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The Adjacency Condition and the Formation  
of Diminutives in Mwera and Kikuyu\*

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Among the principles that may determine the distribution of an affix are restrictions on the phonological properties of the base to which the affix attaches. There is abundant evidence that restrictions of this sort are subject to the Adjacency Condition (Allen 1978:49; cf. Siegel 1978):

- (1) THE ADJACENCY CONDITION: No WFR can involve X and Y, unless Y is uniquely contained in the cycle adjacent to X.

Thus, suppose that prefix<sub>b</sub> is to be attached to an expression X of the form [<sub>X</sub> prefix<sub>a</sub> [ root ]]. According to the Adjacency Condition, the rule which attaches prefix<sub>b</sub> to X should not be sensitive to phonological properties of the root independently of those of X as a whole; one would, for example, be surprised to find that the applicability of this rule to X depended strictly on whether the root began with a vowel, regardless of whether X itself did. Surprisingly, though, an apparent example of exactly this sort can be found in the Mwera language of Tanzania.

In Mwera, as in Bantu generally, nouns fall into a number of different genders, each distinguished by a characteristic pair of singular and plural noun class prefixes; for instance, members of gender I take the prefixes *m-* and *wá-* (e.g. *m-jeni* 'stranger', plural *wá-jeni*). Diminutive nouns belong to gender VII and therefore take the prefixes *ka-* and *tu-*. When a noun belonging to some other gender is diminutivized, it may either take the gender VII prefixes in place of its original gender prefixes (as in the examples in (2a)), or it may take the gender VII prefixes in addition to its original gender prefixes (as in the examples in (2b)). Whether a noun participates in pattern (2a) or pattern (2b) depends on whether the nominal root has an initial consonant or an initial vowel, respectively (Harries 1950:33); that is, whether or not a gender VII prefix can join with a noun of the form [ prefix<sub>gender n</sub> [ root ]] depends entirely on the phonological properties of the root, in apparent conflict with the predictions of the Adjacency Condition. Thus, the formation of Mwera diminutives raises three important questions: (A) What prevents *ka-* and *tu-* from attaching directly to nominal roots beginning with vowels? (B) What prevents *ka-* and *tu-* from attaching to nouns of the form [ prefix<sub>gender n</sub> [ root ]] when the root begins with a consonant? (C) Are the rules of *ka-* and *tu-* prefixation genuine counterexamples to the Adjacency Condition?

## (2) Some Mwera nouns and their diminutives:

|                        | GENDER | SG.    | PL.             | DIMINUTIVES<br>(GENDER VII): |          |
|------------------------|--------|--------|-----------------|------------------------------|----------|
|                        |        |        |                 | SG.                          | PL.      |
| a.                     |        |        |                 |                              |          |
| -jeni 'stranger'       | I      | mjeni  | wajeni          | kajeni                       | tujeni   |
| -kono 'hand'           | II     | mkono  | mikono          | kakono                       | tukono   |
| -kuti 'ear'            | III    | likuti | makuti          | kakuti                       | tukuti   |
| -ndu 'thing'           | IV     | cindu  | indu            | kandu                        | tundu    |
| -jumba 'house'         | V      | nyumba | nyumba          | kajumba                      | tujumba  |
| -wēju 'seed'           | VI     | luwēju | mbeju,<br>mmeju | kawēju                       | tuwēju   |
| b.                     |        |        |                 |                              |          |
| -oto 'fire'            | II     | mōto   | myoto           | kamōto                       | tumyoto  |
| -anja 'journey'        | II     | mwanja | myanja          | kamwāja                      | tumyanja |
| -ino 'tooth'           | III    | lino   | mēno            | kalino                       | tumēno   |
| -ūci 'river'           | VI     | lūci   | nūci            | kalūci                       | tunūci   |
| -ūŋgwe 'string of bow' | VI     | lūŋgwe | nūŋgwe          | kalūŋgwe                     | tunūŋgwe |

These problems are not unique to Mwera but arise elsewhere in Bantu as well. In Kikuyu, as in Mwera, diminutives constitute a separate gender (gender 13/12, in the traditional numeration) into which nominal roots from other genders may be shifted, and as the examples in (3a,b) show, roots with class 9 singulars and identical class 10 plurals retain the gender 9/10 prefix *n-* under diminutivization just in case they begin with a vowel. Thus, diminutives of gender 9/10 nouns in Kikuyu present a set of problems closely analogous to (A)-(C).

