

AN INTEGRATED ANALYSIS OF
SWAHILI AUGMENTATIVE-DIMINUTIVES*

Kenneth N. Shepardson
Indiana University
Air University

Incongruities in the distribution of Swahili augmentative-diminutives have either been neglected or misinterpreted in the Swahili literature. The present paper will first remedy this situation by describing in considerable detail the structural and semantic facts pertaining to the augmentative-diminutive prefixal system. It will then offer a generative analysis of the facts, focusing on a specific problem for semantic interpretation which is a consequence of extensive homophony between noun class and augmentative-diminutive prefixes. Due to the dominance of the former over the latter, paradigmatic gaps occur disrupting the regularity which otherwise holds between the syntactic and semantic components. The solution which is adopted appeals to a split in the traditional notion of noun class between the lexicon and the syntax, and resolves the discrepancy in the form to meaning relation by means of an interpretive rule.

1. Introduction to Nominal Classification

Swahili has seven major nominal categories which are generally marked by a distinct pair of singular and plural prefixes. An essential part of the noun class system is the *endocentric* [Stockwell 1977:9] concordial pattern whereby agreement with a head noun is displayed by an elaborate set of prefixes. Given any noun which falls into a particular noun class, it will always take the same concordial pattern as any other noun in the same class. It is not, however, with this dependency relationship that I am concerned, but simply with membership of nouns in their respective classes. In some cases class membership is more or less semantically predictable while in others it is totally arbitrary. Modern Swahili grammars introduce each noun

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class with an account of the semantic bond which supposedly gives cohesion to the lexical items of which it is comprised. Brain's [196?:18] somewhat circular account of the Ki-Vi class is typical:

This very easy class is often called the 'Things Class' since many small and concrete things are in it, and indeed the word which represents the class - KITU - means a thing, plural VITU .

Perrot [1974:10] gives the following account of the M-Mi class:

The class we are now to consider is, like the Ki-Vi class, a class of non-living things, but it includes also trees and other plants. It may be called the MITI (tree) class.

There are, however, just as many nouns in a given class which fall outside these semantic parameters. For instance ki-pimo (Ki-Vi) 'a measure' is not concrete and it isn't necessarily small either. The M-Mi class is indeed primarily a class of non-living things, but such a general definition fails to exclude nouns from the other classes (with the exception of the M-Wa "class of humans").

The noun classes are illustrated in the table below:

<u>Ki-Vi</u>		
<u>singular</u>	<u>gloss</u>	<u>plural</u>
ki-ti	'chair'	vi-ti
ki-tanda	'bed'	vi-tanda
ch-umba*	'room'	vy-umba**
ki-su	'knife'	vi-su
ki-ko	'pipe'	vi-ko
* ki → ch by phonological rule		
** vi → vy " " "		

<u>M-Mi</u>		
m-ti	'tree'	mi-ti
m-kebe	'tin can'	mi-kebe
m-nazi	'coconut palm tree'	mi-nazi
m-keka	'mat'	mi-keka
m-lima	'mountain'	mi-lima

Ø/Ji-Ma

<u>singular</u>	<u>gloss</u>	<u>plural</u>
Ø-sanduku	'suitcase'	ma-sanduku
ji-cho	'eye'	ma-cho
ji-no	'tooth'	me-no*
Ø-gari	'vehicle'	ma-gari
Ø-kabati	'cupboard'	ma-kabati

*ma → me by phonological rule

N

kalamu	'pen'	kalamu
meza	'table'	meza
pua	'nose'	pua
kofia	'hat'	kofia
siagi	'butter'	siagi

Pa

mahali	'place'	mahali
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U

u-fagio	'broom'	Ø-fagio
u-fa	'crack'	nyu-fa
u-toto	'childhood'	---
u-funguo	'key'	Ø-funguo
u-llimi	'tongue'	n-dimi

Class of Animates

m-toto	'child'	wa-toto
ki-boko	'hippopotamus'	vi-boko
m-bwa	'dog'	m-bwa
ki-pofu	'blind person'	vi-pofu
Ø-karani	'clerk'	ma-karani

In the coastal dialects where aspiration is phonemic a further distinction exists between the Ø/Ji-Ma and N classes above. Word initial voiceless stops are aspirated for members of the N class while they are unaspirated for

members of the \emptyset /Ji-Ma class [Polomé 1967:68; Ashton 1944:297]. The data presented above is Standard Swahili. The noun classes are essentially the same for all Swahili dialects, e.g. Kiamu has a Ki-Zi class in place of the Ki-Vi class. The data that will be presented showing augmentative and diminutive patterns is taken from the Kimvita dialect, spoken on Mambasa (Mombasa, Kenya) island. Forms drawn from other dialects will be noted. The implications of this study are the same for all Swahili dialects.

Returning now to the noun classes, note that most of the classes are identifiable by their unique singular-plural prefix patterns. The U class and the "Class of Animates" would thus appear to be incongruous. However, recall that each class is identified exclusively by its concordial pattern, not by its singular-plural prefix pattern (although this holds in most cases). As for the U class, it consists of several sets of singular-plural patterns. The Class of Animates draws its members from nouns that would appear to belong to the other classes, that is, if class membership were determined by the singular-plural prefix pattern. But it is not. Just like the other classes, the U class and the Class of Animates are defined by their respective concordial patterns.

