmslev (1961: p.127) has stated:

> Linguistic theory is led by an inner necessity to recognize not merely the linguistic system, in its schema and in its usage, in its totality and in its individuality, but also man and human society behind language, and all man's sphere of knowledge through language.

These logical relationships are two of the primitives of the linguistic system. They are "and" and "or."

The second axiom is

> A.2 Language, as a mode of communication, functions in two directions. During encoding it functions in the direction from meaning toward sound. During decoding it functions in the opposite direction (i.e., from sound to meaning). Therefore, a theory should not impose a partiality, either intended or implied, for either direction.

Stratificational grammar accepts this axiom by its introduction of the two primitives of directionality "upward" and "downward."

The third axiom is

> A.3 Ordering is often crucial within the linguistic system.

There are many cases of crucial syntagmatic ordering. In English the subject-verb-object word order is a good example. Stratificational grammar accepts this third

axiom by introducing 1) the primitives "ordered" and "unordered" and 2) the notion of stratal precedence, i.e., the notion that the lower stratal tactics (the ones nearer sound) take precedence over the higher stratal tactics during encoding and the higher stratal tactics take precedence over the lower during decoding.

An additional type of ordering extant in stratificational theory, termed <u>tactical</u> ordering[4], characterizes variable ordering, not dependent on any ordering within the linguistic system. This type of ordering rather characterizes the realization of elements in the order in which they occur, e.g., the order of the realization of morphons composing any given morpheme.

Lamb (1972: pp.675-6) gives the example from Monachi:

	Gloss:	to haul water	bucket
a)	Morphonic:	pa noo	?a' na pa noo 'nu hE
	Phonemic:	panoo	?a'napanoo'noho
	Gloss:	gold	specifically gold
b)	Morphonic:	?oono ?E	?oono ?E 'su
	Phonemic:	?oono?o	?oono?o'so

Given the following two realization formulae:

R1 $E/V_1K \rbrack V_1$

R2 $u/oK \rbrack o$

where K = any consonant or consonant cluster, we can account for the apparent need for reversed ordering to handle examples

a) and b) above with stratificational tactical ordering. For example, in a) the morphons are realized in the order in which they occur in the morpheme. In 'nu hE, first u is realized as o, then E is realized as o yielding 'noho. In example b) (?E 'su) first E is realized as o, then u is realized as o yielding ?o'so.

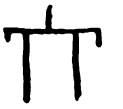
2.1.3 Types of Relationships

The justification for establishing an intervening level between two linguistic "units" such as that illustrated above between the classical morpheme and the classical phoneme lies with the fact that the relationship between these "units" is not a simple relationship (i.e., it is not one-to-one). Relationships may be divided into two types: simple (or one-to-one) and complex (i.e., many-to-one or one-to-many).

The types of complex relationships existing within the linguistic system may be shown to be composed of the primitives of the system of stratificational grammar (i.e., and, or, upward, downward, ordered, unordered). Following is a table of complex relationships and their primitive components.

TABLE I

Primitive Components and Complex Relationships in Stratificational Notation

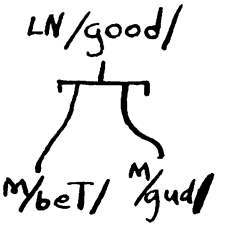
COMPLEX RELATIONSHIP	PRIMITIVE COMPONENTS	STRATIFICATIONAL NOTATION
Diversification	or, downward, ordered	
	or, downward, unordered	
Neutralization	or, upward, ordered	
	or, upward, unordered	
Composite	and, downward, ordered	
	and, downward, unordered	
Portmanteau	and, upward, ordered	
	and, upward, unordered	
Zero	Simple or or, downward, ordered or unordered	
Empty	Simple or tactically specified and, upward, ordered or unordered	

The following is an explanation, with examples, of how to read the stratificational notation outlined in Table I.

1) 

a is realized as b or c, but b is chosen in preference whenever possible.

For example, the stratificational morpheme ^{M}/bɛT/ (traditional allomorph) is chosen only in the environment of comparative or superlative. Elsewhere (the unmarked or rightmost branch) the stratificational morpheme ^{M}/gud/ is realized.

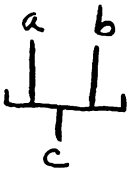


2) 

a is realized as b or c (or a is a class consisting of the members b and c).

For example,

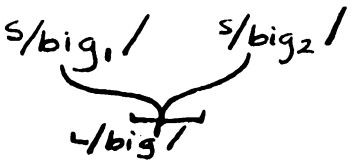


3) 

Either a or b is realized as c but a takes precedence. This occurs rather infrequently.

4) 

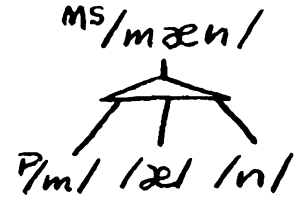
Either a or b is realized as c.



For example, either <u>big</u> (in the sense of elder) or <u>big</u> (in the sense of large) can be realized as the lexeme ^{L}/big/, causing the ambiguity in a phrase like 'my big sister'.

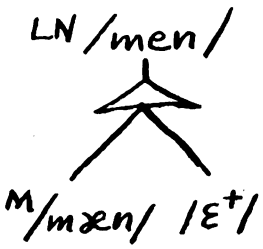
5) 

a is composed of b followed by c.

For example, 

6) 

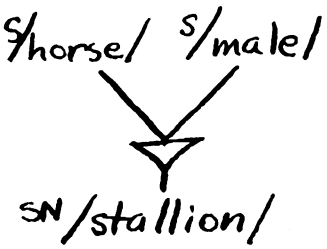
a is composed of b and c simultaneously (or without regard to order).

For example, 

the lexon ^{LN}/men/ (actually man + plural) is composed of the morpheme ^{M}/mæn/ simultaneous with the plural preemptive morpheme ^{M}/ɛ+/.

7) 

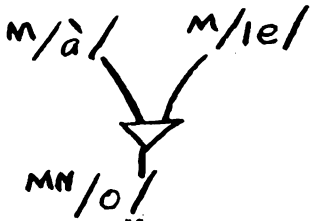
a and b occurring simultaneously are realized as c.

For example, 

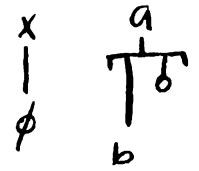
the sememes ^{S}/horse/ and ^{S}/male/ occurring simultaneously are realized as the semon ^{SN}/stallion/.

8) 

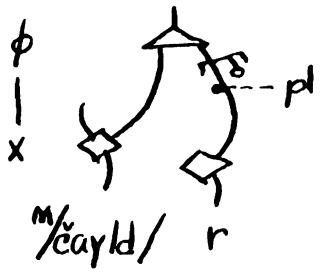
a followed by b is realized as c.



In French, the morphemes ^{M}/à/ followed by ^{M}/le/ are realized as the morphon ^{MN}/o/.

9) 

x is realized as zero. For example, one of the realizations of the plural morpheme in English is Ø.

10) 

Ø is realized as x. For example, the morphotactics generates a determined element ("empty morph") r in the environment of child and plural. This r has no connections to higher levels.

Lamb's Outline of Stratificational Grammar and Lockwood's Introduction to Stratificational Linguistics contain further elaboration on the notational system of stratificational grammar. Reich's "Symbols, Relations, and Structural Complexity" includes an explanation of their logical implications and dynamic interpretations.

2.1.4 The Simplicity Measure

One of the best features of stratificational grammar is its simplicity measure. The same measure can be used to measure a grammar as a whole or to measure any part of it. Thus, stratificational grammar can decide if a simplification in one part of the grammar has led to an overall complication or is really a simplification in terms of the grammar as a whole.

The need for a simplicity measure stems from the fact that simplicity and generality go hand in hand, and

stratificational theory wishes to make use of this fact in keeping with the philosophy of science. Any theory wishing to achieve explanatory adequacy must be able to offer a process for deciding which of two equally descriptively adequate grammars is the simplest (i.e., the most general) (cf. Chomsky, 1965: pp. 30-7)

Thus an explanatorily adequate theory must include the <u>empirical principle</u> (Hjelmslev: 1961, p. 11)

> A description shall be free of contradiction (self-consistent), exhaustive, and as simple as possible. The requirement of freedom from contradiction takes precedence over the requirement of exhaustive description. The requirement of exhaustive description takes precedence over the requirement of simplicity.

Lamb (1966b) has suggested a measure for deciding between two accounts which are equivalent in effective information (i.e., equally exhaustive) but which differ in surface information (i.e., differ in simplicity). This measure was later refined by Reich (1968). It amounts to what has been termed "counting lines and nodes." But one must remember that nodes simply define relationships and lines the "elements" taking part in the relationship. (Elements exist only in substance. Counting lines is actually counting the number of times ultimate connections to substantive elements are involved in a particular relationship.) Thus counting lines and nodes is equivalent to counting +'s and -'s and letters in algebraic descriptions.

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One method of measuring the simplicity would be to count the number of times a relationship is stated and the number of times elements entering into those relationships are stated. Thus i) is shown to have five stated relationships and six stated elements, while ii) is shown to have three stated relationships and four stated elements. So ii) is simpler or, in linguistic terms, it captures more generalizations.

While this example does not mirror exactly the technique followed in determining the simplicity of a stratificational description, it serves to explain the rationale behind the simplicity measure. Actually, not every element entering into each relationship is counted -- only those in excess of three. For example,



(a) (b)

Figure 8
Relationships of Composition and Neutralization

given a common relationship such as composition (a) or neutralization (b), the normal situation is to have

three connecting items. That is, in (a) x is composed of y followed by z, while in (b) either q or r is realized as s. A node is defined in terms of its connections upward toward meaning and downward toward sound -- one incoming and at least two outgoing. Less than two outgoing would make the relationship vacuous, i.e., simple. The limiting case (i.e., the case where three such connections exist) is thus taken as defining the relationship or node. Only extra outgoing lines are counted. For example,

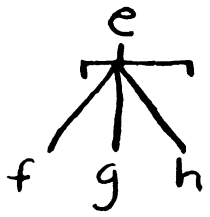

Figure 9
Node with Extra Lines

Figure 9 would be counted as one node (relationship), defined by e and any two of f, g, h, and one extra line (one extra "item" entering into the relationship).

Since a total stratificational description is given in terms of nodes and lines (i.e., in terms of relationships and their connections) the same simplicity measure may be used throughout.

2.1.5 Major Goal

The major goal of stratificational theory is a description of man's "competence to perform his language" (Lamb: 1971a, p.103). That is, the competence and

performance models proposed by the theory are closely linked.

The model may be called cognitive since its aim is to approach a working model which is compatible with current models of the brain and its functions. It attempts to relate language to other forms of human activity and to all of "knowledge." Thus the model has an even broader scope than the description of language. It can be and has been used to describe other human activities such as baseball games[5] and dance gestures[6]. It obviously possesses great potential.

The way in which the competence and performance models are related is simply that the performance model is the dynamic (or innervated) counterpart of the static competence model -- or the competence model "plugged in" as it were.

It must be pointed out that this performance model is a model of <u>ideal performance</u>. That is, it does not account for the variables of <u>actual performance</u> such as memory limits, physiological malfunctions, etc.

Stratificational grammar aims at achieving an isomorphic model. A graphic illustration might be helpful. The goal of stratificational grammar might be compared to the goal of setting up a model of the inner workings of the computer (often called the hardware). Even though one cannot see the inside of a functioning brain as one can the inside of a functioning computer so that the actual isomorphism

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3.2 Semology

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2.2 Semology

2.2.1 The Gnostemic and Sememic Strata

The semology of stratificational grammar is divided into two strata -- the gnostemic and sememic. The gnostemic system is currently thought to be outside of language proper and to contain all of human knowledge. This knowledge will vary from culture to culture as it is this system which imposes differing divisions on the content purport to form differing divisions of content substance. In other words, different cultures tend to view the world differently, or one's culture places a bias on how one views the world.

The tactics of the gnostemic system, besides providing for the taxonomic hierarchies of the animal world, the plant world, etc. provides for well-formed combinations of the "units" of meaning called gnostemes, e.g., ^{G}/go/, ^{G}/male/. These gnostemes are usually in one-to-one correspondence with gnostons, the components of gnostemes (i.e., the relationship is usually a simple one). Some major reasons for positing a structure of gnostemes composed of gnostons when the "composition" appears to be a simple relationship are:

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1) There are cases of complex compositional relationships, e.g., certain idiomatic expressions which can be internally passivized need to be broken down into components at this level. An example follows.

1a) Muskie threw his hat in the ring.
1b) His hat was thrown in the ring.

The above example is in contrast to such examples as their following which cannot be passivized and still retain the idiomatic interpretation:

2a) The cow kicked the bucket. (ambiguous)
2b) The bucket was kicked by the cow. (unambiguous)

3a) The child threw a fit.
3b) A fit was thrown by the child. (unacceptable)

There is also the fact that pormanteau realizations exist between gnostemes and gnostons.

2) This structure of gnostemes composed of gnostons is analogous to that posited for a stratal system of language proper.

This second reason is not particularly convincing since extra-linguistic structure need not mirror exactly linguistic structure. But since there exist examples such as that in 1b), a relationship of composition between -emes and -ons is posited at this level, even though most of the relationships will indeed be simple.

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The sememic stratum is the first level of the semology which is within language proper. The gnostons of the gnostemic level are realized as sememes, the tactic "units" of the sememic level. In order to justify the existence of two separate strata -- the gnostemic and sememic -- it is necessary to show

1) that complex relationships exist between gnostemes and sememes or, in other words, that the relationships are not one-to-one, and

2) that the domain of the gnostotactics, which defines the gnostemic level, is greater than, or, in some sense, different from, that of the semotactics.

It is commonly held that the domain of the semotactics is the proposition, while the domain of the gnostotactics is the text, or discourse. (Relations necessary to account for texts are presumed to include all of human knowledge, however.) Thus part 2) above is accounted for.

To illustrate the fact that complex relationships exist between the gnostemic and sememic strata, thereby accounting for part 1) above, an example from Ikegami (1970; p.64) will be used.



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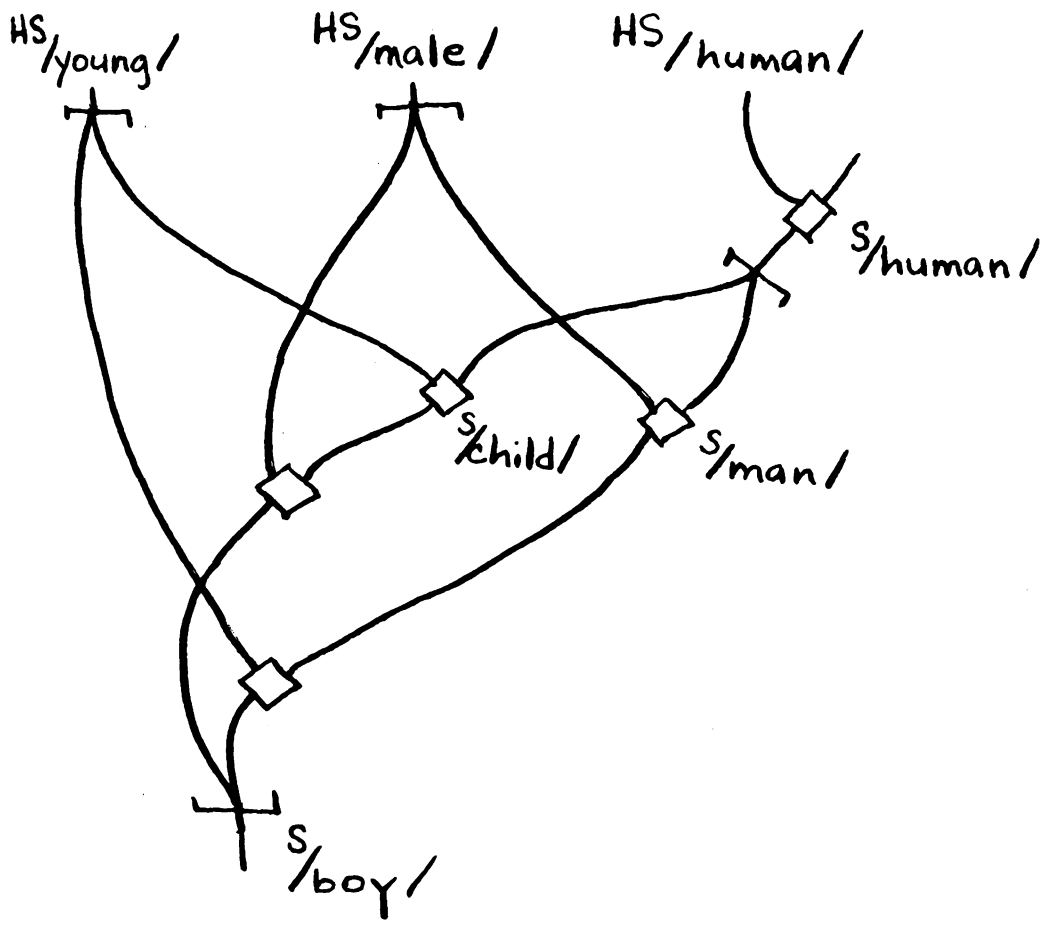

Figure 10
Ikegami's Hypersememic Diagram

The hypersememes (HS) of Ikegami's diagram are the gnostemes of the present discussion. Note that there exists diversification in the realizations of young and male and that the sememe ^{S}/boy/ can be interpreted as 'young man' (human + male + young) or as a 'male child' (human + young + male).

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An illustration of the integrated structure of the gnostemic and sememic strata is given below.

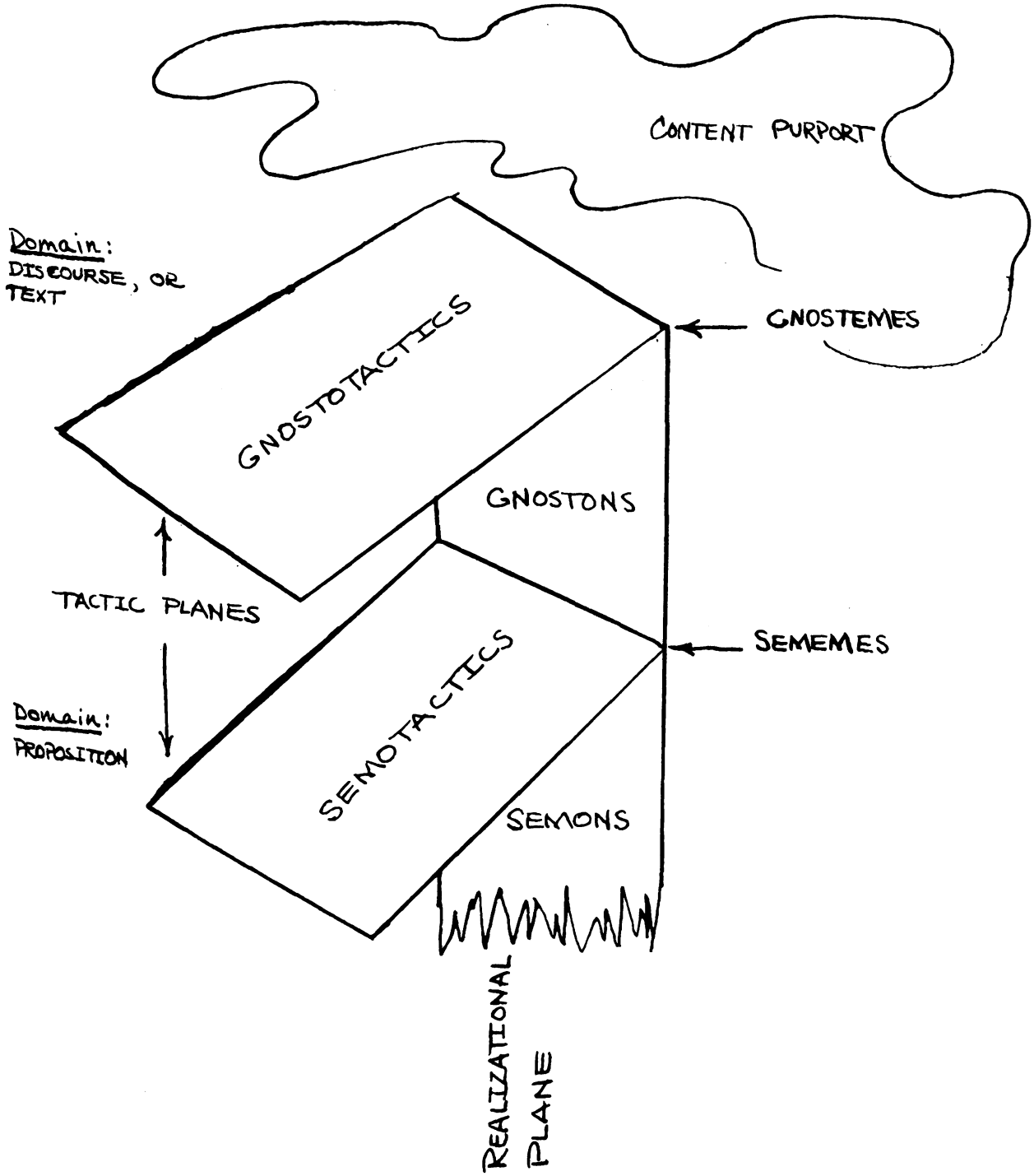

Figure 11

Integrated Structure of
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2.2 Componential

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2.2.2 Componential Analysis

2.2.2.1 Definition

Lyons (1968: p.476) defines componential analysis as "a technique for the economical statement of certain semantic relations between lexical items and between sentences containing them". Previous work in semantic componential analysis (cf. Goodenough, 1956 and Lounsbury, 1956) consisted of identifying distinctive features on the basis of **analogy**, or proportional relatedness.

Proportions such as the following were set up

man: woman: child :: stallion: mare: foal

and the features (human) vs. (non-human, or equine in this case), (male) vs. (female), (adult) vs. (non-adult) were extracted as components.

Katz and Fodor (1964) distinguish components such as the above, termed 'semantic markers' from item-specific features, termed 'semantic distinguishers', the classic example being the lexical item bachelor with two of its semantic markers (i.e., features or components) being (human) and (male) and two distinguishers under these markers in the feature hierarchy [who has never married] and [young knight serving under the standard of another knight].

The stratificational approach makes yet another distinction. It recognizes the fact that "the meaning of some

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> some investigators of semantic structure have made the mistake of supposing that taxonomic structure can be analyzed in terms of sememic components; for example, that pine should be analyzed into components including all the components of evergreen plus a component which distinguishes pines from other evergreens. But such a component would occur only as a component of pine. A true sememic component occurs in two or more different sememic signs. For example, female occurs not only in mare, but also in doe, sow, vixen, hen, sister, queen, and so forth. In addition, true semantic components are sememes and as such they participate in the sememic syntax. (Lamb: 1969, pp.46-7)

The crucial statement here is that a true sememic component is one which occurs in two or more different sememic signs. This in effect says that those features of the taxonomic hierarchy which are item specific (the semantic distinguishers of Katz and Fodor) are not part of the structure of language (i.e., in the stratificational sense they are part of the gnostemic stratum). Only those semantic features which function in the semotactics (i.e., which occur as components of two or more sememic signs) are considered components in the linguistic sense.

2.2.2.2 Universal Status

Although it seems obvious that the taxonomic hierarchies are language specific (and probably even speaker specific given each speaker's greater or lesser degree of knowledge on a particular subject), whether or not

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some of the components of these hierarchies are universal is not so obvious. Katz and Postal (1964) suggest that they are. Lyons (1968: p.473), on the other hand, says that "such empirical evidence as there is available at the present time would tend to refute, rather than confirm, this hypothesis." Intuitively it seems that the set of semantic components cannot be a closed set since a speaker can make indefinitely[7] finer distinctions once he or she is made aware that a distinction exists, and in order to make new distinctions one must add new features to the taxonomic hierarchy. But intuitively also, it seems that there exists a certain functional subset of these components (perhaps a subset of those which function on the sememic levels of the world's languages) which is universal. It seems that every human language would make a linguistically significant distinction between (male) and (female) since these distinctions are overtly manifested in the universe. This is only hypothetical, however. Actually the decision as to which, if any, components are universal is not crucial to the arguments herein presented.

2.2.2.3 Related Phenomena

An interesting fact about semantics is that each speaker has the capacity to describe any item or phenomenon no matter how fine or gross a distinction is needed to differentiate it from another and no matter what language the speaker uses.

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Another phenomenon which makes describing the entire gnostemic and sememic strata for any given language utterly futile is the fact that given any utterance interpreted as nonsense under normal circumstances, one can extend the context to include, say, the surreal, and then the utterance appears semantically well-formed.[8] One might be inclined to ask "Why bother to try to study such an ill-defined structure?" The answer is that fear of not being able to completely describe these stratal systems should not prohibit one from trying to describe parts of their structure.

2.2.2.4 Cognitive Validity

As far as the cognitive validity (or reality) of components of meaning, it is quite safe to say that stratificationalists presume that such components actually possess correlates in the mind of the speaker.

2.2.3 Markedness

The notion of markedness has to do with the notion of simplicity with respect to the relationship of composition. That is, the more marked a unit is, the more components are required to define it. And conversely, the less marked a particular item is, the fewer its components.

Verbal pairs such as bring and take, come and go serve as useful illustrations. It is obvious that these pairs are similarly related by the direction they imply (i.e., towards or away from the speaker). It is also

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obvious that they involve motion. The decision as to which is the more marked member of each pair is arrived at by considering the fact that go and take "are more general terms, which cover movement without a specific directional orientation" (Lamb: 1969, p. 44). Thus come may be analyzed as a sememic sign composed of the sememes go and direction toward, while bring may be analyzed as containing the components take plus direction toward. A still more adequate analysis might be found in describing take as composed of go + carrying (something), so go can be seen to be the least marked of the four.

Markedness is relevant to each level in a stratificational description. Pairs which have been traditionally termed 'antonyms' (and which were grouped together with pairs like come and go) such as young and old may be analyzed componentially in stratificational terms on a lower linguistic stratum, namely the lexemic. Young and old are clearly related by the fact that one is not the other. The question as to which is the unmarked of the pair for English may be found in questions of the sort "How old is she?" where one does not ask "How young is she?" unless the speaker is focusing attention on the youth of the person about whom he is asking the question. Thus young can be analyzed as a lexemic sign composed of the lexemes old and not. The rationale for considering these 'antonyms' on a lower level than the verbal 'antonyms'

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> The native speaker of English knows that the opposite of big is little and not small; that the opposite of large is small, not little. This knowledge clearly does not involve meaning, for according to meaning, small and little could serve equally well as opposites of big. (Lamb: 1969, p.45)

We have thus far discussed markedness with respect to the units of the sememic and lexemic strata, but we have mentioned nothing about markedness on the gnostemic stratum.

It might be that the unit flower in the gnostotactic taxonomic hierarchy of vegetation might be said to be composed of fewer components than any of the members of the set to which it is related by extension,[9] namely annual daisies, perennial chrysanthemums, etc.

Thus the term flower might be said to be less marked than the term for any specific flower. It might be mentioned as supportive evidence that in language acquisition, the child generalizes the word for the first flower he learns (whether it be a particular flower, say, daisy, or the general term flower) to include all flowers and perhaps even to include the still less marked category plant.

2.2.4 The Gnostotactics

No real picture of the gnostotactics has ever been given. Lamb has alluded to the structures it contains such as the taxonomic hierarchies mentioned before. But

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since the gnostotactics is thought to contain all of human knowledge, it is rather presumptuous, at least at this point in the development of the science of linguistics, and probably also for a good while to come, to attempt any overall precise formalization even for one language in particular. Topics which come under the domain of the gnostotactics are such things as the context and the structure of discourse and mutual foreknowledge of referents.

The present study will concern itself with very limited subportions of the gnostotactics, only those portions which are relevant to the ultimate definition of morphotactic classes.

2.1.5 The Semotactics

The semotactics, whose domain is the proposition, must provide for possible well-formed combinations of sememes (i.e., linguistically functional units of meaning). The semotactics is the structure which defines the sememic stratum and the syntagmatic configurations which it generates may be roughly compared to the sentences comprising the deep structure[10] of transformational grammar. It is at this level where such notions as deep level case[11] are described. Semotactic realizations of the different types of gnostemic focus (predicate, propositional, functional and topic) ultimately insure their corresponding surface structure (i.e., lexemic) realizations.

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The semotactics also accounts for relationships between certain propositions which share a common semantic structure. This relationship has been termed agnation.[12] For example, the difference between active and passive sentences is whether or not the goal is in "focus" (according to one analysis) and the difference between topicalized and non-topicalized sentences is whether "topic" has been generated by the gnostotactics and is thus capable of being generated by the semotactics.

2.3 Strata Intervening Between the Sememic and Phonemic

2.3.1 Lexemic

The stratum below the sememic is the lexemic. The domain of the lexotactics is the clause and thus this tactics must provide for various realizations of dependency. Dependent clauses are the ultimate realizations of the gnostotactic propositions unmarked for "propositional" focus. The semotactics has generated as dependent any predication not marked as independent. It is left to the lexotactics to provide the various permissable realizations such as nominalization, relativization and subordination.

The lexotactics, in generating structures at the approximate level of abstraction of the surface structures of transformational grammar, accounts for the subject-predicate-object surface functions. Subject is the lexotactic realization of functional focus. According to one analysis, if no other deep (or gnostemic) level function

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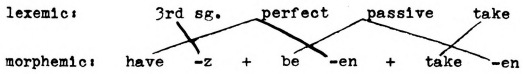
2.3.2 Morphemic

The domain of the morphotactics is the word (more precisely the morphological word, in contrast to the phonological word). It provides for well-formed combinations of stems and affixes. An illustration from Lamb (1971a, p.119) shows that the tactics of the lexemic stratal system and that of the morphemic account not only for different elements but also for different ordering of these elements.



In this study we will be concerned with the lexemic element plural and its various morphological realizations.

2.3.3 The Relationship of the Gnostemic System to the Morphemic System

As suggested by Lamb (1971a) there appear to be certain cases which call for a direct link between certain gnostotactic configurations and the morphological classes which they define. This is not the usual case, however. It is more usual for units on the gnostemic level to be realized as units on the sememic and then lexemic levels before being realized as morphemes.

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their participation in higher level configurations. He calls this device the 'representative'. The representative is a diamond node on a higher level which connects upwards into the tactics of that level and downward to one or more locations at the level below. These -emes on the lower level are distinguished from one another by their different connections to the gnostemic system and sometimes by their different connections to the tactics of the lower level.

2.3.4 The Relationship of the Morphemic System to the Phonemic System

The morphemic and phonemic systems are contiguous and thus more closely related than are the gnostemic and morphemic. The domain of the phonotactics is most commonly the syllable. However, the domain may be expanded to include the phonological word, phonological phrase, phonological clause, etc.

We have seen that the domain of the morphotactics is the morphological word. It is quite clear that morpheme boundaries, for the most part, do not coincide with syllable boundaries in any given language. Thus, it is clear that the tactics of the two levels are separate and distinct. (Cf. Section 2.4.4 for a more detailed discussion of the syllable.)

The units defined by the phonotactics are stratificational phonemes. (For more on the S-phoneme, cf. Sections 2.1.1 and 2.4.1.)

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2.4 Phonology

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The morphemic system is the closest grammatical system to expression substance. The phonological system is thought to be the only linguistic stratum intervening between the morphemic system and expression substance.

The elements on the two levels are related as follows. The morphemes of the morphemic stratum are composed of morphons. Morphons are in turn realized as phonemes (the units of the phonotactics), which are composed of phonons.

2.4 Phonology

2.4.1 The Phonemic and Phonetic Strata

The phonology of stratificational grammar consists of two strata -- the phonemic and phonetic. The phonemic stratum is a part of language proper, while the phonetic stratum is thought to be outside of language. These two stratal systems handle essentially different phenomena. The phonemic system handles the realizations and tactic environments of the "segmental" alternations extant in the morphonic alternation pattern. The realizations are termed stratificational phonemes, a term coined to eliminate ambiguity with classical phonemes. The stratificational phoneme is more abstract than its classical counterpart.

The tactics of stratificational phonology is stated in terms of stratificational phonemes. This is not to say that there is no place in the theory for a biunique level equivalent in level of abstraction to the classical phonemic.

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On the contrary, the maintenance of a biunique level is one of the points which most stratificationalists have strongly adhered to. They would argue that in order for there to be a link between the phonic correlates outside of language and the phonological units inside language, there must be mutual predictability between the phonetic entities and the phonemic.

Thus stratificational theory provides for such a level -- the phonemic sign level -- which is below the stratificational phonemic level in the realizational plane. It is the linguistic level closest to the interface of language and expression. It is here that, for example, every phonemic sign ^{PS}/t/ in a language with non-distinctive voicing word finally, whether it was related to, say, the morphon ^{MN}/d/ or the morphon ^{MN}/t/, would be associated with [t] and vice versa, except in the case of complementary distribution where the variant is predictable by environment.

Currently the connections between the phonemic and the phonetic levels are thought to be across the language interface. The phonetic stratum, like its gnostemic counterpart, has not been studied a great deal. The types of phenomena which it is thought to handle are phonetic assimilation within the domain relevant for the particular language, and specification of phonetic components not systematically distinctive.

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2.4.2 Componential Analysis

It is generally agreed that phonemes may be componentially analyzed, and that these components play a role in explanation.

In a component theory such as that used in S-grammar the emphasis is not on the contrast along the dimension of points of articulation, but rather on the component itself. That is, the emphasis is on whether or not a particular component plays a role in the phonological system. In a stratificational analysis only a few components actually play a role in the phonology of a given language and only these few are generated by the phonotactics.

An example of a stratificational componential analysis for Modern Iraqi Arabic is given in the following tables. (See the List of Symbols and Abbreviations.)

TABLE II

Componential Analysis of Modern Iraqi Arabic Consonantal Phonemes

		Lb	Ap	Rz	Fr	_	Ph	Gl
Cl	_	p	t		č	k		ʔ
	Ph		ṭ			q		
	Vd	b	d		ǰ	g		
Sp	_	f	θ	s	š	x	ḥ	h
	Ph		ḍ	ṣ			ʿ	
	Vd		ð	z		ɣ		
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TABLE III

Componential Analysis of Modern Iraqi Arabic
Vowel Phonemes

		Fr	_	Lb
Vo	-	i	a	u
	Ln	i:	a:	u:

The components used are not automatically accorded universal status. The component vocalic is universal since all languages distinguish between those phonemes which function as vowels and those which function as consonants. Other components are not as easily justified, however. And if the description of any given language requires different, or more, components, their use is justifiable by the form (i.e., the system of relationships) for the given language.

2.4.3 Markedness

In a recent article, Lockwood (1969) implied that markedness must first be considered with respect to its role in simplicity. The universal status of the concept of markedness itself is not denied, but the premature definition of a certain vowel or consonant as universally unmarked without sufficient empirical justification is cautioned against.

Markedness, on the phonological level, is directly related to simplicity with respect to the relationship of composition, just as it is on the semological level. That

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is, the fewer components needed to uniquely define a phoneme, the less marked it is. If no components other than that defining a class as a whole, e.g. Vo(calic), are needed to define a particular phoneme, then the phoneme is said to be completely unmarked. In the case of Vo being its only component, it would be said to be the unmarked vowel for a given language.

2.4.4 The Phonotactics

The most limited domain of the phonotactics is the syllable. There has been much argument as to the empirical definition of such a linguistic structure. None of the definitions have proven satisfactory, however, since the syllable is not open to empirical definition. While it has manifestations in expression substance, it is not substantively definable. The syllable, as a configuration of linguistic form, is definable only in terms of its function in, and relationship to, the rest of the linguistic system.

Neither can we define the component parts of the syllable, except by their function with respect to each other. These components are usually termed the onset, the nucleus, and the coda. We will accept them here as primitives of the system which achieve their definition by their function in that system. Vowels usually function as syllable nuclei, while consonants usually function as onsets and codas.

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The phonotactics is not limited in domain to the syllable, however, since larger relevant phonological domains exist for some languages. These may be termed the phonological word and phonological phrase.

2.4.5 The Phonetic Tactics

The phonetic tactics provides for phonetic assimilation, allophonic variation, and other such sub-phonemic phenomena. The domain of the phonetic tactics is usually language specific maximal clusters, both consonantal and vocalic.

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FOOTNOTES

Chapter II

1. Language as here used means that structure intervening between meaning (or content substance) and sound (or expression substance).

2. This is not to say that other linguists had no influence on the development of the theory. Undoubtedly de Saussure, Trubetzkoy, Bloomfield, Chomsky, and others have figured prominently in its development (either directly or indirectly). But Hjelmslev and Hockett were probably the greatest influences. Lamb also frequently mentions the Swedish linguist Noreen as being influential.

3. Lamb independently realized the necessity for positing an intervening stratum while working on his dissertation. He was the first to assign linguistic significance to this stratum which he at that time termed morphophonemic.

4. See Lamb's "Some Types of Ordering" (1972).

5. Sydney M. Lamb (1971 b).

6. Yoshihiko Ikegami (1971).

7. "Indefinitely" is in fact limited by, for example, physiological factors, but we do not know what these limits are.

8. Suggested by David G. Lockwood in conversation. Also see Adam Makkai (1972).

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11. See Fillmore

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9. Extension here is a philosophical term used to denote the relationship of a set (or class) to its members. In stratificational terms the extension of a "unit" may be defined as a set of "elements" related to it by downward unordered ors within the gnostotactics.