## (3) Some Kikuyu nouns and their diminutives:

|                       | GENDER | SG.        | PL.       | DIMINUTIVES<br>(GENDER 13/12): |            |
|-----------------------|--------|------------|-----------|--------------------------------|------------|
|                       |        |            |           | SG.                            | PL.        |
| a.                    |        |            |           |                                |            |
| -būri 'goat'          | 9/10   | mbūri      | mbūri     | kabūri                         | tūbūri     |
| -gombe 'cow'          | 9/10   | ng'ombe    | ng'ombe   | kagombe                        | tūgombe    |
| b.                    |        |            |           |                                |            |
| -ūmba 'house'         | 9/10   | nyūmba     | nyūmba    | kanyūmba                       | tūnyūmba   |
| -ūngū 'pot'           | 9/10   | nyūngū     | nyūngū    | kanyūngū                       | tūnyūngū   |
| c.                    |        |            |           |                                |            |
| -ara 'finger'         | 7/10   | kīara      | ciara     | kaara                          | tūara      |
| -ng'ang'i 'crocodile' | 7/10   | kīng'ang'i | ing'ang'i | kang'ang'i                     | tūng'ang'i |
| -nya 'calabash'       | 7/10   | kīnya      | inya      | kanya                          | tūnya      |
| -ūra 'frog'           | 7/10   | kīūra      | ciūra     | koora (ka-ūra)                 | tūūra      |
| d.                    |        |            |           |                                |            |
| -aki 'fire'           | 3/4    | mūaki      | mīaki     | kamūaki                        | tūmīaki    |
| -īrī 'body'           | 3/4    | mūīrī      | mīīrī     | kamūīrī                        | tūmīīrī    |
| -rūūthi 'lion'        | 3/4    | mūrūūthi   | mīrūūthi  | kamūrūūthi                     | tūmīrūūthi |
| -tī 'tree'            | 3/4    | mūtī       | mītī      | kamūtī                         | tūmītī     |

Note that problems (A)-(C) can't be explained away simply by assuming that the rules which attach the diminutive gender prefixes are restricted so as never to apply to forms which begin with vowels. Even if it were true, this assumption wouldn't solve problem (B), nor (therefore) problem (C); and this assumption is observationally inaccurate in any event. When the Mwera gender VII prefixes *ka-* and *tu-* serve as pronominal concords, they join freely with pronominal roots beginning with vowels: the first demonstrative pronoun *-ene* 'this/these' has the gender VII forms *kene*, *twene* ( $\leftarrow ka-ene, tu-ene$ ); the quantitative pronoun *-ōwe* 'whole, all' has the gender VII forms *kōwe*, *tōwe* ( $\leftarrow ka-ōwe, tu-ōwe$ ); the interrogative pronoun *-ayi* 'which' has the gender VII forms *kayi*, *twayi* ( $\leftarrow ka-ayi, tu-ayi$ ); and so on.<sup>1</sup>

How, then, are problems (A)-(C) to be resolved? In what follows, I shall demonstrate that all three problems are easily resolved within the paradigm function theory of morphology, a theory for which I have presented numerous independent arguments elsewhere (Stump 1990; 1991a-c; 1992; to appear a,b); in particular, I shall demonstrate that three fundamental assumptions underlying the paradigm function theory afford an account of Mwera diminutives that is in full conformity with the Adjacency Condition. Before examining the specifics of this account, it will be useful to consider these three assumptions in detail; for concreteness, I shall use some simple data from Breton to illustrate their effects.

**First assumption:** morphological rules are of two distinct sorts. MORPHOLEXICAL RULES specify the individual operations of inflection, derivation, or compounding by which a complex morphological expression is built up from its parts; examples are the four rules in (4), which generate regular inflected plurals, derived diminutives, denominal privative adjectives, and loose compounds in Breton. PARADIGM FUNCTIONS, by contrast, are functions from the root of a paradigm to the various words constituting that paradigm; for instance, Breton morphology is assumed to include the paradigm function  $PF_{[NUM:pl]}$  exemplified in (5), which applies to any nominal root in the language to yield the plural member of its paradigm. Paradigm functions are defined in terms of morpholexical rules. For instance, the plural paradigm function exemplified in (5) has, as part of its definition, the default clause in (6), according to which its default value for some argument is simply the result of applying the plural morpholexical rule in (4a); it is this clause which determines the value of the plural paradigm function for the argument *bag* 'boat' in (5a). For certain arguments, however, this default clause is overridden; for instance, when the plural paradigm function applies to a nominal root associated with a suppletive paradigm, the resulting value is simply lexically listed, as in the case of the noun *bioc'h* 'cow' in (5b).