The classification above is my own. The traditional classification of Swahili nominals places nouns in their respective classes on the basis of prefix shape alone, e.g. Brain [196?], Ashton [1944]. Thus animates are exceptional in that they take a distinct concordial pattern in spite of considerable variability in their prefixes. As will be seen, this kind of analysis may be justified on diachronic grounds, but is incompatible with the synchronic facts.

1.1. Augmentatives and diminutives. Augmentative and diminutive forms are also nouns and are also marked by a set of singular and plural prefixes. Interestingly, all of the augmentative-diminutive (hereafter aug-dim) prefixes are identical in shape to certain noun class prefixes. These are the ki-/vi- prefixes which mark diminution and the \emptyset -/ji-/ma- and m-/mi- prefixes that mark augmentation. That the noun class marking and aug-dim marking functions are independent can be readily shown. Diminutive size is not an inherent property of the Ki-Vi noun class. Note for example ki-boko 'a hippopot-

amus', ki-tu 'a thing'. Neither is increasing magnitude intrinsic to the Ø/Ji-Ma and M-Mi classes, e.g. ji-no 'a tooth', ji-cho (Standard) 'an eye', m-shipi 'fishing line', m-shumaa 'a candle'. For a given noun, normal size is associated with the noun class to which it in some sense belongs. And it is not found outside its member class unless emphasis is on either augmentation or diminution. In structural terms, aug-dims are formed by replacing the class prefix with an appropriate aug-dim prefix which has the effect of moving that noun into another class.¹

There are as many as seven levels of augmentation and diminution for those nouns which have access to the entire aug-dim scale. This is illustrated below for k^hapu 'a basket', which is marked as a member of the N class by word initial aspiration.

Table 1: Levels of Augmentation and Diminution

<u>Aug-Dim Level</u>	<u>Swahili</u>	<u>Gloss</u>
2	ki-ji-kapu (vi-)	'tiny basket'
1	ki-kapu (vi-)	'small basket'
0	k ^h apu (Ø-)	'normal basket'
1	kapu (ma-)	'large basket'
2	ji-kapu (ma-)	'larger basket'
3	m-kapu (mi-)	'very large basket'
4	m-ji-kapu (mi-)	'huge basket'

In one sense the levels of augmentation and diminution are relative, but in another sense more important to the linguistic analysis, they are absolute. An analogy can be drawn with the color spectrum. For instance, the point at which English speakers draw the line between what is red and what is pink may

¹The same prefixes are also used figuratively as in scathing reference to a person of a specified nationality:

Ki-ji-hindi 'a little (lowly) Asian'
 Ji-hindi 'a big (bad) Asian'

Similarly, ji-vi 'a big thief' (normally mwivi, M-Wa class) is used in the figurative sense. Augmentatives are also used in a collective sense: ma-paka mengi 'many cats'.

vary from person to person. But we all agree that red and pink are distinct (though closely related) colors, and for the most part we would agree as to what is red and what is pink. Similarly, where Swahili speakers draw the line on the aug-dim scale between one level and another may vary from speaker to speaker. The same large basket might be called *m-ji-kapu* by one speaker and *ji-kapu* by another because the former individual considers it larger relative to the norm than the latter, or because the former simply wants to place more emphasis on its large size than the latter as a matter of style rather than absolute divergence from the norm. This is the relative aspect to which I referred above and which I consider to be trivial since I am concerned with the linguistic system, particularly the relation between form and meaning, not individual speaker variability. It is the absolute interpretation of these levels that is relevant to the analysis of the data. All speakers agree to the distribution of levels shown above. All agree, for example, that *m-ji-kapu* refers to a larger basket than *ji-kapu*, just as they agree that *ki-ji-kapu* is a smaller basket than *ki-kapu*. Thus, just as in the color spectrum there are grey areas between colors, the levels of the aug-dim scale also blend into one another, but they are no less distinct linguistic entities on account of their blending.

It should be noted that the normal class to which a given noun belongs may vary across dialects, although the consequences for the analysis are the same. For instance, *k^hapu* 'a basket' in most coastal dialects is *ki-kapu* in Upcountry and Standard Swahili. At the coast, *ki-kapu* is 'a small basket', while *ki-ji-kapu* is 'a very small basket'. In Upcountry and Standard Swahili, *ki-ji-kapu* is only 'a small basket'. Similarly, *m-guu* is 'a foot/leg' in Upcountry and Standard Swahili while \emptyset -*guu* is the norm in most coastal dialects. For speakers of the latter, *m-guu* would be a 'huge foot/leg'.

1.2. Aug-Dim and noun class interaction. Up to this point we have discussed aug-dim and noun class prefixes as distinct entities. Let us now turn to the facts pertaining to their interaction. The interplay between the two is an obvious consequence of the fact that all of the aug-dim prefixes overlap, i.e. are homophonous, with certain noun class prefixes. Playing a crucial role in the combinatory possibilities is the fact that aug-dim and noun class prefix-

es never co-occur as prefixes on a given nominal stem. Hence the following forms are ungrammatical:

- (1) a. *ki - m - kebe
 dim NC tin can
 b. *ji - ki - tanda
 aug NC bed
 c. *ji - ji - cho
 aug NC eye
 d. *ki - k^hapu
 dim basket (where aspiration marks NC)

Note however that ji- may follow an initial aug-dim prefix (although that initial prefix cannot also be ji-). In (2), ⁺rel is an abbreviation for *relative intensifier* which will be defined later.

