Consonant Mutation and Reduplication in Blin Singulars and Plurals

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1. Introduction

Blin[1], a Central Cushitic (Agaw) language of Eritrea, displays a complex series of consonant mutations between plural and singular forms, with several unusual properties. This paper describes several such properties, focusing on consonant mutation (or apophony), especially in relation to reduplication, using Correspondence Theory (McCarthy and Prince 1995) within the overall framework of Optimality Theory, drawing on data based on both published sources (e.g. Lamberti and Tonelli 1997) and the author's fieldwork in Eritrea. This paper describes the rare interaction between mutation and reduplication, and provides additional support for Mc Laughlin's (2000) analysis of mutation as the result of featural affixation (Akinlabi 1996, Zoll 1998) to the root node of a consonant. However, unlike Mc Laughlin's analysis, where mutation was stem-initial, in Blin such mutation is stem-final.

One of the more unusual properties of Blin is that for phonological purposes, it is often easier to take the plural as the underlying form, since singulars and singulatives are morphologically marked. For example, /kɨrɨŋ/ 'stones' has a singular /kɨrɨŋ-a/. One common mutation is the lenition of velar stops: /ləkˀ/ 'fires', /ləx-a/ (sg.). The loss of continuancy also results in the loss of ejection (/gakˀ/ → /gax-a/ 'cave (pl./sg.)', but not labialization /ʔɨkʷin/ → /ʔɨxʷin-a/ 'woman (pl./sg.)', /sakʷˀ/ → /saxʷ-a/ 'fat (n.)(pl./sg.)'. In addition, velar lenition may occur word-medially, e.g. [bəkɨl] → [bəxl-a] 'mule (pl./sg.)'. More than one mutation process may also occur within the word: /dɨkʷˀɨl/ → /dɨxʷar-a/ 'donkey (pl./sg.)'. Besides consonant mutation, some plurals are formed using partial reduplication of the final stem consonant, with the high central vowel regularly epenthesized, e.g. /ʕɨl/ → /ʕɨl-ɨl/ 'eye (sg./pl.)', /gix/ → /gix-ɨx/ 'horn (sg./pl.)'. This contrasts with cases in which the plural is the base for the singular.

After a brief overview of the phonemic inventory and the role of epenthesis, this paper examines the how singulars are formed, contrasting non-alternating cases with reduplication in plural formation and various types of mutation in the singular.

2. Phonemic Inventory

The phonemes of Blin are, after Palmer (1960), Lamberti and Tonelli (1996), and Fallon (2001) listed as follows, with [tʃ] found in loans, and the phonemic status of glottal stop dubious:

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[1] Following native speaker preference (e.g. Kiflemariam 2005, Eritrean Ministry of Education n.d.), I use the spelling Blin. The language is commonly spelled Bilin in English publications, or Bilen, under Tigrinya influence.

 Selected Proceedings of the 35th Annual Conference on African Linguistics, ed. John Mugane et al., 114-124. Somerville, MA: Cascadilla Proceedings Project.

(1)		t	(tʃ)	k	k^w		(ʔ)
	b	d	dʒ	g	g^w		
		t’	tʃ’	k’	k^w’		
	f	s	ʃ	x	x^w	ħ	h
		z				ʕ	
	m		n	ŋ	$ŋ^w$		
			l, r				
	w			j			

3. Epenthesis

Epenthesis occurs frequently in Blin to break up consonant clusters in syllable onsets or codas, which are strictly prohibited (Fallon 2001). The example below shows epenthesis of the high central vowel /ɨ/ between the stem-final consonant /g-/ and its reduplicant.

(2)	a. /kɨriŋ/ 'stones'	/ kɨriŋ-a/	'stone'
	b. /lak’l/→ [lak’ɨl] 'bees'	/lax.l-a/	'bee-sg.'
	c. /gug+ RED/ → [gug-ɨg] 'roads'	/gug/	'road'

4. Regular Singular Formation

Before looking at some of the more complex types of plural formation, we will first examine suffixal plural formation. In addition to a singular/plural distinction, Blin has a distinction between general/collective and individuative/singulative (Lamberti and Tonelli 1997:507) in which the singular (singulative) is formally marked. Compare the following types, where (3) shows the singular marked with either the suffix /-ra/ or more frequently, /-a/, both of whose distribution is morphologically determined:

(3)	Plural		Singular/Singulative	
	ʔiŋk^w’irəʕ	'frogs'	ʔiŋk^w’irəʕ-ra	'frog' LT97:508[2]
	gɨrɨw	'men'	gɨrɨw-a	'man' LT97:508

There are usually no stem alternations when the plural is expressed through simple suffixation. The examples in (4) are shown by the final stem consonant.