(4) Four Breton morpholexical rules:

- a. Inflectional:  $MLR_{[NUM:pl]}([_N x]) =_{def} [_N [_N x] -où]$   
(e.g. *bag-où* 'boats', *tok-où* 'hats')
- b. Derivational:  $MLR_{diminutive}([_X x]) =_{def} [_X [_X x] -ig]$   
(e.g. *bag-ig* 'little boat')
- c. Derivational:  $MLR_{privative}([_N x]) =_{def} [_A di- [_N x]]$   
(e.g. *di-gomz* 'without a word')
- d. Compounding:  $MLR_{compound}([_X x], [_Y y]) =_{def} [_X [_X x] ] [_Y y]]$   
(e.g. *tok-kolo* 'straw hat')

(5) ROOT OF PARADIGM                      PLURAL MEMBER OF PARADIGM

- a.  $[_N \text{ bag}]$  'boat'                       $PF_{[NUM:pl]}([_N \text{ bag}]) = [_N \text{ bagoù}]$
- b.  $[_N \text{ bioc'h}]$  'cow'                       $PF_{[NUM:pl]}([_N \text{ bioc'h}]) = [_N \text{ saout}]$
- c.  $[_N \text{ tok-kolo}]$  'straw hat'                       $PF_{[NUM:pl]}([_N \text{ tok-kolo}]) = [_N \text{ tokoù-kolo}]$
- d.  $[_N \text{ bagig}]$  'little boat'                       $PF_{[NUM:pl]}([_N \text{ bagig}]) = [_N \text{ bagoùigoù}]$

(6) Default clause in the definition of  $PF_{[NUM:pl]}([_N x])$  [= 'the plural form of  $[_N x]$ ']:

$$PF_{[NUM:pl]}([_N x]) =_{def} MLR_{[NUM:pl]}([_N x])$$

In other work, I have argued that a systematic distinction between morpholexical rules and paradigm functions is motivated by two independent considerations. On the one hand, I have shown that this distinction affords a better account of position class morphology than is furnished by theories incorporating no such distinction (Stump 1991b; 1992); on the other hand, I have shown that this distinction affords a better account of the mismatches between a word's morphological structure and its logical representation than do theories in which no such distinction is drawn (Stump 1991a,c).

**Second assumption:** morpholexical rules of derivation/compounding are of two types. CATEGORY-CHANGING rules impose fresh specifications for categorial, morphosyntactic, and purely morphological features on their output; an example is the morpholexical rule in (4c), which produces privative adjectives none of whose feature specifications is inherited from the nominal base. CATEGORY-PRESERVING rules, by contrast, produce structures whose feature specifications are at least partly inherited from the bases from which they arise; examples are the morpholexical rules (4b,d) for diminutives and loose compounds. The diminutive derivatives produced by (4b) inherit both their syntactic category and--in the case of nouns--their gender from their nominal base: *bihan* 'little' (adj.) → *bihanig* 'very little' (adj.), *poir* 'boy' (masc.) → *potrig* 'little boy' (masc.), *merc'h* 'girl' (fem.) → *merc'hig* 'little girl' (fem.). Similarly, the loose compounds produced

by rule (4d) inherit all of their feature specifications from their left-hand member: *yac'h* 'healthy' (adj.) + *pesk* 'fish' (masc.) → *yac'h-pesk* 'in fine health' (adj.), *tok* 'hat' (masc.) + *kolo* 'straw' (coll.) → *tok-kolo* 'straw hat' (masc.), *mamm* 'mother' (fem.) + *kozh* 'old' (adj.) → *mamm-gozh* 'grandmother' (fem.). I assume that the only headed structures in morphology are those arising as the output of a category-preserving rule.

**Third assumption:** In the inflection of a root with an outermost layer of category-preserving derivation/compounding, the inflection tends to be morphologically realized 'inside of' this layer, on the root's head. Among the many examples that might be cited of this tendency is the pluralization of loose compounds in Breton; thus, because the loose compound *tok-kolo* 'straw hat' in (5c) arises as the output of the category-preserving compounding rule in (4d), its plural form *tokoù-kolo* is inflected on its head rather than at its periphery. In the paradigm function theory, this universal tendency is formulated as the H-APPLICATION DEFAULT, a default principle for the evaluation of paradigm functions whose definition (8) draws upon the relation of H-APPLICATION defined in (7).