- (2) a. ki - ji - sanduku
 dim ⁺rel suitcase
 b. *ji - ji - sanduku
 aug ⁺rel suitcase

Furthermore, when the appropriate aug-dim is homophonous with the noun class prefix of a given nominal stem, only the noun class prefix interpretation occurs. In other words, that level of augmentation or diminution for that particular nominal is rendered non-existent. Observe m-*lima* 'a mountain', for which the m- prefix marks it as a member of the singular M-Mi class. As shown in the table, there is also an m- prefix that marks level 3 of augmentation. However, m- cannot serve the latter function for m-*lima* due to its homophony with the class prefix. The same is true for all such homophonous pairs.

The potential for ambiguity between such homophonous pairs is resolved by the dominance of noun class over augmentation and diminution. If homophonous aug-dim and noun class prefixes were both allowed, speakers would surely be aware of their intentions, but hearers would be hard pressed to disambiguate the two, which fact is illustrated in (3). The symbol = represents well-formedness, and ≠ represents ill-formedness.

- (3) a. =angalia m - kebe ule 'look at that tin can'
 look at NC tin can that

- b. #angalia m - kebe ule 'look at that huge tin can'
look at aug tin can that

There is no contextual information which would assist the hearer in making sense of such a dichotomy. Thus, by rule the aug-dim function is disallowed where potential ambiguity occurs.

It would appear to follow from the facts pertaining to this dominance relation that gaps would occur along the augmentative-diminutive scale. As seen above, sanduku lacks a level 1 augmentative just as ki-tabu lacks a level 1 diminutive and m-lima lacks a level 3 augmentative, etc. Observe below the respective paradigms that would be assumed for these three lexical items.

Table 2: "Gaps" Resulting from Noun Class Dominance

Aug-Dim Scale	ki-tabu 'book'	∅-sanduku 'box'	m-lima 'mountain'
2	ki-ji-tabu (vi-)	ki-ji-sanduku (vi-)	ki-ji-lima (vi-)
1	X	ki-sanduku (vi-)	ki-lima (vi-)
0	ki-tabu (vi-)	∅-sanduku (ma-)	m-lima (mi-)
1	∅-tabu (ma-)	X	∅-lima (ma-)
2	ji-tabu (ma-)	ji-sanduku (ma-)	ji-lima (ma-)
3	m-tabu (mi-)	m-sanduku (mi-)	X
4	m-ji-tabu (mi-)	m-ji-sanduku (mi-)	m-ji-lima (mi-)

(X = gap assumed to exist)

That such gaps do not occur, but are instead filled by the merger of an adjacent aug-dim, specifically the one at the next higher level on the scale, is the analytical problem for which this paper will offer an explanation and analysis.

Merger is now illustrated for the same three lexical items, in Table 3 on the following page. The evidence for merger is simply the fact that semantic gaps corresponding to the morpheme gaps do not exist. If they did, then for ki-tabu (see Table 2) there would have to be a middle ground of diminution between levels 0 and 2 which is inexpressible by means of a diminutive prefix. An adjective such as k'ldogo 'small', might serve to fill in the gap. However, speakers show no hesitation in using the 2nd level diminutive.

Table 3: Merger of Adjacent Aug-Dims

Aug-Dim Scale	<u>ki-tabu</u> 'book'	<u>Ø-sanduku</u> 'box'	<u>m-lima</u> 'mountain'
2	ki-ji-tabu (vi-)	ki-ji-sanduku (vi-)	ki-ji-lima (vi-)
1	† †	ki-sanduku (vi-)	ki-lima (vi-)
0	ki-tabu (vi-)	Ø-sanduku (ma-)	m-lima (mi-)
1	Ø-tabu (ma-)	† †	Ø-lima (ma-)
2	ji-tabu (ma-)	ji-sanduku (ma-)	ji-lima (ma-)
3	m-tabu (mi-)	m-sanduku (mi-)	† †
4	m-ji-tabu (mi-)	m-ji-sanduku (mi-)	m-ji-lima (mi-)

tive to express even slight diminution from the norm. The same argument can be made with respect to any supposed gap which is a consequence of potentially ambiguous noun class and aug-dim prefixes.

Thus nouns differ with respect to the nature of aug-dim expression as a function of noun class membership. In other words, the combined prefixes *ki-ji-* express a degree of diminution which is different for a noun where potential ambiguity exists than that expressed for a noun where it does not. More specifically, the *ki-ji-* prefixes of *ki-ji-tabu* cover both levels 1 and 2 of diminution, whereas the prefixes *ki-ji-* as in *ki-ji-sanduku* 'a very small suitcase', cover only level 2. Level 1 for the latter nominal is expressed as *ki-sanduku* 'a small suitcase'. A parallel situation exists in all cases where the potential for ambiguity occurs. Thus it is seen that the extent of access to the various degrees of aug-dim expression varies with the class to which a given noun belongs.