10. The terminology chosen by the two theories seems to be at odds. Transformationalists refer to the progression from sound to meaning as surface to deep, implying a downward direction as with the earth and the sea (although Julia S. Falk has suggested that the terminology of the two theories is not at odds, using the phrase "depths of the heavens"). Stratificationalists view the progression from sound to meaning as upward. That is, the sememic level is higher than the lexemic (which is roughly equivalent to surface structure in transformational terms).

11. See Fillmore's "The Case for Case" (1968).

12. This term originally appeared in Gleason (1965).

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CHAPTER III

A General Description of Iraqi Broken Plurals

3.1 General Remarks -- Language in Flux

It is Lamb's contention that language is not a well-defined system. In a recent article (Lamb: 1971a) he uses the parable of the tree to exemplify his conclusion. He asks: "At any given point in time how far formed must a leaf be to be considered a leaf; and vice versa, how far withered must a dying leaf be not to be considered a leaf anymore?" (p.101). Even if one were to impose a certain cut-off point, it would be just that -- an imposition -- a humanly contrived division of a natural continuum.

Hockett acknowledges the fact that "there are many stabilities of many orders" (p.84) in languages, some persisting for milennia. He attributes Chomsky's central 'fallacy' to the fact that Chomsky saw in this stability well-definition. Hockett, on the other hand, goes so far as to say no physical system is well-defined. He claims the only reason we get a stable picture is "because that is what we have sought." (p.83) To use his simile -- much as a photographer who takes a picture of the horses approaching the finish line is not surprised, on having

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In a review article Lakoff (1969) makes many good points against Hockett's arguments for analogy as an explanation of language acquisition and his lack of a competence/performance distinction, but he misses what is perhaps the central issue of Hockett's treatise -- the ill-definition of language. Lakoff misinterprets Hockett when he equates the existence of grammatical rules with the well definition of language. Hockett is not arguing whether rules of grammar do or do not exist but whether, if they do exist, it is a legitimate goal of theory to require that such rules account for a well-defined set of grammatical sentences.

Given the fact that stratificationalists accept language as an ill-defined system, what relevance does this have for the present study?

The Arabic pluralization system, if one accepts the implications of Givón's hypothesis, is now in a state of transition from an older system in which there was one-to-one correspondence between semantic and morphological plural classes to a currently evolving system in which the only morphologically marked category will be the masculine/feminine grammatical gender. As one views Arabic today the pluralization system appears an idiosyncratic non-system. The only generalizations which have been made are

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those concerning the relationship of the canonical form of the singular to that of the plural. If one tries to see in this stationary portrait the mobile continuum captured there, it becomes evident that, indeed, the non-system is a conflation of two systems and that the 'exceptions' that are present appear to be caught midway between the two -- not conforming to the old semantic classification of the particular plural class and yet not taking part in the regular inflectional plural of the newer system. These items seem to have been shuffled around the 'broken' plural classes on the basis of phonological shape.

3.2 The Old Semantic Classification

It appears that there are certain semantic features which are characteristic of large numbers of items in more than a few broken plural classes. To actually try to specify what the old semantic classification must have been *in toto* would be impossible. But a few hypotheses may be put forward regarding the general skeletal framework.

The following semantic features may be extracted:

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abstract

round -- including convex, concave, circular, spherical, cylindrical and rod

square -- including cubic

strong -- including high, respected and warring

weak -- including defective, low and childlike

male genitalia -- including males and phallic symbols

female genitalia -- including cracks, fissures and holes

other body parts -- with a possible distinction between paired and non-paired, including body functions

plants -- including plant parts

colors

agent

location

instrument

These features (above) are characteristic of what appear to be major semantic classes.

Other smaller minor classes often appear. These minor classes will be mentioned in passing but will not be accorded significant status in the discussion of the old system. Perhaps each of the subcategories included under the major categories above might be thought of as characterizing a separate semantic class, e.g., convex as separate from circular, etc. While the present analysis assumes more general categories, a more particular extension of the analysis could easily be made.

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3.2.1 Semantic

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A list of significant minor categories follows:

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statement

meal

female relative peer or younger

death

elongated

time

Examples of semantic classes characterized by these major and minor categories are found on the following pages.

3.2.1 Semantic Taxonomy

The forms presented under each heading (below) are surface realizations, not underlying forms. Starred items do not correspond to the most prevalent canonical form established by the other members of the group. The canonical form of the plural heads the example. It is in a form such as FMuuLa where F, M and L designate the position of the first, middle and last radicals of the items in the example, and the vowels are those actually occurring on the surface. Under each plural heading comes the semantic categories which distinguish it and the canonical forms of singular items taking part in the particular plural class. In quadriconsonantal entries, LL doublets signify two final consonants which are the same, while MM doublets signify any two medial consonants.

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The lists in this section (3.2) are organized by canonical form of the plural because this was the starting point in the analysis for investigating whether certain plural classes indeed were characterized by one or more semantic features. The predictability of certain plural canonical forms on the basis of the corresponding singular canonical forms such as was described in Levy (1971) probably reflects a situation in an earlier stage of Semitic similar to the current situation in Bantu. For example, in Swahili there are pairs of classes designating singular and plural such as

kitabu	pl. vitabu	'book(s)'
kitu	pl. vitu	'thing(s)'
kiti	pl. viti	'chair(s)', etc.

and

mkono	pl. mikono	'arm(s)'
mwili	pl. miwili	'body/bodies', etc.

Ignoring semantic characteristics one could predict phonologically, for example, that (almost) every noun beginning with /ki/ has a plural form beginning with /vi/. One cannot make similar predictions about singulars beginning with /m/ since there are several plural prefixes associated with the singular prefix m-. A statement such as: any singular beginning with /m/ will be associated either with the plural prefix wa-, or the plural prefix mi-, or the plural prefix m- may be made. That is, there are only a few choices possible. But such an analysis is lacking in

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descriptive adequacy, since it soon becomes evident that the predictions on the basis of canonical form follow from a higher level association of semantics and morphology. That is, certain singular/plural prefixes are associated with certain semantic characteristics. While the system of Swahili is not as simplistic as these examples tend to imply, one cannot adequately describe the language without including a reference to semanto-morphological classes. That is, one cannot adequately describe the singular/plural associations as a purely phonological phenomenon.

In Arabic, what correspondence there is between singular/plural canonical forms probably reflects a) an earlier pairing similar to Bantu and b) a present-day trend to assign plurals analogically, on the basis of singular canonical form.

This section (3.2) is intended, then, as a general description of the semantic correlates found for all the plural canonical forms. A theoretical description (i.e., the data and findings described via a modern theoretical framework) is presented in Chapter 4.

After checking through lists of singular items associated with a particular plural canonical form, the semantic characteristic(s), by which relatively large numbers of items were related, were noted. Singular items which formed the core (i.e., which were associable with the semantic characteristic(s) extracted for the given plural class) were then presented to two native speakers

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of Modern Iraqi Arabic. The informants were then asked if they felt that these items were semantically related and, if so, what semantic characteristic(s) they would use to so relate the given singular forms. The classification given by the informants corresponds to the classification presented here.

The following terminology is used to eliminate ambiguity: Plural class, used to refer to the set of items which are associated with a particular plural of a particular canonical form, e.g., the FMaaLi plural class; S-class, used to refer to the set of items which possess a common semantic characteristic, e.g., the [round] S-class, (one or more S-classes may characterize a plural class); P-class, used to refer to the set of items which possess a common phonological singular shape, e.g., the P-class FvML.

Items not listed in this and the following lists of examples are omitted because their semantic characteristics do not correspond to the semantic components under discussion for the particular plural class. Such items, which appear to be associated with a plural class on the basis of P-shape, are discussed in Section 4.3.2.

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3.2.1.1 FMaaL Plural Class

Sem	Phon (singulars)
round	FvvL
	FvML(a)
	FvMvL
	FvMvvL

In order to indicate more clearly the relationship between the singular canonical forms and their corresponding plural canonical form, a few examples will be given here. The plural of kuub 'cup' is kwaab; the plural of tall 'hill' is tlaal; the plural of filis 'one fils' is flaas.

Items listed below are convex, concave, circular, spherical, cylindrical and rod. They comprise approximately 70% of the items taking part in this plural class. Notice that the elephant is one of the animals of this class and that the adjectives are those descriptive of rotundity: fat, thick, big. Note that one of the characteristic

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3.2.1.1.1 FvvL

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3.2.1.1.2 Fv

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canonical forms of the singular for the items in this and the following plural class is FvvL which is the surface form related to the underlying form FVwØL, where V denotes a predictable vowel alternation i∼u, and w denotes a weak middle radical, i.e., y or w. Actually the underlying singular form for all the nouns in this plural class is FvMvL, where the second vowel may equal zero (which includes FvvL, FvML(a) and FvMvL), and that of the adjectives is FvMiiL.

3.2.1.1.1 FvvL

kuub	'cup'
kuux	'hut'
juud	'animal skin bag'
čuub	'tube'
kuuz	'clay urn for storing water'
buuq	'bugle'
*quuri	'teapot'
šiif	'slice'
ziig	'shirt-front opening'
fiil	'elephant'
biir	'oil well'
piip	'barrel'
šiiš	'skewer'
siix	'skewer'

3.2.1.1.2 FvML(a)

tall	'hill'
muxx	'brain'
hibb	'pottery vessel for storing water'
zibb	'penis'
sill	'small snake'
ḍabb	'large lizard'

hṛṇ(a), cont'd

ḥawḍ 'be
ṭawg 'ho
ṭawl 'b
ṭawb 'c
ḥalla 'p
ṣalla 'b
šiffa 'l
gubba 'd
kalla 'h
dalla '
lassa '
xayma '
gaḥba '
ṣarsa '

3.2.1.1.3 FvMv

ragiš
ṭubag
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jaraṣ
gafaṣ
čitif
filis
ḥajar
muhur
juhur
ɢugul
qalam
rumuḥ
furuḍ

FvML(a), cont'd

hawḍ	'basin'
ṭawg	'hoop'
ṭawl	'bolt (of cloth)'
ṭawb	'cannon'
ḥalla	'pigeon nest'
ṣalla	'basket'
šiffa	'lip'
gubba	'dome'
kalla	'head'
dalla	'coffee pot'
lassa	'carcass'
xayma	'tent'
gaḥba	'whore'
ġarsa	'narghile'

3.2.1.1.3 FvMvL

ragiš	'pockmark'
ṭubag	'basket'
ḥalam	'rowboat'
guful	'lock' 
jibal	'mountain'
jaras	'bell'
ġafaṣ	'cage' 
čitif	'shoulder'
filis	'one fils (coin)'
ḥajar	'stone'
muhur	'personal stamp' 
juhur	'anus'
ṯugul	'weight'
qalam	'pen'
rumuḥ	'lance'
fuxuḍ	'thigh'

3.2.1.1.4 FvMvv

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3.2.1.2 FMaaLa

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3.2.1.1.4 FvMvvL

jiθiiθ	'fat'
θixiin	'thick'
kabiir	'big'
kaθiif	'thick'

3.2.1.2 FMaaLa Plural Class

Sem	Phon (singulars)
[round]	FvvL FvML(a) FvMvL FvLv

The items listed here comprise 50% of the items taking part in this plural class. It might be posited that since there are a good number of plural classes which are characterized by the feature [round] that perhaps there was a different class for each type of round item originally (that is, a class of circular, a class of cylindrical, etc.), and that these classes were subsequently generalized to [round] causing the general mixing found in each [round] plural.

The surface P-class FvLv is, at an underlying level, actually FvML, i.e., dalu 'bucket' is dalw at a deeper level of abstraction. Again, all these singular P-forms (FvvL, FvML(a), FvMvL and FvLv) may be included under the general underlying P-shape FvMvL, where the second v may equal zero.

3.1.2.1 FvvL

nuug 'ir
kuux 'ht
fuun 'f
puul 'cl
kuuz 'c
buub 't
xill 'I
plip 't

3.1.2.2 FvML

kuss '
hibla '
hayya '

3.2.1.2.3 FvLv

dalu

3.2.1.2.4 FvM

sufut
quful
xumar
sifir
bifan
turum
surum

3.2.1.3 FMas

Sen

[round]

3.2.1.2.1 FvvL

muug 'inner corner of the eye'
kuux 'hut'
fuum 'foam'
puul 'checker piece'
kuuz 'clay urn for storing water'
čuub 'tube'
miil 'Indian club'
piip 'barrel'



3.2.1.2.2 FvML(a)

kuss 'vulva'
hibla 'pregnant'
hayya 'snake'

3.2.1.2.3 FvLv

dalu 'bucket'

3.2.1.2.4 FvMvL

sufut 'basket'
quful 'lock'
gumar 'moon'
sifir 'zero'
čifan 'winding sheet'
tuxum 'cigarette holder'
surum 'rectum'

3.2.1.3 FMaaLi Plural Class

Sem	Phon (singulars)
[round]	FvMLv FvvMLa FvvLi(yya)

The items here comp

rship of the class.

FvMLv, FvvMLa, FvvLi(yv

form FvMØL plus a suffi

3.2.1.3.1 FvMLv

kitli	'kettle'
'urwa	'closed,
qamči	'hose f

3.2.1.3.2 FvvMLa

saajya	'irriga
saagya	'irriga

3.2.1.3.3 FvvLi(yya)

buuri	'bugle
tuuØiyya	'night

3.2.1.4 FiMaaMiL~Fu

Sem	Pho
[round]	F(Ful

The P-form F(i)

form F(i)MvMLa where

the underlying form

The items here compr

ship of the plural

3.2.1.4.1 F(i)MvvL

kilisa	'e
sidaara	'c

The items here comprise one-third of the total membership of the class. All the singular surface forms (FvMLv, FvvMLa, FvvLi(yya)) correspond to one underlying form FvMØL plus a suffix (either -i or -(y)a).

3.2.1.3.1 FvMLv

kitli 'kettle'
'urwa 'closed, rounded handle'
qamči 'hose for a narghile'

3.2.1.3.2 FvvMLa

saajya 'irrigation channel' } "free" variants
saagya 'irrigation channel' }

3.2.1.3.3 FvvLi(yya)

buuri 'bugle'
tuuθiyya 'nightstick'

3.2.1.4 FiMaaMiL~FuMaaMiL Plural Class

Sem	Phon (singulars)
[round]	F(i)MvvLa FuMMvL

The P-form F(i)MvvLa corresponds to an underlying form F(i)MvMLa where the second M is a glottal stop, e.g., the underlying form of kiliisa 'engraving' is kili?Øs + a. The items here comprise five-sevenths of the total membership of the plural class.

3.2.1.4.1 F(i)MvvLa

kiliisa 'engraving'
sidaara 'common Iraqi headgear'

fiIlAvvLa, cont'd

fisiila	'palm
sidaana	'clay
gsiiba	'pigta

3.2.1.4.2 FuMMvL

musra'	'top(

3.2.1.5 FiMaaMiiL Plu

Sem	Phon
[round]	FvMM
[male]	

This plural class

the FuMaaMiiL plural

and FuMaaMiiL plural

FuMaaMiL plural class

All the items in

Note that [male] also

do exist plural clas

teristic feature.

3.2.1.5.1 FvMMaaL(s

*miizaan	'sc
sindaana	'f
surraafa	's

3.2.1.5.2 FvMMaaL(

rijjaal	'm
*rajil	'r

F(i)MvvLa, cont'd

fisiila 'palm shoot'
sidaana 'clay container'
gsiiba 'pigtail'

3.2.1.4.2 FuMMvL

musra' 'top(toy)'

3.2.1.5 FiMaaMiiL Plural Class

Sem	Phon (singulars)
[round]	FvMMaaL(a)
[male]	

This plural class is a morphological alternant to the FuMaaMiiL plural class below. Together the FiMaaMiiL and FuMaaMiiL plural classes are alternants of the FiMaaMil FuMaaMiL plural class above as length is (usually) predictable.

All the items in this class are accounted for here. Note that [male] also characterizes this plural class. There do exist plural classes for which [male] is the sole characteristic feature.

3.2.1.5.1 FvMMaaL(a) Round

*miizaan 'scales' (more abstractly mi?za:n)
sindaana 'flower pot'
gurraafa 'scoop'

3.2.1.5.2 FvMMaaL(a) Male

rijjaal 'man'
*rajil 'husband'

3.2.1.6 FuMaaMiiL Plur

Sem	Phon
[round]	FvMMv
[square]	

All of the items
Note that [square] als
to [round]). There do
is the sole characteri
3.2.1.5.

3.2.1.6.1 FvMMvvL Ro

naa'uur	'wat
*nugass	'sci

3.2.1.6.2 FvMMvvL Sc

gubbaan	'st
liiwaan	'co
dillaab	'wa

3.2.1.7 FMaaMiL Plu

Sem	Ph
[round]	Fv
[square]	Fv
	FI
	F

This plural cl
FMaaMuL plural clas
with the FMaaMuL pl
vironment to corre
any of the items
Therefore the two

3.2.1.6 FuMaaMiiL Plural Class

Sem	Phon (singulars)
[round]	FvMMvvL
[square]	

All of the items of this plural class are listed here. Note that [square] also characterizes this plural (in addition to [round]). There do exist plural classes for which [square] is the sole characteristic feature. See the note under 3.2.1.5.

3.2.1.6.1 FvMMvvL Round

naa'uur 'water wheel'
*mugass 'scissors'

3.2.1.6.2 FvMMvvL Square

gubbaan 'steelyard'
liiwaan 'covered, paved area'
diilaab 'wardrobe'

3.2.1.7 FMaaMiL Plural Class

Sem	Phon (singulars)	
[round]	FvMMvL(a)	FvMvvL(a)
[square]	FvvMvL(a)	
	FMvvL(a)	
	FvMvML(a)	

This plural class (FMaaMiL) is an alternant to the FMaaMuL plural class below. While the items associated with the FMaaMuL plural class provide the necessary environment to correctly predict the final vowel as u, so do many of the items associated with the FMaaMiL plural. Therefore the two plural classes are presented separately.

None of the items

the two semantic classe

over half (7/12) of the

class -- [round] , 1/3

The singular P-sha

respond to an underlyi

M may be a glottal sto

corresponds to an unde

M may be a glottal sto

to an underlying FvMvM

glottal stop.

3.2.1.7.1 FvMMvL(a)

gawsar	'larg
maʕmar	'muff
mihbas	'ring
masjid	'mosq
zunguta	'pimp
jimjima	'skul
ʕiffa	'lip

3.2.1.7.2 FvvMvL(a)

haajib	'eye
saabir	'ten

3.2.1.7.3 FMvvL(a)

sbiil	'cla
bziim	'bu
glaada	'ne
'maama	'tu

3.2.1.7.4 FvvMLa R

mayjna	'le
dawlka	'pi

None of the items here really needs explanation. The two semantic classes which are given here account for over half (7/12) of the total number of items in the plural class -- [round] , 1/3 and [square] , 1/4.

The singular P-shapes FvMMvL(a) and FvvMvL(a) correspond to an underlying form FvMØMvL (+a), where the first M may be a glottal stop. The singular P-shape FMvvL(a) corresponds to an underlying FØMvMØL (+a), where the second M may be a glottal stop. FvMvML(a) and FvMvvL(a) correspond to an underlying FvMvMØL (+a), where the second M may be a glottal stop.

3.2.1.7.1 FvMMvL(a) Round

gawšar	'large 2-handled basket'
mašmar	'muffler'
miḥbas	'ring'
masjid	'mosque'
zunguṭa	'pimple'
jimjima	'skull'
*šiffa	'lip'

3.2.1.7.2 FvvMvL(a) Round

ḥaajib	'eyebrow'
ṣaabir	'temple'

3.2.1.7.3 FMvvL(a) Round

sbiil	'clay pipe'
bziim	'buckle'
glaada	'necklace'
'maama	'turban'

3.2.1.7.4 FvvMLa Round

mayjna	'large wooden pestle'
dawlka	'pitcher'

3.2.1.7.5 FvMvML(a

sinisla 'c

3.2.1.7.6 FvMvvL(a

fitiila 'w

3.2.1.7.7 FvMMvL(a

mawgad 'f
maš'al 'f
dawšag 'm
bayrag 'f

3.2.1.7.8 FvvMvL(

qaalab 'fc
čaadir 'te
kaagada 'sh

3.2.1.7.9 FMvvL(

sfiifa '

3.2.1.7.10 FvMvv

siriir '
tiriiša '

3.2.1.8 FMaaMuL

Sem

[round]

All the mem

the note under 3

3.2.1.7.5 FvMvML(a) Round

sinisla 'chain'

3.2.1.7.6 FvMvvL(a) Round

fitiila 'wick'

3.2.1.7.7 FvMMvL(a) Square

mawgad 'fireplace'
maš'al 'fireplace'
dawšag 'mattress'
bayrag 'flag'

3.2.1.7.8 FvvMvL(a) Square

qaalab 'form'
šaadir 'tent'
kaagada 'sheet'

3.2.1.7.9 FMvvL(a) Square

sfiifa 'protective bordering'

3.2.1.7.10 FvMvvL(a) Square

siriir 'bed'
tiriiša 'slat'

3.2.1.8 FMaaMuL Plural Class

Sem	Phon (singulars)
[round]	FuMLv(v)L

All the members of this class are listed here. See the note under 3.2.1.7.

)2.1.8.1 FuMMv(v

gumgum 'le
mutbag 'd
muglaab 'g

)2.1.9 FuMi Plur

Sem

[round]

These are the

plural class is ar

below. The i∼u

vironment in this

separately.

)2.1.9.1 F(v)Ma

'asaaya
mraaya

)2.1.10 FiMi Pl

Sem

[round]

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and the one abov

-i or -ya). Eith

There are only t

are listed here.

)2.1.10.1 FaMI

'aba '
rahhaaya '

3.2.1.8.1 FuMMv(v)L

gumgum 'large copper coffee pot'
mutbag 'double-tubed flute'
muglaab 'garbage dump'

3.2.1.9 FuMi Plural Class

Sem	Phon (singulars)
[round]	F(v)Maaya

These are the only two members of this class. This plural class is an alternant of the FiMi plural class below. The i∼u alternation is not predictable by environment in this case, thus the classes are presented separately.

3.2.1.9.1 F(v)Maaya

'asaaya 'stick'
mraaya 'mirror'

3.2.1.10 FiMi Plural Class

Sem	Phon (singulars)
[round]	?

The underlying P-shape for the members of this class and the one above (3.2.1.9) is FvMvL plus an optional suffix (-i or -ya). Either v can be Ø and L may be a glottal stop. There are only three members in this class, two of which are listed here. The third is ?a'mi 'blind'.

3.2.1.10.1 FaML(aaya)

*'aba 'aba' (more abstractly 'ab?)
rahhaaya 'grinder'

3.2.1.11 Fg

Sem

[round

There

bamyaa

dalag

3.2.1.12 F

Sem

[stron

[abstr

[bulk

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[bulk],

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Lightening

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included

animals a

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The

character

collectiv

3.2.1.11 FaMLaat Plural Class

Sem	Phon (singulars)
[round]	?

There are only two members in this class:

bamyaaya 'okra'
dalag 'column'

3.2.1.12 FuMuuL Plural Class

Sem	Phon (singulars)
[strong, war]	FvMvL
[abstract]	FvML
[bulk] -- minor class	

This is quite an interesting class. The items listed here account for about 7/9 of the total membership -- strong, 1/3; bulk, 1/3; abstract, 1/9. One of the classes, [bulk], is a subclass.

The [strong, war] class is the most interesting. Notice that the items in this class all relate in some way to war. Even the pawn from the game of chess is included. Lightening and thunder -- natural phenomena which are oftentimes associated with the wrath of the gods -- are included here. Another interesting thing is that the animals are the predatory "king of beasts" type -- the tiger, the leopard and the lion.

The items in the subclass [bulk] are all somehow characterized by large size, large numbers, long time or collectivity.

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This plur

class (FiMuuL)

vowel alternat

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[abstract], it

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2) items

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crete.

3) items

stract, while

time span.

12.1.12.1 P

habis

malik

fariq

'ariš

tabul

rahan

ra'ad

xasum

harub

hiriz

harig

husin

The singular P-shapes FvMvL and FvML correspond to an underlying FvMØL, where Ø may be realized as an anaptyctic vowel in case the final two consonants are dissimilar.

This plural class is an alternant of the following class (FiMuuL). They are presented separately because the vowel alternation i∼u is not always predictable.

To arrive at a working definition of the feature [abstract], it was decided to include

1) items which did not refer to concrete things, e.g., doubt.

2) items which were relative, e.g., 1/9 is abstract (as in Section 3.2.1.32.1) since its value is dependent on what the value of the whole is, while million is concrete.

3) items which were not specific, e.g., time is abstract, while day is not, since day refers to a specific time span.

3.2.1.12.1 FvMvL Strong

ḥabis	'imprisonment'
malik	'king'
fariq	'difference'
'arīš	'throne'
ṭabul	'drum'
raḥan	'pawn (chess piece)'
ra'ad	'thunder'
xaṣum	'opponent'
ḥarub	'war'
ḥiriz	'amulet'
ḥarig	'burn'
ḥuṣin	'fort'

wahiš

nimir

fahad

?asad

j.2.1.12.2

hadd

kanz

ka?s

simm

sadd

barq

xatt

burj

j.2.1.12.3

'urud

dahar

šahar

hajir

jami

?ali

xamu

Øali

'asi

qari

Øiri

zarj

ša'g

sahq

wahd

raf

di'

FvMvL Strong, cont'd

waḥiš	'wild animal'
nimir	'tiger'
fahad	'leopard'
ʔasad	'lion'

3.2.1.12.2 FvML Strong

ḥadd	'border'
kanz	'treasure'
kaʔs	'trophy cup'
simm	'poison'
sadd	'obstacle'
barq	'lightening'
xatt	'line'
burj	'tower'

3.2.1.12.3 FvMvL Bulk

ʿurḍ	'width'
dahar	'long time'
šaḥam	'fat'
ḥajim	'bulk'
jamiʿ	'plural'
ʔalif	'thousand'
xamur	'wine'
ʿalij	'snow'
ʿaṣir	'era'
qarin	'century'
ʿirib	'roe'
zariʿ	'crop'
šaʿab	'people'
sahal	'plain'
waḥal	'mire'
rafiš	'variety of large turtle'
diʿid	'barge'

ḥwL bulk, co

'iṭir

ṣamug

laḥam

3.2.1.12.4 F

band

ḥabb

raʔs

3.2.1.12.5 F

baḥiθ

ʔaṣil

wa'ad

šaʔin

3.2.1.12.6 F

ḥall

ḥaqq

šakk

hamm

ḍann

3.2.1.13 Fi

Sem

[strong

Here ag

istic P-shap

plural class

ḥMuL;and t

re alternan

three out o

tic charact

FvMvL Bulk, cont'd

'iṭir 'perfume'
ṣamuġ 'mucilage'
laḥam 'meat'

3.2.1.12.4 FvML Bulk

band 'bundle of 100 sheets of paper'
ḥabb 'seed(s)'
raʔs 'cape (land)'

3.2.1.12.5 FvMvL Abstract

baḥiṯ 'research'
ʔaṣil 'origin'
waʿad 'promise'
šaʔin 'matter, affair'

3.2.1.12.6 FvML Abstract

ḥall 'untying'
ḥaqq 'truth'
šakk 'doubt'
hamm 'anxiety'
ḍann 'assumption'

3.2.1.13 FiMuuL Plural Class

Sem	Phon (singulars)
[strong, war]	FvMvL FvML(v)

Here again is a [strong, war] class and the characteristic P-shapes are the same as those for the previous such plural class. The P-shapes of these two plurals (this one -- FiMuuL; and the previous one -- FuMuuL) indicates that they are alternants. See the note under 3.2.1.12, however. Only three out of the eight members of this class share the semantic characteristic [strong, war].

3.2.1.13.1 FvMvL

sijin 'prison'

3.2.1.13.2 FvML(v)

jayš 'army'
jundi 'soldier'

3.2.1.14 FiMaaL Plural Class

Sem	Phon (singulars)
[strong]	FvMvL FvMLv

The items here fall under the category [strong] for several reasons: 1) because they pertain to war, 2) because they are respected, 3) because they are actually strong. For a good example of [strong] via war, cf. FiMuul (3.2.1.13) and FuMuuL (3.2.1.12). For a related P-shape see FiMaaLa (3.2.1.15). Six of the ten items in this class are listed here.

3.2.1.14.1 FvMvL

saham 'arrow'

3.2.1.14.2 FvMLv

xiṣla 'good quality'
ḥarba 'bayonet'
qal'a 'castle'
*ḏiib 'wolf' (more abstractly ḏiyb)
*nasiim 'wind'

3.2.1.15 FiMaaLa Plural Class

Sem	Phon (singulars)
[strong]	FvMLv

There are only two items in this class:

miyya 'hundred'
nasmi 'helpful'

3.2.1.16 FaMaaMuL Plural Class

Sem	Phon (singulars)
[strong, war]	FvMMvL(a)

This plural class (FaMaaMuL) is an alternant of the following plural class (FaMaaMiL). While the forms in this class provide the right environment for the prediction of the final vowel of the plural pattern as u, so do many items associated with the plural FiMaaMiL. Thus these plural classes are presented separately. There are only two of the eight items in this class which are characterized by [strong, war] :

dumbuk 'tapering drum with skin head'
qumbula 'bomb'

3.2.1.17 FaMaaMiL Plural Class

Sem	Phon (singulars)
[strong]	FvMMvL(a)
[place]	FaMvvL(a)
[instrument]	FvvMvL(a)

All the S-classes combined ([strong], [place] , and [instrument]) account for a little more than 50% (8/15) of the total number of items in this plural class.

Here again strength can imply respect, numbers, high position or actual strength. The [strong] S-class accounts for 1/10 of the total number of items.

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Most of the items in the [place] S-class begin with the prefix ma- which has the meaning 'the place at which' whatever is indicated by the consonantal radicals is performed. For example, from ktb 'write' we get maktab 'office', i.e., the place where things are written. Some of the items in this S-class do not begin with the prefix ma-, but fall into this class regardless because of their meaning and quadri-consonantal pattern. (Cf. FaMaaLi, a subclass of FaMaaMiL, for [place] with a triconsonantal surface pattern.) The [place] S-class comprises 1/3 of the total plural class membership.[1]

Notice that the instrumental prefix is mi- . Not all items are so prefixed in the [instrumental] S-class, however. Other quadri-consonantal instruments also fall into this class. This group accounts for 1/10 of the total number of items in the plural class. FvMMvL(a) and FvvMvL(a) correspond to an underlying FvMØMvL (+a), where the first M may be a glottal stop.

3.2.1.17.1 FvMMvL(a) Strong

'unṣur	'race (nation)'
'askar	'army'
jaḥfal	'group'
qunṣul	'consul'
miṛlif	'young male'
taṇtal	'giant'
mafxara	'someone to be proud of'
jandala	'giant'
*daktawr	'doctor'
*faylasuuf	'philosopher'

3.2.1.17.2 FvvMvL(a) Strong

faaris	'knight'
xaanim	'madam'
'aa?ila	'family'
?aanisa	'young lady'
taa?ifa	'religious sect'
qaafila	'caravan'
naabiga	'distinguished man'
*?aadmi	'human'

3.2.1.17.3 FaMvvL(a) Strong

fasiil	'platoon'
'aruus	'bride'
habiiba	'beloved (feminine)'
hadiira	'patrol'
katiiba	'battalion'
qabiila	'tribe'
'ašiira	'family'
hamuula	'stock (family)'

3.2.1.17.4 FvMMvL(a) Place

marfa'	'stand supporting a clay water jug'
majlis	'conference'
maxfar	'guard post'
mafraq	'crossroads'
maqta'	'cross-section'
maqla'	'stone quarry'
makbas	'packing house'
maq'ad	'seat'
maktab	'office'
mal'ab	'athletic field'
manbar	'pulpit'
manjam	'mine'
manza'	'dressing room'

manzil
manfaḋ
mawqi'
manqal
mansab
maʿsal
maẓsal
ma'mal
ma'had
ma'raḋ
maṭ'am
ma'bad
ma'bar
maṭbax
maṣma'
maḋrab
maslaz
masqat
maṣhaa
maṣta
maska
masra
masba
masba
mathe
mabze
majma
mahla
maxra
madxa
marb
marz
mark
marq

FvMMvL(a) Place, cont'd

manzil	'inn'
manfaḍ	'opening'
mawqi'	'place'
manqal	'brazier'
mansab	'position'
mafṣal	'joint'
maġsal	'sink'
ma'mal	'factory'
ma'had	'institute'
ma'raḍ	'showroom'
mat'am	'restaurant'
ma'bad	'temple'
ma'bar	'crossing place'
matbax	'kitchen'
maṣna'	'factory'
maḍrab	'camp site'
maslax	'slaughterhouse'
masqat	'place where something falls'
mašhad	'scene'
maštal	'plant nursery'
maskan	'residence'
masrah	'stage'
masbaǩ	'place where date molasses is made'
masbah	'swimming pool'
mathaf	'museum'
mabzal	'drainage ditch'
majma'	'meeting place'
mahlaj	'cotton ginning plant'
maxraj	'exit'
madxal	'entrance'
maxbaz	'bakery'
maxzan	'storeroom'
markaz	'station'
marqaṣ	'dance hall'

FvMMvL(a), cont'd

marqad 'mausoleum'
mahjar 'stone quarry'
marsad 'observatory'
maytam 'orphanage'
daftar 'notebook'
ʔatlas 'atlas'
funduq 'hotel'
'anbar 'warehouse'
xandag 'moat'
qultuġ 'overstuffed chair'
jadwal 'canal'
mathana 'grist mill'
mašnaqa 'gallows'
mašyaxa 'sheikhdom'
maqbara 'cemetery'
malzama 'section'
mahfaḍa 'folder'
mamlaḥa 'place where salt is obtained'
mamlaka 'kingdom'
mantiqa 'area'
makhala 'long-necked jar for kohl'
majzara 'slaughterhouse'
madrasa 'school'
madbaġa 'tannery'
mazra'a 'farm'
mahkama 'court'
mahbara 'inkwell'
matfala 'cuspidor'
mazbala 'trash heap'
daskara 'small piece of paper'
šarnaqa 'cocoon'
*karxaana 'factory'
*tallaxanna 'casino'
*xastaxaana 'hospital'

3.2.1.17.5 FvvMvL(a) Place

saaḥil 'seashore'
taabiq 'floor'
jaami' 'mosque'
šaari' 'street'
qaa'ida 'pedestal'
*miinaa? 'port'

3.2.1.17.6 FaMvvL(a) Place

makaan 'place'
maḍiiq 'narrow passage'
masiif 'summer resort'
muḍiif 'hostel'
mabiiḍ 'ovary'
ḍariiḥ 'tomb'
manaara 'minaret'
saḥiifa 'page'
kaniisa 'church'
ziriiba 'pen, corral'
jaziira 'island'
siriifa 'hut'
ṭahaara 'toilet'
ḥadiiqa 'garden'

3.2.1.17.7 FvMMvL(a) Instrument

miškab 'gun rack'
minjal 'sickle'
mizraf 'awl'
mijhar 'microscope'
miḥwar 'pivot'
mirjal 'boiler'
mixlab 'claw'
muḍzal 'spindle'
madfa' 'gun'
parčam 'rivet'
xanjar 'dagger'

FvMMvL(a) Instrument, cont'd

sarbas	'reel'
sullam	'scale, ladder'
munxul	'sifter'
warwar	'pistol'
randaj	'carpenter's plane'
mijrafa	'kind of shovel'
mitfa?a	'fire extinguisher'
mihraqa	'incinerator'
mizwala	'sundial'
manfa'a	'use'
silsila	'chain'
sunbula	'spike'
matba'a	'printing press'
majraša	'grinder'
*bunduqiyya	'rifle'

3.2.1.17.8 FvvMvL(a) Instrument

haajiz	'divider'
faariza	'comma'

3.2.1.17.9 FaMvvL(a) Instrument

*mizlaag	'sliding bolt'
*mihgaan	'funnel'
makiina	'machine'
hadiija	'camel saddle'
bariina	'drill'
*'arabaana	'cart'

3.2.1.18 ?aFMiLaa? Plural Class

Sem	Phon (singulars)
[strong, respected]	FaMi FaMiiL

Three-fourths of the items in this class belong to the [strong, respected] S-class.