(7) Definition of H-application:

If MLR is a morpholexical rule such that  $x = \text{MLR}(\dots z \dots)$  and  $z$  is the head of  $x$ , then the H-APPLICATION OF  $\text{PF}_{[\sigma]}$  TO  $x$  (abbreviated as ' $\text{H}_{\text{PF}_{[\sigma]}}(x)$ ') is  $\text{MLR}(\dots \text{PF}_{[\sigma]}(z) \dots)$  if this is defined.

(8) The H-application Default (Stump 1991a):

Where  $\text{PF}_{[\sigma]}$  is a paradigm function and  $x$  is a complex headed structure (i.e. is generated by a category-preserving rule), the default value of  $\text{PF}_{[\sigma]}(x)$  is  $\text{H}_{\text{PF}_{[\sigma]}}(x)$  if this is defined.

To see the effect of introducing the H-application Default, consider the pair of examples in (9). Because the noun *bag* 'boat' is unheaded, the default clause (6) in the definition of  $\text{PF}_{[\text{NUM:pl}]}([\text{N } x])$  determines the plural form of *bag*, as in (9a). On the other hand, because the loose compound *tok-kolo* 'straw hat' is headed, the H-application Default overrides (6) in determining its plural form, as in (9b). This override needn't be stipulated but is guaranteed by the Elsewhere Condition, since the H-application of  $\text{PF}_{[\text{NUM:pl}]}$  is defined for a narrower class of arguments than the default plural morpholexical rule in (4a).

- (9)a. By (6),  $\text{PF}_{[\text{NUM:pl}]}([\text{N } \textit{bag}]) = \text{MLR}_{[\text{NUM:pl}]}([\text{N } \textit{bag}])$   
 $= [\text{N } [\text{N } \textit{bag} ] \text{-où} ]$ , as in (5a)

$$\begin{aligned}
(9)b. \quad & \text{By (8), } PF_{[NUM:pl]}([_N \text{ tok } ][_N \text{ kolo } ]) \\
& = H_{PF_{[NUM:pl]}}([_N \text{ tok } ][_N \text{ kolo } ]) \\
& = MLR_{\text{compound}}(PF_{[NUM:pl]}([_N \text{ tok } ]), [_N \text{ kolo } ]) \\
& = MLR_{\text{compound}}(MLR_{[NUM:pl]}([_N \text{ tok } ]), [_N \text{ kolo } ]) \\
& = [_N \text{ } [_N \text{ } [_N \text{ tok } ] -o\grave{u} ] [_N \text{ kolo } ]], \text{ as in (5c)}
\end{aligned}$$

Although the H-application Default overrides clause (6) in determining the value of  $PF_{[NUM:pl]}$  for headed arguments, it is a default which may itself be overridden. For instance, when  $PF_{[NUM:pl]}$  has a diminutive noun as its argument, its value is determined by (10). Thus, even though *bagig* ‘little boat’ is headed, its plural form is not simply determined by the H-application Default; because it is a diminutive noun, its plural form is instead determined by the overriding clause (10) as in (11). Here again, the override relation needn’t be stipulated, since it is predicted by the Elsewhere Condition.

(10) Overriding clause in the definition of  $PF_{[NUM:pl]}([_N \text{ } x ])$ :

$$PF_{[NUM:pl]}([_N \text{ } x ]) =_{\text{def}} MLR_{[NUM:pl]}(H_{PF_{[NUM:pl]}}([_N \text{ } x ]))$$

if  $[_N \text{ } x ] = MLR_{\text{diminutive}}([_N \text{ } y ])$

$$\begin{aligned}
(11) \quad & \text{By (10), } PF_{[NUM:pl]}([_N \text{ bag } ] -ig ) \\
& = MLR_{[NUM:pl]}(H_{PF_{[NUM:pl]}}([_N \text{ bag } ] -ig )) \\
& = MLR_{[NUM:pl]}(MLR_{\text{diminutive}}(PF_{[NUM:pl]}([_N \text{ bag } ]))) \\
& = MLR_{[NUM:pl]}(MLR_{\text{diminutive}}(MLR_{[NUM:pl]}([_N \text{ bag } ]))) \\
& = [_N \text{ } [_N \text{ } [_N \text{ bag } ] -o\grave{u} ] -ig ] -o\grave{u} ], \text{ as in (5d)}
\end{aligned}$$

These examples should suffice as an illustration of the three relevant assumptions underlying the paradigm function theory. Given these assumptions, the structure of Mwera diminutive nouns can be easily brought into conformity with the Adjacency Condition, as I now show.