2. Traditional Accounts

Up to this point strictly empirical claims have been made in describing the structural and semantic facts relevant to the interaction between aug-dim and noun class prefixal systems. Nevertheless, these simple facts constitute no less than a revelation in terms of simple structural description. Modern Swahili grammars—not only those which are purely pedagogical, but those with some degree of linguistic sophistication as well—have either failed or neglected to account for the facts.

Most grammars simply ignore the implications of the interaction between augmentative-diminutive and noun class prefix systems. Ashton [1944:295] presents diminutives and augmentatives in a chapter separate from her discussion of noun class indicating the two are distinct entities, yet she offers no explanation as to why, for instance *ji - ki - tabu is disallowed, or why *ki - tabu, meaning 'a little book', does not occur. According to Ashton, "Where the root is monosyllabic or begins with a vowel, ji- is inserted." The root -tabu is neither monosyllabic nor does it begin with a vowel, yet its diminutive is formed by inserting ji-.² Ironically, Ashton illustrates her claim with a monosyllabic member of the Ki-Vi class, ki-chwa 'a head'. She is apparently unaware that all members of the Ki-Vi Class form their diminutives by inserting ji- in the same manner. Ashton does at least recognize "the additional diminutive idea of ji-," citing m-toto 'a child', ki-toto 'an infant', ki-ji-toto 'a very small infant'. However, she fails to acknowledge the glaring fact that ji- brings about level 2 of diminution in some cases but not in others.

Loogman [1965:33] acknowledges the interaction between the two prefixal systems by stating that diminutives are formed by "transfer" to the Ki-Vi class. He claims that we are not dealing with two prefixal systems, but with one. At the same time he recognizes the fact that the noun class ki- prefix is not primarily diminutive in spite of its diminutive function when

²Even for nominals which are not potentially ambiguous, the number of syllables has nothing to do with diminution. Note ki-taa 'a little light' is the diminutive of taa 'a light' and ki-guu 'a little foot' is the diminutive of m-guu 'a foot'. Any number of exceptions to Ashton's rule could be cited. Her list of words which are claimed to follow the rule that ji- is inserted when the root is monosyllabic is rather a list of idiosyncratic lexical items. For instance, the diminutive of m-tu is ki-ji-tu instead of ki-tu for the simple reason that *ki-tu meaning 'little person' is ungrammatical. This is an idiosyncratic fact of the lexicon which requires no further explanation. I might, however, hypothesize that *ki-tu as the diminutive of m-tu is disallowed due to homophony with a distinct lexical item, ki-tu 'a thing'. Thus it is seen that gaps may result as a consequence of idiosyncratic ungrammaticality as well as potential ambiguity. I have chosen not to deal with this problem in the text since merger would be accounted for in the same manner as for potentially ambiguous nominals.

"transfer" occurs. Thus in some respects, Loogman correctly concludes that aug-dims are identical to noun class prefixes, while in other respects they differ.

Polomé [1967:95-100] states that a given nominal stem allows a restricted "range" of prefixes including the augmentative and diminutive forms. After much elaboration on the remnants attesting the semantic basis of Bantu nominal classification, he refers to two distinct functions of *ji-* as a noun class marker and as an aug-dim. Polomé explains this is "due to the fact that the prefix *ji-* indicating size is actually different from the prefix of class 5 (Ji-Ma) and reflects proto-Bantu **gi-*, which is the regular augmentative class prefix (of Class 21), "He gives an identical account of the discrepancy between the diminutive and class marking functions of *ki-* : "... the function of the proto-Bantu diminutive prefix **ka-* was taken over by *ki-* after the loss of *ka-* in Swahili" (p. 100).

As the present study is synchronic, the historical source of a particular prefix is of little intrinsic value though it may have some insight to offer. It is unclear whether Polomé intends these diachronic facts to have synchronic implications, but it appears that he would posit historically distinct aug-dim and noun class prefixes that have at least partially collapsed into a single synchronic form.

In several respects the modern grammars fall short of providing an adequate description of the facts. They do not account for the variable access to the various aug-dim prefixes which is a function of the class to which a given noun belongs. Ashton offers the only attempt, but her notion that access relates to syllabicity simply doesn't account for the facts. The grammars do recognize the fact that in some respects the two prefixal systems are identical, while in others they serve distinct grammatical functions. But they fail to account for the non-occurrence of aug-dims where the potential for ambiguity exists. Finally, they fail to account for the levels of augmentation and diminution. Ashton only recognizes the existence of a second level of diminution but fails to account for its distribution and offers no explanation why *ji-* covers levels 1 and 2 of diminution in some cases, but only level 2 in others.

3. Analysis

3.1. Independent analysis of ji- . The present paper will offer an explicit account of the facts within the framework of generative grammar. The facts themselves already suggest that, the ultimate resolution of the incongruities between otherwise identical prefixal systems may relate to the recognition of the two systems as identical at one level of analysis but distinct at another. There is, however, one more factual detail that needs clarification before an analysis can be posited.

The semantics of the prefix *ji-* are somewhat elusive on grounds independent of the interaction between the two prefixal systems. When *ji-* occurs word initially as in *ji-sanduku* 'a big suitcase', it means 'big'. When it occurs after the 3rd level augmentative *m-* it shifts the lexical item to which it is attached to the 4th level meaning "bigger than the level of the initial prefix". When attached to the 1st level diminutive *ki-* it similarly brings about a shift to the next level on the scale, i.e. level 2 of diminution, meaning "smaller than the level of the initial prefix". Therefore, in the lexicon the aug-dim *ji-* is defined as a *relative intensifier*. That is, *ji-* enhances the magnitude of a lexical item a single level on the scale. It thus has an augmentative effect when it occurs word initially. When it follows a word initial prefix it intensifies magnitude one level along the scale either augmentatively or diminutively as determined by the initial prefix.