3.2.1.18.1 Fa

wasi
nabi
ġani
ġari
ḍaki
qawi
wafi

3.2.1.18.2 F

ṣadiiq
ṭabiib

3.2.1.19 Fil

Sem

[weak]

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characterist
as alternant
they both co
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class are ch
while the me
as [weak] vi
plural class

kidiiš
'atiig

3.2.1.18.1 FaMi

wasi 'guardian'
nabi 'prophet'
ġani 'prosperous'
Ġari 'wealthy'
ḍaki 'intelligent'
qawi 'story'
wafi 'loyal'

3.2.1.18.2 FaMiiL

ṣadiiq 'friend'
ṭabiib 'doctor'

3.2.1.19 FiMMaL Plural Class

Sem	Phon (singulars)
[weak]	FvMiiL

Both items in this class have a common semantic and characteristic P-shape. This plural class (FiMMaL) is an alternant to the following plural class (FuMMaL). While they both contain items characterized by the feature [weak], it is interesting to note that the members of this plural class are characterized as [weak] via old and worthless, while the members of the FuMMaL plural class are characterized as [weak] via young and childlike. The two members of this plural class are:

kidiiš 'worthless horse'
'atiig 'old'

3.2.1.20 Fu

Sem

[weak,
childl

This pl

above (3.2.1

characterist

3.2.1.20.1

raḍii'
ṣaǧiim
futiir
waḥiih

3.2.1.20.2

qaṣir
saaḍij
*?a'zal
*raḥḥaa

3.2.1.21 F

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these clas

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class have

3.2.1.20 FuMMaL Plural Class

Sem	Phon (singulars)
[weak, childlike]	FvMiiL FaaMiL

This plural class is an alternant of the FiMMaL class above (3.2.1.19). All the members of this class are characteristic of children. (Cf. also the note under 3.2.1.19).

3.2.1.20.1 FvMiiL

raḍii'	'suckling'
ǧaǯiim	'inexperienced'
fuṭiir	'foolish'
wakiiḥ	'brash'

3.2.1.20.2 FaaMiL

qaaṣir	'legally minor'
saaḍij	'simple'
*?a'zal	'defenseless'
*rahhaal	'migratory'

3.2.1.21 FiMiL Plural Class

Sem	Phon (Singulars)
[weak, low] [color]	FMvvL ?aFMaL

This plural class (FiMiL) is related to the following plural class FuMuL (3.2.1.22). However, since the i∿u alternation is not entirely phonologically predictable, these classes are presented separately.

Five out of the ten items in this plural class are color-defect adjectives. The defect adjectives in this class have been combined with slipper and sandals because

the shoe, espe

contempt. To

face by crossi

of insults.

3.2.1.21.1 FM

mdaas

m'aal

3.2.1.21.2 ʔa

ʔa'maš

ʔaḥdab

3.2.1.21.3 ʔa

ʔabyaḍ

ʔamlaḥ

ʔaḍlam

3.2.1.22 FuM

Sem

[weak, defecti

[color]

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by the Arab g

than 1/2 of t

objectives of

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the any predor

chronological,

than the not

the shoe, especially the bottom of the shoe, is held in contempt. To show the bottom of one's shoes to another's face by crossing one's legs on a desk is one of the highest of insults.

3.2.1.21.1 FMvvL Weak

mdaas 'slipper'
m'aal 'pair of sandals'

3.2.1.21.2 ?aFMaL Weak

?a'maš 'myopic'
?ahdab 'hunchback'

3.2.1.21.3 ?aFMaL Color

?abyaḍ 'white'
?amlaḥ 'grey'
?aḍlam 'dark'

3.2.1.22 FuMuL Plural Class

Sem	Phon (singulars)
[weak, defective]	?aFMaL
[color]	

This is a plural class which was early recognized by the Arab grammarians to be semantically defined. More than 1/2 of the items in this class (7/12) are so-called adjectives of color (1/4) or defect (1/3), and they are all of the same canonical form. There does not appear to be any predominant characteristic, either semantic or phonological, for the remaining members of the class. (Cf. also the note under 3.2.1.21.)

3.2.1.22.1 ?

ʔanwaj

ʔamlaṭ

ʔa'war

ʔa'waṣ

ʔa'waj

ʔa'ḍab

ʔa'zal

ʔaṭraš

ʔaṣla'

ʔašram

ʔarmad

ʔargaš

ʔarras

ʔahwal

ʔaḥmaq

ʔačqal

ʔaθwal

3.2.1.22.2

ʔaḥmar

ʔaṣbar

ʔasfar

ʔašha'

ʔašra'

ʔašga

ʔaswa

ʔasma

ʔaxḍa

ʔabra

ʔabga

3.2.1.22.1 ?aFMaL Weak

?anwaj	'foolish'
?amlaṭ	'hairless'
?a'war	'one-eyed'
?a'waṣ	'squinting'
?a'waj	'bent'
?a'ḍab	'paralyzed in one hand or arm'
?a'zal	'defenseless'
?aṭraš	'deaf'
?aṣla'	'bald'
?ašram	'having a harelip'
?armad	'sore-eyed'
?argaš	'pockmarked'
?axras	'mute'
?aḥwal	'cross-eyed'
?aḥmaq	'dumb'
?ačqal	'cross-eyed'
?aθwal	'confused'

3.2.1.22.2 ?aFMaL Color

?aḥmar	'red'
?agbar	'dusty'
?aṣfar	'yellow'
?ašhab	'light grey'
?ašraḥ	'inflamed'
?ašgar	'blond'
?aswad	'black'
?asmar	'brown'
?axḍar	'green'
?abraṣ	'albino'
?abga'	'speckled'

3.2.1.23 FiMLaan Plural Class

Sem	Phon (singulars)
[weak, low]	FvMv
[close]	FvvM(v)
	FvMLv
	FvMvvL

The P-classes FvMv, FvvM(v) and FvMLv all correspond to an underlying FvMØL (+suffix), where M or L may equal glottal stop.

The members of the [weak, low] class have been included in Section 3.2.1.23 for various reasons: position, e.g., valley, ground; defective or not worthy of respect, e.g., blind, peasant; common, e.g., crow. Other animals included here are rather weak and usually serve as prey for the warring predatory animals, e.g., sheep, gazelle.

The other S-class, [close], is a minor class designating closeness of personal relationship. The items in both S-classes account for about 5/8 of the total items in this plural class -- weak, 1/2; and close, 1/8.

3.2.1.23.1 FvMv Weak

xara	'feces'
ṣabi	'youth'
xiṣi	'eunuch'
tili	'lamb'

3.2.1.23.2 FvvM(v) Weak

faar	'mouse'
gaa'	'ground'
saaq	'shank'
zaag	'crow'

ṛvṛ(v) Weak, c

raa'i

waadi

*kraa'

*graab

3.2.1.23.3 Fv

ʔa'mi

xuṣwa

*m'aydi

*ʔaxras

3.2.1.23.4 F

bi'iir

xaruuf

ṣazaal

*fiiis

3.2.1.23.5

ḥama

3.2.1.23.6

jaar

3.2.1.23.7

fifii

ṣadiic

nisiil

3.2.1.24

Sem

[weak

Sever

are charac

FvvM(v) Weak, cont'd

raa'i 'shepherd'
waadi 'valley'
*kraa' 'lower leg and foot of cow or sheep'
*ɡraab 'crow'

3.2.1.23.3 FvMLv Weak

ʔa'mi 'blind'
xuswa 'testicle'
*m'aydi 'peasant'
*ʔaxras 'mute'

3.2.1.23.4 FvMvvL Weak

bi'iir 'camel'
xaruuf 'sheep'
ɡazaal 'gazelle'
*filis 'one fils (coin)'

3.2.1.23.5 FvMv Close

hama 'father-in-law'

3.2.1.23.6 FvvM(v) Close

jaar 'neighbor'

3.2.1.23.7 FvMvvL Close

fifiij 'friend'
sadiiq 'friend'
nisiib 'in-law'

3.2.1.24 FaMaLa Plural Class

Sem	Phon (singulars)
[weak, low]	FaaMiL

Seven out of the ten total items in this plural class are characterized by [weak, low]. They are all people held

in low esteem.

3.2.1.24.1 FaaM

xaa?in
saafil
faajir
qaatil
kaafir
jaahil
*'ajuuz

3.2.1.25 FaMii

Sem

[weak, low

This is a

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characteristic

hmaar
'abid

3.2.1.26 FMaa

Sem

[weak, lo

These ite

this plural c

mdarrat
'aqaddi

in low esteem.

3.2.1.24.1 FaaMiL

xaa?in	'traitor'
saafil	'low'
faajir	'libertine'
qaatil	'killer'
kaafir	'infidel'
jaahil	'ignorant'
*'ajuuz	'old'

3.2.1.25 FaMiiL Plural Class

Sem	Phon (singulars)
[weak, low]	?

This is a notable plural class because there is even a local (or regional) song in Iraq equating the dancing of a slave to the donkey's kicking. There is no common P-characteristic. The two members of this class are:

hmaar	'donkey'
'abid	'slave'

3.2.1.26 FMaaMLa Plural Class

Sem	Phon (singulars)
[weak, low]	FMaML {i / at}

These items account for 2/5 of the total membership of this plural class:

m̀arrat	'low'
mgaddi	'beggar'

)1.1.27 Fl

Sem

[body

[crack

[death

[elong

[plan

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[crack, ho

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associated

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[male-as

or cracks

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semantic

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class is

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addition

this S-c

[cracks]

flying

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contain

3.2.1.27 FMuuL Plural Class

Sem	Phon (singulars)
[body part]	FvMvL
[crack, hole]	FvML(v)
[death]	} minor S-classes
[elongated]	} minor S-classes
[plant]	} minor S-classes

The items in all of these S-classes ([body part], [crack, hole], [death], [elongated], and [plant]) account for about 3/4 of the items in this plural class. Notice that 1/2 of the body parts are either directly female-associated, e.g., belly, which is always one of the exaggerated parts of a fertility goddess, or indirectly female-associated -- characterized by holes (e.g., nose) or cracks (e.g., double chin). The other body parts may have migrated into this plural class on the basis of the semantic characteristic [body part] and/or P-shape.

The second semantic feature characteristic of this class is rather interestingly associable with female genitalia. Note that there are three words for hole, two for crack, one for rip and one for split. The other items are all associable with this general semantic notion. An additional very interesting fact is that the animals in this S-class characteristically appear as jagged lines (cracks) in the sky to the naked eye. They are all high flying birds.

There are two minor S-classes, [death] and [elongated], contained in this plural class. The items under [death]

seem to have to do with a concern for the afterlife. It is interesting to note that grave may be grouped with [cracks, holes] or with [death]. The genie here is akin to our angels and demons (depending on whether the genie is good or bad).

Most of the items under [elongated] could be classed as [round].

One interesting thing about the [plant] class is that the people from the rural areas of Southern Iraq may be classed here. These people are mainly farmers. This is not the only plural class this item fits, however. It may be just an accident of P-shape in this case. Its alternate plural is discussed under the section Synchronic Evidence.

See also the note under the related FMuuLa plural class (3.2.1.28).

3.2.1.27.1 FvMvL Body Part

batin	'belly'
juhur	'anus'
ji'ib	'hips'
jifin	'eyelid'
halig	'mouth'
xašim	'nose'
ḍari'	'udder'
farij	'vulva'
lugud	'double chin'
nahid	'female breast'
wirik	'hip'
kariš	'potbelly'

dami'
girif
farig
ḥinič
jilid
jimi'
zanid
sadir
ḍili'
ḍahar
'ikis
'unig
galub
matin
girin
ḍarig

3.2.1.27.2

days
samm
čaff
fačč
'ayn
ḍayl
xadd

3.2.1.27.3

nagub
mahad
gišir
gariḍ
gidir
giḥif

FvMvL Body Part, cont'd

dami'	'tear(s)'
girif	'hoof of a butchered animal'
farig	'part in one's hair'
hiniš	'chin'
ḥilid	'skin'
jimi'	'fist'
zanid	'upper arm'
ṣadir	'chest'
ḍili'	'rib'
ḍahar	'back'
'ikis	'elbow'
'unig	'neck'
galub	'heart'
matin	'shoulder'
girin	'animal horn'
ḍarig	'bird dropping'

3.2.1.27.2 FvML(v) Body Part

days	'breast'
samm	'handful'
čaff	'palm of the hand'
fačč	'jaw'
'ayn	'eye'
ḍayl	'tail'
xadd	'cheek'

3.2.1.27.3 FvMvL Cracks

nagub	'perforation'
mahad	'cradle'
giš̆ir	'peel'
gariḍ	'hole'
gidir	'small cooking pot'
gihif	'piece of broken pottery'

Gabul Cracks,

gabur
ṭašit
ḍaruf
ẓuruf
diri'
xurum
jalix
jariḥ
banid
fali'
fatir
šarig
sagur
*maasuur

3.2.1.27.4

'išš
daff
ḥazz
ḥibb
šagg
šaṭṭ
ṭayr
bašša
baṭṭa

3.2.1.27.5

gabur
na'is
nidir
danib
*šaahic

FvMvL Cracks, cont'd

gabur	'grave'
taṣ̌it	'wash basin'
ḏaruf	'small leather bag'
ẓuruf	'hole'
diri'	'shield'
xurum	'hole'
jalix	'scrape'
jariḥ	'wound'
banid	'bonnet'
fali'	'crack'
faṭir	'crack'
šarig	'split'
sagur	'falcon'
*naasuur	'eagle'

3.2.1.27.4 FvML(v) Cracks, Holes, etc.

'iššš	'nest'
daff	'tambourine'
ḥazz	'nick'
ḥibb	'large porous pottery vessel'
šagg	'rip'
šatt	'river'
ṭayr	'bird'
baššša	'duck'
baṭṭa	'duck'

3.2.1.27.5 FvMvL Death

gabur	'grave' (given under holes, cracks)
na'is	'bier'
niḏir	'sacrificial offering'
ḏanib	'offense'
*šaahid	'witness'

3.2.1.27.6 FvML(v) Death

rabb 'lord'
qiss 'clergyman'
ḥadd 'fate, lot'
jidd 'grandfather'
'ayb 'fault'
jinni 'genie'

3.2.1.27.7 FvMvL Elongated

saṭir 'line'
čariḍ 'cigar'

3.2.1.27.8 FvML(v) Elongated

saff 'row'
ṭayl 'wire'
batt 'thin bracelet'

3.2.1.27.9 FvMvL Plant

šitil 'young plant'
hiriš 'plant'
jiḏi' 'tree trunk'
jaḏir 'root'
fari' 'twig'
'irig 'root'
*šruugi 'person from rural areas of Southern Iraq'

3.2.1.28 FMuuLa Plural Class

Sem	Phon (singulars)
[male]	FvMvL FvML

This is another very interesting class for several reasons. (1) the characteristic P-shape for the plural of this class is similar to that of the previous plural class:

FMuuL --

FMuuLa --

(2) ten out of

very clearly

or conceivabl

The sing

an underlying

tyotic vowel

3.2.1.28.1

rajil

nagal

butil

3.2.1.28.2

'amm

zibb

'ayr

ʿayl

sayr

*diič

*ḥiiz

3.2.1.29

Sem

[male

The i

or adjecti

There is a

FMuuL -- female genitalia
FMuuLa -- male genitalia;

(2) ten out of the 14 items in this plural class are very clearly either [male], male-associated body parts, or conceivable phallic symbols, e.g., tail.

The singular P-shapes FvMvL and FvML correspond to an underlying FvMØL, where Ø may be realized as an anaptyctic vowel in case the final consonants are dissimilar.

3.2.1.28.1 FvMvL

rajil	'husband'
nagal	'bastard'
butil	'bottle'

3.2.1.28.2 FvML

'amm	'paternal uncle'
zibb	'penis'
'ayr	'penis'
dayl	'tail'
sayr	'leather strap'
*diič	'rooster' (more abstractly diyč)
*hiiz	'epithet for a man who submits to sodomy for a price' (more abstractly hiyz)

3.2.1.29 FuMLaan Plural Class

Sem	Phon (singulars)
[male]	FvMvvL FvvM(v)L

The items here are either male, male body parts, or adjectives descriptive of masculinity, e.g., brave. There is another [male] plural (cf. FMuuLa, 3.2.1.28)

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3.2.1.29.1

šujaa

qadi

šari

*'urb

*'adu

3.2.1.29.

faar

šaab

*raah

3.2.1.30

Sem

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pattern

pattern.

An

seems to

2-class

but its items have a different set of canonical forms. The semantic characteristic [male] accounts for about 1/2 of the total number of items in this class.

3.2.1.29.1 FvMvvL

šujaa'	'brave'
qaḍiib	'penis'
šariik	'partner'
*'urbi	'tribesman'
*'adu	'enemy'

3.2.1.29.2 FvvM(v)L

faaris	'knight'
šaabb	'young man'
*raahiib	'monk'

3.2.1.30 FV_1 MaaLaat Plural Class

Sem	Phon (singulars)
[paired body parts]	FvMvL FvMLa
[plants]	

The items here have no other plural and comprise the entire class. Note the closely related P-shape and semantic characteristic of the following plural class (FMaaLaat, 3.2.1.31).

The symbol V_1 indicates the first vowel in the plural pattern is the same as the first vowel of the singular pattern.

An interesting fact is that the S-class [plant] always seems to be associated with the same plural class(es) as the S-class [body part].

3.2.1.30.1

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?ubut

3.2.1.30.2

nabta

3.2.1.31

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ridi

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3.2.1.32

Sem

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feature

3.2.1.30.1 FvMvL Paired Body Part

?idin	'ear'
?ubut	'armpit'

3.2.1.30.2 FvMLa Plant

nabta	'plant'

3.2.1.31 FMaaLaat Plural Class

Sem	Phon (singulars)
[paired body/ dress part]	FiMiL

These are the only two items in this class:

čitif	'shoulder'
ridin	'sleeve'

See also the related plural class FV_1MaaLaat (3.2.1.30) above.

3.2.1.32 ?aFMaaL Plural Class

Sem	Phon (singulars)
[abstract]	FvMvL FvML FvMv FvvL FvMvvL

The items here comprise about 1/3 of the items entered in this plural class.

The singular P-shapes FvMvL, FvML, FvMv, and FvvL correspond to an underlying FvMØL, where M or L may be weak (i.e., w, y or ?) and Ø may be realized as an anaptyctic vowel. See also section 3.2.1.12 for a definition of the feature [abstract] .

waqit
wazin
wuja'
naḍar
naḍil
muluk
lafuḍ
qadar
fahim
ṣaraḍ
'umuq
'umur
'iris
'aṭab
'ušur
'adad
ṭaraf
ḍarar
ṣinif
šibih
šabaḥ
sudus
subu'
ḍi'if
sabab
raqam
riziq
rubu'
ribiḥ
ḍihin
xumus
xuluq
xaṭar
xaṭa?

3.2.1.32.1 FvMvL

waqit	'time'
wazin	'weight'
wuja'	'pain'
naḍar	'consideration'
naḍil	'low'
muluk	'property'
lafuḍ	'kindness'
qadar	'fate'
fahim	'understanding'
ǧaraḍ	'intention'
'umuq	'depth'
'umur	'life'
'iris	'marriage'
'aṭab	'damage'
'uṯur	'1/10'
'adad	'number'
ṭaraf	'extremity'
ḍarar	'harm'
ṣinif	'kind, sort'
ṧibih	'resemblance'
ṧabaḥ	'apparition'
sudus	'1/6'
subu'	'1/7'
ḍi'if	'double'
sabab	'reason'
raqam	'number'
riziq	'livelihood'
rubu'	'quarter'
ribiḥ	'profit'
ḍihin	'mind'
xumus	'1/5'
xuluq	'character'
xaṭar	'danger'
xaṭa?	'mistake'

hilim
hilif
hukum
hasab
haram
hajim
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Gumur
jurum
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bu'u
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3.2.1.32.

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FvMvL, cont'd

ḥilim	'dream'
ḥilif	'swearing'
ḥukum	'judgment'
ḥasab	'esteem'
ḥaram	'forbidden'
ḥajim	'bulk'
jinis	'kind'
juzu?	'part'
ʕumun	'1/8'
jurum	'crime'
ʕaman	'price'
ʕuqul	'weight'
tusu'	'1/9'
ʕiliʕ	'1/3'
ta'ab	'trouble'
bu'ud	'distance'
?alam	'pain'
?amal	'hope'
bahiʕ	'research'
waham	'delusion'

3.2.1.32.2 FvML

naw'	'kind'
lawn	'color'
ṭayf	'vision'
šawq	'longing'
ḍidd	'opposite'
ḥurr	'pure'
jilf	'boorish'

3.2.1.32.3 FvMv

ra?i 'opinion'

3.2.1.32.4 FvvL

maal 'property'
ruuh 'soul'
diin 'religion'
haal 'condition'
jiil 'generation'

3.2.1.32.5 FvMvvL

šarIif 'distinguished'
šabiih 'like'
habiib 'beloved'
barii? 'innocent'
*širriir 'very bad'

3.2.1.33 FaMaaLL Plural Class

Sem	Phon (singulars)
[abstract]	FvvL(L)v

All the items in this class are listed here:

xaassa 'property'
haasa 'sensation'
'aami 'common man'
*maḍarra 'harm'

(Cf. also the section above 3.2.1.32 and section 3.2.1.12.)

3.2.1.34 FaMaLaat Plural Class

Sem	Phon (singulars)
[abstract]	FvMLa

There are only two members in this class both of which are abstract:

xidma

jabha

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xidma 'a service'
jabha 'front'

3.2.1.35 FiMMaaL Plural Class

Sem	Phon (singulars)
[agent]	FaaMiL

Two-thirds of the members of this plural class belong to the semantic class [agent]. The additional three members probably came into the class on the analogy of pilgrim. They are barefooted, fasting, and old. The characteristic P-shape of the singular is the same as for that of the following plural class(3.2.1.36), to which this plural class is related. Since the vowel alternation i∼u is not completely predictable, however, these alternant classes will be presented separately.

3.2.1.35.1 FaaMiL

saayig 'goldsmith'
saani' 'apprentice'
saayis 'stableman'
saayih 'traveler'
haayik 'weaver'
*hajji 'pilgrim'

3.2.1.36 FuMMaaL Plural Class

Sem	Phon (singulars)
[agent]	FaaMiL

All of the 21 members of this class fall into the semantic category [agent]. This plural class has the P-shape characterizing the singular forms, FaaMiL, as does the plural class FiMMaaL (above), which is also an

[accent] clas

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qaa?id
faa]ir
kaatil
kaafir
naaqi
naa?i
waa'i
taali
ʿaabu
saay
saay
zaay
raak
haal
ʿtaa
ʿaa
haa
ʿhaa
*hal
*?a

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3.2.1.36.1 FaaMiL

qaa?id	'commander'
faajir	'libertine'
kaatib	'writer'
kaafir	'infidel'
naaqid	'critic'
naa?ib	'representative'
waa'iḍ	'preacher'
ṭaalib	'student'
ḍaabuṭ	'officer'
saayiḥ	'traveler'
saayiq	'driver'
zaayir	'visitor'
raakib	'passenger'
ḥaakim	'governor'
ṭaajir	'merchant'
Θaayir	'rebel'
ḥaaris	'watchman'
ḥaafiḍ	'man who knows the Koran by heart'
*ḥakam	'umpire'
*?a'zab	'unmarried'

3.2.1.37 FuMaLaa? Plural Class

Sem	Phon (singulars)
[agent]	FaMiiL
[strong]	
[weak]	

Here again we have a plural class characterized mainly by the semantic feature [agent]. Its characteristic P-shape is FaMiiL. This class also has two other major categories, [strong] and [weak]. Together these

account for the entire membership of the plural class -- agent, 1/2; strong, 1/6; weak, 1/3.

3.2.1.37.1 FaMiiL Agent

waziir	'minister'
naqiib	'union leader'
kafiil	'co-signer'
faqiih	'theologian'
'amiil	'agent'
'amiid	'dean'
'aqiid	'colonel'
'aḍiid	'supporter'
'ariif	'sergeant'
'adiil	'the husband of one's wife's sister'
šahiid	'martyr'
šafii'	'mediator'
*šaa'ir	'poet'
šariik	'partner'
raqiib	'censor'
safiir	'ambassador'
?adiib	'writer'
?amiir	'emir'
?amiin	'trustee'
xabiir	'expert
mudiir	'director'
ra?iis	'leader'
za'iim	'leader'
wakiil	'deputy'
*xaliifa	'caliph'
*'aalim	'scholar'

3.2.1.37.2 FaMiiL Strong

zamiil	'friend'
šariif	'distinguished'
fariiq	'team'

FaMiiL Strong, cont'd

'aḍiim	'great'
kariim	'generous'
najiib	'noble'
wajiih	'notable'

3.2.1.37.3 FaMiiL Weak

baxiil	'stingy person'
basiiṭ	'simple'
raḍii'	'suckling'
saxiif	'fool'
baliid	'stupid'
ta'iis	'miserable'
jabaan	'coward'
xabiiθ	'troublesome'
safiih	'foolish'
ɣariib	'strange'
qadiim	'old'
faqiir	'poor'
la?iim	'evil'
waḍii'	'lowly'
*?ahmaq	'dumb'

3.2.1.38 FuMaat Plural Class

Sem	Phon (singulars)
[agent]	FaaMi

The examples comprise the entire plural class. Again there are other plural classes characterized by [agent], but this one has a unique characteristic P-shape for the singular: FaaMi.[2]

3.2.1.38.1 FaaMi

jaani 'culprit'
jaabi 'collector'
taagi 'tyrant'
saaqi 'waiter'
raa'i 'shepherd'
haami 'protector'
waaši 'informer'
haawi 'amateur'
*daahiya 'genius'

3.2.1.39 FaMaaMiLa Plural Class

Sem	Phon (singulars)
[agent]	FvMMvvL(v)
[strong]	FvMMvLv

The examples listed here comprise the entire class.

3.2.1.39.1 FvMMvvL(v) Agent

qursaan 'pirate'
bayṭaar 'veterinarian'
bayruuti 'Beiruti'
*faylasuuf 'philosopher'

3.2.1.39.2 FvMMvLv Agent

saydali 'pharmacist'
*qiss 'clergyman'

3.2.1.39.3 FvMMvvL(v) Strong

'imlaaq 'gigantic'
jabbaar 'strong'

3.2.1.39.4 FvMMvLv Strong

'abqari 'ingenious'
*malak 'angel'

3.2.1.40 FaMaaLi Plural Class

Sem	Phon (singulars)
[place]	FvML(v)
[time]--minor class	
[weak]	FvMvL

This plural class (FaMaaLi) is a subclass of the plural class FaMaaMiL(3.2.1.17). The singular items in the S-Class [place], for example, have the surface form FvMLv, which corresponds to an underlying FvMØMØL, where L is a weak radical (i.e., ' or ?).

Two-fifths of the total number of items in this plural class are accounted for by the semantic classes [place], [time] and [weak]. The items of [place] which fall into this plural class have a final weak radical consonant, while those having a final strong radical consonant fall into the FaMaaMiL plural class. The semantic feature [place] accounts for 1/4 of the total number of items in this plural class.

[time] is a small subclass (1/20) of the total).

?aafa 'tough person' appears under the heading [weak] since such a person is in general held in low esteem. This S-class accounts for 1/10 of the total number of items.

3.2.1.40.1 FvML(v) Place

ma?wa	'shelter'
maštа	'winter resort'
mar'a	'meadow'
mabġa	'brothel'
manša	'place of origin'
manfa	'place of exile'
mamša	'walkway'
malha	'nightclub'
makwi	'cleaner's'
maqha	'coffee house'
'alwa	'a high place'
masfa	'refinery'
*naadi	'club'
*ḍaahya	'suburb'
*ṣahraa?	'desert'

3.2.1.40.2 FvML(v) Time

layla	'night'
*ṯaaniya	'second time'

3.2.1.40.3 FvMvL Time

ḍuhur	'noon'

3.2.1.40.4 FvML(v) Weak

balwa	'affliction'
ma?sa	'tragedy'
šakwa	'complaint'
*?aafa	'tough person'
*ma'ṣiya	'sin'
*daahiya	'disaster'

3.2.1.41 ?aFMiLa∼?aFiMLa Plural Class

Sem	Phon (singulars)
[cover]	minor classes F(v)MvvL
[statement]	
[instrument]	

This plural class contains two minor S-classes -- [cover] and [statement] and one major S-class [instrument]. These S-classes account for more than 1/2 of the 31 items in this plural class -- [cover], 1/3; [statement], 1/8 and [instrument], 1/5. ?aFiMLa occurs as an alternant plural for those items having same final consonants.

3.2.1.41.1 F(v)MvvL Cover

ḥidaa?	'shoe'
gišaa?	'membrane'
wariid	'vein'
raṣiif	'pavement'
qinaa'	'mask'
gilaaf	'covering'
qmaaš	'cloth'
*gaṭa	'cover'
janiin	'embryo'

3.2.1.41.2 F(v)MvvL Statement

su?aal	'question'
jawaab	'answer'
daliil	'proof'
*du'a	'prayer'

3.2.1.41.3 F(v)MvvL Instrument

šariiṭ	'ribbon'
jihaaz	'apparatus'
damaag	'brain'
lsaan	'tongue'
slaaḥ	'weapon'
jnaaḥ	'wing'

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3.2.1.42 Questionable Plural Classes

See the Appendix for a list of plural classes whose defining semantic characteristic(s) are questionable due either to the sparsity of items with a strong semantic relationship comprising the given plural class or to the number of semantic characteristics needed to define it.

3.3 The Change in Semantic Classification

There are actually at least three hypotheses put forth to explain the origins and development of the sound and broken plural systems.

It is the consensus among Semiticists that both the sound and broken systems were present in the Proto language and that Arabic has made a much greater use of the broken plural system than have the other Semitic languages. This hypothesis in effect makes the claim that the sound and broken systems both have a history dating back to Proto-Semitic.

Talmy Givón[3] takes the position that the broken plurals, which today appear as infixes, arose from an earlier affix system. That is, the triconsonantal root (with infixed vowels) CCC arose from an earlier prefix pattern *C-CC or suffix pattern *CC-C. Thus he claims that the sound plural system is the older and that the broken plural system developed from it. This hypothesis deals with phonological assumptions. The present work, however, deals with semantic assumptions.

Regarding semantics Givón goes on to state that if "human nouns are not in a class by themselves but rather are dispersed in many

classes which are grouped on the basis of other semantic fields, then [one] may rightfully conclude about the older system that it was not anthropocentric." See the preceding Semantic Taxonomy and the following Multiple Plural Association sections for numerous examples of this. For example, (cf. p.115) knight has two plurals, one associated with strength and one with masculinity. The multiplicity of noun classes and the fact that the animals are distributed on the basis of various semantic fields, such as [strong, war] : lion, tiger, leopard and [female genitalia, cracks] : eagle, falcon, duck, indicates that the system was n-ary and non-hierarchical.

The hypothesis upon which the present work is based is that the broken plural system is the older system since it gives evidence of a non-hierarchical, n-ary, non-anthropocentric semantic classification in one-to-one correspondence with morphological plural classes; and that the sound plural system is the newer system since it gives evidence of being created for the purpose of accomodating a newer hierarchical, binary, anthropocentric semantic classification. This is a parallel hypothesis to the one Givón (1971) made for Bantu.

This last hypothesis implies a corollary hypothesis: that languages like Akkadian and Hebrew split off from the parent language (Proto-Semitic) at a much earlier date than did Arabic, and thus have had much more time to effect the change to the newer semantic system. The fact that

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Arabic appears to be conservative in its phonological and verbal systems, as well, lends support to this last hypothesis and its corollary.

David G. Lockwood[4] suggested that perhaps the hypothesis herein developed accounts for the Proto system and that Givón's prefix-suffix hypothesis for the origin of the infixed system is representative of an even earlier reconstruction, that of Pre-Semitic.

Whichever hypothesis is ultimately borne out is not crucial to the outcome of this synchronic analysis. However, the reader should keep in mind the various hypotheses when viewing the synchronic evidence presented in this Chapter and the synchronic analysis presented in Chapter IV.

3.4 The Newer Model -- A Conflation

3.4.1 Diachronic Hypothesis

The diachronic hypothesis for the Iraqi Arabic pluralization system (with implications for Arabic, and perhaps Semitic, in general) is that the old n-ary, non-hierarchical, non-anthropocentric system was of the general form given in Figure 12. There was a one-to-one correspondence between a given semantic category and its morphological plural class. That is, each semantic category was associated with a particular plural (or with several plurals in complementary distribution by phonological shape).



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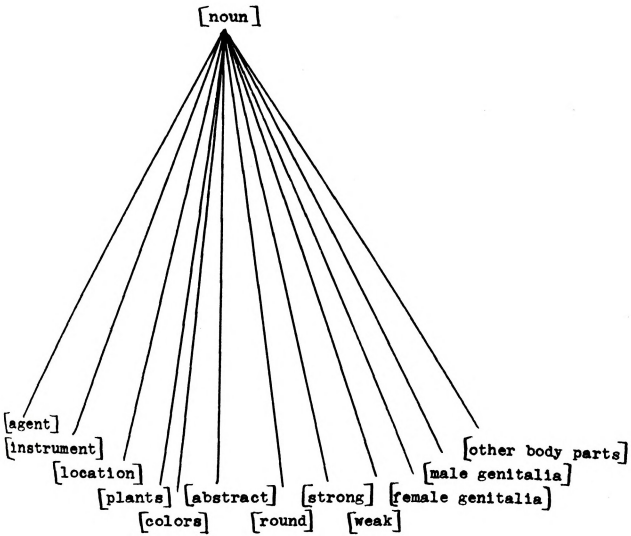

Figure 12
Non-Hierarchical Semantic Categories
in Iraqi Arabic

At first it was thought[5] that [agent], [instrument] and [location] were classes which dealt with deep level case. That is, it was thought that they were involved with verbal selectional restrictions, which, according to Givón, mark them as post semantic change, and that they were of the same

genre as [human] in that they are associated with the subcategorization of verbs according to types of arguments possible. This is not the case, however. These are strictly semantic categories which have nothing to do with function. For example, a nominal in the category [instrument], e.g., grinder, can function as subject because it is [potent], yet semantically it is also an instrument because its plural is predictable as such. The terms [potent] and [controllable] label gnostotactic classes in the nominalia hierarchy (cf. Section 4.2), while the terms [instrument], [agent], [location] are here used as components in the hierarchy of cultural perceptions.

3.4.2 Synchronic Evidence

There are two types of synchronic data for which a hypothesis such as Givón's provides explanation; first, those items associated with more than one plural class and, second, borrowed items.

3.4.2.1 Multiple Plural Association

In a good number of plural classes, there exist items which belong to one or more other plural classes. In almost every case this multiple association can be explained on semantic grounds. That is, an item may be perceived in more than one way. For example, zibb 'penis' may be classified as [round (rod)] and thus be associable with the plural class FMaaL (zbaab) or as [male genitalia] and thus be associable with the plural class FMuuLa (zbuuba). And

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tall 'hill' may be classified as [round (convex)] and thus be associable with the same [round] class as above, FMaaL (tlaal), or as [female genitalia] and thus be associable with the plural class FMuuL (tluul). In the instances where such an explanation is not possible the apparent chaotic association can be explained by phonological similarity of the singular form to other items in the same plural class. It is hypothesized that, since the semantic reorganization to a binary, hierarchical, anthropocentric system, in which there is no longer an emphasis on a one-to-one semantic-morphological correspondence, items have been shifted around the various broken plural classes on the basis of phonological shape.

A good number of items with broken plurals also have a regular plural. This gives evidence that the system is moving toward an ultimate regular (suffixed) plural system, with the only distinction made being the grammatical masculine/feminine dichotomy. Borrowed words not fully assimilated will always be associated with the feminine plural, e.g., biir 'beer' pl: biiraat; talaviziyawn 'television' pl: talaviziyawnaat. Examples of native items entering into the regular plural system[6] are so numerous that we list just a few here: malika 'queen' pl: malikaat; kursi 'chair' pl: kursiyaat; mu'allim 'teacher' pl: mu'allimiin. To list all such items would not only be time consuming but nothing would be gained by so doing. It is best to just say that more and more items

at random and with much greater frequency of occurrence than previously enter into the regular pluralization system.

The following is a detailed listing of all semantically based cases of multiple plural association except where the alternate plural is a sound (regular) plural or is an exceptional plural. Exceptional plurals will be dealt with in Chapter V -- Residue.