I assume that the Mwera noun class prefixes are spelled out by means of the morpholexical rules in (12). (As they are stated, these rules are general enough to apply not only to nouns but also to verbs, adjectives, determiners, and so on, since some of the prefixes introduced by these rules serve not only as nominal prefixes but also as noun class concords on expressions in these other categories; the precise extent to which these rules apply in the inflection of such expressions ultimately depends on the statement of the paradigm functions defining their paradigms.) I further assume that diminutivization is effected by the pair of derivational rules in (13), which shift nouns into gender VII but don’t add any affixes (so that the diminutive prefixes are purely inflectional in function); note that rule (13a) is category-changing and therefore produces unheaded diminutives from consonant-initial roots, while rule (13b) is category-preserving and therefore

produces headed diminutives from vowel-initial roots. Finally, I assume that a nominal root is linked to both the singular and the plural member of its paradigm by the paradigm function schema (14); as this schema is stated, the overriding clause (b) determines the singular and plural forms of headed roots, while those of headless roots are determined by the default clause (a). Note, in passing, how closely (14) parallels the paradigm function for Breton plurals defined earlier in (6) and (10).

(12) Some Mwera inflectional rules (partial):

- a.  $MLR_{[GEN:i, NUM:sg]}([_X x]) =_{def} [_X m- [_X x]]$
- b.  $MLR_{[GEN:i, NUM:pl]}([_X x]) =_{def} [_X \hat{w}a- [_X x]]$
- c.  $MLR_{[GEN:ii, NUM:sg]}([_X x]) =_{def} [_X m- [_X x]]$
- d.  $MLR_{[GEN:ii, NUM:pl]}([_X x]) =_{def} [_X mi- [_X x]]$
- e.  $MLR_{[GEN:iii, NUM:sg]}([_X x]) =_{def} [_X li- [_X x]]$
- f.  $MLR_{[GEN:iii, NUM:pl]}([_X x]) =_{def} [_X ma- [_X x]]$
- g.  $MLR_{[GEN:iv, NUM:sg]}([_X x]) =_{def} [_X ci- [_X x]]$
- h.  $MLR_{[GEN:iv, NUM:pl]}([_X x]) =_{def} [_X i- [_X x]]$
- i.  $MLR_{[GEN:v, NUM:sg]}([_X x]) =_{def} [_X n- [_X x]]$
- j.  $MLR_{[GEN:v, NUM:pl]}([_X x]) =_{def} [_X n- [_X x]]$
- k.  $MLR_{[GEN:vi, NUM:sg]}([_X x]) =_{def} [_X lu- [_X x]]$
- l.  $MLR_{[GEN:vi, NUM:pl]}([_X x]) =_{def} [_X n- [_X x]]$
- m.  $MLR_{[GEN:vii, NUM:sg]}([_X x]) =_{def} [_X ka- [_X x]]$
- n.  $MLR_{[GEN:vii, NUM:pl]}([_X x]) =_{def} [_X tu- [_X x]]$

(13) Two Mwera derivational rules:

- a. Category-changing:  $MLR1_{diminutive}([_{N[GEN:n]} x]) =_{def} [_{N[GEN:vii]} x]$   
Condition:  $[_N x]$  is a consonant-initial root.
- b. Category-preserving:  $MLR2_{diminutive}([_{N[GEN:n]} x]) =_{def} [_{N[GEN:vii]} x]$   
Condition:  $[_N x]$  is vowel-initial if it is a root.

(14) Paradigm function schema for singular and plural nouns in Mwera:

Where  $[_N x] \in [GEN:\beta]$ ,

- a. Default:  $PF_{[NUM:\alpha]}([_N x]) =_{def} MLR_{[GEN:\beta, NUM:\alpha]}([_N x])$ ;
- b. Override:  $PF_{[NUM:\alpha]}([_N x]) =_{def} MLR_{[GEN:\beta, NUM:\alpha]}(H_{PF_{[NUM:\alpha]}}([_N x]))$  if this is defined.

To see how this analysis works, consider a pair of examples, beginning with the root *kono* 'hand' in (15a). Because *kono* is consonant-initial, its diminutive

derivative arises through the application of the category-changing rule (13a) (as in (15b)) and is therefore unheaded. Given this fact, the inflected singular and plural forms of this derivative must be determined by clause (a) of the paradigm function schema (14), as in (15c,d).