3.2. On the lexicon. A line must be drawn between those facts to be stored in the lexicon and those to be attributed to other components of the grammar. It is generally recognized that the lexicon is the repository of idiosyncratic properties of words, e.g. Jacobs and Rosenbaum [1968:59]. Presumably this definition is not intended as a denial of the ostensibly contrary claim that certain regularities are attributable to the lexicon [Wasow 1977:330-331]. I believe the intent of the definition is that lexical properties are judged idiosyncratic relative to the complete productivity and complete regularity characteristic of syntax and its relation to meaning.

It is a principle of generative grammar that the meaning of a given string is a compositional function of its formatives and thus relegates to the lexi-

con the task of combining elements (or "morphemes" as defined by Aronoff [1974:15]) whose meaning as a whole is indeterminate as a function of the parts [Dowty 1978:120]. The principle says nothing about the extent of productivity and semantic regularity permissible in the lexicon, and it is my view that nothing further need be said (contrary to the claims of Dowty [1978:20] and Wasow [1977:331]). The fact is that the regularities of the lexicon are sub-regularities. That is, they are subsumed under some syntactic or semantic marker that is compositionally indeterminate and thus can only be attributed to the lexicon irrespective of the extent of their productivity and semantic regularity.³

It is generally true that lexical processes are less productive and less semantically regular than syntactic processes, but this is a descriptive rather than explanatory fact and has no crucial bearing on the assignment of a given rule to a particular component. As will be seen, some of the processes involved in the determination of noun class in Swahili are both productive and semantically regular, yet they must be relegated to the lexicon.

3.2.1. Specifics of the lexicon. It has already been intimated that noun class membership will be assigned in the lexicon. To establish this, it need only be shown that noun class prefixes are compositionally indeterminate when they are attached to nominal stems. Of course, it must also be shown that the noun class prefix is a justifiable entity.

The evidence for positing a category NC (noun class) is the fact that a given meaning which is associated with a given noun is uniquely manifested by the association between a specific class prefix and a specific nominal stem, e.g. *ki-tabu* 'a book'. If a different class prefix is attached to that stem, the result is either ungrammaticality, e.g. **u-tabu*, or a change in meaning, e.g. *ji-tabu* 'a big book'.

The association of a particular aug-dim prefix with a particular nominal stem yields a compositionally determinate, i.e. predictable, level of augmen-

³Thus I do not subscribe to the strong lexicalist hypothesis of Jackendoff [1972] which excludes all morphological phenomena from the syntax. It is my view that in terms of the theory this amounts to an arbitrary division between the lexicon and the syntax.

tation or diminution for that nominal as a function of its parts. (The facts pertaining to merger constitute a minor exception and will be dealt with by rule.) The various aug-dim prefixes are thus assigned lexical entries as follows:

		ki-	diminutive; level 1; singular
		vi-	" " plural
Aug-		∅-	augmentative; level 1; singular
Dim		ma-	" " plural
		m-	augmentative; level 3; singular
		mi-	" " plural
Rel		ji-	relative intensifier; singular/plural

(The preceding scheme is not identical to, but is compatible with the "normal form for a dictionary entry" as in Katz and Postal [1964:14] and Katz and Fodor [1964].)

These entries will be lexically inserted into the nodes aug-dim and rel which will be generated in the Base by the Phrase Structure Rules.

On the other hand, compositional determinacy cannot be claimed in the assignment of noun class membership. The point was made at the outset that although there are a number of themes found in the various classes, there exists no semantic bond which ties together all the members of a given noun class. Since there is no compositionally determinate predictability involved in the association between noun class prefix and nominal stem, the relation that holds between the two must be assigned in the lexicon.

As stressed earlier, the incidental occurrence of subregularities in the lexicon has no bearing on this determination. There are, in fact, numerous processes of varying degrees of productivity that determine noun class membership. According to Polomé [1967:96], various shifts and innovations have blurred in many ways the "original" semantic basis of Bantu nominal classification. For instance, the original function of the Ji- class was to indicate one of a pair of objects such as body parts which come in pairs. In synchronic Swahili, ji- has also become the singular counterpart of the Ma- class which expresses groups of things or totality. In addition, the proto-Bantu augmentative *gi- has coalesced with this class.

The consequence of diachronic changes such as those discussed by Polomé

is that little remains of the semantic regularity claimed for proto-Bantu. Whereas for proto-Bantu Polomé might claim a single rule by which membership in each noun class was determined, in synchronic Swahili a number of word formation rules [Aronoff 1976] must be posited to account for class membership. For instance, plants and trees are still generally assigned to the M-Mi class in word formation. Human beings are often assigned an *m-wa* prefix forming a subclass within the Class of Animates, although humans may be assigned other prefixes. Ki-Vi class membership is often assigned to "an implement directly connected with the processes expressed by the verb". (See Polomé [1967:96-103] for a discussion of other processes, but bear in mind that many of them are diachronic rules no longer productive in the language.)