Item	Plurals	Semantic	Singular Canonical Forms	Gloss
faajir	fajara	weak, low	FaaMiL	libertine
	fujjar	agent	FaaMiL	
kaafir	kafara	weak, low	FaaMiL	infidel
	kuffaar	agent	FaaMiL	
rajil	riyaajil	male		husband
	rjuula	male	FvMvL	
mxanna$	maxaanii$	low		effeminate man
	mxaan$a	low		
faaris	fawaaris	strong	FvMMvL	knight
	fursaan	male		
mugass	mgaasiis	instrument		scissors
	mgaasa	round	FvMvL	
kaasada	kwaasiid	square		sheet
	kwaasid	square	FvvMvLa	
qubqaab	qbaaqiib	round	FvMMvvL	pair of wooden clogs
	qabaaqiib	round	FvMMvvL	
hajim	hujuum	bulk	FvMvL	bulk
	?ahjaam	abstract	FvMvL	
bahi$	buhuu$	abstract	FvMvL	research
	?abhaa$	abstract	FvMvL	

Item	P
ṣaḍiq	
ʿilis	
ʿaxras	
ruṣwa	
riṣi	
raa'i	
ʿaḥmaq	
ʿa'zal	
ʿa'war	
ʿuqul	
bir	
ʿuḥur	
tall	

Item	Plurals	Semantic	Singular Canonical Forms	Gloss
sadiiq	?asdiqaa?	strong	FaMiiL	friend
	sidqaan	close	FvMvvL	
filis	filsaan	low		one fils
	flaas, fluus?	round female genitalia, holes	FvMvL	
?axras	xirsaan	weak		mute
	xurus	weak	?aFMaL	
xuswa	xisyaan	weak, low	FvMLv	testicle
	xasaawi	weak, low	FvMLv	
xisi	xisyaan	weak, low	FvMv	eunuch
	xasaaya	weak, low		
raa'i	ri'yaan	weak, low	FvvMv	shepherd
	ru'aat	agent	FaaMi	
?ahmaq	humuq	weak	?aFMaL	dumb
	humaqaa?	weak, low		
?a'zal	'uzul	weak	?aFMaL	defenseless
	'uzzal	weak, child-like		
?a'war	'uur	weak	?aFMaL	one-eyed
	'uuraan	male		
ʘugul	ʘgaal	round	FvMvL	weight
	?aʘqaal	abstract	FvMvL	
biir	byaar	round	FvvL	oil well
	?aabaar	round	FvvL	
juhur	jhaar	round	FvML	anus
	jhuur	female genitalia, holes	FvMvL	
tall	tlaal	round	FvML	hill
	tluul	female genitalia		

Item	Plurals	Semantic	Singular Canonical Forms	Gloss
ḥibb	ḥbaab	round	FvML	large, porous pottery vessel
	ḥbuub	female genitalia, holes		
čitif	čtaaf	round	FvMvL	shoulder
	čtaafaat	paired body part		
zibb	zbaab	round	FvML	penis
	zbuuba	male genitalia		
kuux	kwaax	round	FvvL	hut
	kwaaxa	round	FvvL	
piip	pyaap	round	FvvL	barrel
	pyaapa	round	FvvL	
quful	qfaal	round	FvMvL	lock
	qfaala	round	FvMvL	
kuuz	kwaaz	round	FvvL	clay urn
	kwaaza	round	FvvL	
čuub	čwaab	round	FvvL	tube
	čwaaba	round	FvvL	
šariik	šurkaan	male	FvMvvL	partner
	šurakaa?	agent	FvMvvL	
saayiḥ	siyyaaḥ	agent	FaaMiL	traveler
	suwwaaḥ	agent	FaaMiL (2 diff. underlying forms)	
šariif	?ašraaf	abstract	FvMvvL	distinguished
	šurafaa?	strong, respected	FaMiiL	
qiss	qsuus	death	FvML	clergyman
	qasaawisa	agent		
ḏayl	ḏyuul	elongated	FvML	tail
	ḏyuula	male genitalia	FvML	

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Item	Plurals	Semantic	Singular Canonical Forms	Gloss
sayr	syuur	elongated	FvML	leather strap
	syuura	male genitalia	FvML	
ʸšiffa	ʸšfaayif	round		lip
	ʸšfaaf	round	FvMLv	
ʸšariit	?aʸšrita	instrument	FvMvvL	ribbon
	ʸšaraa?it	instrument	FvMvvL	

3.4.2.2 Borrowed Items

The assignment of borrowed items to various broken plural classes probably provides the best synchronic evidence for the still partially operative semantic-morphological correspondence of the pluralization system. Those borrowed items which are not assigned to the morphologically marked regular plural category [feminine] are assigned to particular broken plural class(es) in many instances on the basis of their culturally perceived semantic content. Some of these items also have an alternate association with the sound feminine plural -aat. The following is a list of borrowed items assimilated into the broken plural system on the basis of semantic content.

Item	Origin	Plural	Semantic	Singular Canonical Forms	Gloss
kuuliis	French	FaMaaMiiL	square	FvMMvvL	opening at the side of a stage
makiina	Italian	FaMaaMiL	instrument	maFMvLa	machine
'arabaana	Turkish	FaMaaMiL	instrument		cart
xastaxaana	Turkish	FaMaaMiL	place		hospital

Item

faylasu

daktawr

qunṣul

tallaxa

xariṭ

karxaa

ǩuub

kuub

muhur

banid

buṭi

kitl

cla

FaMa

the

Item	Origin	Plural	Semantic	Singular Canonical Forms	Gloss
faylasuuf	French	FaMaaMiL	strong		philosopher
		FaMaaMiLa	agent		
daktawr	English	FaMaaMiL	strong		doctor
qunsul	English	FaMaaMiL	strong	FvMMvL	consul
tallaxaana	Turkish	FaMaaMiL	place		casino
xariita	German	FaMaaMiL	place		map
karxaana	Turkish	FaMaaMiL	place		factory
ʕuub	English	FMaaL	round	FvvL	tube
		FMaaLa	round	FvvL	
kuub	English	FMaaL	round	FvvL	cup
muhur	Persian	FMaaL	round	FvMvL	personal stamp
banid	English	FMuuL	female genitalia, holes	FvMvL	bonnet
butil	English	FMuuLa	male genitalia	FvMvL	bottle
kitli	English	FMaaLi	round	FvMLv	kettle

Notice for example that the Turkish items which are classified semantically as <u>places</u> take the plural pattern FaMaaMiL even though they contain too many radicals to fit the Arabic plural pattern. Examples:

xastaxaana	'hospital'	pl: xastaxaayin
tallaxaana	'casino'	pl: tallaxaayin
karxaana	'factory'	pl: karxaayin

where -Xaa

Arabic wor

maxbe

maxza

madbe

where the

'the place

where -xaana is the Turkish morpheme meaning 'place'.

Arabic words which fall into this S-class are words like:

maxbaz	'bakery'	pl:	maxaabiz
maxzan	'storeroom'	pl:	maxaazin
madbaɣ	'tannery'	pl:	madaabiɣ

where the prefix ma- is the derivational affix indicating 'the place at which'.

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4. In p
5. By t

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FOOTNOTES

Chapter III

1. Ernest N. McCarus' hypothesis is that there were probably three stages which led to the massive number of nouns of [place] and [instrument] in the FaMaaMiL plural class. First, broken plurals existed (maybe some nouns of [place] and [instrument] were in the FaMaaMiL plural class). Second, nouns beginning with ma- ([place]) and mi- ([instrument]) evolved via the derivational system. Third, such newly formed nouns were assigned to the FaMaaMiL plural class on the basis of phonological shape.

2. According to Ernest N. McCarus, the shape of the singular is usually analyzed as FaaMiY (i.e., = FaaMiL agent), and the shape of the plural is FuMaLat (where L = y) and which by regular morphophonemic loss of intervocalic y gives FuMaat.

3. In private communication.

4. In private communication.

5. By the present author.

6. For native items, the types which are associated with sound plurals may be delineated, e.g., all derived form participles, FaMMaaL-nouns, etc.

7. fluus is also used collectively.

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CHAPTER IV

A Theoretical Description

A synchronic theoretical description of broken plurals entails describing the semantic-morphological correspondence still extant in the system as well as accounting for the cases of pluralization based on the canonical form of the singular.

In order to effect such an analysis it becomes necessary to reclassify the data. To obtain predictions in the direction from semantics to morphology, one must be able to uniquely specify the plural class to which, for example, an [abstract] item belongs. Not only is the feature [abstract] associable with several plural classes, but there are also items classifiable as [abstract] in other plural classes, which are not overtly associated with the feature [abstract] .

The following section is an attempt to uniquely specify the plurals for those items associable with the major semantic categories specified on page 57. The final analysis also provides for all the broken plurals, however, whether they are classified on semantic grounds, phonological ones, or a combination of the two.

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PvNvL

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PvvL

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PvNvvl

PVNLa

PVNLa

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PvvL1(

4.1 A Classification of the Data

abstract	Plural	Remarks
FvvL(L)v FvMvL FvML	FaMaaLL (3.2.1.33)	uniquely specified
FvvL FvMv FvMvvL	?aFMaaL (3.2.1.32)	high frequency of occurrence
FVMLa	FVMaL (Appendix)	
FVMLa	FaMaLaat (3.2.1.34)	only two members
FvML FvMvL	FuMuuL (3.2.1.12)	lesser frequency of occurrence

round

3 radicals:

FvvL FvML(a) FvMvL FvMvvL	FMaaL (3.2.1.1)	high frequency of occurrence (alternant)*
FvvL FvMvL FvML(a) FvLv	FMaaLa (3.2.1.2)	high frequency of occurrence (alternant)*

*Sometimes native speakers assign both plurals to a given item or are not sure which of the two to assign.

FvMLv FvvMLa FvvLi(yya)	FMaaLi (3.2.1.3)	uniquely specified

round, co

Singular

1

FVMLa

F(v)Maa

4 radic

F(v)Mvv

F(v)Mvl

FvMMvL

FvvMLa

FMvvL

FvMMv

FvMMv

FvMMa

FvMvl

FvMM

FvMM

FvMl

FuM

sor

3

FV

Fv

4

F

F

round, cont'd

Singular	Plural	Remarks
?	FaMLaat (3.2.1.11)	only two members
FVMLa	FVMaL (Appendix)	P-shape class
F(v)Maaya	FuMi (3.2.1.9)	uniquely specified
4 radicals:		
F(v)MvvLa F(v)MvMLa	FiMaaMiL (3.2.1.4)	uniquely specified
FvMMvL(a) FvvMLa FMvvL(a)	FMaaMiL (3.2.1.7)	uniquely specified
FvMMvL(a) FvMMvvL(a)	FaMaaMiiL (Appendix)	uniquely specified
FvMMaaL(a)	FiMaaMiiL (3.2.1.5)	only three members
FvMvL FvMMvvL	FuMaaMiiL (3.2.1.6)	
FvMMvvL(a)	FMaaMiiL (Appendix)	
FvMMvL(a)	FaMaaMuL (3.2.1.16)	only two items
FuMLv(v)L	FMaaMuL (3.2.1.8)	

square

3 radicals:		
FVMLa	FVMaL (Appendix)	P-shape class
FvMLa	FiMaL (Appendix)	uniquely specified
4 radicals:		
FvMMvvL(a) FvMMvL	FMaaLiin (Appendix)	uniquely specified

square

Singul

FvMMvv

FvMMvv

FvMMvv

FvMMvL

FMvvLa

strong

4 radi

FvMM(v

FvMMvL

FvMMvv

FvMMvL

3 radi

FVMLa

FvMvL

FvMLv

FvMvL

FvML

FvMvL

FvML(v

FaMiiL

FaMiiL

FaMi

weak

3 radi

FaFMaL

FMaaL

square, cont'd

Singular	Plural	Remarks
FvMMvvL(a)	FaMaaMiiL (Appendix)	
FvMMvvL	FuMaaMiiL (3.2.1.6)	
FvMMvvL(a)	FMaaMiiL (Appendix)	
FvMMvL(a) FMvvLa	FMaaMiL (3.2.1.7)	uniquely specified

strong

4 radicals:

FvMM(v)vL (high)	FaMaaMiiL (Appendix)	
FvMMvL(a)	FaMaaMiL (3.2.1.17)	
FvMMvvL FvMMvLv	FaMaaMiLa (3.2.1.39)	(high, numerous, large)

3 radicals:

FVMLa (high)	FVMaL (Appendix)	P-shape class
FvMvL (war) FvMLv	FiMaaL (3.2.1.14)	
FvMvL FvML	FuMuuL (3.2.1.12)	
FvMvL FvML(v)	FiMuuL (3.2.1.13)	
FaMiiL (high)	FuMaLaa? (3.2.1.37)	uniquely specified
FaMiiL (respected) FaMi	?aFMiLaa? (3.2.1.18)	uniquely specified

weak

3 radicals:

?aFMaL (low) FMaaL	FiMiL (3.2.1.21)	uniquely specified

weak,

Singul

TaFMal

FaMil

FvMil

FaaMil

FaaMil

?

Fv(v)l

FvvM

FvMLv

FvMvvl

FvMLa

FvMLi

4 radi

FvMMv

FvMMvl

FMaMLa

male

3 radi

F(v)Mv

FvvM(v

FvML

FvML

4 radi

FvMMae

FvMvL

weak, cont'd

Singular	Plural	Remarks
?aFMaL (defective)	FuMuL (3.2.1.22)	uniquely specified
FaMiiL (low)	FuMaLaa? (3.2.1.37)	uniquely specified
FvMiiL, FaaMiL (childlike)	FuMMaL (3.2.1.20)	uniquely specified
FaaMiL (low)	FaMaLa (3.2.1.24)	uniquely specified
? (low)	FaMiiL (3.2.1.25)	only two members
Fv(v)Mv, FvvM, FvMLv, FvMvvL (low)	FiMLaan (3.2.1.23)	uniquely specified
FvMLa, FvMLiya (low)	FaMaaLi (3.2.1.40)	uniquely specified
4 radicals:		
FvMMvvL(a), FvMMvL(a) (low, base, common, insignificant)	FaMaaMiiL (Appendix)	uniquely specified
FMaMLat (low)	FMaaMLa (3.2.1.26)	uniquely specified

male genitalia

3 radicals:		
F(v)MvvL, FvvM(v)L	FuMLaan (3.2.1.29)	uniquely specified
FvML, FvML	FMuuLa (3.2.1.28)	uniquely specified
4 radicals:		
FvMMaaL, FvMvL	FiMaaMiiL (3.2.1.5)	uniquely specified

Singular	Plural	Remarks
female genitalia		
FvMvL FvML(v)	FMuuL (3.2.1.27)	uniquely specified
other body parts		
FvMvL FvML	FMuuL (3.2.1.27)	uniquely specified
FiMiL (paired)	FMaaLaat (3.2.1.31)	only two members
FvMvL (paired)	FVMaaLaat (3.2.1.30)	only two members
plants		
FvMvL	FMuuL (3.2.1.27)	uniquely specified
FvMLa	FVMaaLaat (3.2.1.30)	uniquely specified
colors		
?aFMaL	FuMuL (3.2.1.22)	uniquely specified
?aFMaL	FiMiL (3.2.1.21)	only three members
nationality		
?	singular minus -i (Appendix)	not really a broken plural
bulk (minor class)		
FvMvL FvML	FuMuuL (3.2.1.12)	uniquely specified
agent		
3 radicals:		
FaaMi	FuMaat (3.2.1.38)	uniquely specified
FaaMiL	FuMMaaL (3.2.1.36)	
FaaMiL	FiMMaaL (3.2.1.35)	
FaMiiL	FuMaLaa? (3.2.1.37)	uniquely specified



agent

Singu

4 rad

FvMMv

FvMMv

FvMMv

locat

FvML

FvMvL

FvMMv

instr

FvMMv

FvMMv

FvMvv

FMvvL

pheno

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pocen

Figur

agent, cont'd

Singular	Plural	Remarks
4 radicals:		
FvMMvvL	FMaaMiiL (Appendix)	
FvMMvvL(v) FvMMvLv	FaMaaMiLa (3.2.1.39)	

location

FvML aa? ya FvMvL	FaMaaLi (3.2.1.40)	uniquely specified
FvMMvL(a)	FaMaaMiL (3.2.1.17)	uniquely specified

instrument

FvMMvvL	FMaaMiL (3.2.1.7)	uniquely specified
FvMMvL(a)	FaMaaMiL (3.2.1.17)	uniquely specified
FvMvvL FMvvL	?aFMiLa (3.2.1.41)	uniquely specified

It appears that there are actually three co-existent phenomena in the plural system of Modern Iraqi Arabic. First there is a major dichotomy between those nouns which function in the older semantically-based internal pluralization system and those which function in the newer anthropocentric suffixed system. This dichotomy is shown in Figure 13.

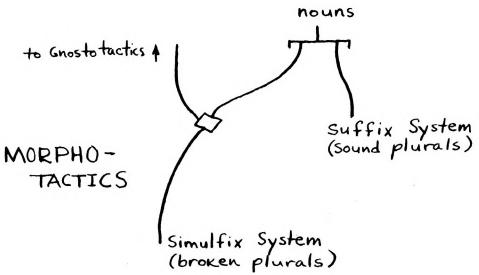

Figure 13
Broken/Sound Morphotactic Dichotomy

Since the suffixed system is the productive system it appears as the unmarked choice.

For those nouns that function in the older system there is a second dichotomy between those whose plural association(s) are semantically defined (i.e., those still totally within the older system) and those whose plural association(s) are morphologically defined by the underlying shape of the singular morpheme (i.e., those which are caught midway between the older and newer systems). Within the first type there is frequently a multiple association with particular plural classes on the basis of underlying shape.

Consider the semantically defined [plant] class. Those lexical items which may be so semantically defined and which enter into the internal plural system on semantic grounds are associated either with the plural FMuuL or with the plural FV_1MaaLaat. The choice is uniquely determined by the shape of the singular, however. Such an item whose singular is of the form FvMvL is associated with the first plural class cited (FMuuL) while one whose singular is of the form FvMLa is associated with the second plural class cited (FV_1MaaLaat).[1]

Examples of items entering into the older system but not on semantic grounds are numerous. Actually the entire FV_1MaL plural class seems to be of this sort. While there are many semantically definable groups in this class, the entire membership is represented by the form FVMLa in the singular.

Figure 14 is a diagram indicating how these various dichotomies might appear in the morphotactics of a stratificational analysis. It implies that the choice of broken and semantically-based plurals is "cognitively motivated." The semantically-based plurals are easily justifiable as so motivated by their very nature. That is, such plurals are semantically (in the sense of gnostotactic hierarchies) or cognitively defined. Broken plurals are assumed to be "cognitively motivated" because they are the marked of the broken/sound dichotomy, and they are neither grammatically nor semantically (in the sense of the sememic stratum) motivated. They appear rather to be a conscious (to the extent that language is conscious) choice.

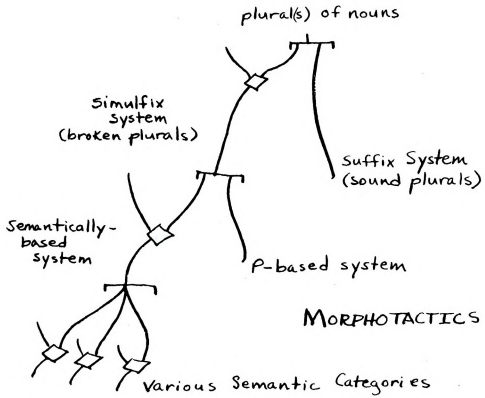

Figure 14
Semantically/Phonologically-based Morphotactic Dichotomy

If one were to make predictions on the basis of the hypothesis that language changes in the direction of the unmarked or productive system, then one could say that the first simplification of the pluralization system of Modern

Iraqi Arabic will probably be that broken plurals will be assigned on the basis of their phonological shape rather than on semantic grounds (cf. FV_1MaL -- all of whose members have the same P-shape in the singular, FVMLa).

The ultimate simplification will probably be that broken plurals are eliminated altogether, leaving only the sound or suffixed plurals. The only remaining dichotomy will be the masculine/feminine (marked) grammatical gender, as is the situation in many Indo-European languages today.

4.2 The Gnostotactics

A description of the relevant parts of the gnostotactics of Modern Iraqi Arabic must account for the hypothesized current binary hierarchical, anthropocentric semantic taxonomy. At the same time gnostemes within this configuration which correspond to the older semantic non-hierarchical taxonomy must have direct connections with the morphotactic plural classes which they define.

The present work posits an interconnected gnostemic system -- one hierarchical and the other not -- to account for the data. In order to make the final diagram comprehensible, however, we will first discuss various problems encountered in constructing it. The binary hierarchy which involves features relevant to subject selection presents the first problem.

There have been two alternative systems posited to account for the surface phenomena related to subject selection. Fillmore (1968) posits a deep level argument Instrument with subject selection rules of the type:

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$\not{A}$ Agent → Instrument, Goal. Chafe (1970), on the other hand, posits an additional feature in the hierarchy to account for sentences like

The flood destroyed the city.
The key opened the trunk.

The feature he posits is [potent] which seems to offer better explanation for the grammaticality of sentences like a, and the deviance from grammaticality in sentences like b.

a. John opened the door with a key.
b. *John opened the door with the wind.

With only the instrument-as-case hypothesis (cf. Fillmore, 1968) the grammar should be able to yield a sentence such as b if it yields a sentence such as d (below). According to Chafe, however, both key and wind are [+potent], thus both can be selected as the subject of verbs like open, yielding sentences such as

c) The key opened the door.
d) The wind opened the door.

There will still be further semantic restrictions governing particular verbs, of course, since sentences like

e) The key destroyed the city.

are not
context

f)

are.

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are not entirely grammatical without an extension of context while sentences like

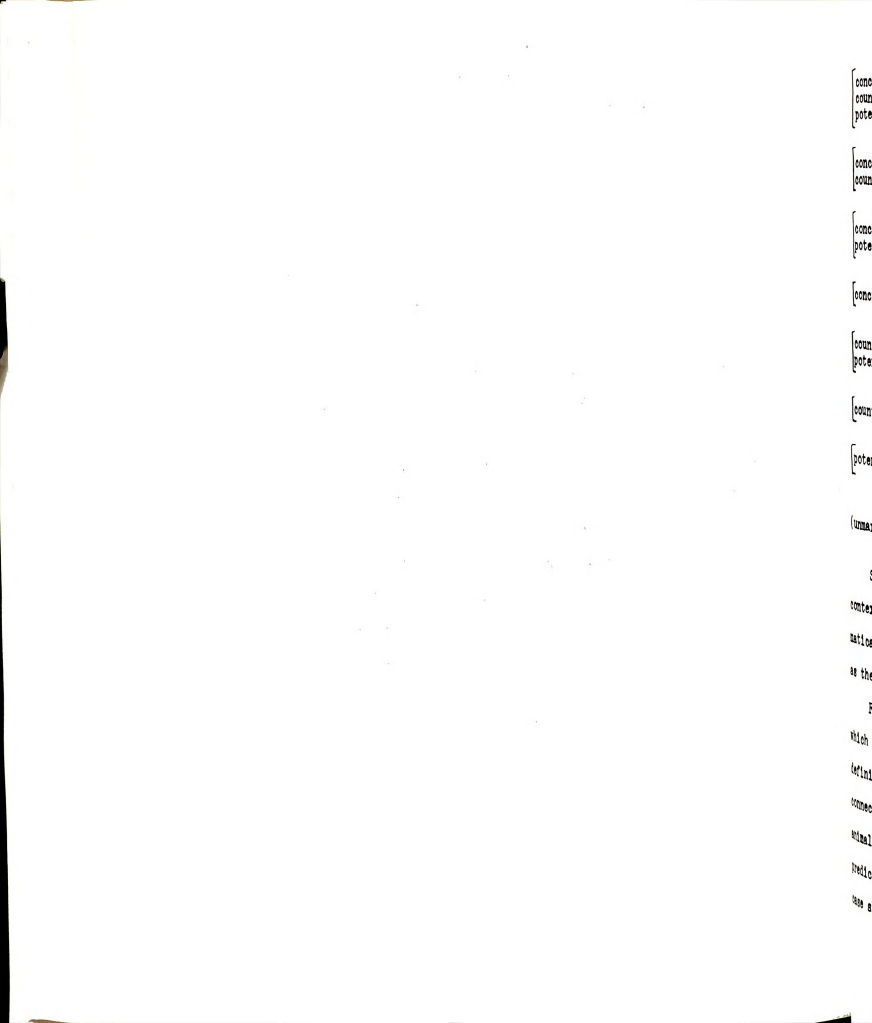
f) The wind destroyed the city.

are.

An additional point in favor of Chafe's analysis is that by adding the feature [potent] one may eliminate a subject selection rule (or in stratificational terms, one may simplify a part of the lexotactics).

An approach similar to Fillmore's was adopted in Lockwood's (1972) introductory text in stratificational grammar. In the present work, however, Chafe's feature hierarchy will be expanded, thereby eliminating the need for the instrument subject selection construction in the lexotactics. Rather only [potent] nouns can occur as the subject of a certain subcategory of verbs, represented by verbs such as open and destroy. This phenomenon will be handled in the gnostotactics. The lexotactics must still select which of two [potent] nouns, for example, does occur as the subject, however.

Consider the following sentences:



[concrete, count, potent]	The bulldozer destroyed the building. The key opened the door.
[concrete, count]	*The sidewalk destroyed the city.
[concrete, potent]	Water destroyed the city.
[concrete]	*Wood destroyed the house.
[count, potent]	My proof destroyed his argument.
[count]	*Ideas destroyed the city.
[potent]	Slavery destroyed the South. Experience opened my mind.
(unmarked)	*Harm destroyed the city.

Starred items are not grammatical without expanded contexts. Note that only the [potent] nouns yield grammatical sentences in a "normal" context when occurring as the subject of verbs such as open, or destroy.

Figure 15 shows that portion of the gnostotactics which accounts for the taxonomic hierarchy of features defining nominalia. Each of the classes shown will have connections to other hierarchies as well[2], such as the animalia hierarchy shown in Lamb (1971b :p.221) and the predication structures including verbalia and deep level case shown in Ikegami (1970: p.170ff.)


animal
human

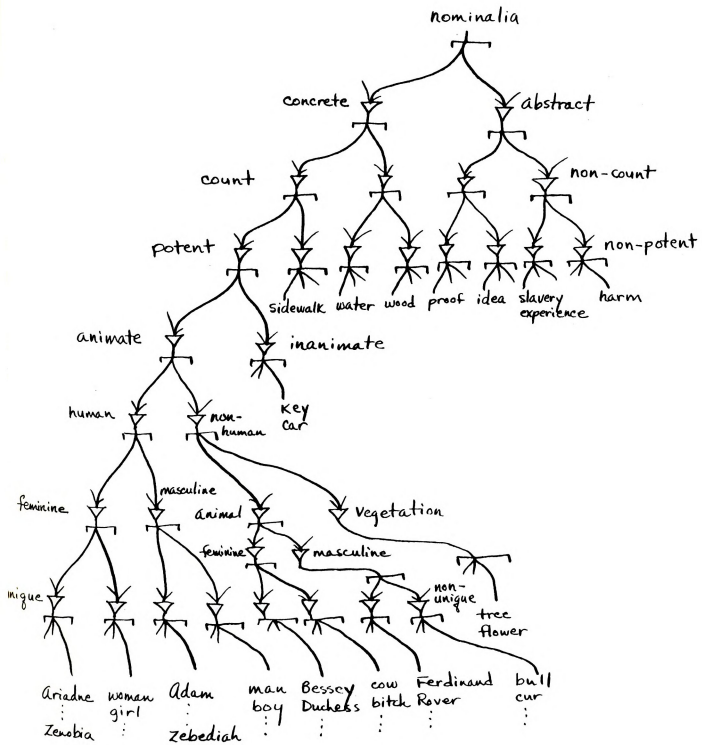


Figure 15

Taxonomic Hierarchy of Features Defining Nominalia

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This hierarchy is an expanded version of Chafe's (1970: pp.108ff.) hierarchy. The features [concrete vs. abstract] and [animal vs. vegetation] have been added for the obvious reason that they are necessary in verbal argument selection. But it appears that there is still a further dichotomy needed to explain why a sentence like

John smashed the bridge with his car.

is grammatical but not

*John smashed the bridge with a hurricane.

It seems intuitively straightforward that what is needed is a feature [controllable], and that this feature [controllable] is what determines which nominals can function as instruments.

Consider the following sentences.

[concrete potent]	*The man destroyed the building with wind. Wind destroyed the building.
[concrete potent controllable]	The man destroyed the building with fire. Fire destroyed the building.
[concrete count potent]	*The man destroyed the building with a tidal wave. A tidal wave destroyed the building.
[concrete count potent controllable]	The man destroyed the building with a bulldozer. A bulldozer destroyed the building.

Because all of the underlined arguments are potent, they can function as agents. Only the two which are controllable can function as instrument, however. Figure 16 shows the extension of Figure 15 to include a class of [controllable] items.

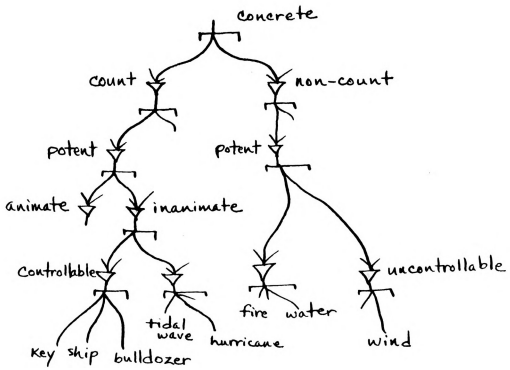

Figure 16
Extension of Figure 15

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The features [round vs. square], [color *vs.* non-color], and [strong vs. weak] must also be added to the hierarchy since they are justified by the form of Modern Iraqi Arabic, i.e., because these distinctions are necessary to explain the current semantically associated morphological classes.

But these features do not seem to fit into the hierarchy already established in any neat way. About the only generalizations one can make are that the feature [strong] implies the feature [potent] but not vice versa, and the feature(s) [round/square] imply the features [concrete / count] or "unmarked", e.g., <u>rotundity</u>, <u>squareness</u>, but not vice versa.

The best explanation seems to be that there are two interconnecting systems -- a hierarchy as given in Figure 15 and expanded in Figure 16, and a non-hierarchy such as evidenced by the data as characteristic of the older semantic system. In other words, any semantic "unit" in the nominalia hierarchy will have three connections -- to the two aforementioned (the animalia, etc. hierarchies and the predication constructions) and also to a non-hierarchical system of cultural perceptions (round, square, strong warring, weak childlike, etc.) such as that shown in Figure 17.

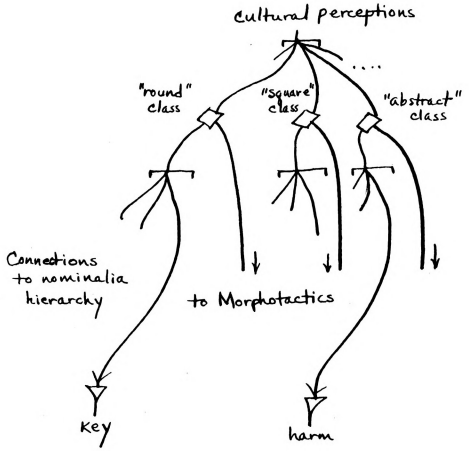

Figure 17
Cultural Perceptions in the Gnostotactics of Modern Iraqi Arabic

While the members of each culturally perceived class have connections to the nominalia hierarchy, each class as a whole (signified by a diamond node above) has a direct connection to the morphotactics three strata below where it serves to define certain morphological plural classes. In the case of multiple association the given nominal would have connections to two (or more) culturally perceived classes.

4.3 The Morphotactics

When considering the morphotactics of Modern Iraqi Arabic, two problems arise. First, in order to arrive at a simpler (or more general) tactics it becomes necessary to group together those broken plurals which are morphologically similar. On the other hand, in order to adequately account for the data, certain semantically defined broken plural classes must be kept distinct regardless of their morphological similarity to other plural classes. The following is an attempt to classify broken plurals by morphological similarity.

The notation here used signifies an ordered occurrence of the first, middle and last radicals (FML) simultaneous with (•) an ordered occurrence of the internal vowel sequence (e.g., ØaːØ).

One generalization which becomes apparent when viewing the following morphological shapes is that an overwhelming majority of internal plurals in Iraqi Arabic have either a or aː as the final vowel of the internal vowel sequence. This seems to be a fairly common internal plural type in the Hamito-Semitic family (cf. Greenberg: 1955, pp. 198-204). While it may not be impossible to group all a/aː final vowel plurals together in the morphology and enable the various initial vowels to be realized in the morphemic sign pattern, such an analysis presented other complexities and thus was not used in the present description.

FML•Øa:

FMaaL	round	
FMaaLa	round	Sg: FML•VØ
FMaaLi	round	
FMaaLiin	square	
FMaaLaat	paired body parts	
?aFMaaL	abstract	

FML•Va

FV$_1$MaL	P-based	Sg: FML•VØ a

FML•aa

FaMaLa	weak
FaMaLaat	abstract

FML•uu~ii

FuMuL	color, weak
FiMiL	color, weak
FuMuLaa?	weak

FML•ia

FiMaL	square

FML•ua

FuMaLaa?	agent, strong, weak

FML•Va:

FV$_1$MaaLaat	paired body parts, plants

FML•iØ

FiMLaan	weak, close
FiMLaat	meal

FML•uØ

FuMLa	male
FuMLaan	male

FML•aØ

FaMLaat	round

FML•aa:

FaMaaL	female relative
FaMaaLa	?
FaMaaLi	place, time, weak

FML•ia:

FiMaaL	strong
FiMaaLa	strong

FML•ua:

FuMaaLi	strong

FML•Øi

?aFMiLa	cover, statement, instrument
?aFMiLaa?	strong, respected

FML•Øu

?aFMuL	?

FML•uu:∼iu:

FiMuuL	strong, war
FuMuuL	strong, war, bulk, abstract
FuMuuLaat	?

FML•Øu:

FMuuL	female genitalia, death, elongated, plant
FMuuLa	male genitalia

FML•ai:

FaMiiL	weak

FMML•aa:i

FaMaaM1L	place, instrument, strong
FaMaaM1La	agent, strong

FMML•aa:u

FaMaaMuL	strong

FMLL•aa:ø

FaMaaLL	abstract

FMML•ia:i∼ua:i

F1MaaM1L	round
FuMaaM1L	round

FMML•øa:i∼øa:u

FMaaM1L	round
FMaaMuL	round

FMML•ia:i:∼ua:i:

F1MaaM11L	male, round
FuMaaM11L	round

FMML•øa:i:

FMaaM11L	agent, instrument, square, round (P-class)

FMML•aa:i:

FaMaaM11L	round, square, weak, strong, statement (P-class)

FMML•uøa:∼iøa:

FuMMaaL	agent
F1MMaaL	agent

FMML•iøa∼uøa

F1MMaL	weak
FuMMaL	weak, childlike

FMML'

FM·u/

simil

pp. 1

are s

stron

that

overt

that

while

For e

can

patte

patte

FMML'Øa:Ø

FMaaMLa	weak, low

FM•u~i

FiMi	?
FuMi	round
FuMaat	agent

The previous categorization on the basis of morphological similarity must be integrated with the categorization (on pp. 123ff.) on the basis of semantic similarity.

Before a stratificational diagram is attempted, there are several notions which need explanation, however. A strong point in the theory of stratificational grammar is that it has a mechanism which allows one to capture an overt generalization present in Semitic, namely the fact that tri- and quadri-consonantal roots are lexical in nature while many of the vowel patterns are grammatical in nature. For example, (Erwin: 1963, p.47) the items

diras	'he studied'
?adrus	'I study'
daris	'lesson'
diraasa	'study'
darras	'he taught'
mudarris	'teacher'
madrasa	'school'

can be seen to involve the same lexical triconsonantal pattern interdigitated with different derivational vowel patterns.

With the mechanism of tactic precedence stratificational grammar can separate the lexical "morpheme" from the grammatical "morpheme" at the S-morphemic level thus.

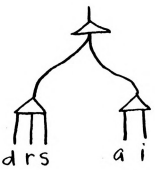

Figure 18
The Separation of Lexical and Grammatical Morphemes in the Morphotactics

Take the noun daris for example. In stratificational terms one can say that the root drs occurs simultaneously (cf. the downward unordered and above) with the derivational vowel sequence ai. However, d, r and s must be ordered with respect to one another in the order given (cf. the downward ordered ands above). The tactics of the next lower stratum, namely the phonotactics, takes precedence over the ordering supplied above. It is the phonotactics which interdigitates the consonants with the vowels.

The p
while

the o
way t
Wheth
vowel
as de
inter

nomin
of th
nouns
diraa
nouns
like
kitaa
nonet
we wi
which
speak
(s)he
kuub

deriv
indiv
vowel

The phonotactics only allows a CVCV...(C) sequence. Thus while it receives the drs and ai simultaneously $\left(\frac{\text{drs}}{\text{ai}}\right)$, the order it imposes is d a r i s, i.e., CVCVC. In this way the root drs need only appear once in the morphotactics. Whether it functions nominally or verbally (i.e., what vowels are interdigitated) is significant only insofar as derivation supplies the exact meaning intended, by interconnecting with the lexical root.

Derivation is an important and integral part of the nomino-verbal system of Arabic. But while a good number of the nominals in Arabic can be derived from verbs, these nouns are in the main abstract nouns like zurriyya 'freedom', diraasa 'study' (e.g., the study of Latin) or agentive nouns like mu'allim 'teacher', kaatib 'writer' or adjectives like naasif 'dry', zurr 'free'. Concrete nouns like kitaab 'book' and daris 'lesson' are significant but nonetheless are in the minority. Most of the nominals we will be dealing with, however, will be of the type which do not enter into derivation except when a native speaker consciously coins a new term (for example, if s)he were to make a verb 'to cup' from the borrowed item kuub 'cup').

However, nouns like kuub are not presently in the derivational system. Their vowel patterns are provided individually, though they fall into a finite number of vowel pattern categories.

The problem lies in separating adjectives, agentive abstract nouns, which do enter into the derivational em, from the majority of concrete nouns which do not. former type of nominal must have its vowel pattern led out after the tactics has assigned a vowel pattern rding to the derivational system, while the latter must have its vowel pattern spelled out idiosyncrat-ly.

In the diagrams which follow, each broken plural class be diagrammed separately. An integrated diagram be presented at the end of the section on morphology.

1 Semantically-based Plurals

In order that the reader may more fully understand emantically-based plural diagrams which follow, a log of frequently occurring phenomena is presented .

a) prefixes and suffixes

Figure 19 shows the general nominal config-on in the morphotactics. Some stems are preceded by xes, e.g., ?aswad 'black (m.)' where ?a- is a prefix. stems are followed by one or two suffixes, e.g., , pl: hyaaya, where -a in the first case is a femin-uffix, and in the second case is a determined plural x.