(15) a. ‘hand’:  $[_N \text{ kono } ]_{ii}$  ( $\in$  [GEN:ii])

b.  $\text{MLR1}_{\text{diminutive}}([_N \text{ kono } ]_{ii}) = [_N \text{ kono } ]_{vii}$  ( $\in$  [GEN:vii])

c.  $\text{PF}_{[\text{NUM:sg}]}([_N \text{ kono } ]_{vii})$   
 $= \text{MLR}_{[\text{GEN:vii}, \text{NUM:sg}]}([_N \text{ kono } ]_{vii})$   
 $= [_N \text{ ka- } [_N \text{ kono } ]_{vii}]$

d.  $\text{PF}_{[\text{NUM:pl}]}([_N \text{ kono } ]_{vii})$   
 $= \text{MLR}_{[\text{GEN:vii}, \text{NUM:pl}]}([_N \text{ kono } ]_{vii})$   
 $= [_N \text{ tu- } [_N \text{ kono } ]_{vii}]$

Turn now to the contrasting case of a vowel-initial root such as *oto* ‘fire’ in (16a). Because *oto* is vowel-initial, its diminutive derivative arises through the application of the category-preserving rule (13b) (as in (16b)) and is therefore headed (by the root  $[_N \text{ oto } ]_{ii}$  itself). In view of this fact, the inflected singular and plural forms of this derivative are determined by clause (b) of the paradigm function schema (14), as in (16c,d).

(16) a. ‘fire’:  $[_N \text{ oto } ]_{ii}$  ( $\in$  [GEN:ii])

b.  $\text{MLR2}_{\text{diminutive}}([_N \text{ oto } ]_{ii}) = [_N \text{ oto } ]_{vii}$  ( $\in$  [GEN:vii]) [Head:  $[_N \text{ oto } ]_{ii}$ ]

c.  $\text{PF}_{[\text{NUM:sg}]}([_N \text{ oto } ]_{vii})$   
 $= \text{MLR}_{[\text{GEN:vii}, \text{NUM:sg}]}(\text{H}_{\text{PF}_{[\text{NUM:sg}]}}([_N \text{ oto } ]_{vii}))$   
 $= \text{MLR}_{[\text{GEN:vii}, \text{NUM:sg}]}(\text{MLR2}_{\text{diminutive}}(\text{PF}_{[\text{NUM:sg}]}([_N \text{ oto } ]_{ii})))$   
 $= \text{MLR}_{[\text{GEN:vii}, \text{NUM:sg}]}(\text{MLR2}_{\text{diminutive}}(\text{MLR}_{[\text{GEN:ii}, \text{NUM:sg}]}([_N \text{ oto } ]_{ii})))$   
 $= [_N \text{ ka- } [_N \text{ m- } [_N \text{ oto } ]_{ii}]]$

d.  $\text{PF}_{[\text{NUM:pl}]}([_N \text{ oto } ]_{vii})$   
 $= \text{MLR}_{[\text{GEN:vii}, \text{NUM:pl}]}(\text{H}_{\text{PF}_{[\text{NUM:pl}]}}([_N \text{ oto } ]_{vii}))$   
 $= \text{MLR}_{[\text{GEN:vii}, \text{NUM:pl}]}(\text{MLR2}_{\text{diminutive}}(\text{PF}_{[\text{NUM:pl}]}([_N \text{ oto } ]_{ii})))$   
 $= \text{MLR}_{[\text{GEN:vii}, \text{NUM:pl}]}(\text{MLR2}_{\text{diminutive}}(\text{MLR}_{[\text{GEN:ii}, \text{NUM:pl}]}([_N \text{ oto } ]_{ii})))$   
 $= [_N \text{ tu- } [_N \text{ mi- } [_N \text{ oto } ]_{ii}]]$

In this analysis, the inner noun class prefix in a number-inflected diminutive of the form  $[\text{prefix}_{\text{gender VII}} [\text{prefix}_{\text{gender } n} [\text{root} ]]]$  appears as an effect of H-application—that is, it appears whenever the root’s diminutive derivative is headed and never otherwise. Thus, the question (A) raised earlier can now be straightforwardly answered as follows: *ka-* and *tu-* do not attach directly to diminutivized roots beginning with vowels because roots of this sort are headed and

therefore exhibit H-application when they inflect for number, in accordance with the overriding clause (b) of the paradigm function schema (14). Question (B) is similarly resolved: because diminutivized roots beginning with consonants are unheaded, their number-inflected forms never exhibit H-application; thus, in the singular and plural forms of such a root, *ka-* and *tu-* are not accompanied by an inner noun class prefix but simply attach to the root itself, in accordance with the default clause (a) of the paradigm function schema (14). Finally, this analysis makes it possible to answer question (C) in the negative: the Mwera facts do not counterexemplify the Adjacency Condition, since none of the morpholexical rules in (12) and (13) needs to peek at the root-initial segment when applying to an expression of the form [ prefix<sub>gender n</sub> [ root ] ]; on the contrary, the only time the initial segment of a root is even checked is when one of the diminutivization rules in (13) applies directly to that root.