Confirmation of the lexical versus syntactic⁴ aspect of class membership comes from the fact that certain aug-dims have been lexicalized. Note for instance the relation between *sahani* 'a plate' and *ki-sahani* 'a saucer'. The latter form is a lexicalized diminutive of the former. The productive diminutive of *sahani*, i.e. *ki-sahani* 'a small plate', is in this case identical to the lexicalized diminutive. Carrying this a step further, it can be seen that *sahani* has access to two levels of diminution, i.e. *ki-sahani* and *ki-ji-sahani*. On the other, lexicalized *ki-sahani* 'a saucer' has access to a single level of diminution in *ki-ji-sahani*. Speakers confirm the ambiguity of *ki-ji-sahani* between 'a very small plate' and 'a small saucer'.

A process by which many loanwords are assimilated into the respective noun classes is syntactically rather than semantically motivated. The coincidental identity or similarity of the word initial shape of a given loanword,

⁴The "syntactic aspect of class membership" again refers to the workings of a given concordial agreement which is identical for all members of a given class, whether membership is lexically or syntactically determined. The Ki-Vi class singular agreement pattern is illustrated below for the diminutive *ki-kalamu* 'a little pen' and the normal member *ki-tabu* 'a book'.

ki-le ki-tabu ch-ake ki-zuri ki - me - anguka
that book his good it perf fall

'that good book of his has fallen'

" *ki-kalamu* " " " " "

'that little pen of his has fallen'

rather than its semantic compatibility with some noun class, may determine the class into which that lexical item is assimilated. Thus, *Ki-sasi* 'revenge' from Arabic *qaṣāṣ* has become a member of the Ki-Vi class in spite of the notion that this class is primarily composed of physical objects. Similarly, *m-sumari* 'a nail' from Arabic *mīsmār* has been assimilated into the M-Mi class and given a plural *mī-* prefix as well, even though its meaning has no relation to the respective semantically motivated word formation rules that assign nominals to this class. This finding shows that the grammatical aspect of noun class has come to play a role in lexicalization. The purely structural nature of concordial agreement with a head noun of specified prefixal shape is thus a model for loanword assimilation along similar non-semantic lines.

In spite of all the complexities involved in the determination of lexical noun class, the various processes discussed above have equal relevance to the interaction between noun class and the aug-dim prefixal system. They all have the effect of assigning to a given lexical item a neutral or 0 rating with respect to the aug-dim scale.

3.2.2. A condition placed on selection restrictions. Returning to the specifics of the problem at hand, one additional fact must be treated in the lexicon in order to avoid the generation of an ungrammatical Base. The non-occurrence of aug-dims where the potential for ambiguity exists will be accounted for in terms of a condition placed on the lexical selection restrictions for aug-dims. A *selection restriction* is defined by Katz and Postal [1964:15] as "a formally expressed necessary and sufficient condition for that reading to combine with others." Although Katz and Postal discuss selection restrictions which are formulated as functions of semantic markers, they acknowledge that such restrictions may also be formulated as functions of syntactic markers.

Thus in the lexical entry for aug-dims, it is stated that they may combine with any nominal stem except for an adjacent stem whose noun class prefix is homophonous with that particular aug-dim.

SELECTION RESTRICTION	[aug-dim - stem]	condition:	1 ≠ 2 (where =
	N NC N		represents
	1 2		homophony)

Note that the condition does not apply when *ji-* intervenes between *aug-dim* and stem. Apparently the presence of the relative intensifier serves to disambiguate the initial prefix as *aug-dim* rather than *NC*. This is transparent because the relative intensifier never intervenes between the noun class prefix and the nominal stem.

3.2.3. Conclusions on the lexicon. Now it can be understood why Modern Swahili grammars present a confused notion of noun class. There are two distinct linguistic entities, either of which may be justifiably labeled "noun class". On the one hand, there is the syntactic entity on which the operation of concordial agreement is dependent and which is determined by the identity of prefix shape alone. On the other, there is the nonpredictable entity which, due to the lack of semantic regularity, must be assigned in the lexicon.

Although the rules assigned to the lexicon are, like generative rules, in some sense synchronic, evidence that they are distinct on empirical grounds from other processes would support their exclusion from the syntactic component. It would be particularly gratifying if it could be shown that the lexical rules are non-generative, since generative grammar claims the syntactic component to be the generative source in the grammar. Halle [1973], Aronoff [1976], and Dowty [1978] have observed that word formation rules are "once only rules", although this has not been stated as a basic tenet of the theory. Nevertheless, it is claimed that these rules are "very different from the rules of the syntax and the phonology which must apply in the derivation of every sentence" [Aronoff 1976:22].

Dowty [1978:120] appeals to native speaker intuitions as evidence that the productivity of the lexicon is different in kind from that of the generative components:

I believe speakers are potentially capable of remembering that they have heard a newly derived word for the first time, in a way that they very rarely recall hearing a sentence for the first time. A consequence of this is that speakers are able to distinguish between actual and merely possible sentences. These facts suggest to me—as they have to many other linguists—that a crucial fact about lexically derived expressions is that they are (or always can be) learned individually, whereas syntactically derived expressions are not. If they are learned individually, then there must always be, at any one stage of a person's linguistic

knowledge, a fixed finite number of them, though this number may grow from time to time.