(4)	Plural		Singular	
d	galud	'knives'	galud-a	'knife' LT97:508
ʃ	ʔəʃ	'leaves'	ʔəʃ-a	'leaf'
n	kan	'trees/firewood'	kan-a	'tree' LT97:508
ŋ	kɨriŋ	'stones'	kɨriŋ-a	'stone' LT97:508
l	mak’əl	'female friends'	mak’əl-a	'femalefriend' LT97:508
r	k^w’ɨr	'children/babies'	k^w’ɨr-a	'child/baby' LT97:508
w	gɨrɨw	'men'	gɨrɨw-a	'man' LT97:508

5. Reduplicative Plural Formation

We turn next to a description and analysis of those Blin plurals which show only reduplication. If

[2] Abbreviations for printed sources: LT96 = Lamberti and Tonelli 1996; LT 97 = Lamberti and Tonelli 1997; P58 = Palmer 1958; P60 = Palmer 1960; Z76 = Zaborski 1976 (whose data come in turn from Reinisch 1882). My own data are largely in accord with the published sources. All transcriptions are normalized to standard IPA usage.

a singulative suffix is present, it is not of course in the plural, which is formed on the basis of the stem. The Blin plural reduplicant corresponds to the final consonant of the singular stem; epenthetic /ɨ/ is inserted to break up the coda consonant cluster. We will first examine the data, and then will begin to formalize the constraints involved.

(5) Final consonant of base is reduplicated as a suffix; neutral vowel epenthesized

	Singular	Plural	Gloss	
d	gʷɨnd-aj	gʷɨnad-ɨd	'stump' (loan)	LT97:510
k	bɨrɨk	bɨrk-ɨk	'elbow'	LT97:509
	ʃaŋk-a	ʃaŋk-ɨk	'pasture'	LT97:509[3]
kʷ	ʔerkʷ-i	ʔerkʷ-ɨkʷ	'tooth'	P58:386
	lɨkʷ	lɨkʷ-ɨkʷ	'leg/foot'	LT97:509
	mɨkkʷ-a	mɨkkʷ-ɨkʷ	'buttocks'	LT97:510
k’	məŋk’-a	məŋk’-ɨk’	'pot of clay'	LT97:510
	laŋk’-i	laŋk’-ɨk’	'tongue'	LT97:510
g	gug	gug-ɨg	'road'	LT97:509
	ʔɨŋg-i	ʔɨŋg-ɨg	'village'	LT97:510
f	kanf-í	kanf-íf	'wing'	P58:386
s	kəs	kəs-ɨs	'shoulder'	P58:386
ʃ	gəʃ	gəʃ-ɨʃ	'face'	P58:386
	gaʃ-aj	gaʃ-ɨʃ	'guest'	LT97:510
	kʷ’ɨmɪ́ʃ	kʷ’ɨmʃ-ɨʃ	'cheek'	P58:379
x	gɨx	gɨx-ɨx	'horn'	LT97:509
m	kɨrm-á	kɨrm-ím	'neck'	P58:386
l	ʃə́l	ʃəl-íl	'boundary'	P58:386
	ʕɨl	ʕɨl-ɨl	'eye'	LT97:509
r	fɨr-a	fɨr-ɨr	'seed/fruit'	LT97:509

The constraints proposed here are standard (McCarthy and Prince 1995, Kager 1999). The first one is to account for the fact that reduplication in Blin is not of the whole stem, but is instead partial reduplication of the final consonant of the stem.

(6) MAX-BR
Every element of Base has a correspondent in Reduplicant (‘No partial reduplication’).

Since Blin does have partial and not total reduplication like *gɨx-gɨx 'horns', this constraint is low-ranked. The second constraint is the epenthesis constraint, since material in the Reduplicant (the epenthetic vowel) does not correspond to what is within the stem Base.

(7) DEP-BR
Every element of R has a correspondent in B.
‘If undominated, the reduplicant is composed solely of segments that occur in the base’.

In the case of Blin, the epenthetic vowel is added, and so the constraint is violated.

The next constraint determines the size and shape of the reduplicant (RED)–whether it will be the entire stem or some part of it such as a syllable or part of a syllable. We know from the ungrammaticality of forms such as *gɨx-gɨx 'horns' that the template is not the stem or the entire syllable. Forms such as /kɨrm-á/ 'neck' and its plural /kɨrm-ím/ show that the template is not even the

[3] Lamberti and Tonelli (1997:510) record two forms in which the reduplicant appears to occur medially; both are with medial /k/ and final nasal. Note, however, that the medial vowel is not the epenthetic /ɨ/, but instead /a/. The forms are /ʃəkɨm/ 'chin', pl. /ʃək-ak-ɨm/ and /ʃəkɨn/ 'knife', pl. /ʃək-ak-ɨn/.

final (coda) consonants of the stem. Instead, the reduplicant template is only the final stem consonant:

(8) RED=C]$_{stem}$
The reduplicant is the stem-final consonant.