One controversial aspect of this analysis is the postulation of a pair of diminutivization rules whose definitions are similar but which differ in that one is category-changing while the other is category-preserving. There is, however, clear independent evidence for comparable rule pairs in other languages. Consider again the formation of diminutives in Kikuyu, where--as in Mwera--diminutivization amounts to a simple shift in gender. As noted earlier, the diminutive derivatives of Kikuyu nouns belonging to gender 9/10 vary in their formation in a manner parallel to those of Mwera nouns. Interestingly, the diminutive derivatives of Kikuyu nouns belonging to genders other than 9/10 also vary in their formation, but in a somewhat different way: whether the diminutive derivatives of a nominal root *x* exhibit an inner noun class prefix depends not on whether *x* begins with a vowel or a consonant, but on the gender to which *x* belongs. Thus, diminutive nouns converted from gender 7/10 do not exhibit an inner prefix, while those converted from gender 3/4 do; the examples given earlier in (3c,d) illustrate.

The paradigm function framework makes it possible to account for these additional Kikuyu facts with a system of rules just like (12)-(14); in this system, the diminutives of roots in gender 7/10 (and several other genders) would arise by means of a category-changing rule, while the diminutives of roots in gender 3/4 would arise by means of a category-preserving rule. It is a virtue of the paradigm function approach that it allows both the Mwera facts and these Kikuyu facts to be regarded as instances of the same phenomenon.

English provides another apparent example of a pair of similar derivational rules one of whose members is category-changing and the other of which is category-preserving. When it attaches to an adjective or a noun, the derivational prefix *be-* is clearly category-changing (e.g. *becalm*, *befoul*, *belittle*; *befriend*, *bejewel*, *bewitch*). When it attaches to a verb, however, it is more plausibly regarded as category-preserving: on this view, the fact that the deverbal derivatives *be**fall*, *be**hold*, and *be**speak* have the irregular past tense forms *befell*, *beheld*, and *bespoke* follows automatically from the H-application Default, given

that *fall*, *hold*, and *speak* have the irregular past tense forms *fell*, *held*, and *spoke*.

One objection that might be raised to the analysis proposed here is that it doesn't explain why vowel-initial roots should be the ones which coincide with the appearance of the inner noun class prefix in Mwera diminutives of the form [ prefix<sub>gender VII</sub> [ prefix<sub>gender n</sub> [ root ]]]. The explanation is, of course, ultimately phonological in nature: the inclusion of prefix<sub>gender n</sub> makes it possible to avoid the vowel hiatus that might otherwise exist between prefix<sub>gender VII</sub> and a vowel-initial root, and thus to head off the application of rules of vowel elision and coalescence that might otherwise diminish the morphological transparency of the word as a whole. But even if such phonological considerations were responsible for the evolution of the pattern of diminutive morphology in Mwera, it does not follow that the processes by which number-inflected diminutive structures of the form [ prefix<sub>gender VII</sub> [ prefix<sub>gender n</sub> [ root ]]] are synchronically derived recapitulate the processes of their evolution; indeed, independent evidence suggests that synchronically, the appearance of the inner noun class prefix should simply be viewed as an effect of H-application. Note first that H-application is the only reasonable explanation for the appearance of the inner prefix in number-inflected diminutives of gender 3/4 nouns in Kikuyu, since there is no plausible phonological explanation for its appearance in this class of cases. For that matter, there is no plausible SYNCHRONIC phonological explanation for its appearance in the number-inflected diminutives of vowel-initial nominal roots of gender 9/10 in Kikuyu, since these roots appear in second-degree diminutive structures of the form [ prefix<sub>gender VII</sub> [ root ]] as well as in first-degree diminutive structures of the form [ prefix<sub>gender VII</sub> [ prefix<sub>gender n</sub> [ root ]]]; for instance, *ny-ũmba* 'house' and *ny-ũngũ* 'pot' have *ka-ny-ũmba* 'small house' and *ka-ny-ũngũ* 'small pot' as their first-degree diminutives (cf. (3b)) but *komba* (← *ka-ũmba*) 'tiny house' and *kongũ* (← *ka-ũngũ*) 'tiny pot' as their second-degree diminutives (Barlow 1960:260).<sup>2</sup> Thus, assuming that the formal similarity between the number-inflected diminutive structures in (2b), (3b), and (3d) is not just coincidental but follows from a fundamental similarity in their synchronic derivation, an analysis which attributes the appearance of the inner noun class prefix in a number-inflected diminutive to the H-application of PF<sub>[NUM:α]</sub> is superior to an analysis which treats it as a response to phonological exigencies.