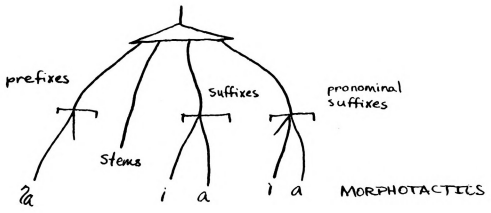

Figure 19
Prefixes and Suffixes

b) simulfixes

The general simulfix configuration is shown in ure 20, where the singular stem <u>čVwɸb</u> 'tube' occurs ultaneously with the plural preemptive (cf. e below) el sequence <u>ɸ⁺a:⁺</u> in the morphotactics.

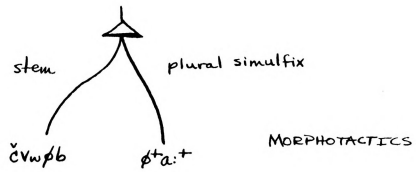

Figure 20
Simulfixes

c) neutralization

Figure 21 details the neutralization of the pro-
ninal suffixes -i (1 sg.) and -a (3 m.sg.) e.g., ǧuubi
tube', with the determined suffixes -i and -a as in
ri pl: bwaari 'bugle'.

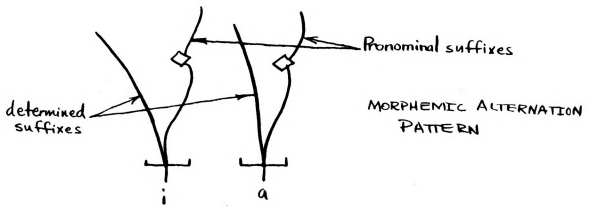

Figure 21
Neutralization

d) alternation

The alternation of the suppletive root ns? which
rs in the environment of plural with the singular root
'woman' is shown in Figure 22. The conditioning line
ates from the plural path in the morphotactics and
les the "unit" /ns?/^{MS} to be realized in case plural is
en.

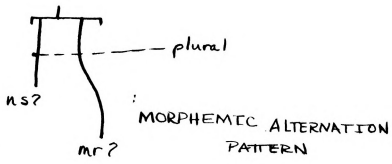

Figure 22
Alternation

e) preemption

Figure 20 (above) shows an example of the simul-
aneous occurrence of a stem with preemptive plural vowels.
igure 23 (below) shows how the phonotactics first checks
o see if a preemptive vowel has been generated by the
orphotactics, and only in case one has not is a "normal"
owel generated. If a preemptive vowel has been generated
hen whatever "normal" vowel was also generated is realized
s zero. Thus, for example, $\frac{\check{c}vw\emptyset b}{\emptyset^{+}a:^{+}}$ is realized as $\check{c}\emptyset^{+}wa:^{+}b$,
waab 'tubes'. (Interdigitation is explained in Section 4.4,
he Phonotactics.)

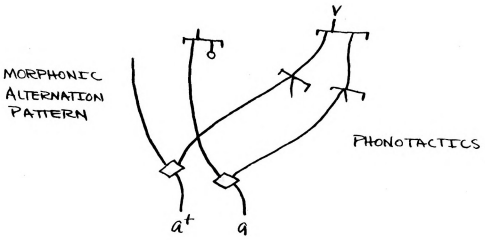

Figure 23
Preemption (Simplified Version)

.1.1 Round Plurals

.1.1.1 FMaaL-type

The diagram of Figure 24 is based on the following
umptions and generalizations.

1) Inflectional simulfixes (broken plurals in this
) appear to be replacives just as they are in English
Lockwood: 1972). In English plurals like man, men;
e, mice, etc. are handled in a similar manner. (The
lar vowel patterns of some nouns in Modern Iraqi
c are given by the derivational system, however.)
lural vowels ɛ+ and ay+ take precedence over the
lar vowels æ and aw respectively. Thus the gen-
ation is captured that the singular and plural forms
he same consonants. The phonotactics accepts the
vowel (ɛ+ or ay+) if it is available, and only in

e the plural vowel has not been generated does it allow
singular vowel to be realized. Plurals in Arabic are
e posited to behave in like manner.

While the phenomenon of pluralization in Arabic
ders on "derivation", it is analyzed as distinct from
generation of derived vowel sequences for the follow-
reasons. First, the phenomenon of pluralization in-
ves not only simulfixation but also suffixation. That
some realizations of the lexon ^{LN}/plural/ are S-mor-
mic suffixes, e.g.,-aat, -iin and -a. Second, the
nomenon of broken (or internal) pluralization involves,
addition to simulfixation (which is also involved in
ivation), preemption. Once the "derived"
gular has been generated, the option is open to simul-
eously generate a preemptive plural vowel sequence.

2) Any member of the category of nominals semantically
ified as round and having the vowel pattern $\underline{v\emptyset}$, for
uple, conditions the choice of the plural FMaaL (i.e.,
vowel sequence $\underline{\emptyset^{+}a{:}^{+}v^{+}}$ -- zero preemptive vowel, fol-
d by long a preemptive vowel, followed by the phon-
ically predictable preemptive alternation $\underline{i\sim u}$ (v^{+})).
singular vowel sequence is present in the singulars
ie noun types designated (1) through (10) on the
am. Thus what were previously listed as five sep-
plurals can be seen to be predictable variants of
lural "allomorphs". The plural types FMaaL, FMaaLa,
, FMaaMuL, and FMaaMiL are all characterized by the
n ^{GN}/round/ and they are all morphologically related.

Their individual surface realizations are for the most part predictable from the shapes of their corresponding singulars. The singular items (1) through (10) and the prediction of their corresponding surface plurals are detailed in part 4) below.

3) As an example, take the item ǩVwøb 'tube'. The vowel signified by V is predictable by phonological environment (here /__w) and its point of articulation is therefore specified as a determined element by the phonotactics. If a speaker wishes to express the idea 'tube + plural' in Iraqi he would generate the above lexon for 'tube' simultaneous with a lexon ^{LN}/plural/. The morphotactics guarantees that the realization of ^{LN}/plural/ is (in this case) simultaneous rather than sequentially ordered with respect to the root (cf. the topmost downward unordered and). The speaker must then decide if the plural is semantically-based or phonologically-based, i.e., whether the plural is defined on semantic grounds or phonological ones). If within his/her gnostemic level the given item has been classed as having a semantically-based plural, then the next "choice" is which semantic feature defines the class to which this item belongs. In the case of ǩuub it is the [round] class. The exact choice of preemptive plural vowels in determined by the vowel pattern of the singular.

4) The simplification achieved with this analysis is to collapse what were identified as five different

lasses semantically (all of them were [round] but each
ld a different surface form) and four different classes
orphologically into two stratificational plural morphemes,
ach sharing the configuration $\underline{\emptyset^{+}a_{1}{}^{+}v^{+}}$. This configuration
f plural preemptive vowels enables us to group together
hose lexical and derived (not shown) singulars having the
ingular vowel pattern $\underline{v\emptyset}$ and predict that all such items
emantically specified as [round] will take a plural with
he pattern $\underline{\emptyset a_{1}}$ as a factor. It is apparent that this may
e viewed as an anatactic relationship, but such an analysis
ld not provide the simplest description. Perhaps with
reater analytical refinement, this generalization could
e captured in the description, but it could not be cap-
ured here. The various types of singulars taking part in
his general plural class will be described individually
low.

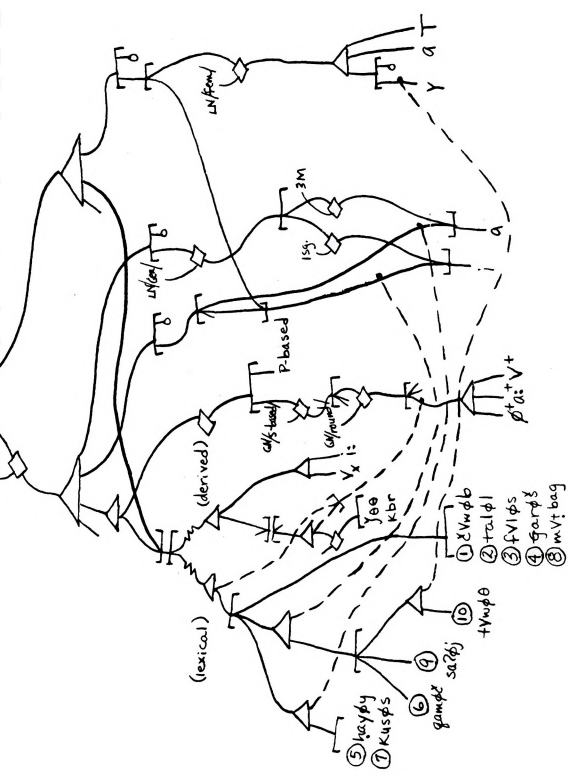

Figure 24

FMaaL Plurals (Semantically-based) Round

① The type of singular characterized by the item
b 'tube' is generally described as having a weak
le radical, i.e., either w or y. Its characteris-
surface form is FvvL, e.g., ɣuub 'tube', piip 'barrel'.
forms have here been analyzed as lexical nouns (i.e.,
derived) of the form FVWØL, where W signifies a weak
cal, V signifies a vowel alternation u~i, whose
ace alternants are contextually predictable (in this
i before y, u before w), Ø indicates a vowel "place
er" considered a vowel by the CVCV... pattern of the
otactics, but given no phonic substantive realization.

The plural vowel pattern ($\underline{\emptyset^{+}a{:}^{+}V^{+}}$) will be given
edence over the singular pattern $\underline{V\emptyset}$ in the following
er. If the plural pattern has been selected by the
hotactics then the phonotactics will receive the singu-
form and the plural pattern simultaneously, $\left(\begin{matrix}\underline{\check{c}Vw\emptyset b}\\ \emptyset^{+}a{:}^{+}V^{+}\end{matrix}\right)$.
e the phonotactics imposes the order CVCV...(C), it
t selects $\underline{\check{c}}$, then the precedence-taking $\emptyset^{+}$ (in pref-
ce to $\underline{V}$, which is realized as $\emptyset$), then $\underline{w}$, then $\underline{a{:}^{+}}$
preference to $\emptyset$), then b. In case there are only three
consonants (as is the case here), the last preemptive
l (V^{+}) will be realized as $\emptyset$. Thus nouns related in
to $\underline{\check{c}Vw\emptyset b}$ ($\underline{\check{c}uwb}$:$\underline{\check{c}uub}$) in the singular will have the
l form $\underline{\check{c}\emptyset wa{:}b\emptyset}$ ($\underline{\check{c}waab}$), given abstractly as FMaaL.
② - ③ Forms such as $\underline{tall}$ 'hill' and $\underline{filis}$ 'fils',
having dissimilar surface forms are related to forms
$\underline{\check{c}uub}$ at a more abstract level. These forms too may
alyzed as having the vowel pattern $\underline{v\emptyset}$. Forms such as
are here analyzed as having the singular form $\underline{fVl\emptyset s}$
e morphemic sign level. The $\underline{V}$ here is the same mor-
$\underline{V}$ (i~u) present in forms like $\underline{\check{c}uub}$ and $\underline{piip}$. The
nt is predictable here also by context. (Actually
the underlying (morphonic and phonemic) vowel to which
phoneme" "labial" is added in the appropriate en-
ments of labials, velars, emphatics, and $\underline{r}$ in the
nic alternation pattern.) It is here posited then
the stratificational phonemic sign (C-phonemic) form

filis is fils (the same shape as tall above) and that e phonetic tactics inserts an epenthetic copy of the rst vowel between the last two consonants of a stem if ey are not the same and if they occur word finally f. filim 'film', a borrowing from English). At the unique phonemic sign level where i in the environment _C# is not distinctive, all stratificational phonemic s in this position are realized as ø. The phonetic ctics may then insert the anaptyctic vowel everywhere this environment. Thus items such as tall (talø1) and is (fV1øs) have their plurals realized in the manner plained for čVwøb under (1) .

(4) There are certain nominals which take the plural aL, but which have a final vowel in the singular, e.g., sa 'narghile' (ɡarøsa, i.e., a vø a pattern). In order handle the plural mechanism for such nouns it is nec- ary that the final singular vowel which denotes the mmatically feminine be suppressed (i.e., not be realized) "plural" is chosen. This is done in Figure 24 by having feminine suffix as a possible suffix only in the singu- configuration (cf. the right branch of the topmost down- d ordered or). The morphon T is realized as ^{P}/t/ before uffix beginning with a consonant. Elsewhere it is lized as ø. For example, the phonotactics, according Figure 24 would receive $\underset{ø^{+}a_{1}{}^{+}V^{+}}{ɡarøš^{V}}$ (since the feminine ix -a would not have been allowed to be realized) and

l generate gØ+ra:+š, with V+ being realized as Ø since
e were only three stem consonants. Thus the plural
:aaš. This guarantees that, whether the singular forms
plural is FMaaL end in a vowel (garša) or not (čuub),
is no final vowel in the plural pattern.

(6) There are certain other nominals which end in a
and which keep this vowel in the plural. These
als represented by qamØč+i 'hose for narghile' pose
blem since their final vowels must somehow be kept
nct from the final vowels of nouns like garša above
are suppressed.

In order to keep them distinct only one difference
eded: the suffix -i attached to some forms as a deter-
sign is allowed to be realized in the environment
ural. The phonotactics generates the plural vowel
ns of such nouns in the following manner. Receiving
iguration such as $\frac{qamØč}{Ø+a:+V+1}$, the phonotactics would
the order qØ+ma:+či, V+ being realized as Ø since
are only three stem consonants. Thus the emerging
form is qmaači (FMaaLi).

) - (10) There is one additional problem here, how-
There are nominals whose plurals are of the form
, but whose singulars not only have an i after the
:oper but also an additional a (sa?Ø:+i+a:saa:ya
ation channel') or sometimes also an additional ya

ØØ+i+ya:tuuθiyya 'nightstick'). This additional materi-
lso signifies "grammatically feminine". The only addition-
estriction needed is a subclass governing the realiza-
of y (cf. (10)). The subclass of nominals represented
uuθiyya 'nightstick' would enable the additional y to
ealized in the singular.

(5) and (7) Nominals of the form hayØya 'snake' and
s:kuss 'vulva' whose plurals are of the form FMaaLa
a different kind of problem. The singular form may
ay not have a suffix yet the plural form always does.
resolution of this problem lies in making separate
lasses of these nominals as in Figure 25.

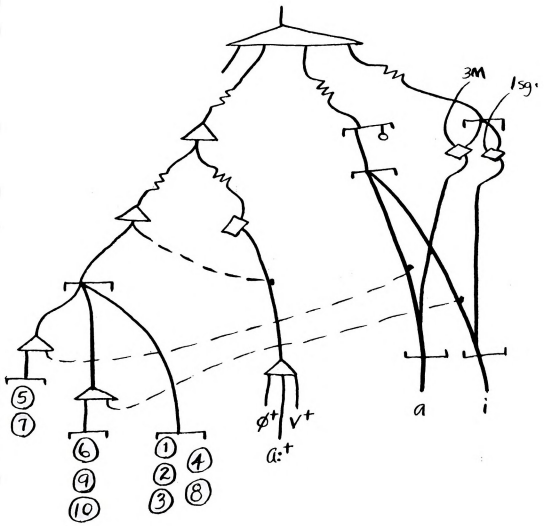

Figure 25
Subclasses of FMaaL-type Plurals

phonotactics on receiving the configuration

supplies the order kø$^{+}$sa:$^{+}$sa. As before V^{+} is

as ø yielding the surface form ksaasa.

(8) The final form classified as a FMaaL-type plural
epresented by mVtØbag (mutbag) 'double-tubed flute'.
form actually represents two phonologically predictable
l alternants FMaaMiL and FMaaMuL. The phonotactics,
receiving mVtØbag yields the form mØ+ta:+bV+g (mtaabug).
Ø+a:+V+

time because there are more than three stem consonants
ultimately realized as one of the alternants i or u,
ding on environment.

Exactly how the derivational vowel patterns (see the
st left unordered or) are assigned is not dealt with
is treatment. Examples of adjectives in this plural
are shown. Their simultaneously realized vowel
rn is V_xi:, where V_x is a morphon denoting the alterna-
a∿i, a in the environment k__ and i elsewhere.
The remainder of the semantically defined [round]
ls (eight in number) may be generalized to two
ional [round] broken plural classes. They are:
i:+ (FaMaaMiiL, FiMaaMiiL, FMaaMiiL), V+a:+i+
aMiL, FuMaaMiL) and y+Ø+ (FuMi, FiMi, FaMLaat).
e 26 (see 4.3.1.1.2) shows how the first of these
] allomorphs (i.e., morphemic signs)
nto the overall structure. Figure 27 (see 4.3.1.1.3)
ibes the second.

.1.1.2 FvMaaM1(1)L-type

We have reduced thirteen broken plural classes, antically defined by the component ^{GN}/round/, to ee allomorphic (stratificational morphemic) classes aL, FvMaaM1(1)L, and FvML. Figure 26 describes the aaM1(1)L plurals.

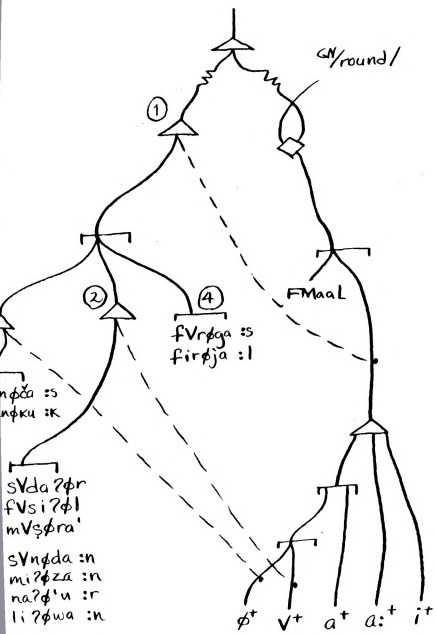

Figure 26

MaaMi(1)L Plurals (Semantically-based) Round

lownward unordered and labeled (1) defines the class
ngulars which take FvMaaMi(1)L plurals. The enabler
hed to this plural class enables this particular
l choice (FvMaaMi(1)L) to be realized.

(2) is the subclass of singulars whose plural is
Mi(1)L FuMaaMi(1)L where the alternation i∾u (V^+)
onologically predictable. The generalization that
h of the final vowel of the plural is predictable
e occurrence of length with the final vowel of the
lar is captured in the following manner. Length
des the final consonant in the morphotactics and is
ned thereto, so that length is present in both singular
lural forms. The phonotactics will assign this length
syllable nucleus (v) as a constituent. Thus, in
orphotactics the configuration is V :C while in the
tactics the configuration is V: C. (Actually two
of abstract length will have to be set up in order
ure their separate treatment in the phonology. That
ngth originally associated with a consonant must be
istinct from length originally associated with a vowel,
hough both are ultimately associated with a vowel on
rface.)

here are both masculine and feminine nouns taking
lural. An example is sVda?Ør (sidaara 'common Iraqi
ar'). (The feminine suffix is realized as Ø in the
nment of plural.) Its simultaneously realized plural

$V^+a:^+i^+$. The phonotactics would interdigitate the emptive vowels to yield $sV^+da:^+yi^+r$ (sidaayir). Glottal p has several realizations in Iraqi. The singular form this noun at the stratificational phononic level would sida:r. The phonotactics enables ? to be realized length (:) in the environment before a consonant in morphonic alternation pattern. The plural form at the tificational phononic level would be sida:yir since the notactics would enable ? to be realized as y in the ronment before (or after) i in the morphonic alternation ern. (It may also be realized as ?, w, i, a in various r environments.)

One thing which became evident in dealing with this lass of plurals is that glottal stop (?) will have to its alternants specified in the morphonic alternation ern above the phonotactics (i.e., before the phono- ics assigns a point of articulation to V or V^+(i.e., re i is realized as u (in some environments) or i). example, $na?Ø'u:r$ 'water wheel', pl: $nV^+?a:^+i^+r$. tal stop must first be realized as w in an "elsewhere" ronment. Then V^+ (neutralized with V) can be ectly predicted as u before w in the phonemic rnation pattern (nuwaa'iir).

(3) Nouns in this subclass take the plural FMaaMiiL. ther words the first vowel is $Ø^+$. The plural of uuk (mankuuk 'bobbin') is mnaakiik.

Class ④ is the "elsewhere" class (i.e., the class hose members take $\underline{a^{+}}$ as the first vowel of the plural. he plural of <u>fVrØga:s</u> (<u>furgaasa</u> 'blister') is <u>faraagiis</u>. ouns in all three of these subclasses (② , ③ , ④) ave similar underlying shapes so there is no way to pre- ict class membership on such a basis.

3.1.1.3 <u>FvML-type</u>

Figure 27 describes the FvML-plurals defined by the noston ^{GN}/round/. (In general discussions defining mantic components are referred to as [round] , for ex- ple; in theoretical descriptions these components are ferred to as gnostons, for example, ^{GN}/round/.)

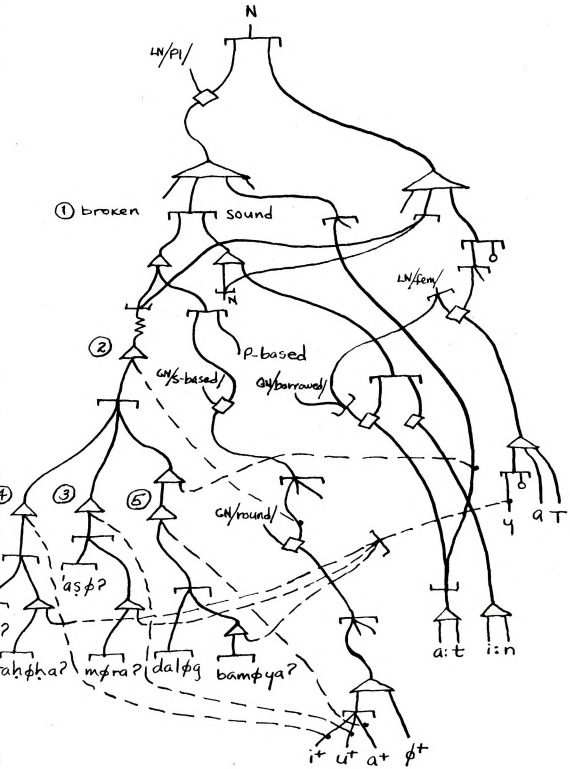

Figure 27
FvML Plurals (Semantically-based) Round

① Here we see that the broken or internal (simulfixed) rals, which we have been so far discussing, form a di- tomy with the sound or external (suffixed) plurals. broken plurals are defined by the downward unordered indicating simultaneity, while the sound plurals are ined by the downward ordered and indicating consecu- ity.

② This node defines the class of FvML-plurals as a le. All of the members of this class take a plural h FvML as a factor. Here we have an instance of an bling line connecting to an enabler within the the tics rather than below. Currently in stratificational ory, enabling lines are allowed to connect to enablers below the tactics in the "emic" alternation pattern. s restriction was found to be too stringent in such es as ② . The Iraqi data requires both semantic (or totactic) conditioning (see the diamond node connected the gnoston ^{GN}/round/) and morphological conditioning. rder to adequately account for the data, conditioning in the morphotactics was necessary. In other words, e not all items characterized by the gnoston ^{GN}/round/ any one particular plural shape, but are further itioned by the morphotactic class(es) of the singulars which they are associated, it proved necessary to conditioning within the tactics of the morphology.

The members of the class defined by the node designated (3) form a subclass. The surface shape of the plural is i. As an example take the item mØra? (mraaya 'mirror'). shape of the singular with the feminine ending ya (the eing allowed to be realized in this case) is mØra?ya. phonotactics receives the ya after the stem proper, s beginning again the CV sequence and allowing the sonant cluster ?y (mØra? and ya). Glottal stop is
CVCVC CV
lized as length before a consonant, yielding the form ya. The plural is mØra?
$u^{+}\emptyset^{+}$
erdigitates to yield $mu^{+}r\emptyset^{+}?$. The surface form (muri) achieved when glottal stop is realized as i in the environment u,iC___#. In other words, mur? is realized as .

④ defines the subclass FiMi. The usually predictable
i (V) alternation is not the case here. Thus two
arate subclasses had to be set up (FuMi and FiMi).
e the item 'abø? ('aba 'aba'). The singular is 'abø?
h glottal stop being realized as a in the environment
__#. In other words 'ab? is realized as 'aba. The
ral is 'abø? . The interdigitated form is 'i+bø+?.
i+ø+
ttal stop is realized as i in the environment u,iC__#.
'ib? is realized as 'ibi.

⑤ This subclass has the plural shape FaMLaat --
t is, the internal preemptive vowel sequence a+ø+ and
suffix -aat. Take bamøya? (bamyaaya 'okra') as an
mple. The singular is straightforward at this point.
plural is (bamøya? a+ø+ a:t). The interdigitated form is
mø+ya?a:t. It here becomes apparent that we need a
n boundary between the stem proper and suffixed material,
that this boundary must function as an environment
ivalent to that of a consonant for the realization of ?.
other words, if we posit a stem boundary (+) between
mø+ya? and a:t, we can say that ? is realized as : in the
ronment __C,+. Then we would get the form bamya:a:t.
phonotactics or the phonetic tactics could insure that
one of a sequence of two long vowels is realized. A
nd choice for the solution of this problem is to con-
ct the phonotactics in such a manner as to have all

aterial after the last consonant able to be interdigitated
ith a preemptive vowel truncated (i.e., realized as ∅).
n this case the a? of ba+m∅+ya? would be truncated yielding
ith the addition of the sound plural suffix a:t the correct
orm bamyaat. The second solution seems to be the more
eneral case, i.e., it seems to account for more data.
or example bantalawn 'trousers' pl: banaatiir. The awn
ere seems to have been truncated.

⑥ The item here rahØha? (rahhaaya 'grinder') is
robably derived but it is the only feminine example avail-
ble for this plural subclass.

3.1.2 Square Plurals

3.1.2.1 FvMaaM1(1)L-type

The semantically based plurals defined by the gnoston /square/ are four in number: FMaaLiin, FiMaL, FMaaM11L and FaMaaM11L. The last two are also defined by the gnoston /round/ and were discussed above. Actually there are nare items in all of the FvMaaM11L plurals. Figure 28 shows y the component ^{GN}/square/ is interrelated with the MaaM1(1)L plural system.

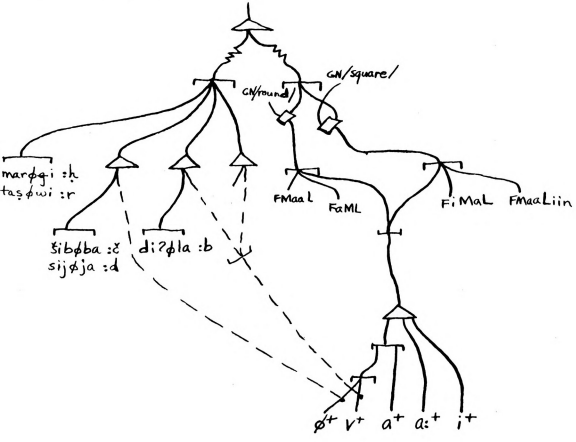

Figure 28
'MaaM1(1)L Plurals (Semantically-based) Square

4.3.1.2.2 FMaaLiin-type

The square plural FMaaLiin is morphologically similar to the FMaaL round plurals and thus must be integrated with them. Figure 29 details this integration.

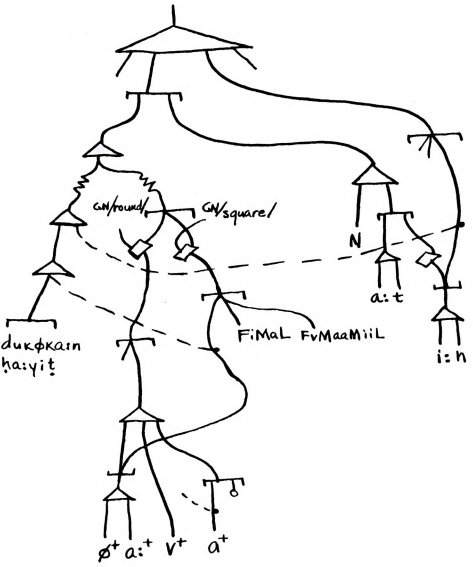

Figure 29
FMaaLiin Plural (Semantically-based) Square

The noun dukkaan 'shop' pl: dkaakiin is subject to a dual interpretation. It may be analyzed as belonging to the plural class FMaaMiiL or to the class FMaaLiin. If the second analysis is correct than dukkaan provides another example of truncation of final singular material.

The noun haayit 'wall' pl: hyaatiin also presents an interpretation problem. Normally one would assign it an underlying shape of ha?øyit. In that case the plural should be hwaayiin. To obtain the correct plural (hyaatiin) one must analyze the underlying form as ha:yit.

These nouns form a separate class and enable the ø⁺a:⁺ plural (related to the round plurals) to be simultaneously realized with the noun stem which is obligatorily followed by the sound masculine plural -iin.

For example: $\begin{pmatrix} \text{ha:yit} \\ \text{ø}^{+}\text{a:}^{+} \end{pmatrix}$ i:n is realized as hø⁺ya:⁺ti:n or hyaatiin.

4.3.1.2.3 FiMaL-type

The last plural class characterized by the component -N/square/ is FiMaL. This particular morphological shape has not been introduced yet. Figure 30 shows this plural. The plural of dačøč (dačča 'ledge'), for example, is dičač. As usual the -a feminine ending of the singular is not realized in the environment of plural. All of these nouns have similar phonological shapes and they are all feminine.

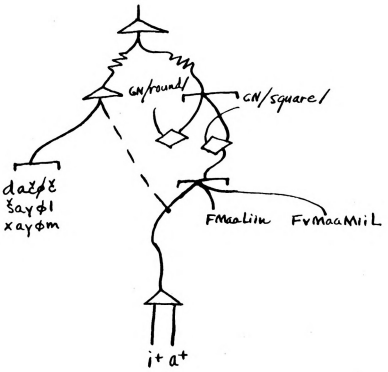

Figure 30
FiMaL Plural (Semantically-based) Square

4.3.1.3 Paired Body Parts Plurals

The next semantic class to be considered is that of [paired body parts]. There are only two morphological classes so related: FMaaLaat and FVMaaLaat where V = (i∼u). The only problem is with the plural of ?ubut 'armpit'. The singular is predictable. Its underlying phonemic shape is ?Vbt. V would then be correctly provided as u in the phonemic alternation pattern, and would also be copied by the phonetic tactics to prevent dissimilar

consonants from surfacing contiguously. However, the underlying phonemic shape of the plural is ?V^{+}ba:$^{+}$ṭa:t. V would then be incorrectly predicted to be i since the emphatic (ṭ) is not in the immediate environment. I can see no way at the present time to resolve this conflict without assigning the surface vowel to the underlying singular forms and have the plural use that vowel as its first vowel. It seems that such an analysis would lose much in generality.

4.3.1.3.1 FvMaaLaat-type

Figure 31 details a context sensitive solution to the [paired body parts] plurals. It captures the generalization that both plurals share the constituents a:$^{+}$ and a:t, and differ only with respect to their initial preemptive vowels. On the other hand, it misses the generalization that one of these plurals is related in shape to the FMaaL ([round]) plurals.

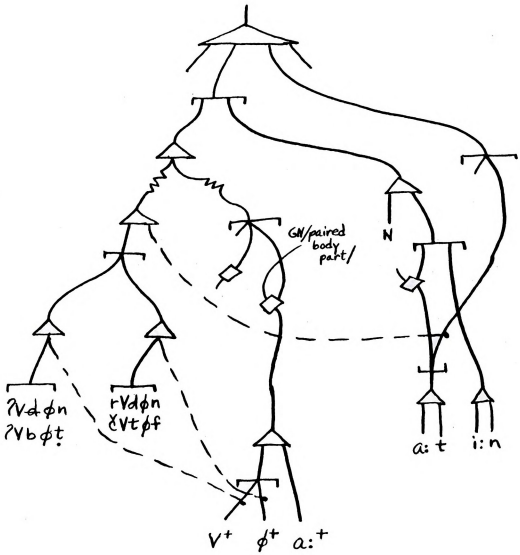

Figure 31

FMaaLaat and FVMaaLaat Plurals
(Semantically-based) Paired Body Parts

Figure 32 details another context-sensitive solution which captures the generalization the first solution failed to capture but misses the generalization the first solution made (i.e., that both paired body parts plurals share a:t). The final judge is the simplicity measure which prefers the first solution.

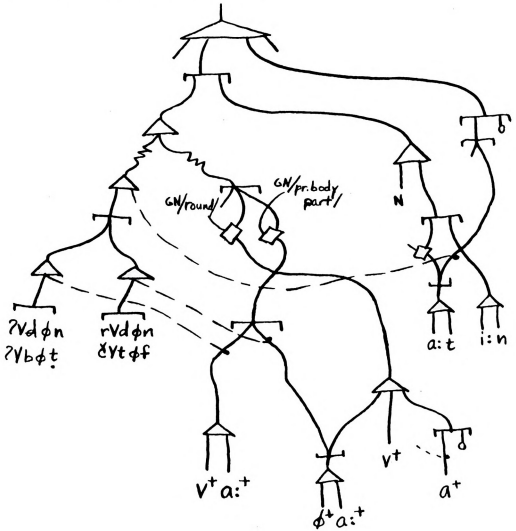

Figure 32
Alternate Diagram to Figure 31

4.3.1.4 Abstract Plurals

The next semantic class described is [abstract]. There are four morphological shapes associated with this class: FaMaaLL, FaMaLaat, ?aFMaaL and FVMuuL.

4.3.1.4.1 FaMaaLL-type

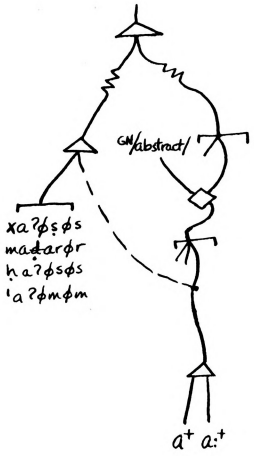

Figure 33
FaMaaLL Plural (Semantically-based) Abstract

As an example take the item 'a?ØmØm ('aammi 'common man'). The plural is $\left(\frac{\text{'a?ØmØm}}{\text{a}^{+}\text{a:}^{+}\text{Ø}^{+}}\right)$. The -i (nisba suffix[3]) is not realized, because in the environment of plural the speaker does not generate the nisba suffix for this item. It is a determined constituent of the singular form, however. This is a different -i than that encountered in the FMaaLi plurals. Actually this ('aammi) is the same surface form used for 'my (paternal) uncle' (where the -i is a pronominal suffix). It is also used as a term of respect for any man. The phonotactics would interdigitate the preemptive vowels to yield the form 'a^{+}?a:$^{+}$mØ$^{+}$m. The phononic shape would be 'awa:mm.

4.3.1.4.2 FaMaLaat-type

Another [abstract] plural is FaMaLaat. Figure 34 describes this plural. The results are fairly straightforward and need no further explanation. The plural of xidØm (xidma 'a service') is xadamaat.

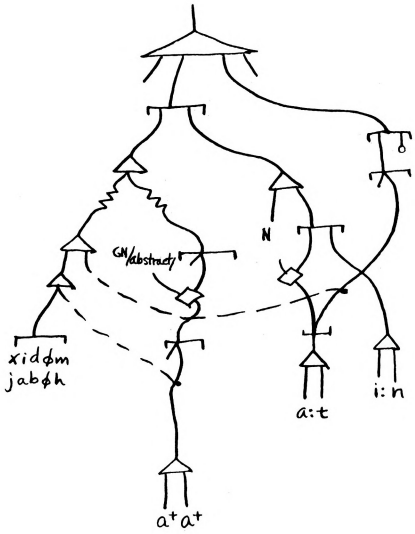

Figure 34
FaMaLaat Plural (Semantically-based) Abstract

4.3.1.4.3 ?aFMaaL-type

A third [abstract] plural is ?aFMaaL. It is described in Figure 35.

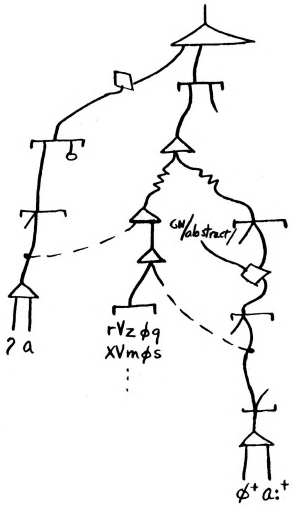

Figure 35
?aFMaaL Plural (Semantically-based) Abstract

This plural class enables a prefix ?a- to be realized followed by the simultaneous realization of the singular item and the relevant part ($\phi^{+}a{:}^{+}$) of the [round] plural pattern. The plural of rVzØq (rizIq 'livelihood'), for example, is $\begin{pmatrix} ?a\ rVzØq \\ \phi^{+}a{:}^{+} \end{pmatrix}$ or ?arzaaq.

4.3.1.4.4 FVMuuL-type

The last of the [abstract] plural is FVMuuL. This is described in Figure 36.