In other words, the productivity of the lexicon is necessary to account for the ever-growing nature of the lexicon, not the infinite capacity of native speakers to produce and understand wholly novel structures. Dowty concludes that "the semantic principles behind lexical rules merely enable speakers to know the *approximate* meaning of a new word upon first hearing it."

A recent addition to the Swahili lexicon is the M-Wa (class of human beings) entry, m-benzi 'one who owns a Mercedes Benz'. By lexical rule the borrowed nominal stem -benzi is assigned to the class of human beings and given a new meaning. But just as Dowty argues, this is an approximate meaning. There is nothing to prevent m-benzi from instead meaning a Mercedes Benz mechanic/dealer, etc., but it does not. The fact that it means 'a Mercedes Benz owner' must be remembered. Facts such as these thus offer empirical support for the relegation of word formation rules to the lexicon, and also lend credence to the theoretical device which draws the line between the lexicon and generative components.

3.3. The syntactic base. The following Phrase Structure (PS) rule constitutes the Base of the syntactic component:

$$N \rightarrow \begin{pmatrix} \text{aug} \\ \text{dim} \end{pmatrix} (\text{ji}) \text{ stem}$$

As argued previously, noun class must be associated with the stem in the lexicon. The class of a stem will be marked by means of a feature specification on the stem, e.g. [ki-] for ki-tabu 'a book', formally stated as follows:

LEXICAL ENTRY
-tabu
[ki-]

The alternative of supplying the prefix plus stem, i.e. ki-tabu, to the Base is discounted since it would necessitate the positing of numerous ad hoc morphophonological rules. This is illustrated with a sample derivation for ji-tabu 'a very large book':

Base: ji - ki - tabu
 aug NC stem
 Morphophonological Rule: " \emptyset "
 Surface: ji-tabu

Hence a rule of the following sort would be posited:

$ki \rightarrow \emptyset / ji_ _$ [restricted to nominal prefixation]

In order to account for the facts, many rules of the same type totally lacking in motivation would have to be written.

3.3.1. An obligatory transformation. The PS rule $N \rightarrow (\text{aug-dim}) (ji) \text{ stem}$ alone does not capture the generalization that the nominal stem never occurs in isolation. Rather, this is handled by the operation of an obligatory transformation which segments out the lexical NC feature when neither aug-dim nor ji- precedes the stem. Thus ki-tabu is derived as follows:

```

      N
      |
      stem
      |
      -tabu
      [ki-]
  
```

T-Rule #1 (Obligatory): Adjoin to the left of the stem a segment labeled for lexical noun class if no other constituent occurs in that position.

```

      N
     / \
    ki-  stem
         |
        -tabu
  
```

The augmentative m-ji-kapu 'a huge basket' is readily derived.

```

      N
     / | \
    aug-dim rel stem
     |     |   |
     m-   ji- -kapu
           [N]
  
```

T-Rule #1 does not apply since its structural description is not met. A morphophonemic rule would erase any feature not segmented out by T-Rule #1.

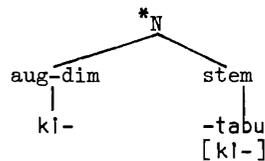
Hence the derivation is compatible with the fact that the lexical noun class

to which *-kapu* belongs, i.e. N, is not revealed on the surface. An explanation of the non-occurrence of *aug-dim + NC* is also offered. For example, #*ji - ki - tabu* cannot be derived also because the structural description of *aug NC stem* T-Rule #1 is not met.

3.3.2. Circumlocution. At the outset it was explained that the potential exists for gaps on the *aug-dim* scale. The occurrence (in theory) of missing levels is accounted for in the lexicon by means of the previously stated condition placed on the selection restrictions for *aug-dims*.

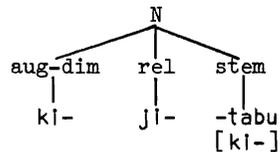
When potential gaps occur, speakers circumlocute to a grammatical Base, namely the next higher level on the *aug-dim* scale.

Ungrammatical Base:



(Not generated due to condition placed on selection restriction.)

Grammatical Base:



The only fact that remains unexplained is semantic merger. A viable analysis must account for the fact that *aug-dims* formed by circumlocution cover semantic ground distinct from that of identical *aug-dims* where the condition placed on selection restrictions is not met. Recall that *ki-ji-tabu* (by circumlocution) covers levels 1 and 2 of diminution, whereas *ki-ji-kalamu* 'a very little pen' only covers level 2.

3.4. Semantic interpretation. The problem posed by merger is resolved by means of an interpretive rule which plays a role in semantic interpretation. As argued in Katz and Postal [1964:13], since syntactic information may be required for the semantic component to assign a given sentence a semantic interpretation, the syntactic component provides the input to the semantic compo-

ment.

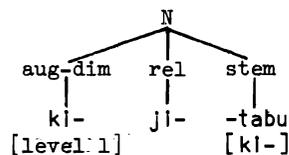
The interpretive rule I propose is triggered by the fact that circumlocution has taken place, which in turn is marked by the identical shape of aug-dim and NC prefixes. The rule is stated as follows:

Iff aug-dim is homophonous with NC, the meaning of the whole merges toward 0 a single level.