In the context of the paradigm function theory, the Adjacency Condition is a prohibition on references to the proper subparts of an expression in the definition of a morpholexical rule applying to that expression. This prohibition rules out an analysis of Mwera diminutives in which the morpholexical rules of *ka-* and *tu-* prefixation check to see whether the noun to which they apply properly contains a vowel-initial root, as in (17).

- (17) ILLICIT CONDITION ON RULES (12m,n): When  $[_N x] = [_N z [_N y ]]$ ,  
MLR<sub>[GEN:vii, NUM:α]</sub>( $[_N x]$ ) is defined only if  $[_N y]$  begins with a vowel.

I would like to suggest, however, that the definitions of morpholexical rules are subject to an even stronger constraint which prevents them from referring to the derivational history of the expressions to which they apply; this constraint might be stated as in (18).

- (18) CONSTRAINT ON MORPHOLEXICAL RULES: Where  $M_1$  and  $M_2$  are morpholexical rules and  $x$  and  $y$  are expressions such that  $x = M_2(y)$ , the definition of  $M_1(x)$  cannot make specific reference to  $M_2$  or  $y$ .

Unlike the Adjacency Condition, (18) entails that the applicability of a morpholexical rule to an expression  $x$  cannot be sensitive to the identity of the morpholexical rule which generates  $x$ . This constraint rules out an analysis of Mwera diminutives in which the morpholexical rules of *ka-* and *tu-* prefixation check to see whether the noun to which they apply arises through the application of a rule of number inflection to a vowel-initial root, as in (19).

- (19) ILLICIT CONDITION ON RULES (12m,n): When  $[_N x] = \text{MLR}_{[\text{GEN}:\beta, \text{NUM}:\alpha]}([_N y])$ ,  $\text{MLR}_{[\text{GEN}:\text{vii}, \text{NUM}:\alpha]}([_N x])$  is defined only if  $[_N y]$  begins with a vowel.

One might reasonably ask whether the constraint in (18) should be extended so as to restrict not only the definitions of morpholexical rules but those of paradigm functions as well. But given that paradigm functions are not "word formation rules" at all (cf. e.g. (5b)), there is no reason, a priori, why they should obey a constraint analogous to (18). And in fact, the value of a paradigm function for a given root  $x$  MUST in some cases be conditioned by the identity of the morpholexical rules generating  $x$ ; this is most obviously necessary in those cases in which the value of the paradigm function is recursively defined in terms of its H-application to  $x$  (as e.g. in (10) and (14b)).<sup>3</sup> Nevertheless, I know of no cases where the definition of a paradigm function has to look more than one rule deep into the derivational history of its argument; I presume that this fact reflects a general restriction on paradigm functions which is at least akin to the constraint in (18).

#### Notes

- \* I would like to thank Allan Gatibaru and Esther Kinyanjui for helpful information about spoken Kikuyu; I would also like to thank Larry Hyman, Steve Lapointe, and David Perlmutter for helpful comments.
1. The Kikuyu gender 13/12 prefixes *ka-* and *tū-* join freely with vowel-initial forms belonging to genders other than 9/10: the gender 1/2 noun *mūirīitu/airīitu* 'girl/s' has the diminutive forms *kairīitu/mūirīitu*; the gender 3/6 noun *ūthiū/moothiū* 'face/s' has the diminutive forms *goothiū* (←

*ka-ūthiū)/tūūthiū*; and so on. Note also the formation of second-degree diminutives mentioned below.

2. In the paradigm function theory, all such second-degree diminutive derivatives would arise through the application of a category-changing diminutivization rule, accounting for the absence of H-application in forms such as *komba* and *kongū*.
3. Recursive paradigm functions are not the only ones that apparently need to look one rule deep into the derivational history of their arguments; see, for example, the nonrecursive Sanskrit paradigm function  $f_{[VFORM:gerund]}$  proposed by Stump (1991a:704).

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