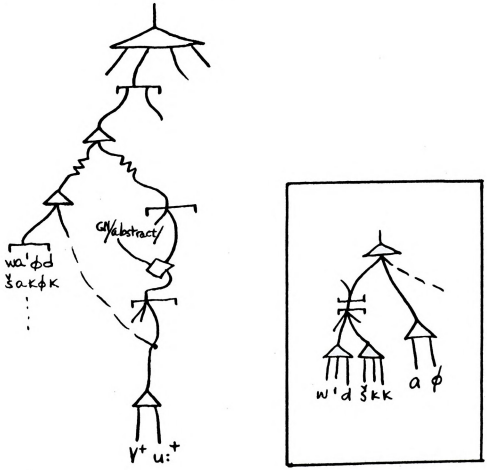

Figure 36
FVMuuL Plurals (Semantically-based) Abstract

Most abstract nouns belong to the derivational system, i.e., they have their singular vowel pattern specified separately and simultaneously by the derivational system of the morphology. For example, ǩakk 'doubt' is of the form

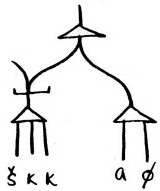

Figure 37
An Example of a Noun in the Derivational System

where the root ǩkk can be interdigitated with other vowel patterns to achieve verbal or adjectival stems, e.g., 'to doubt' and 'doubt', and aø is the vowel pattern for abstract nouns. Nouns like wa'ad 'promise' still have the vowel pattern aø.[4] However, whether one treats them as derivational or lexical (for simplicity of description) preempting and interdigitation still function in the same manner.

4.3.1.5 Weak Plurals

There are many [weak] plurals: FaMaLa, FuMuL, FiMiL, FuMuLaa?, FuMaLaa?, FiMLaan, FaMaaLi, FaMiiL, FaMaaMiiL, FiMMaL, FuMMaL, and FMaaMLa. These twelve classes can be generalized to eight stratificational morphemic signs, however. Some of them may be integrated with plurals we have encountered previously or will encounter on the following pages. Figure 38 describes the plural FaMaLa.

4.3.1.5.1 FaMaLa-type

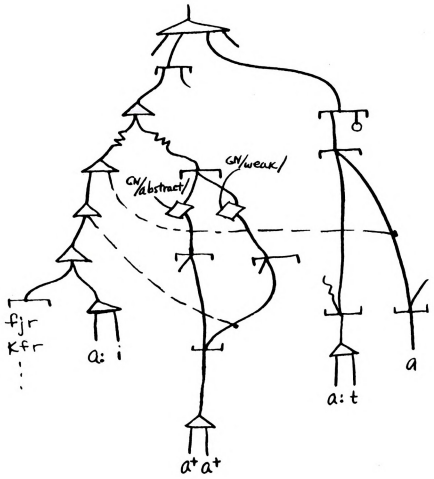

Figure 38
FaMaLa(at) Plurals (Semantically-based) Weak

The previous figure shows how the weak plural FaMaLa is integrated with the abstract plural FaMaLaat. The noun kaafir and the class it represents have a derivationally determined singular vowel pattern a:i. The plural of kfr (kaafir 'infidel') is $\left(\begin{array}{c}\text{kfr}\\ \text{a:i}\\ \hline a^{+}a^{+}\ a\end{array}\right)$. The same interdigitation and preemption as before takes place yielding the form kafara.

4.3.1.5.2 FvML-type

Figure 39 shows the generalization of three plurals FuMuL, FiMiL, and FiMLaan to one stratificational morphemic pattern: i,u ∅. Sometimes the i,u can be generalized to a phonologically predictable alternation, but not in this case.

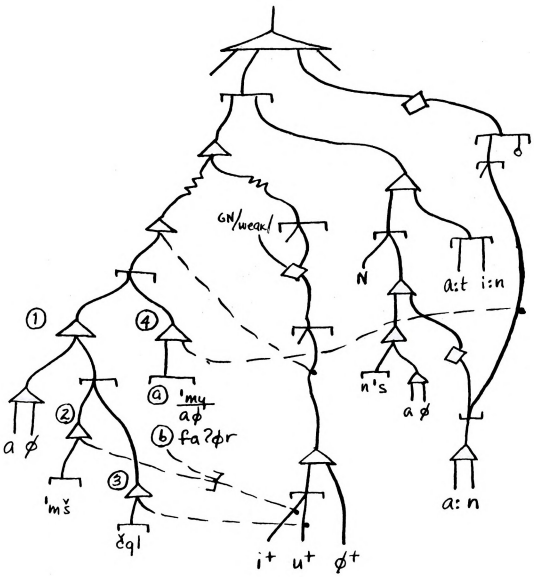

Figure 39
FvML Plurals (Semantically-based) Weak

① The nominals in this subclass take either the plural FiMiL or the plural FuMuL. Both plurals have a vØ pattern since the second vowel is inserted as a copy of the first just in case different consonants occur contiguously word finally.

② signifies a subclass under ① which enables the preemptive vowel u^+ to be realized. Both subclasses ② and ③ have a simultaneous vowel sequence aØ in the singular which is derivationally specified.

④ specifies the subclass which enables the FiMLaan plural pattern to be realized. The FiMLaan pattern has the same vowel sequence as the FiML pattern followed by a suffix a:n. This suffix has the same shape as the ending on certain adjectives represented by the item $\begin{pmatrix} n's \\ a\emptyset \end{pmatrix}$ a:n (na'saan 'sleepy').

The subclass ④ comprises items like ⓐ which are derivational $\begin{matrix} 'my \\ a\emptyset \end{matrix}$ ('amya 'blind'), (we are using the feminine derivational vowel pattern here; the masculine vowel sequence (Øa) bears an anatactic relationship to the feminine (aØ); the masculine form is preceded by an affix ?a-) as well as items like ⓑ fa?Ør (faar 'mouse') which are lexical in nature. (Notice that they both have the same vowel pattern, however.)

4.3.1.5.3 FuMvLaa?-type

Figure 40 generalizes two plural classes to one stratificational morphemic vowel pattern. The second vowel of FuMuLaa? and FuMaLaa? is phonologically predictable. If the middle and last radical provide the proper environment a u is selected, otherwise an a is selected. For example, the plural of haqi:r 'low, base' is huqura:? (V̈ is realized as u between q and r) and the plural of xabi:θ 'troublesome' is xubaθa:? (where V̈ is realized as a).

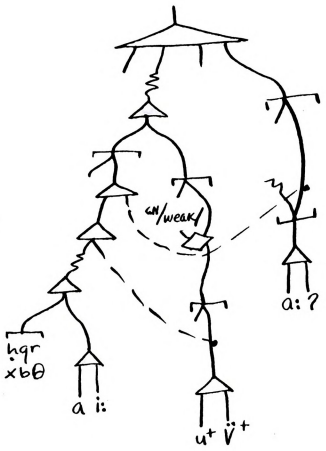

Figure 40
FuMvLaa? Plurals (Semantically-based) Weak

4.3.1.5.4 FaMaaLi-type

Even though it appears at first glance that the plural FaMaaLi fits neatly into the FaMaaMi(i)L plural group, it proves simpler to set up a separate class at this point and integrate it with plural classes encountered on the following pages, e.g., FaMaaLa, FaMaaL, FiMaaL, FiMaaLa, FuMaaLi; and the previously described FVMaaLaat.

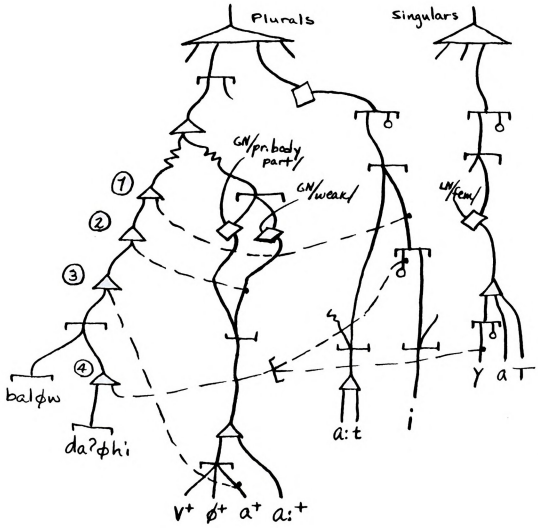

Figure 41
FaMaaLi Plural (Semantically-based) Weak

Figure 41 illustrates the integration of the FaMaaLi [weak] plural with the FVMaaLaat [paired body part] plural encountered previously.

① and ② define the FaMaaLi class as a whole with the general internal vowel sequence $\underline{y^{+}a{:}^{+}}$ and the suffix -$\underline{i}$.

③ signifies the subclass represented by $\underline{balØw}$ ($\underline{balwa}$ 'affliction'). This subclass enables the vowel $\underline{a^{+}}$ to be realized as the first vowel of the plural vowel sequence. The plural of $\underline{balwa}$ is $\begin{pmatrix} \underline{balØw} \\ a^{+}a{:}^{+} \end{pmatrix}_{i}$ or $\underline{balaawi}$.

④ signifies the subclass represented by $\underline{da?Øhi}$ ($\underline{daahiya}$ 'disaster'). This subclass presents a small problem. In order to capture the generalization that the $\underline{i}$ is preserved in the plural, it is necessary to have this subclass not allow the suffix -$\underline{i}$ to be realized. The singular is $\underline{da?Øhiya}$ where $\underline{y}$ is permitted to be realized. The plural is $\begin{pmatrix} \underline{da?Øhi} \\ a^{+}a{:}^{+} \end{pmatrix}_{Ø}$ or $\underline{dawaahi}$.

4.3.1.5.5 FVMMaL-type

The next [weak] plural we will discuss is the FiMMal ~ FuMMaL plural. It is described in Figure 42.

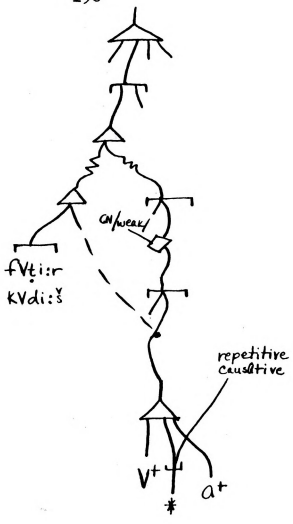

Figure 42
FVMMaL Plurals (Semantically-based) Weak

This is a rather unusual plural class in that it employs not only simulfixed vowels but also reduplication of the middle radical. This phenomenon of reduplication is common in derivation as a realization of causation and repetition.

The morphon $^{MN}/*/$ is realized as a construction choice in the phonology. Figure 43 describes this phenomenon.

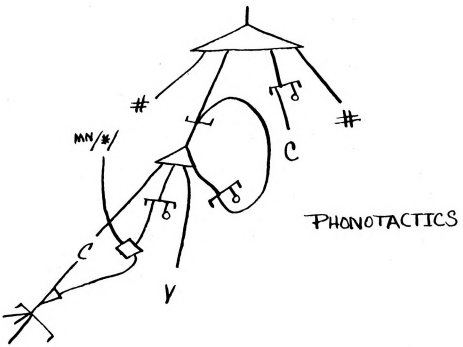

Figure 43
The Phonotactic Realization of the Morphon $^{MN}/*/$

If the morphology has generated the morphon $^{MN}/*/$ then the immediately preceding consonant, repetitively reduplicated, is allowed to be realized. For example, if we take the plural of fVti:r (futiir 'foolish'), $\left(\frac{fVti:r}{V^{+}*a^{+}}\right)$, we get $fV^{+}t*a^{+}r$. The ultimate form is,

CV CCV C

of course, futtar.

4.3.1.5.6 FMaaMLa-type

Another [weak] plural is FMaaMLa. It is described in Figure 44.

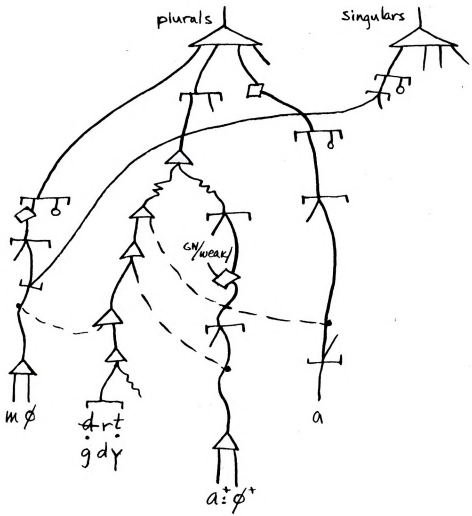

Figure 44
FMaaMLa Plural (Semantically-based) Weak

The subclass of nominals enabling this plural to be realized also enables the realization of a prefix mØ (m-) which is present in both the singular and plural forms. The plural vowel pattern is a:Ø plus a suffix -a. The plural of mgaddi (the reduplication in the singular forms has not been detailed) is $\begin{pmatrix} mØ & gdy & a \\ & a:Ø & \end{pmatrix}$ (mgaadya).

4.3.1.5.7 FaMiiL-type

FaMiiL is yet another [weak] plural class. It is described in Figure 45. The plural of hmaar 'donkey' is hamiir.

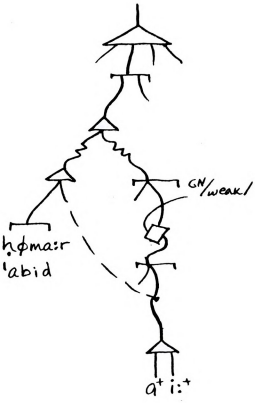

Figure 45
FaMiiL Plural (Semantically-based) Weak

4.3.1.5.8 FaMaaMiiL-type

The last of the [weak] plurals is FaMaaMiiL. We have encountered this plural previously. Figure 46 shows the integration of the [weak] with the [round] and [square] plurals of the same morphological shape. The plural of 'asø'u:s ('as'uus 'coccyx') is 'asaa'iis.

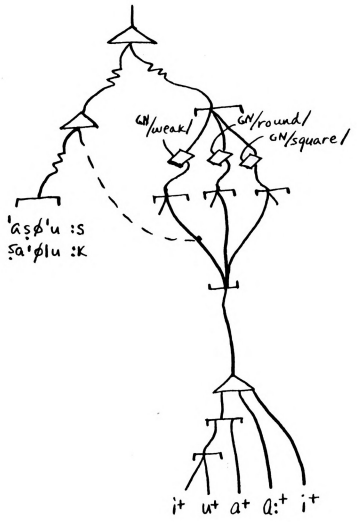

Figure 46
FaMaaMiiL Plural (Semantically-based) Weak

4.3.1.6 Color Plurals

The next semantically defined group of plurals is [color]. There are two color plurals, FuMuL and FiMiL but they have already been described under [weak] and [round].

4.3.1.6.1 FvML-type

Figure 47 describes the integration of [color] with those plurals of [weak] and [round] taking the same morphological shape.

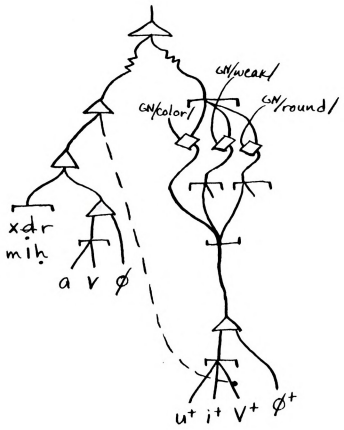

Figure 47
FvML Plurals (Semantically-based) Color

While the weak and round alternants were not phonologically predictable, the color plural alternant, with one exception, is, so the color S-class enables the $\underline{V^+}$ to be realized. The plural of xaḍra 'green f.' is xuḍur while the plural of malha 'grey f.' is milih. The epenthetic copy vowel is predictably inserted in case two different consonants occur finally.

4.3.1.7 Strong Plurals

The strong class contains very many plural shapes: FuMaLaa?, FuMuLaa?, FiMaaL, ?aFMiLaa?, FuMuuL, FuMuuLaat, FiMuuL, FaMaaMiL, FaMaaMiLa, FaMaaMiiL, and FaMaaMuL. These thirteen classes can be analyzed as five stratificational morphemic classes.

4.3.1.7.1 FuMvLaa?-type

The first of these is FuMvLaa? described in Figure 48. This is the same plural as previously described under weak plurals. The plural of hakiim 'wise' is hukumaa? while that of najiib 'noble' is nujabaa?.

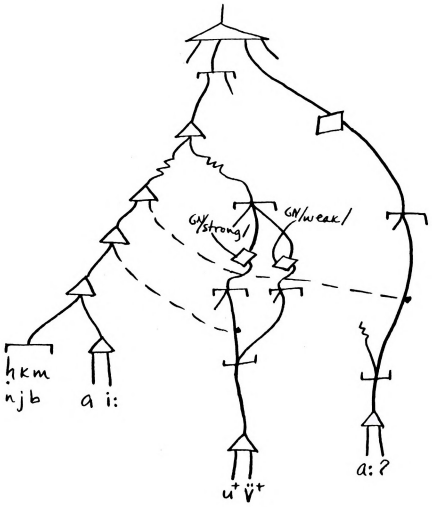

Figure 48
FuMvLaa? Plurals (Semantically-based) Strong

4.3.1.7.2 FVMaaL-type

There are three plural classes subsumed under this general morphemic shape: FiMaaL, FiMaaLa and FuMaaLi. Figure 49 describes these plurals. Each class shares the same simulfix vowel sequence Vaː. They differ only

with respect to their suffixes. The plural of **mVyØy** (**miyya** 'hundred'), for example, is **mVya:yi** (**miyaayi**).

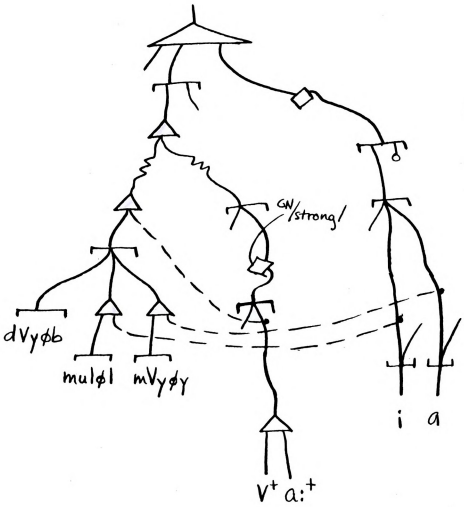

Figure 49
FVMaaL Plurals (Semantically-based) Strong

4.3.1.7.3 ?aFMiLaa?-type

The next [strong] plural is ?aFMiLaa?. Figure 50 describes it.

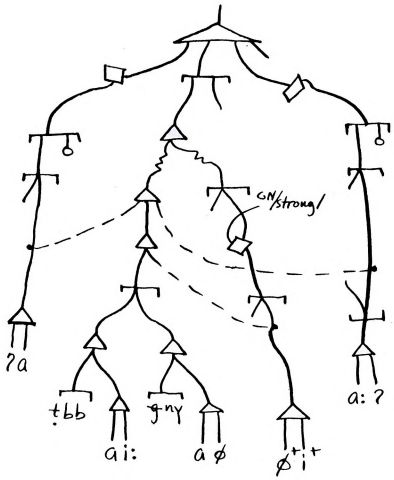

Figure 50
?aFMiLaa? Plural (Semantically-based) Strong

Both nouns with the derivational vowel sequence aø and those with sequence ai: are found in this plural class. The plural of tbb (tabiib 'doctor') is ?atbibaa?.
ai:

4.3.1.7.4 FVMuuL-type

The fourth type of [strong] plural is FVMuuL. The morphological shapes related under this class are FiMuuL, FuMuuL and FuMuuLaat. The first vowel is the phonologically predictable i∿u alternation characterized by V^+. This plural is described in Figure 51.

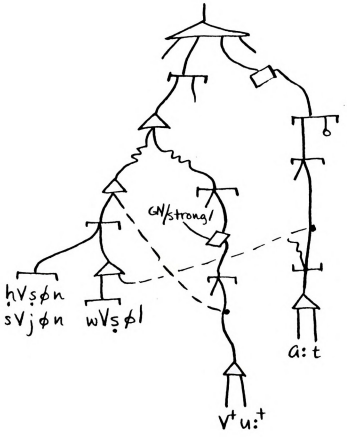

Figure 51
FVMuuL Plurals (Semantically-based) Strong

The plural of hVsØn (husin 'fort') is hV^{+}su:$^{+}$n (husuun) while that of sVjØn (sijin 'prison') is sV^{+}ju:$^{+}$n (sijuun). The vowel insertion for the singular presents a problem. The two most frequent inserted vowels are the usual copy of the first vowel and a non-alternating i. Sometimes, however, one finds a u in the proper environment. In order to obtain the correct results while maintaining the epenthesis generalization, the phonetic tactics will have to be rendered more complex.

4.3.1.7.5 FaMaaMVL-type

The last set of [strong] plurals contains the morphological shapes: FaMaaMiL, FaMaaMiLa, FaMaaMuL and FaMaaMiiL. These plurals are described in Figure 52.

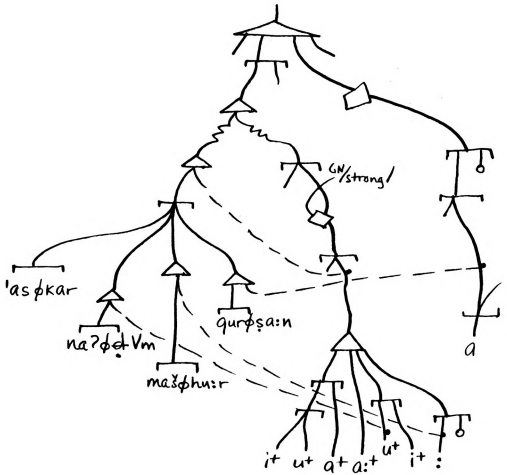

Figure 52
FaMaaMVL Plurals (Semantically-based) Strong

While all the members of the FaMaaMuL plural class provide the correct environment for the choice of $\underline{u^+}$ as the final vowel of the plural vowel sequence, this vowel cannot be $\underline{V^+}$ since many of the items taking the FaMaaMiL plural also provide the correct environment.

Thus the i^{+}-u^{+} dichotomy was set up. The plural of na?ØdVm (naaḍum 'dam') is nawaaḍum; of 'asØkar ('askar 'army') 'asaakir; of qVrØsa:n (qursaan 'pirate') qaraasina; of masØhu:r (mashuur 'celebrity') masaahiir.

4.3.1.8 Agent Plurals

There are six [agent] plural classes: FuMMaaL, FiMMaaL, FuMaat, FuMaLaa?, FaMaaMiLa and FMaaMiiL. Since the FuMMaaL and FiMMaaL plurals are phonologically predictable alternants, there are actually only five different morphological shapes represented.

4.3.1.8.1 FVMMaaL-type

Figure 53 describes this plural. The plural of w'iḍ a:i (waa'iḍ 'preacher') is wu''aaḍ while that of syh a:i (saayih 'traveler') is siyyaah. The morphon $^{MN}/*/$ enables the C_r (reduplicated consonant) construction to be realized in the phonology. (See Figure 43, p. 197.)

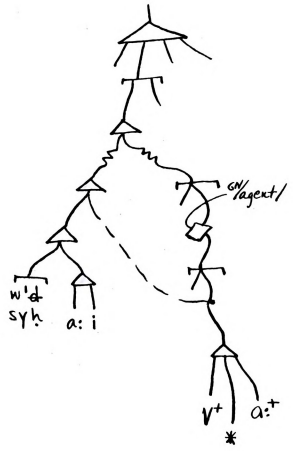

Figure 53
FVMMaaL Plurals (Semantically-based) Agent

4.3.1.8.2 FuMaat-type

The FuMaat plural is another [agent] plural. The roots belonging to this class are biconsonantal.[5] The singular items all have a determined -i suffix, while the plural has a determined -aat suffix. The description is given in Figure 54.

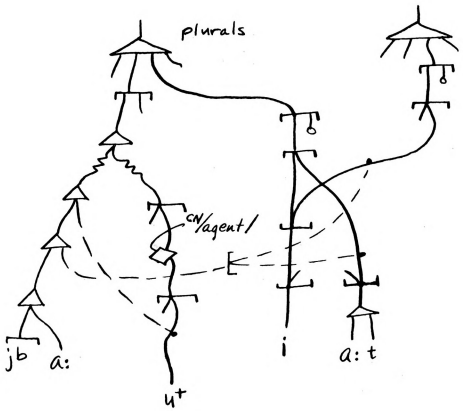

Figure 54
FuMaat Plural (Semantically-based) Agent

The plural of ja:bi (jaabi 'collector') is jubaat.

4.3.1.8.3 FuMaLaa?-type

This plural is defined also by the gnostons ^{GN}/strong/ and ^{GN}/weak/. Figure 55 shows the integration.

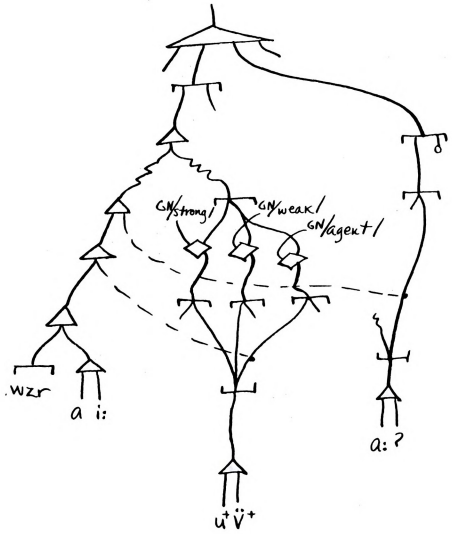

Figure 55
FuMaLaa? Plural (Semantically-based) Agent

The plural of **wazi:r** (**waziir** 'minister') is **wuzaraa?**.

4.3.1.8.4 **FaMaaMiLa-type**

It is evident that this plural can be integrated with the FaMaaMVL strong plurals and also with the FaMaaL-

type plurals. (We have only discussed the FaMaaLi weak plurals in this category). Figure 56 details this integration.

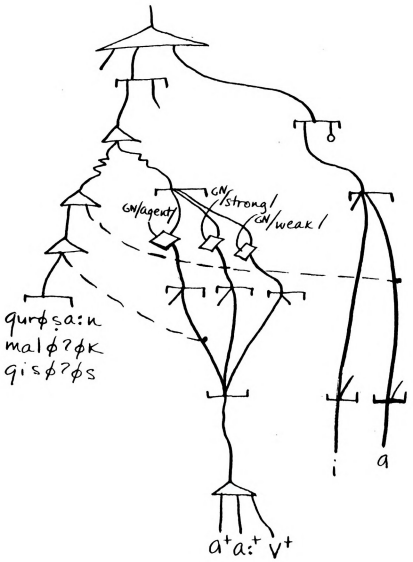

Figure 56
FaMaaMiLa Plural (Semantically-based) Agent

The plural of qurØsa:n (qursaan 'pirate') is qaraasina. The glottal stop in mal?k 'angel' and qis?s 'clergyman' is peculiar. It is needed in order to insure the realization of V^{+} (i) in the plural forms (cf. malaa?ika and qasaawisa) but where one predicts a y realization, a ? and w appear. In the singular the realization is neutralized with Ø and the phonetic tactics produces the correct results by inserting the epenthetic copy vowel for malak and by not inserting anything where the final consonants are the same (cf. qiss).

4.3.1.8.5 FMaaMiiL-type

This plural, the last of the [agent] plurals, is also characterized by [square], [round], and [instrument]. It has previously been integrated under 4.3.1.2.1. Here another diagram is unnecessary since the only addition to the diagram cited above would be a class of items including muxØta:r (muxtaar 'mukhtar') and ra?Øgu:s (raaguus 'dancer') enabling the $Ø^{+}$ as the first preemptive vowel. This class is a subclass of those items enabling length (:) to be realized.

4.3.1.9 Instrument Plurals

The instrument plurals are three in number: FaMaaMiL, FMaaMiiL and ?aFMiLa. The first two have already been discussed in some detail under 4.3.1.7 and 4.3.1.8.

4.3.1.9.1 FaMaaMiL-type

The FaMaaMiL-type includes such items as xanØjar (xanjar 'dagger') and sarØbas (sarbas 'reel').

4.3.1.9.2 FMaaMiiL-type

The FMaaMiiL-type includes such items as minØga:s (mingaas 'tweezers') and manØku:k (mankuuk 'bobbin'). Note that length is predictably preserved in the final vowel of the plural.

4.3.1.9.3 ?aFMiLa-type

The ?aFMiLa plural is diagrammed in Figure 57. It is integrated with the ?aFMiLaa? strong plural. The plural of jØna:h (jnaah 'wing') is ?ajniha.

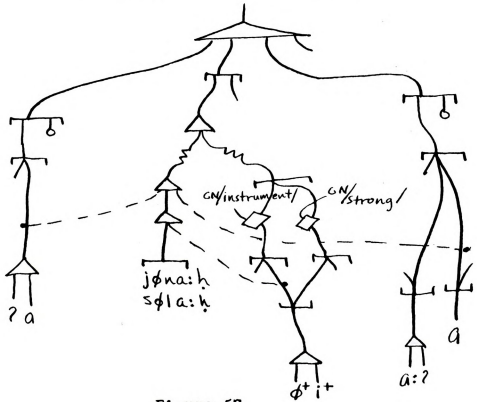

Figure 57
?aFMiLa Plural (Semantically-based) Instrument

4.3.1.10 Location Plurals

The two location plurals are FaMaaLi and FaMaaMiL both of which have been discussed with respect to other plural classes. They are detailed below.

4.3.1.10.1 FaMaaLi-type

Both FaMaaLi and FaMaaMiL can be integrated using the same technique as was used with the FMaaL-type round plurals. Figure 58 details the integration.

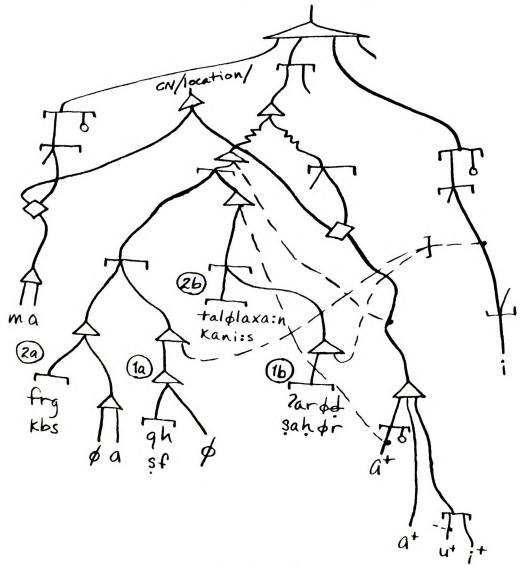

Figure 58
FaMaaLi Plurals (Semantically-based) Location

The a and b forms appear on the surface as the same plural shape.

The gnoston ^{GN}/location/ enables both the ma- prefix, and the particular plural class to be realized. (ma- does not occur with all location items, however.) Bi- (with ma-) and tri-consonantal surface forms take the FaMaaLi plural (a subtype of FaMaaMiL) while tri- (with ma-) and quadri-consonantal surface forms take the FaMaaMiL plural. It seems that perhaps the general "locative" singular pattern was Ø a making the biconsonantal stems (i.e., underlying triconsonantal with final weak radical) appear to have a feminine suffix, and the general plural pattern was a i i making the biconsonantal stems appear to have the suffix -i. The ma- locative prefix was constant.

While it would be simpler if one were analyzing only this one plural to treat it as described above, it proves simpler when viewing the total plural system to integrate this plural with previous analyses, such as FaMaaMuL, FMaaMiL, etc.

4.3.1.11 Male Plurals

There are four [male] plurals: FuMLaan, FuMLa, FMuuLa and FiMaaMiiL. The morphological shape of the first three has not previously been discussed. The first two (FuMLaan and FuMLa) are morphologically related. All of these plurals are discussed below.

4.3.1.11.1 FuML-type

This type comprises two plurals FuMLaan and FuMLa. They are described in Figure 59.

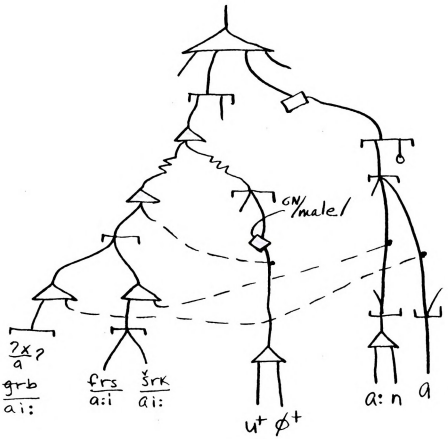

Figure 59
FuML Plurals (Semantically-based) Male

The class of items enabling the FuMLaan plural to be realized is represented by frs (faaris 'knight'). Its plural is fursaan. An example of the items representing the FuMLa plural is $\left(\frac{?x}{a}\ ?\right)$ (?ax 'brother'). The glottal stop is realized as ∅ in the singular in the environment C___# and as w in the plural in the environment before the -a suffix. The plural is ?uxwa.

4.3.1.11.2 FMuuLa-type

This male plural type is morphologically related to one of the female types and will be integrated under 4.3.1.12.2. Figure 60 describes this plural.

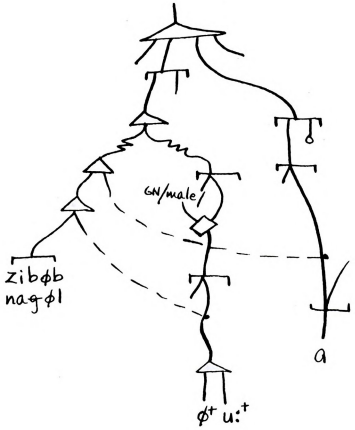

Figure 60
FMuuLa Plural (Semantically-based) Male

This plural is enabled to be realized by singular items of the general form FvMØL, e.g., zibØb (zibb 'penis') and nasØl (nasal 'bastard'). The expected epenthetic insertion occurs when the final consonants are not the same. The plural of zibØb is zbuuba.

4.3.1.11.3 FiMaaMiiL-type

This plural class has been described previously under the round plurals (cf. 4.3.1.1.2). Figure 61 details the integration of the male variant. The plural of j?rn (jiiØra:n:jiiraan 'neighbor') is jiyaariin.
iØa:

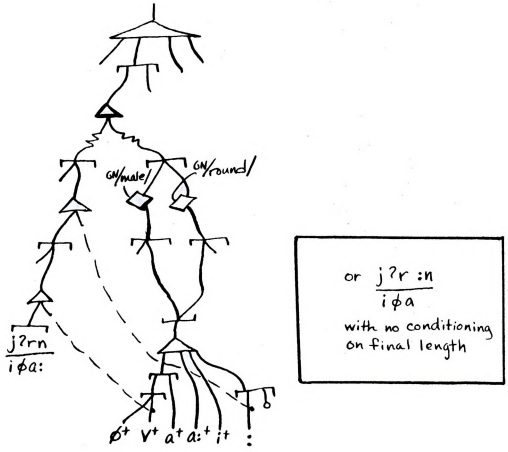

Figure 61
FiMaaMiiL Plural (Semantically-based) Male

4.3.1.12 Female Plurals

There is only one [female] plural: FMuuL. It can be integrated with one of the [male] plurals (FMuuLa) which is morphologically similar. Figure 62 shows the integration.

4.3.1.12.1 FMuuL-type

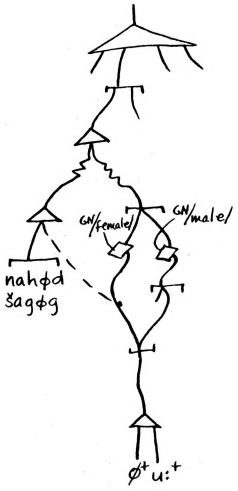

Figure 62
FMuuL Plural (Semantically-based) Female

This Ø poses the same problem as encountered before. Sometimes the phonetic tactics inserts the expected copy of the first vowel in the correct environment; sometimes a non-alternating i and sometimes V whose alternants are i~u. The plural of nahØd (nahad 'female breast') is nhuud.

4.3.1.13 Plant Plurals

There are two [plant] plurals: FVMaaLaat and FMuuL, both of which can be integrated with previously encountered plurals, e.g., FMaaLaat and FMuuLa.

4.3.1.13.1 FVMaaLaat-type

The FVMaaLaat-type is described in Figure 63. The plural of nabØt (nabta 'plant') is nabaataat.

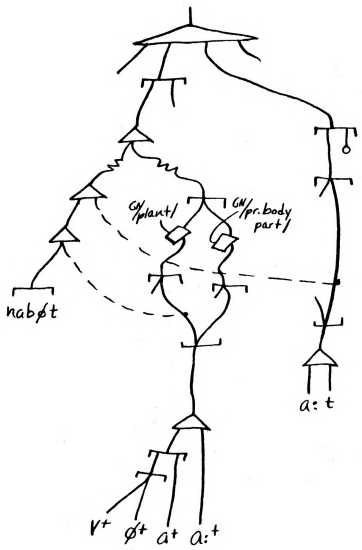

Figure 63
FVMaaLaat Plural (Semantically-based) Plant

4.3.1.13.2 FMuuL-type

The second of the [plant] plurals and the final semantically based plural is FMuuL. It is the same morphological shape as the female plural. Figure 64

shows the integration. The plural of hirøs (hiris 'plant') is hruus.