No doubt this could be stated more concisely in a formal logic, but this rendering will suffice for our purposes.

In other words, when a strategy of circumlocution is adopted to replace a Base which is prohibited by the non-identity condition in the lexicon, the aug-dim level of the nominal in question merges toward 0 a single level on the aug-dim scale, thus filling in the semantic gap created by ungrammaticality. This rule has the following effects on the bases of *ki-ji-tabu*, *m-ji-kebe*, and *ji-sanduku* respectively.

ki-ji-tabu:

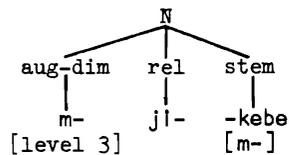


Normal interpretation: rel *ji-* enhances [level 1] *ki-* to [level 2]

Interpretive rule: homophonous aug-dim *ki-* and NC *ki-* trigger merger to [level 1]

Net effect: diminutive levels 1 and 2

m-ji-kebe:

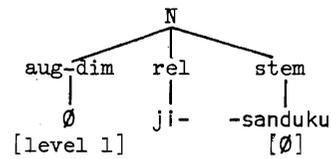


Normal interpretation: rel enhances [level 3] *m-* to [level 4]

Interpretive rule: homophonous aug-dim *m-* and NC *m-* trigger merger to [level 3]

Net effect: augmentative levels 3 and 4

Ji-sanduku:



Normal interpretation: rel ji- enhances [level 1] ∅
to [level 2]

Interpretive rule: identical aug-dim ∅ and NC ∅
trigger merger to [level 1]

Net effect: augmentative levels 1 and 2

A comparison of the results of these rule applications with the facts of merger as presented in Table 3 above shows that the correct semantic interpretation is assigned in each instance.

3.4.1. Faulty analysis of ki-ji-tabu . On the basis of merger as it applies to singular members of the Ki-Vi class such as ki-tabu , one might conclude that the semantic alteration exemplified by diminutive ki-ji-tabu is a result of the replacement of diminutive ki- by noun class prefix ki- . The argument would go as follows: Diminutive ki- attached to the nominal stem -tabu gives ungrammatical *ki-tabu ; thus, in order to form a diminutive, speakers circumlocute by inserting ji- into grammatical ki-tabu , where ki- is the noun class prefix.

Such a claim, in fact, offers an explicit account of the semantics involved. It is compatible with both the aug-dim scale as well as the independently motivated semantics of ji- . The scale claims noun class members to be neutral with respect to augmentation and diminution. Unlike diminutive prefix ki- which is given a level 1 diminutive rating, noun class prefix ki- is assigned a 0 rating. The insertion of the relative intensifier ji- would thus be predicted to have distinct semantic effects, depending on whether it was attached to the noun class prefix or the aug-dim prefix. In the case of a nominal such as ∅-sanduku 'a suitcase', diminutive ki- is attached to the form ki-sanduku (level 1) 'a small suitcase', then ji- is inserted to enhance its magnitude to level 2 forming ki-ji-sanduku 'a very small suitcase'. In the case of a potentially ambiguous nominal such as ki-tabu 'a book', the insertion of ji- would instead enhance

its 0 level noun class prefix to level 1, thereby explaining the fact that only one level of diminution exists for singular Ki-Vi Class nouns that are homophonous with the diminutive prefix *ki-*.

However, such an analysis fails to account for the semantics of certain homophonous aug-dim and noun class prefixes, e.g. aug-dim prefixes *m-/m|-* and noun class prefixes *m-/m|-* respectively. The noun class marker (0 rating) of *m-kebe* 'a tin can' would leave a gap for that particular nominal at augmentative level 3 on the scale. Thus, we would predict that the insertion of *ji-* would enhance *m-ji-kebe* to level 1. But instead it remains at level 4. More precisely, it could be said to merge with level 3 filling the gap left at that position. The important fact is that *m-ji-kebe* does not attain level 1. Speakers confirm that *m-ji-kebe* refers to a bigger tin can than either *Ø-kebe* (level 1) or *ji-kebe* (level 2).

It can only be concluded that initial prefix *m-* in *m-ji-kebe* is the level 3 augmentative and not the noun class prefix. Therefore, unless we want to assume different analyses for *m-ji-kebe* and *ki-ji-tabu*, we must also assume that *ki-* in the latter form is likewise the diminutive prefix.

4. Conclusions

A solution is proposed to account for merger that resolves the problem in terms of an integrated analysis which distributes the burden of explanation among the various components of the grammar. On empirical grounds, the traditional concept of noun class was split between the lexicon and the syntactic component. Adequate justification was likewise provided for the PS rule, the condition placed on aug-dim selection restrictions, the feature analysis of lexical noun class, etc. But in the final analysis there was no alternative but to attribute merger to an interpretive rule.

The justification for the rule is simply the fact that it is compatible with the analysis as a whole as well as the theory. As argued in Katz and Fodor [1964:502], questions of evaluation are to be raised about entire theories rather than parts of theories. Semantic interpretation is but one component of a linguistic theory. Thus I rest my case on the "derivative" (also Katz and Fodor) sense in which an isolated proposal may be justified. Given the fact that the other rules, lexical entries, conditions, etc. are suffi-

ciently well established, the interpretive rule offers the most explicit account of the remaining facts and is thus adopted.

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