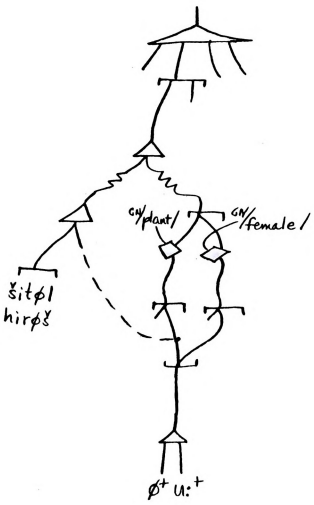

Figure 64
FMuuL Plural (Semantically-based) Plant

The plurals not discussed were either of an undetermined common semantic characteristic or did not comprise a major semantic class. These plurals would be integrated

and diagrammed in the same manner as the plurals presented herein in a fuller treatment.

4.3.1.14 Semantically-based Plurals -- Integrated

This diagram describes not only an integration of all the semantically based plurals detailed above, but also the phenomenon of multiple plural association. That is, some items will be members of more than one class. Figures 65 - 75 present the overall morphological description of semantically based broken plurals in Iraqi Arabic. Due to the size and complexity of the overall diagram, it had to be presented in sections. End points (or terminals) of one diagram can be matched with beginning points on succeeding diagrams.

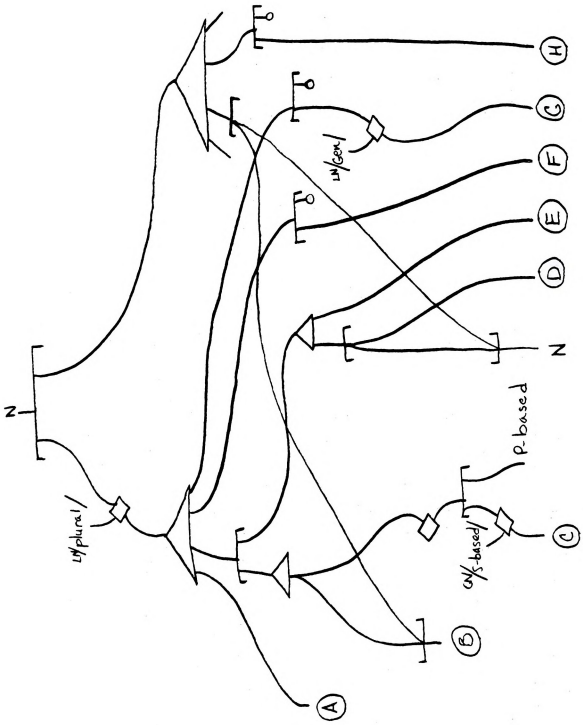

Figure 65
S-based Plurals Integrated

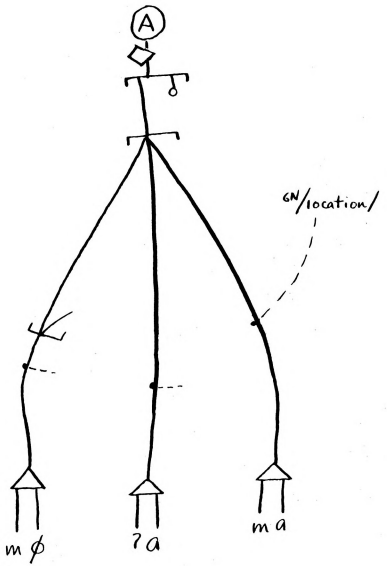

Figure 66
Prefixes

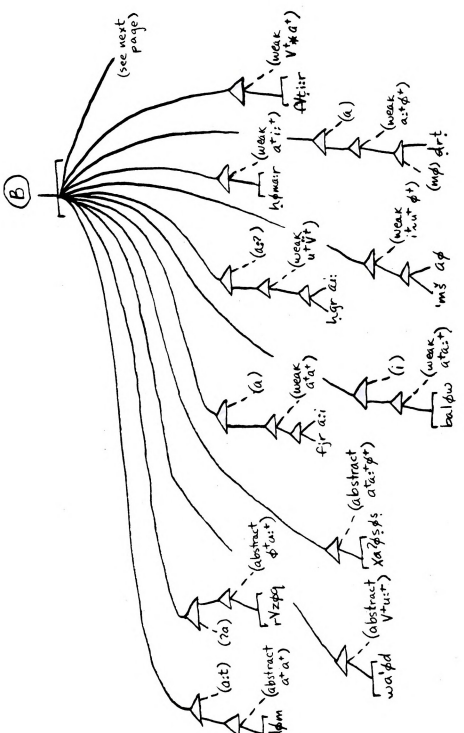

Figure 67
Morphotactic Classes of Singulars (a)

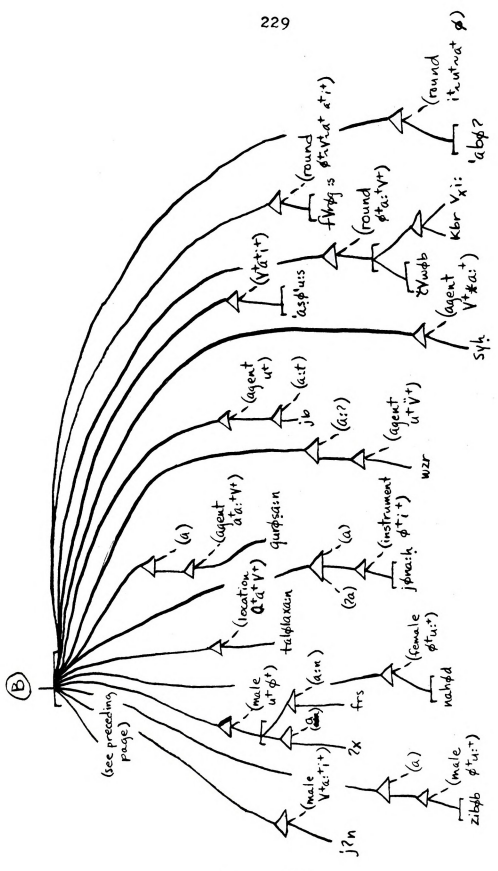

Figure 68
Morphotactic Classes of Singulars (b)

Figure 68a
Morphotactic Classes of Singulars (c)

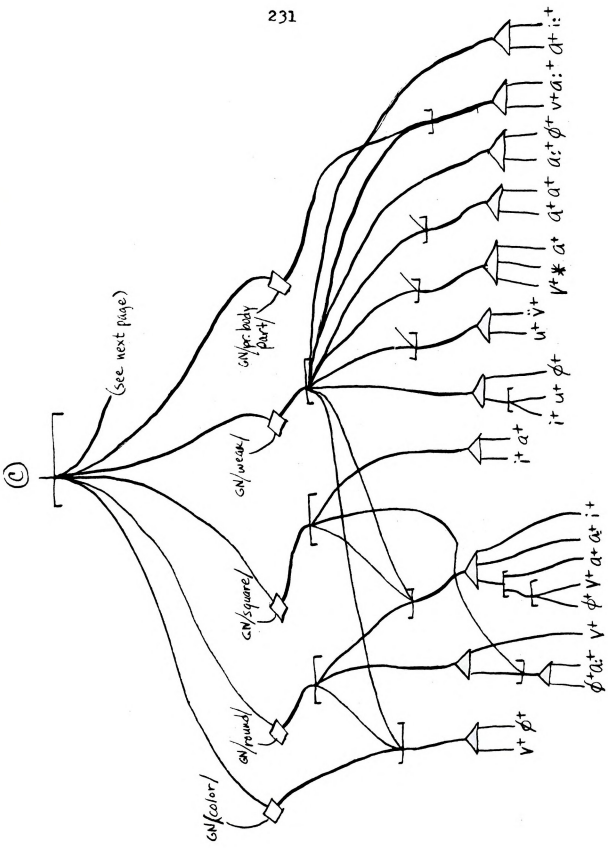

Figure 69
Corresponding Plural Classes (a)

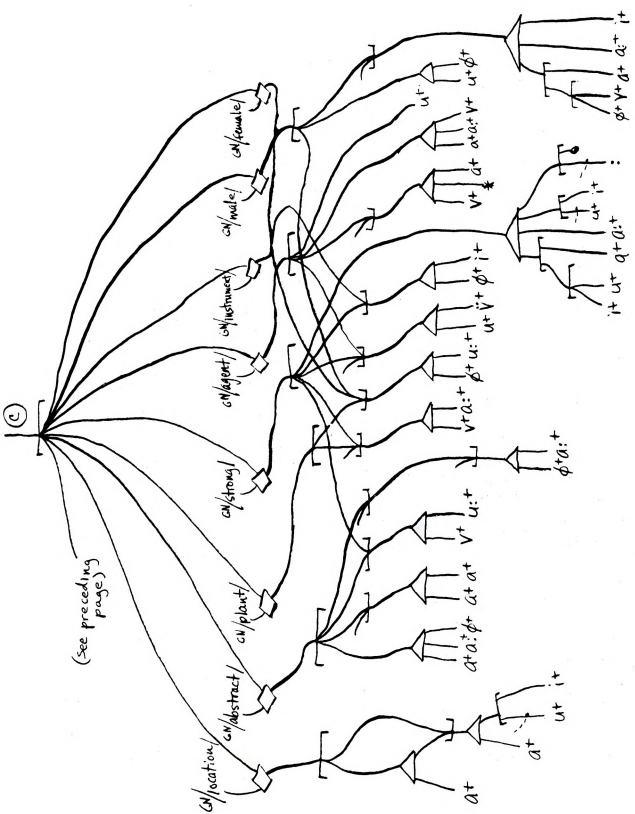

Figure 70
Corresponding Plural Classes (b)

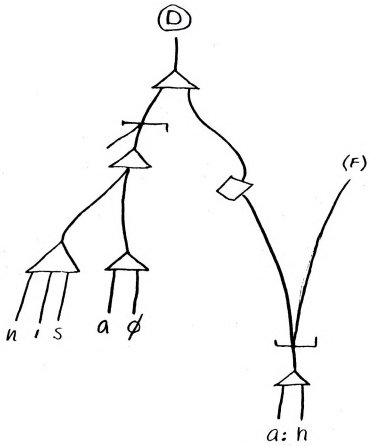

Figure 71
Adjectives

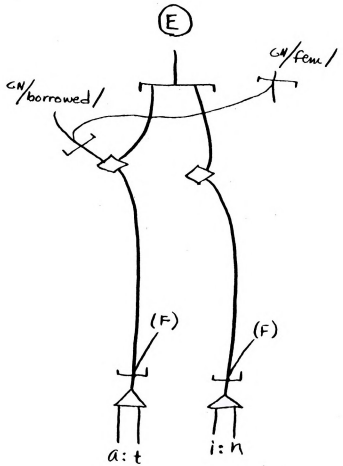

Figure 72
Major Sound Plurals

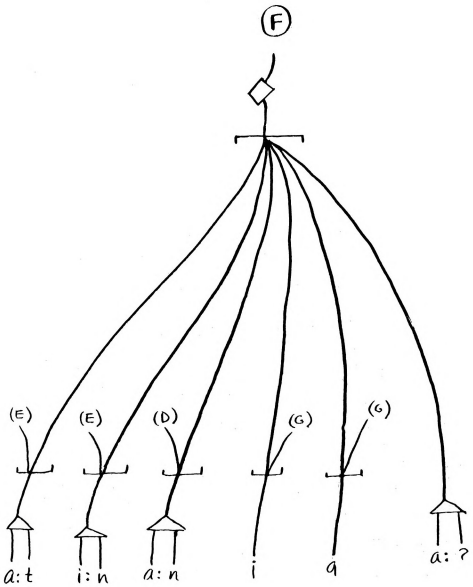

Figure 73
Suffixes

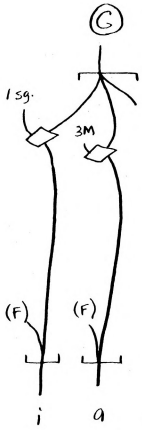

Figure 74
Pronominal Suffixes

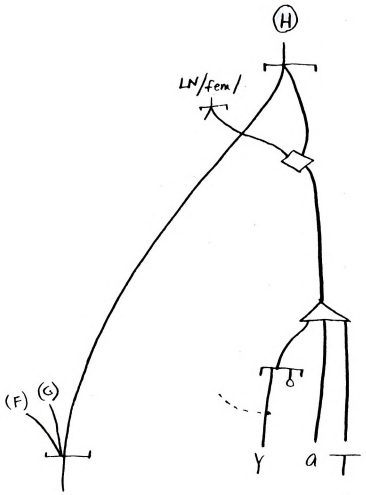

Figure 75
Feminine Suffix

4.3.2 Phonologically-based Plurals

In almost every plural class there are items which do not possess the semantic characteristic common to the majority of the members. They appear rather to have been assigned on the basis of phonological shape. This section details such items grouping them in order that predictions might be made based on the canonical form of the singular.

Singular		Plurals	Frequency
FvMMvL		FaMaaMiL	126
		FMaaMiL	9
		FaMaaMiiL	3
		FaMaaMuL	3
		FMaaMiiL	1
		FvMaaMiiL	1
FvML	(fem)	FvMaL	153
	(masc)	?aFMaaL	95
		FMuuL	29
		FMaaL	19
		FaMaaLi	25
		FMaaLa	12
		FuMuL	12
		FMaaLi	12
		FuMuuL	8
		FiMLaan	4
		FiMiL	4
		FaMaaLi	4
		?aFMiLa	3
		FMuuLa	3
		?aFMuL	3
		FaMaaMiL	3

(i.e., number of items in the data associated with each plural)

Singular	Plurals	Frequency
FvML, cont'd	FiMaaL	3
	FiMuuL	2
	?aFMiLaa?	2
	FiMLaat	2
	FMaaMiL	1
	FiMi	1
	FuMaaLi	1
FvMvvL		
(i.e., vv=v?)	FaMaaMiL	42
	?aFMiLa	8
	FuMuL	7
	?aFiMLa	4
(i.e., vv=v?)	FiMaaMiL	4
	FiMLaan	3
	FuMuLaa?	2
	?aFMaaL	2
(i.e., vv=v?)	FuMaaMiL	2
(i.e., vv=v?)	FMaaMiL	2
	?aFMiLaa?	1
	FaMaLa	1
	FuMLaan	1
	FiMLaat	1
	FMaaLa	1
FaMvL	?aFMaaL	12
	FMuuL	8
	FaMaaLa	5
	FuMuuL	4
	FMaaL	4
	FuMuuLaat	1
	?aFMuL	1
	FiMuuL	1

Singular	Plurals	Frequency
FvMaL	?aFMaaL	4
	F1MaaL	1
	FMaaLa	1
FvvMvL		
(i.e., vv=v?)	FMaaM1L	4
	FaMaLa	2
	F1MLaan	1
(i.e., vv=v?)	FaMaaM11L	1
	?aFMaaL	1
FvMMvvL	FaMaaM11L	22
	FMaaM11L	16
	F1MaaM11L	5
	FaMaaM1L	5
	FMaaMLa	3
	FuMaaM11L	2
	FaMaaLa	2
	FaMaaL1	1
(i.e., last C omitted)	FMaaLa	1
FMvvL		
(i.e., vv=v?)	FMaaM1L	7
	FuMuL	3
	FuMLaan	3
(i.e., vv=v?)	F1MaaM1L	2
	F1MLaan	2
FMvMM1L	FMaaMLa	1
	FMaaL	1
FvvML (i.e., vv=v?)	FaMaaM1L	2

The above facts would be integrated into the broken plurals in the following manner. The less frequent of the plurals for a particular singular phonological shape will be the marked preemptive pattern, enabled to be realized by the few items comprising each class which takes a particular marked plural. The most frequently occurring (i.e., the expected) plural for a particular phonological shape will be the unmarked plural for that phonological shape. Figures 76-78 detail the phonologically-based plurals.

4.3.2.1 Plurals of the Phonological Shape FvMMvL

4.3.2.1.1 FaMaaMiL and FaMaaMiiL-types

What Figure 76 details is the unmarked nature of the plural FaMaaMiL, thus explaining its relatively frequent occurrence as the plural for the singular shape FvMMvL. The choice of $\underline{\emptyset^+}$ or $\underline{V^+}$ as the first preemptive vowel in this series is more marked than the choice of $\underline{a^+}$. The final vowel is either the marked choice $\underline{u^+}$ or the unmarked $\underline{i^+}$ with "long" $\underline{i}$ being more marked than "short" $\underline{i}$. If one takes the least marked path of the plurals for the singulars of the shape FvMMvL (10) the resultant plural is FaMaaMiL. For example, the plural of laglag 'stork' is lagaalig.

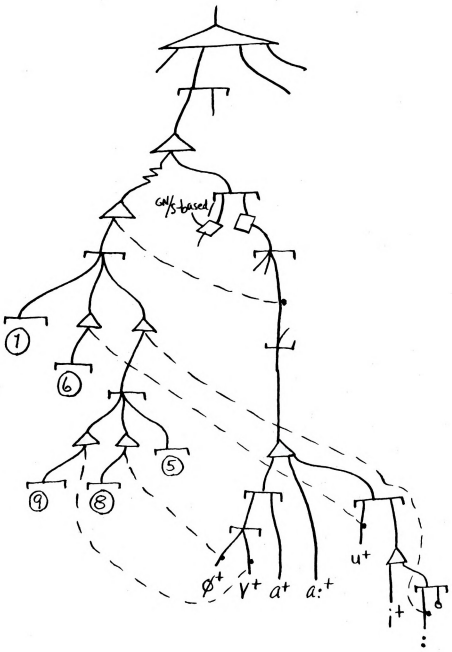

Figure 76
FaMaaMiL Plural (Phonologically-based) FvMMvL

4.3.2.2 Plurals for the Phonological Shape FvML

4.3.2.2.1 FvMaL-type

This plural type poses a slight problem since the first vowel of the plural is the same as the first vowel of the particular singular item taking this plural. Figure 77 details this plural type.

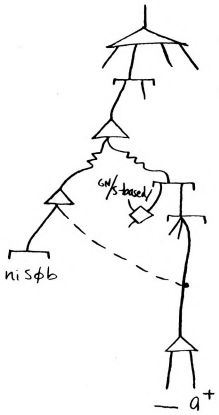

Figure 77
FvMaL Plural (Phonologically-based) FvML

The blank (_) is not a preemptive. Instead the normal vowel takes precedence over it. This is detailed in the phonotactics. The plural of nisØb (nisba 'relationship') is nisab. All of the singular items in this class are grammatically feminine, i.e., they have a suffix -a.

4.3.2.2.2 ?aFMaaL-type

The second most frequent plural type for the singular phonological shape FvML is ?aFMaaL. This plural is detailed in Figure 78. All of the items entering into this plural type are grammatically masculine.

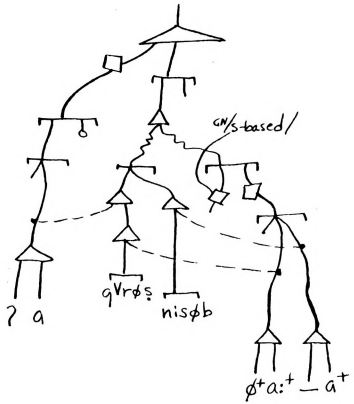

Figure 78
?aFMaaL Plural (Phonologically-based) FvML

The remainder of the plurals for the phonological shape FvML are diverse but may be grouped under four major plural types: FaMaaMiL, FvMuuL, FiML and FMvL. These are the marked types for this particular singular phonological shape and would be integrated as choices under the first line of a downward ordered or. Particular nominal subclasses would enable certain plural subclasses within these types to be realized.

4.3.2.3 Other Phonologically-based Plurals

The remainder of the phonologically-based plurals would be integrated as above with the most frequently occurring being the unmarked choice for the particular singular shape. Since they are quite straightforward they need not be detailed here.

4.3.3 Summary

This section (4.3), in dealing with the morphology of both the semantically-based and phonologically-based broken plurals of Iraqi Arabic, has been complete insofar as possible and insofar as the data studied are concerned. Due to time and space limitations a few of the descriptions were succinct, leaving minor details and previously explained material to be filled in by the reader.

4.4 The Phonotactics

The phonotactics must account for the following phenomena in order to be compatable with the suggested treatment of plurals: interdigitation of consonants and vowels, preemption of singular vowels by plural vowels, and

syllable structure. Since there are no consonant clusters at the phonological level, the phonotactics does not have to account for them. Consonant clusters may however appear on the phonemic sign level as a result of the empty realization of ø vowels. For example, $\overset{PS}{}$/bflu:sha/ 'with her money' from $\underset{CV}{b\text{ø}}$ 'with' followed by $\underset{CVCV\ C}{f\text{ø}lu:s}$ 'money' followed by $\underset{CV}{ha}$ 'her'.

A preview of the general structure of the phonotactics has been given in discussions in the section of morphology (cf. 4.3.1.5.5) Since it is the responsibility of the phonotactics of Iraqi Arabic to account for syllable structure, interdigitation and preempting, we must structure our model so as to include these phenomena. Figures 79-84 detail the phonotactics in general.

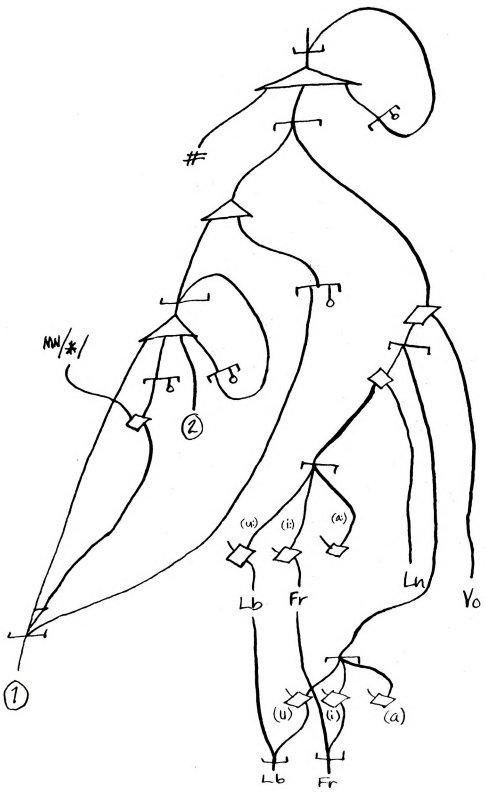

Figure 79
The Phonotactics

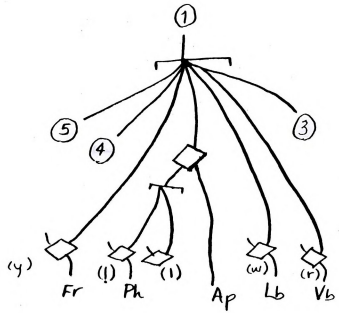

Figure 80
Liquids and Glides

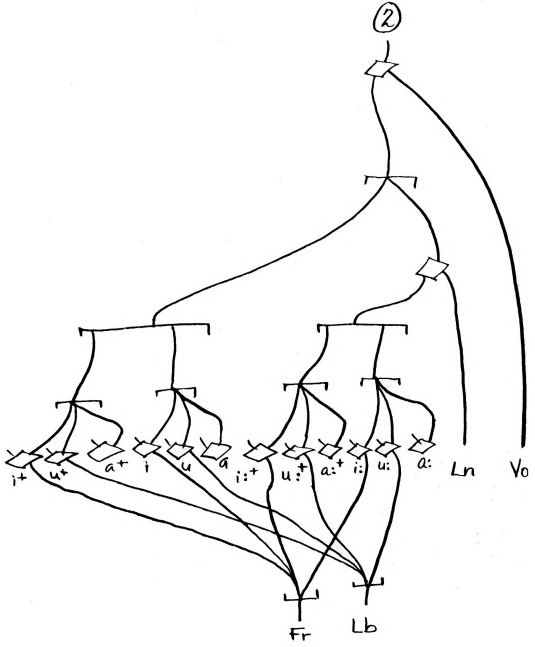

Figure 81
Vowels (Preemptive, Long and "Normal")

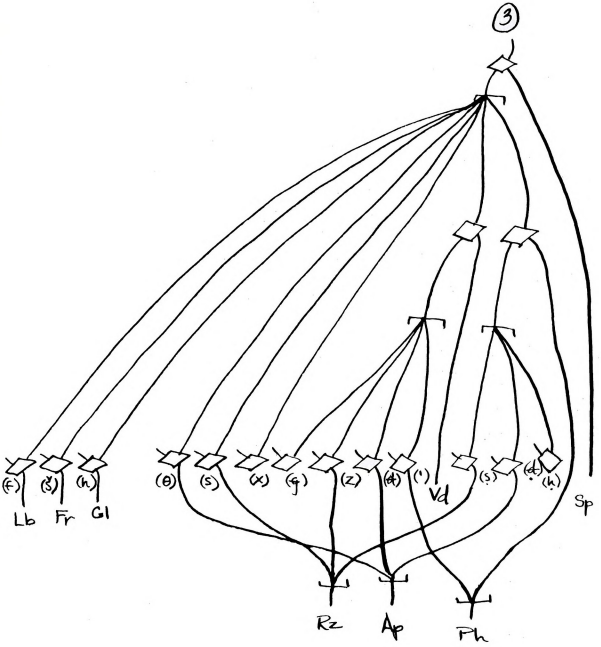

Figure 82
Fricatives

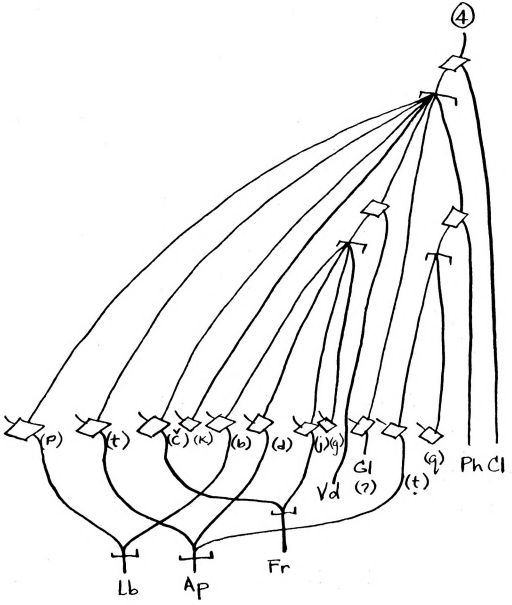

Figure 83
Stops

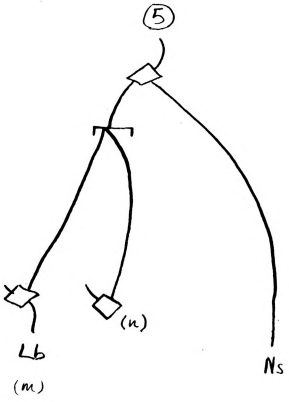

Figure 84
Nasals

The diagram above (Figure 81) accounts for two different types of syllable structure: a long vowel alone, e.g., uː 'and', iː 'yes', or the now familiar CV(CV)...(C) pattern. With the CV(CV)...(C) pattern it thereby accounts also for interdigitation since it can only accept a series of consonants and vowels in that order. Thus, receiving simultaneously the sequences ktb and iaː, the phonotactics can only supply the order kitaːb 'book'.

The phenomenon of preemption is accounted for by the downward ordered or over the vowels. The marked series are the preemptive vowels. That is, first the tactics checks to see of any preemptive vowels have been generated by the morphotactics. If so, then the preemptive vowel is realized and the vowel it preempts is realized as ∅ (in the morphonic alternation pattern above the phonotactics). Only if there is no preemptive vowel does the "normal" vowel get realized. The preemptive vowels neutralize with their "normal" counterparts below the phonotactics in the phonemic alternation pattern. The case of non-preemption (i.e., the blank (_)) is handled as in Figure 85.

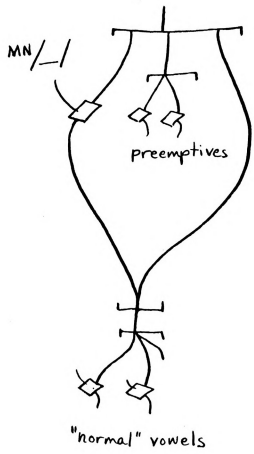

Figure 85
Phonotactic Realization of the Morphon $^{MN}/\_/$

The tactics first checks to see if $^{MN}/\_/$ has been generated; if so, instead of a preemptive vowel, the "normal" vowel takes precedence. Otherwise the tactics functions as described above. An example is the FVMaL

plural. The plural of xidma 'a service' is $\left(\begin{matrix}\text{xidØm}\\ \text{\_a}^{+}\end{matrix}\right)$.

The phonotactics, on receiving this configuration, allows xida^{+}m. The blank insures that the singular vowel takes precedence. Thus the plural xidam.

The phenomenon of consonantal reduplication (or gemination) has been discussed previously (cf. 4.3.1.5.5), but we will reiterate it here. If the morphology has generated $^{MN}/*/$, then a reduplicative construction in the phonology is allowed to be realized. See page 197 for figure and examples. This is also illustrated in Figure 79 where the $^{MN}/*/$ enables the reduplicated consonant construction to be realized.

4.5 Intervening Realizational Phenomena

Some of the realizational phenomena which were mentioned informally in morphological discussions are formalized here. We mentioned before that the preemptive vowels neutralize with their "normal" counterparts. This configuration is part of the phonemic alternation pattern (below the phonotactics). Figure 86 details this.

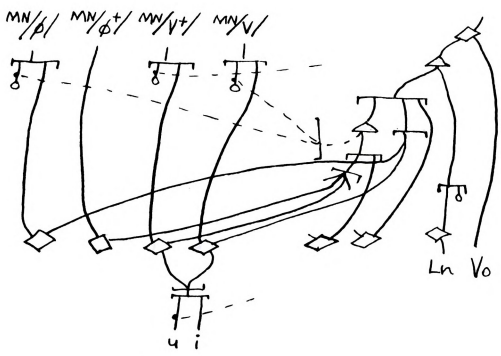

Figure 86
Alternation and Neutralization of the "Normal" and Preemptive Vowels

Figure 86 also shows that if the phonotactics does not accomodate $\underline{V^+}$ (in case there are less than four radicals), then it is realized as ø in the morphonic alternation pattern. That is, $\underline{V^+}$ in the plural pattern $\underline{øa:V^+}$ is only realized when there are four radicals.

There are three additional alternation phenomena. One of these occurs in the morphonic alternation pattern (above the phonotactics) and is detailed in Figure 87. This figure describes the alternate realizations of glottal

stop;[6] length (:), frontality (y), labiality (w), and glottality (?).[7] The environments are stated rather than diagrammed; they would occur as part of the phonotactics.

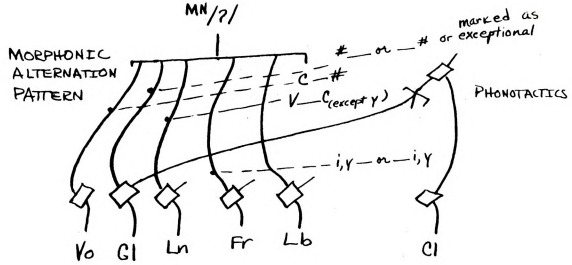

Figure 87
Alternate Realizations of Glottal Stop

The second alternation is that of u∼i or V described in Figure 88. It occurs in the phonemic alternation pattern. The environment forms a "natural class" in the sense that all of the items enabling Lb (labial) to be realized are performed with a raised tongue back as is the vowel u.

This alternation must occur in the phonemic alternation pattern (below the phonotactics) since the specification of V as i or u must succeed (i.e., occur lower in the realizational chain than) the realization of glottal stop as y or w. (If this were not the case we could handle the alternation in the morphonic alternation pattern as in Figure 89.

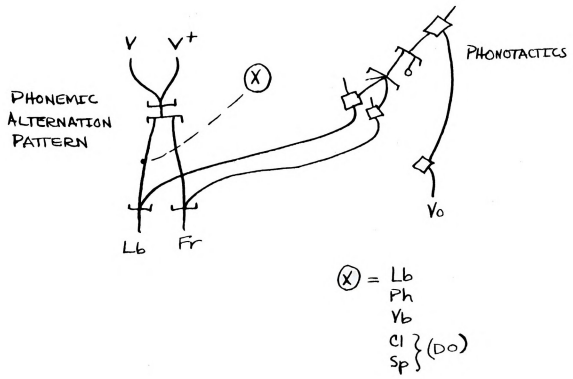

Figure 88
Alternate Realizations of V

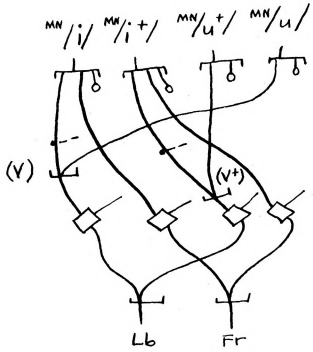

Figure 89
Possible Alternate Analysis of V

The third alternation phenomenon occurs in the phonemic alternation pattern. This phenomenon, the realization of glottal stop as Vo (a), must be specified as occurring in the environment of ØC__#, as in the phonotactics consonants do not occur contiguously.

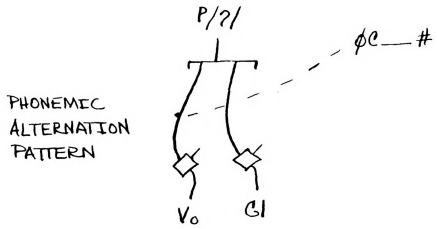

Figure 90
Realization of Glottal Stop as a

Another phenomenon which occurs in the phonemic alternation pattern is the related phenomenon of the realization of w and y as u and i, respectively, in the environment øC___#. This entails only the generation of Vo as a determined element in this environment. Note that all the so-called weak radicals (?,w,y) are specified as Vo(calic) in this environment (øC___#). An example of this is P/filw/ 'colt'. The phonemic sign realization of this item is filu.

4.6 The Phonetic Tactics

Since the phonetic tactics has never been formalized, the types of phenomena it handles with respect to our analysis of broken plurals will only be explained verbally.

There are two related phenomena which it is assumed that the phonetic tactics handles. One is the insertion of a determined vowel (i) between the first two consonants of a three consonant cluster. The other is the insertion of a determined vowel (usually i, sometimes u or a) between two different consonants which occur phonological word finally.

The first is a quite general Arabic phenomenon (i.e., it occurs throughout the dialects). An example of it is PS/bfluːsak/ 'with your money', realized on the surface as bifluusak. Often speakers of Arabic as a native language insert this vowel in English words containing triconsonantal clusters, for example, [lipistik] 'lipstick'.

The second phenomenon is a characteristic of Iraqi Arabic but not of all the dialects, e.g., not of Egyptian Arabic. It is the vowel insertion between dissimilar consonants phonological word finally, for example, filim (Iraqi) versus film (Egyptian).

The phonetic tactics also handles phenomena like phonetic assimilation, but this has no real bearing on the general problem of broken plurals.

4.7 Implications for the Metatheory

The major implication for the metatheory which this study has made is that language is a much more integrated and much less well stratified system of relationships than it was previously thought to be.

While stratification is still an important concept upon which to base the theory, the requirement that units on one level relate only to the units of the level(s) immediately contiguous is too strong. It needs to be made less stringent, in order to allow relationships between units on non-contiguous levels. This study has utilized the less stringent requirement in the analysis of Iraqi broken plurals. It has posited a direct relationship between portions of the gnostotactics and the morphotactics in accounting for the semantically-based broken plurals.

The less stringent requirement was used in this analysis in order to achieve descriptive adequacy. In other words, the data itself requires the analyst to posit direct links between semantics and morphology. It must necessarily follow that the theory, in order to maintain explanatory adequacy, must allow this less stringent requirement (i.e., that direct relationships may exist between non-contiguous levels). For, in order for a theory to be explanatorily adequate, it must first allow descriptively adequate grammars to be written and secondly, it must present a means of choosing the simplest

of n descriptively adequate grammars.

The empirical evidence presented by the data from Modern Iraqi Arabic thus requires the theory of stratificational grammar to incorporate a less stringent requirement regarding the existence of direct relationships between non-contiguous levels. That is, the theory must change requirement 1 (Rq 1) to requirement 1a (Rq 1a):

Rq 1: Direct relationships only exist between "units" on immediately contiguous levels.

Rq 1a: Direct relationships usually exist between "units" on immediately contiguous levels. In some cases (as required by the particular description) direct relationships may exist between "units" on non-contiguous levels.

FOOTNOTES

Chapter 4

1. In these and all following examples V represents the vowel alternation i~u, while v represents any vowel; V_1 = the same vowel as in the singular pattern.

2. A problem arose in constructing Figure 15 in that the fact that one member of each dichotomy is a marked choice could not be reconciled with the fact that unmarked choices also have connections to the predication structures. Therefore the downward ors appear as unordered. If this problem could be resolved, then an analysis in which the downward ors were ordered would be preferred.

3. The nisba suffix is a suffix indicating relationship, for example, someone from, of, or in the "relationship" of nation to national with the country of Iraq is termed Iraqi, where the -i is the nisba suffix.

4. It should be recalled that the phonetic tactics has a restriction on dissimilar consonants finally, and inserts an epenthetic copy of the first vowel in such cases.

5. These are traditionally analyzed as based on "defective" roots according to Ernest N. McCarus, and so are considered triconsonantal according to such an analysis.

6. The present analysis uses glottal stop (<u>?</u>) as the underlying representation in many instances where other analyses have used underlying <u>w</u>, <u>y</u> or (<u>u</u>, <u>i</u>). (Cf. Brame (1970) and Levy (1971)).

7. This analysis misses the generalization that <u>u</u> is more "marked" than <u>i</u>. In order to capture this, the analysis would have to show <u>u</u> as having more components than <u>i</u>, e.g., <u>i</u> = ^{P}/Hi/ and <u>u</u> = ^{P}/Hi/ Lb/. Since the component <u>Hi</u> is not necessary elsewhere in the phonology and the component <u>Fr</u> is, the analysis given (<u>i</u> = <u>Fr</u>, <u>u</u> = <u>Lb</u>) was chosen.

CHAPTER V

Residue

5.1 Theory of Exceptions

Levy's (1971) dissertation on noun plurals in Modern Standard Arabic provides a good example of the use of the theory of exceptions as posited by Lakoff (1965). Nouns which prove "exceptions" are accounted for in one of four ways:

1) ordering, i.e., by ordering two rules so that after the first has applied to an item, the item no longer meets the structural description of the rule following. (The later rule is the more general).

2) [-rule x] , i.e., minus rule lexical features, or marking lexical items so that they do not undergo a particular rule for which they meet the structural description. (They may undergo a later more general rule for which they also meet the SD.)

3) suppletive, i.e., truly exceptional items which are spelled out idiosyncratically in the lexicon.

4) minor rules, i.e., [+ qatal Pl] . These mark exceptional plurals in that they are not the expected plural for the particular semantic and/or canonical form. These apply optionally if they are an alternate plural for the given item.

5.2 A Stratificational Treatment

Since there are no rules (but only relationships) in a stratificational description, none of these notions on the handling of syntactic irregularity is apropos in the case of the present analysis.

Markedness in the sense of downward ordered ors does play a role in stratificational grammar. The most frequent (or the expected) plural for a particular semantic or canonical subclass is interrelated in an unmarked manner as the last branch of a downward ordered or. The less frequent plurals for such a class are related via the more marked (leftmost) branches and only occur when they are enabled to be realized by the small subclass of items which takes them. Multiple (or optional alternate) plurals are handled by multiple class membership. That is, an item taking more than one plural will simultaneously be a member of several morphological classes. The plural which is actually generated will depend on several factors (i.e., whether the speaker is basing his plural on semantic grounds or on canonical shape, or whether the speaker chooses a more marked alternant as opposed to a less marked one with respect to various broken alternants or with respect to a broken versus a sound alternant).

There are a few items whose plurals are truly exceptional in that they serve as the plural for just the given item. These plurals will be shown to be "exceptions" by the fact that the class which enables their realization contains only

one member. They are an integral part of the system of relationships nevertheless.

The following nominals were found to be classifiable as exceptions.

Singular	Plural	Gloss
?ustaaḋ	?asatiḋa	professor
?umm	?ummahaat	mother
baḋir	bḋuuraat	seed
*xara	xaryaan	feces
saa?il	saa?il	liquid
*ṣaffaar	ṣafafiir	coppersmith
sana	siniin	year
*'adu	'aadaa?	enemy
*'amya (f.)	'imyiin	blind
*qiss	qissiisiin	clergyman
*qaṯmar	qaṯaamra	fool
qanaat	qanawaat	canal
mara	niswaan	woman

Starred items have alternant non-exceptional plurals. An attempt is made to describe the treatment of each.

The plural of ?ustaaḋ 'professor' will be related to the FaMaaMiLa agent plural but will enable length following the second vowel to be realized as Ø as illustrated in Figure 91 yielding ?asatiḋa.

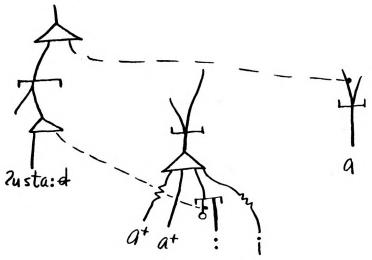

Figure 91
Exceptional Plural <u>ʔasatiḍa</u>

The plural of <u>ʔumm</u> 'mother' is a sound feminine plural. The only idiosyncracy is that <u>ah</u> must be enabled to be realized as a determined non-final suffix in the environment of plural for this particular item as in Figure 92 yielding <u>ʔummahaat</u>.

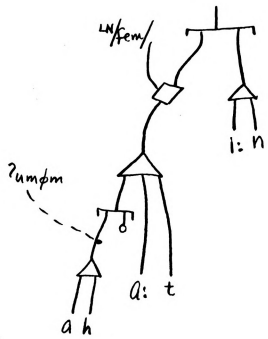

Figure 92
Exceptional Plural ʔummahaat

The plural of badir 'seed' (also bazir) is predictable inasmuch as it belongs to the θuu plant plural type (FMuuL). It is exceptional in that it requires the suffix -aat. This is shown in Figure 93.

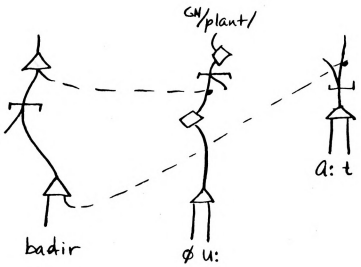

Figure 93
Exceptional Plural bâuuraat

The exceptional plural of xara 'feces' is xaryaan. The non-exceptional broken plural is xiryaan (weak, low). (It also has a sound plural xaryaat.) The plural xaryaan can be viewed as exceptional in the choice of the first plural vowel as described in Figure 94.

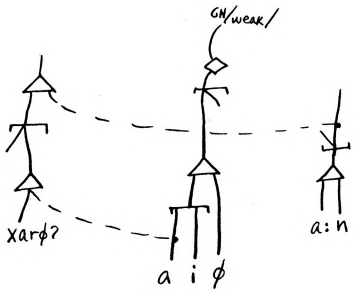

Figure 94
Exceptional Plural xaryaan

The plural of saa?il 'liquid' is the same form as the singular. It can be handled the same way as the English plural of sheep, i.e., by letting the singular item enable the plural morpheme to be realized as ∅ as illustrated in Figure 95.

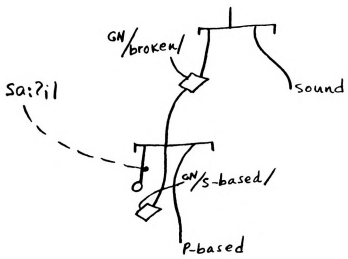

Figure 95
Exceptional Plural saa?il

The exceptional plural of saffaar 'coppersmith' can be integrated with the FaMaaMiiL plural type. The singular enables length following the second vowel to be realized as ø as in Figure 96 yielding safafiir.

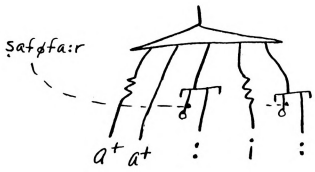

Figure 96
Exceptional Plural safafiir

The plural of sana 'year' is detailed below. This plural is unusual in that it takes the plural suffix -iin and simultaneously fails to have final consonantal material realized in the plural stem. This second phenomenon was detailed previously (see pp.174-5). The plural is siniin.

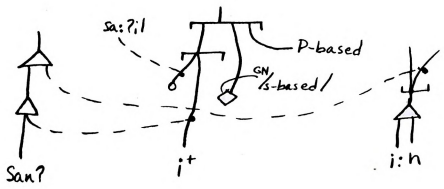

Figure 97
Exceptional Plural siniin

The exceptional plural of 'adu 'enemy' is 'aadaa?. It is similar in exceptionality to sana above in that it not only takes a suffix but fails to realize a final stem consonant. Figure 98 describes this plural.

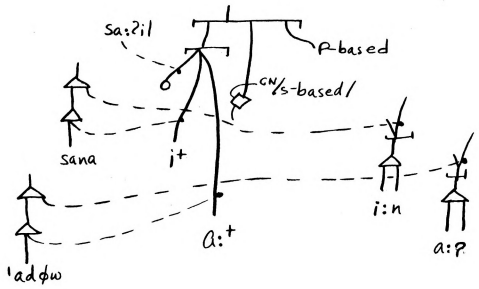

Figure 98
Exceptional Plural **'aadaa?**

The exceptional plural of **'amya** (f.) 'blind' may be integrated with the FiML-type weak plural and is exceptional only in that it takes the suffix **-iin**. Figure 99 details the integration. The plural generated is **'imyiin**.

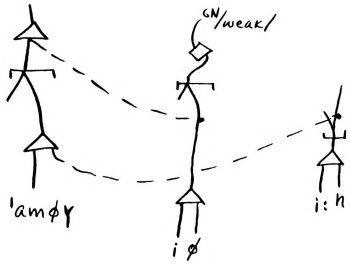

Figure 99
Exceptional Plural 'imyiin

The exceptional plural of giss 'clergyman' may be analyzed as a sound masculine plural with an exceptional affix -iis-. Figure100 illustrates this. The plural generated is gissiisiin.

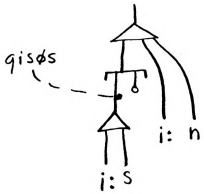

Figure 100
Exceptional Plural gissiisiin

The exceptional plural of gaɣmar 'fool' may be integrated with the FMaaMLa-type weak, low plural. It is exceptional only in that it has a as the first vowel rather than ø. Figure 101 details this yielding the plural gaɣaamra.

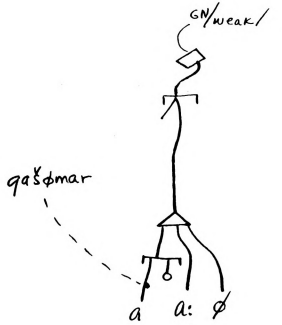

Figure 101
Exceptional Plural qaʕaamra

The plural of qanaat 'canal', qanawaat, is open to several alternate analyses. First[1], it is possible that it is a sound feminine plural: singular, qana? + t (feminine suffix); plural, qana? + aat (feminine plural suffix) in which case it would not be exceptional. Second, it is possible that it is unexceptionally associated with the broken plural FaMaLaat in which case the final t of the singular fails to get realized. Third, it is possible to analyze it as an exceptional plural of the form FaMaMaaL. In case it is analyzed as an exception, it would be handled as in Figure 102.

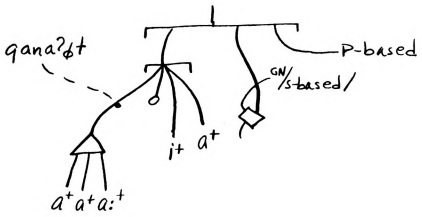

Figure 102
Exceptional Plural qanawaat

The plural of mara 'woman', niswaan, is interesting. Synchronically it appears as a suppletive plural completely unrelated to the singular form. If one looks at the underlying radicals (mr? and ns?) it is not too difficult to construct a plausible diachronic history given the strong relationship between the nasals and the affinity of r and s in historical linguistics in general. However, in a synchronic study such as this, one is compelled to treat the forms as unrelated. The plural of mara would be

handled as in Figure 103. Thus in the environment of plural the morpheme alternant nisØ? is realized. This particular morpheme enables the exceptional plural _a:n to be realized, thus yielding $\left(\frac{\text{nisØ?}}{-}\ \text{a:n}\right)$ for the plural. The blank insures that nisØ? is realized and the suffix a:n is then appended.

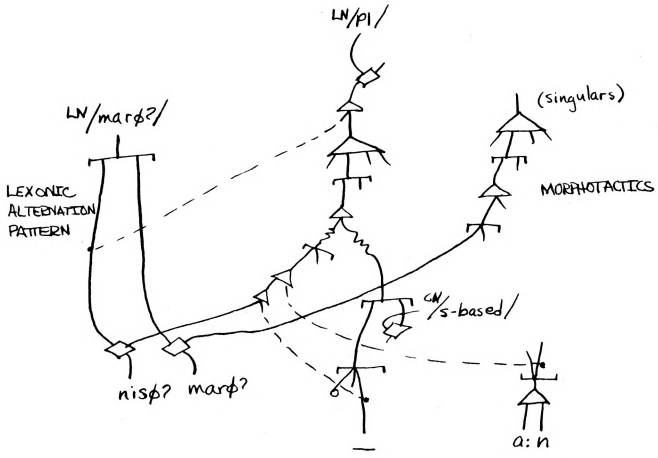

Figure 103
Exceptional Plural niswaan

FOOTNOTES

Chapter 5

1. It is this interpretation which is most commonly given in Arabic grammars. The suffix -t is posited as the feminine suffix (rather than -at as is commonly given for underlying forms using w and y (or u and i), for example, qanaw -at) on the grounds that -t is used elsewhere in the system to designate the grammatically feminine, for example, compare ban 'son' and bin -t 'daughter'.

CHAPTER VI

Conclusion

This dissertation, in substantiating the hypothesis that the morphology of plural formation in Arabic reveals an underlying multi-gender system upon which the more recent morphological/agreement genders seem to have been superimposed, makes wider claims for the Semitic language family in general. Talmy Givón in suggesting the extension of his hypothesis from the Bantu language family to the Semitic acted as the catalyst for this study. The research and reported results are original. The study has made implications for the analysis of Arabic both synchronic and diachronic in substantiating the semantic-morphological correspondence of the broken plural system. It has also made implications for the theory of stratificational grammar in positing a less rigidly stratified model to achieve a more descriptively adequate analysis of the Iraqi Arabic broken plural system.

Levy (1971), while presenting a thorough phonologically-based description of Modern Standard Arabic broken plurals, failed to note the semanto-morphological relationships which exist within the system. The present study improves on a treatment such as Levy's 1) by noting the semanto-morphological relationships which exist and 2) by

explaining some of the peculiarities of the system (e.g., multiple plural association) by means of culturally-perceived semantic characteristics.

There seems to be a partial meaning/form correspondence extractable from the system. For example, tri-consonantal plural patterns FMaaL, FMaaLa, FMaaLi are all associated with the semantic component ^{GN}/round/. Thus one might say that the broken plural pattern ø**a**ı signifies rotundity. Also, triconsonantal plural patterns FMuuL, FMuuLa are both associated with the semantic component ^{GN}/genitalia, body parts/. Similarly one might say that the broken plural pattern ø**u**ı signifies procreativity. No attempt was made in the present study to discover to what extent such meaning/form correspondences could be said to exist.

6.1 Unresolved Problems

There are several generalizations which, while easily stateable in an informal manner, were difficult to formalize due to the nature and amount of the data.

One is the fact that a number of the broken plurals share **a** or **a**ı as a final plural preemptive vowel. It was decided in this presentation to keep the diagrams readable rather than to try to capture this generalization formally.

Several anatactic relationships were also not dealt with satisfactorily: the V**ø** [round] singulars and their ø**a**ı plural counterparts, and the ø**a** masculine adjectives

of color and defect with their aØ feminine counterparts.

Anataxis in its usual sense is used to describe different or opposite ordering of constituents between one stratum and another. Both of the anatactic phenomena described above, however, appear on the same stratum, and it is not clear just how such juxtaposition is handled within the same stratum.

6.2 Suggestions for Further Research

There needs to be much more work along the lines developed in this study using other dialects of Arabic and other Semitic languages to verify and perhaps broaden the hypotheses made herein. When more information is gathered from other dialects, perhaps a more fully detailed hypothesis can be made on the semantic-morphological structure of broken plurals in the Proto-language.

BIBLIOGRAPHY

BIBLIOGRAPHY

Azzawi, Theresa. 1969. "A Stratificational Discussion of Stress in Modern Iraqi Arabic." MS.

Bateson, Mary Catherine. 1967. Arabic Language Handbook. Washington, D.C.

Bennett, David C. 1969. Spatial and Temporal Uses of English Prepositions. Unpublished Ph.D. Dissertation, Yale University.

Blanc, Haim. 1964. Communal Dialects of Baghdad. Boston, Mass.

Brame, Michael K. 1970. Arabic Phonology. Unpublished Ph.D. Dissertation, M.I.T.

Chafe, Wallace. 1970. Meaning and the Structure of Language. Chicago.

Chomsky, Noam. 1965. Aspects of the Theory of Syntax. Cambridge, Mass.

_____ and Morris Halle. 1968. The Sound Pattern of English. New York.

Clarity, E.E., Karl Stowasser, and Ronald G. Wolfe, eds. 1964. A Dictionary of Iraqi Arabic: English-Arabic. Washington, D.C.

Erwin, Wallace M. 1963. Reference Grammar of Iraqi Arabic. Washington, D.C.

_____ 1969. A Basic Course in Iraqi Arabic. Washington, D.C.

Fillmore, Charles. 1968. "The Case for Case" in Universals in Linguistic Theory, Bach and Harms, eds. New York.

Fleisch, Henri. 1961. Traité de philologie arabe. Vol. I (Préliminaires, phonétique, morphologie nominale). Beirut.

Givón, Talmy. 1971. "Some Historical Changes in the Noun Class System of Bantu; Their Possible Causes and Wider Implications" in Papers in African Linguistics. Urbana.

Gleason, H. A. 1965. Linguistics and English Grammar. New York.

Goodenough, Ward H. 1956. "Componential Analysis and the Study of Meaning." Language 32.195-216.

Greenberg, Joseph. 1955. "Internal a-Plurals in Afro-Asiatic (Hamito-Semitic)." Veröffentlichungen des Instituts für Orientforschung, No. 26. Berlin.

_____ 1966. "Language Universals" in Current Trends in Linguistics III, pp. 61-112. The Hague.

Hjelmslev, Louis. 1961. Prolegomena to a Theory of Language. (Translated by Francis J. Whitfield). Madison, Wis.

Hockett, Charles F. 1961. "Linguistic Elements and Their Relations." Language 37.29-53.

_____ 1968. The State of the Art. The Hague.

Hyman, Larry. 1970. "How Concrete is Phonology?" Language 46.58-76.

Ikegami, Yoshihiko. 1970. The Semological Structure of the English Verbs of Motion: A Stratificational Approach. Tokyo.

_____ 1971. "A Stratificational Analysis of the Hand Gestures of Indian Classical Dancing." Semiotica 4.365-91.

Katz, Jerrold J. and Jerry A. Fodor. 1963. "The Structure of a Semantic Theory." Language 39.170-210.

Katz, Jerrold J. and Paul Postal. 1964. An Integrated Theory of Linguistic Descriptions. Research Monograph No. 26. Cambridge, Mass.

Killean, Mary Carolyn G. n.d. "Interesting Features of Gender-Number Concord in Modern Literary Arabic." MS.

Kiparsky, Paul. 1968a. "How Abstract is Phonology?" MS.

_____ 1968b. "Linguistic Universals and Linguistic Change" in Universals in Linguistic Theory, Bach and Harms, eds. New York.

Kuryłowicz, Jerzy. 1961. L'Apophonie en Sémitique. Wrocław, Poland.

Lakoff, George. 1965. On the Nature of Syntactic Irregularity. Cambridge, Mass..

_____ 1969. "Empiricism without Facts." Foundations of Language 5.518-27.

Lamb, Sydney M. 1966a. "Prolegomena to a Theory of Phonology." Language 42.536-73.

_____ 1966b. Outline of Stratificational Grammar. Washington, D.C.

_____ 1969. "Lexicology and Semantics" in Linguistics Today, Archibald A. Hill, ed. New York.

_____ 1971a. "The Crooked Path of Progress in Cognitive Linguistics." Georgetown Monograph Series on Languages and Linguistics, 24.

_____ 1971b. "Linguistic and Cognitive Networks" in Cognition: A Multiple View, Paul Garvin, ed. New York.

_____ 1972. "Some Types of Ordering" in Phonological Theory: Evolution and Current Practice, V. B. Makkai, ed. New York.

Lekiaschwili, A. S. n.d. "Zur Bildung des gebrochenen Plurals im Arabischen." 25th International Congress of Orientalists, Proceedings, Vol. II, 136-41.

Levy, Mary M. 1971. The Plural of the Noun in Modern Standard Arabic. Unpublished Ph.D. Dissertation, University of Michigan.

Lockwood, David G. 1969. "Markedness in Stratificational Phonology." Language 45.300-8.

_____ 1972a. Introduction to Stratificational Linguistics. New York.

_____ 1972b. "Neutralization, Biuniqueness, and Stratificational Phonology" in Phonological Theory: Evolution and Current Practice, V. B. Makkai, ed. New York.

_____ 1973. "Replacives without Process" in A Reader in Stratificational Linguistics, A. Makkai and D.G. Lockwood, eds. University, Ala..

Lounsbury, Floyd G. 1956. "A Semantic Analysis of the Pawnee Kinship Usage." Language 32.158-194.

Lyons, John. 1968. Introduction to Theoretical Linguistics. Cambridge.

Makkai, Adam. 1972. Idiom Structure in English. The Hague.

McCarthy, R.J., S.J. and Faraj Raffouli, eds. 1969. Spoken Arabic of Baghdad: An Anthology of Texts. Part Two (A). Baghdad.

Murtonen, A. 1964. Broken Plurals: Origin and Development of the System. Leiden.

Postal, Paul M. 1968. Aspects of Phonological Theory. New York.

Reich, Peter A. 1968. "Symbols, Relations, and Structural Complexity." Linguistics Automation Project, Yale University, New Haven, Conn..

Rice, Frank A. and Majed F. Sa'id. 1966. Eastern Arabic. Beirut.

Sampson, Geoffrey. 1970a. "On the Necessity for a Phonological Base Component." Language 46.586-626.

_____ 1970b. Stratificational Grammar: A Definition and an Example. Janua Linguarum Series Minor 88. The Hague.

Saussure, Ferdinand de. 1959. Course in General Linguistics. New York.

Sobleman, Harvey. 1962. Arabic Dialect Studies: Bibliography. Washington, D.C.

Sullivan, William J. 1969. A Stratificational Description of the Phonology and Inflectional Morphology of Russian. Unpublished Ph.D. Dissertation, Yale University.

Trubetzkoy, N. S. 1969. Principles of Phonology. Berkeley.

Van Ess, John. 1938. The Spoken Arabic of Iraq. London. (2nd edition).

Weinreich, Uriel, William Labov and Marvin Herzog. 1968. "Empirical Foundations for a Theory of Language Change" in Directions for Historical Linguistics. Austin, Tex.

Woodhead, D. R. and Wayne Beene, eds. 1967. A Dictionary of Iraqi Arabic: Arabic-English. Washington, D.C.

Wright, William W. 1896. A Grammar of the Arabic Language. 3rd edition. 2 Volumes. Cambridge.

APPENDIX

Questionable Plural Classes

APPENDIX

Questionable Plural Classes

These plural classes are questionable either 1) because their defining semantic characteristics are too numerous or 2) because the number of items comprising a particular plural class are too few.

?aFMuL

Sem	Phon
?	FvMvL

This class does not seem to have a semantic characteristic and its P-shape for the singular is a quite common one. All the items of the class are listed here.

saham 'share'
bahar 'sea'
šahar 'month'
nafis 'soul'

FaMaaLa

Sem	Phon
?	FaMiyya
	FaMLaan

These items seem to be grouped on the basis of P-shape. There is no apparent reason for eunuch to be in this class. All the items of this class appear here.

xaliyya	'cell'
sariyya	'company'
ḍaḥiyya	'blood sacrifice'
qaḍiyya	'legal case'
maziyya	'merit'
kaslaan	'lazy'
naṣraani	'Christian'
*xiṣi	'eunuch'

FuMuLaa?

Sem	Phon
? (weak)	FaMiiL

There does not appear to be any semantic characteristic for the two members of this class. The plural P-shape is morphologically related to other [weak] plural classes, however. The singular P-shape FaMiiL is common to both members of this class.

ḥakiim	'wise'
ḥaqiir	'low, base'

FuMaaLi

Sem	Phon
? (strong)	?

These are the only two members of this class. There does not seem to be any semantic or phonological justification for the class. The plural P-shape is morphologically related to other [strong] classes, however.

mulla 'tutor' (in Islam)
fuxtiyya 'turtledove'

FuMLa

Sem	Phon
? (male)	?

The same remarks apply to this class as to the one above. The plural P-shape of this class is morphologically related to other [male] plural classes, though.

?ax 'brother'
ɣariib 'strange'

FuMuuLaat

Sem	Phon
?	FvMvL

These items have no semantic characteristic in common. They have no other plural.

wasil 'receipt'
dasam 'fat'

FiMLaat

Sem	Phon
[meal]	FvMv

This appears to be a mixed class. There are five members total and these are the only two related items. They form a minor class [meal].

'asa 'dinner'
gada 'lunch'

FaMaaL = FaMaat

Sem	Phon
[female relative = or <]	?

This at first appeared to be a broken plural class, but on closer inspection, it seems to be a regular feminine plural (-aat). Both bint and ?uxut have related masculine forms:

$\frac{bn}{a}$	'son'	$\frac{bn}{V}$ t	'daughter'
$\frac{?x}{a}$	'brother'	$\frac{?x}{V}$ t	'sister'

where -t is a feminine suffix. The plural of the feminine is the masculine stem plus the regular suffix -aat. In the singular there is a predictable epenthetic vowel insertion between dissimilar consonants in final position and a predictable vowel alternation i∼u (V). The only problem arises with the plural of $\frac{?x}{V}$ t 'sister' which is xawaat. The radicals are in an anatactic relationship with those of the singular. In order to achieve the correct plural, the underlying form for the feminine plural must be $\frac{x?}{a}$ instead of $\frac{?x}{a}$. Glottal stop is normally realized as w in the environment given.

bint 'daughter'
?uxut 'sister'

Sg. minus -i

Sem	Phon
[nationality]	?

This is probably a fairly recent plural class and it cannot be called a broken plural at all, for the plural is merely the singular minus the (nisba or "relationship") suffix -i. There is no different vowel interdigitation. It is strictly a semantically-based plural class.

?armani	'Armenian'
?almaani	'German'
?amriikaani	'American'
?ingiliizi	'Englishman'
šruugi	'person from the rural areas of Southern Iraq'
baanyaani	'Hindu'
turmaani	'Turkoman'
ruusi	'Russian'
'arabi	'Arab'

FiMaL

Sem	Phon
[square]	FvMLa

This may be a subclass of FVMaL. The fourth member of this class is button.

šayla	'woman's long head scarf'
xayma	'tent'
dačča	'low hedge'

FMaaLiin

Sem	Phon
[square]	FvMMvvL(a) FvvMvL

All of the items of this class are here listed. Two of the members may also be analyzed as belonging to the FMaaMiiL plural class, leaving haayit as an exceptional plural.

haayit 'wall'
dukkaan 'shop'
darbuuna 'alley'

FaMaaMiiL

Sem	Phon
[round]	FvMMvvL(a)
[square]	FvMMvL(a)
[low, base, weak]	
[strong, high]	
[statement]	

This is a plural class which gives evidence of more than a few characteristic semantic features and which is therefore probably a P-shape plural class. The possibility of having morphological overlapping of separate corresponding semantic classes was considered in cases of two or three defining semantic characteristics. Given the fact that this class has more than several and the fact that there are large numbers of items associated with this plural

which are not defined by the given semantic characteristics but which do correspond to the given canonical forms, it seems more probable that this class is defined by phonological characteristics. Five-sixths of the total number of items are accounted for here. Round -- 1/3; square, weak, strong -- 1/7 each; statement, a minor class -- 1/14. Notice that the body parts here are the coccyx -- the lowest point of the spine and the pharynx -- the lowest point (exclusive of the vocal cords) in the vocal

tract. The humans in this class are looked on with disdain. The animals contained herein are the common, or insignificant insects and birds.

The items in the [strong] S-class denote respected humans and institutions or a "strength-in-numbers" concept.

[statement] appears to be characteristic of a significant minor class. The items listed under it are definitely related.

[round]

haawan	'mortar'
migrafa	'large spoon'
girbiil	'coarse sieve'
mašhuuf	'long boat'
zanbiil	'large basket'
mirhaad	'toilet'
xaaǧuuga	'spoon'
čafčiir	'concave spatula'
naaquus	'church bell'
furgaasa	'blister'
?iḍfir	'fingernail'
miḥraaθ	'plow'
miḥraab	'prayer niche'
burnayṭa	'hat'
burkaan	'volcano'
ṭaawuus	'peacock'
naafuura	'fountain'
minxaar	'nostril'
?ikliil	'wreath'
firjaal	'compass'
miftaaḥ	'key'
mintaad	'balloon'
taaḥuuna	'windmill'
purgaal	'compass'

minḍaar	'telescope'
?ubuub	'tube'
karkuuša	'tassel'
qurbaaǩ	'whip'
'amuud	'post'
tarbuuš	'fez'
saaruux	'rocket'
širyaan	'artery'
mazriib	'drainspout'
mirzaab	'drainspout'
dambuus	'pin'
xaazuuq	'shaft'
xarṭuum	'elephant's trunk'
miḥraar	'thermometer'
mijḍaaf	'oar'
pirdaag	'glass'
barmiil	'barrel'
bardaag	'glass'
?ibriig	'pitcher'
tinniin	'dragon'
jarbuu'	'kangaroo rat'
xanziir	'pig'
'irbiid	'large snake'
timsaaḥ	'crocodile'
miidaan	'square (open place)'

[square]

paškiir	'hand towel'
tirbaas	'door bolt'
jizdaan	'wallet'
čarčuuba	'picture frame'
marjiiha	'swing'
taṣwiir	'photograph'
tafsiir	'book interpreting the Koran'
qaamuus	'dictionary'

taqriir 'official report'
taqwiim 'calendar'
kuuliis 'opening at the side of a stage'
čirdaag 'summer cabin'
haanuut 'canteen'
dihliiz 'narrow passage'
diiwaan 'guest house of a village'
santuur 'dulcimer'
qaawuuš 'hospital ward'
*ḍbaara 'file'
*faargawn 'railroad car'

[weak]

'aṣ'uus 'coccyx'
zarḍuum 'pharynx'
ja'muus 'feces'
jarϴuum 'germ'
taa'uun 'plague'
ba'buuṣ 'act of lewd poking'
qaazuug 'the shaft'
miskiin 'poor'
miflis 'bankrupt'
barṭiil 'bribe'
bahluul 'clown'
majnuun 'madman'
gazguuza 'well-proportioned girl'
mamluuk 'white slave'
tarṭuur 'braggart'
ṣa'luuk 'pauper'
darwiiš 'dervish'
barguuϴa 'flea'
bargaša 'small insects'
zarzuur 'starling'
'aṣfuur 'sparrow'
*mxannaϴ 'effeminate man'
'ifriit 'clever'

*Items preceded by an asterisk do not correspond to the established P-shape(s) for the given plural class.

[strong]

bilyawn	'billion'
zangiin	'wealthy'
tilmiiḏ	'student'
jiiraan	'neighbor'
ma'miil	'customer'
m'azzib	'guest'
'irriis	'bridegroom'
maš̌huur	'celebrity'
'anguud	'bunch'
jamhuur	'crowd'
?unbuub	'tribe'
?ustuul	'fleet'
tadbiir	'organization'
miiθaaq	'pact'
miiraaθ	'inheritance'
maw'id	'appointment'
qaanuun	'law'
dastuur	'constitution'

[statement]

?inbiiq	'retort'
?injiil	'gospel'
tasriih	'declaration'
matluub	'wish'
ta'biir	'expression'
ta'riif	'definition'

FV$_1$MaL

Sem	Phon
[abstract]	FVMLa
[round]	
[square]	
[strong]	

This is another plural class which is characterized by more than one semantic feature. Three-fifths of the total number of items are accounted for semantically by means of these S-classes. Abstract accounts for 1/6; round, 14; square, 1/6; strong, 1/25.

One minor class, [elongated], is a subclass of [round].

Due to the number of defining semantic characteristics, this is probably better described as a P-shape plural class. (See note under FaMaaMiiL, p. 296.)

[abstract]

jumla	'total'
tuhfa	'rarity'
bid'a	'innovation'
bu?ra	'focus'
junha	'misdemeanor'
hijja	'excuse'
hikma	'wisdom'
hiila	'trick'
xibra	'experience'
xidma	'a service'
xitta	'plan'
ḍimma	'conscience'
zubda	'essence'
zarga	'blue'
sil'a	'commodity'
siira	'behavior
sudfa	'chance'
'ibra	'warning'
'uqda	'quirk'
fursa	'opportunity'
fiẋga	'1/2'
giima	'price'

mihna 'tribulation'
mudda 'period of time'
ni'ma 'benefaction'
mihna 'profession'
nisba 'relationships'
hudna 'armistice'

[round]

birka 'puddle'
nugta 'spot' } "free" variants
nuqta 'dot' }
wusla 'piece'
luula 'cylinder'
kutla 'lump'
giiša 'date container'
gulla 'cannonball'
guffa 'large basket'
gursa 'flat round loaf'
girba 'water bag'
qus'a 'large bowl for carrying food to the troops'
qubba 'dome'
fiina 'fez'
fiiša 'token'
'uuda 'amulet'
'ilba 'wooden container'
'ukra 'bump'
'ugda 'knot'
'uqča 'heel (of shoe)'
tawba 'ball'
tug'a 'stain'
surra 'navel'
šiisa 'glass bottle'
sibha 'prayer beads'
xuuda 'helmet'
dugma 'button'

xirza	'bead'
hilma	'nipple'
hufra	'hole'
hidba	'hump on the back'
jilla	'basket of palm leaves'
jufra	'hole'
tunga	'clay water jug'
badra	'spool'
liifa	'pad of plant fibers used as scouring pad'
qumma	'peak'
*kawm	'heap'

[elongated]

firča	'brush'
'unda	'splinter'
'usba	'tendon'
diixa	'date stalk'
dinga	'column'
Qurma	'shred'
pulka	'spangle'
tičča	'drawstring'
tufga	'rifle'
tikma	'pillar'
?ubra	'needle'
liita	'thin, flexible stick'
*hiim	'crowbar'

[square]

hizza	'large cloth slung over the shoulder by workmen to carry sand'
xirga	'rag'
hujra	'room'
juwwa	'patch'
juuma	'loom'
junta	'suitcase'
jinda	'porter's back pad'

jufta 'dominoes piece'
tiiga 'wall around roof'
buqča 'large cloth'
ʔawda 'room'
durga 'shield'
ruzma 'parcel'
rug'a 'patch'
sufra 'woven mat'
šu'ba 'section'
šiqqa 'apartment'
gutra 'headcloth'
gurfa 'room'
gutra 'headcloth'
fijja 'piece of cloth'
fuuta 'woman's head scarf'
girma 'pleat'
qišla 'barracks'
gubba 'room'
kulla 'mosquito net'

[strong]

hujja 'authoritative source'
ʔumma 'people'
ʔusra 'clan'
xulfa 'offspring'
zumra 'gang'
firqa 'team'

FMaaM1iL

Sem	Phon
[agent]	FvMMvvL(a)
[instrument]	
[square]	
[round]	

The items listed here account for about 3/5 of the total number of items in this class -- agent, 1/5; instrument, 1/5; round, 1/14 and square, 1/8. The semantic classes which characterize this plural class are all major categories whose members require no further explanation. There are other [agent] classes, three of which are characterized by different P-shapes for the singular, viz. FaaMi (pl: FuMaat), FaaMiL (pl: FuMMaaL), FaMiiL (pl: FuMalaa?) and one of which has the same P-shape as this class FvMMvvL(v) (pl: FaMaaMiLa). There is also another plural class for [instrument], FamaaMiL, whose characteristic singular P-shape is FvMMvL(a).

Because of the number of semantic features needed to define this class it is probably better analyzed as a P-shape class. (See note under FaMaaMiiL, p.296.)

[agent]

baggaal	'grocer'
bayyaaḥ	'tinner'
ḥammaal	'porter'
xabbaaz	'baker'
raaguus	'dancer'
muxtaar	'mukhtar'
raggaa'	'shoe repairman'
zabbaal	'garbage collector'
ṣabbaaġ	'painter'
ṣaffaar	'coppersmith'
fallaaḥ	'farmer'
gaṣṣaab	'butcher'
gawwaad	'pimp'
kannaas	'sweeper'

mallaaḥ 'sailor'
naddaaf 'man who renovates mattresses'
nazzaaḥ 'man who empties septic tanks'
naaṭuur 'watchman'
laa'uub 'player'
šaa'uul 'fire tender'
saabuuḥ 'expert swimmer'
čaawuus 'foreman'
jaasuus 'spy'

[instrument]

saaṭuur 'cleaver'
miŋgaaš 'tweezer'
maakuuk 'bobbin'
mi'čaal 'sling'
maaxuuṛ 'club, bat'
faddaan 'animal-drawn plow'
faanuus 'lantern'
šaahuul 'plumb line'
siččiin 'knife'
zanjiil 'chain'
čingaal 'fastener'
čillaab 'hook'
čaakuuč 'hammer'
tannuur 'outdoor oven'
bismaar 'nail'
baapuur 'long cigarette holder'
*mhaffa 'hand fan'
*mugaṣ 'scissors'
*jaawan 'large mortar'

[round]

lakluuka 'ball, lump'
karuuk 'baby cradle'
ṣalbuux 'stone'

šaahuud	'large bead on the end of a string of prayer beads'
xarmuuš	'bunch of dates'
minčaasa	'bowl'
maa'uun	'plate'
finjaan	'(small porcelain) cup'

[square]

taabuut	'coffin'
daaguur	'removable center door post'
diilaab	'wardrobe'
raazuuna	'shelf'
sijjaada	'prayer rug'
sirdaab	'cellar'
šibbaač	'window'
ṣanduuq	'money box' } "free" variants
ṣanduug	'box' }
ṭaabuuga	'brick'
qur?aan	'Koran'
kaagada	'sheet'