The next two constraints ensure that the reduplicant template will align with the base in determining the template, and that the reduplicant will be placed as a suffix, not a prefix.

(9) ANCHORING-BR
Correspondence preserves alignment in the following sense: the left (right) peripheral element of R corresponds to the left (right) peripheral element of B, if R is to the left (right) of B.

(10) ALIGN-RED-R
Align the reduplicant to the right edge of the base.

Finally, one constraint must account for the dispreferred nature of consonant clusters. The constraint below will need to be refined, but can stand for now as follows:

(11) *COMPLEX
No complex syllable margins.

These constraints may be displayed in a tableau, which graphically illustrates the ranking of the constraints relative to each other, and how various candidates (potential output forms) fare with respect to constraint violability.

(12)

Input: /gəʃ+ RED/	ALIGN-RED-R	RED=C]$_{stem}$	*COMPLEX	DEP-BR	MAX-BR
a. ☞ gəʃɨʃ				*!	**
b. gəʃʃ			*!		**
c. gəʃgəʃ		**!			
d. ʃgəʃ	***!		*		**

The optimal output candidate, (12a), the attested plural form, is that candidate which does not violate the highest-ranking constraints. Note, however, that it may be in violation of lower-ranking faithfulness constraints since the reduplicant is not a perfect copy of the base. The next type of plural formation to be examined is that of mutation, after which we will examine the interplay between mutation and reduplication.

6. Singular Formation through Mutation

Mutation, following the analysis of Mc Laughlin (2000), is 'the result of featural affixation to the root node' of a consonant. Blin displays a variety of mutation processes, all of which appear to be morphologically (or lexically) determined. The mutations involve the features [voice], [continuant], [sonorant] and [lateral], as well as complex mutations involving combinations of these features. Some of these mutations may have originally been the result of lenition processes induced by affixation of a vowel-initial suffix. The formal analysis will reflect the association of the suffix with floating features which will align with appropriate docking spots.

6.1. Voicing[4]:

The first mutation that we shall examine is voicing. The plural form is taken as the basis for the input forms; clearer evidence for this will be seen in the section on continuancy. We can attribute the changes in stem consonants by associating them with a floating feature for voice which is associated with certain singular suffixes. Display (13) illustrates the data for this relatively minor process:

(13)		singular	plural		
d	t	gəlud-a	gəlut ~ gəlud	'big knife'	P60:112/LT97:508
g	k	dərgum-a	dərkum	'sycamore'	P58:385
g^w	k^w	gurg^{w}ɨm-a	gurɨk^{w}ɨm	'throat'	LT96:97
		ʔəng^w-á	ʔə́nk^w-i	'palm leaf'	P60:112

Because the singular and plural stems change shapes, there is obviously a lack of correspondence between the input and output with respect to the particular mutating feature. The general type of constraint is expressed as follows:

(14) IDENT-IO(F)
Correspondent IO segments have identical values for the feature F.

The particular constraint involved in this section will be that of IDENT-IO(OBSVOICE). The next problem to solve is why there is alteration between voiceless and voiced stops when these stops are not final. It is probable that the constraint involved is not simply that of [voice], but involves the feature [ObstruentVoice]. This accounts for why nasals, which are sonorants, cannot by definition bear the feature [ObsVoice] (used by Kager 1999, among others). The constraint is formalized below:

(15) NAS/-OBSVOICE
If a segment is nasal, it cannot bear [Obstruent Voice]

Using Akinlabi's (1996) notion of featural affixation, we may schematically represent the association of the singular suffix with the floating feature, and the association (alignment) of that feature onto an appropriate landing site. Sonorants are not valid docking sites, so the rightmost obstruents are the preferred site. In (16) below, the floating feature [ObsVoice] searches for the rightmost compatible root node on which to dock. In (16a), that feature is the last segment of the root, the obstruent [t], which becomes [d]. In (16b), the last segment, [m], is skipped over because as a sonorant, it is ineligible to bear [ObsVoice] by (15).

(16) a. gəlut- + SG
[ObsVoice]

b. dərkum- + SG
[ObsVoice]

Other languages have been shown to have floating features which dock only on appropriate segments. For example, in Chaha (Banksira 2000), a floating feature (roughly, [+round]) docks freely onto labial and velar obstruents, but will skip alveolar sonorants and obstruents because they may not be labialized. An in-depth and comparative survey of latent segments and floating features may be found in Zoll (2001).

[4] I have found only one example of a voiceless stem-final consonant in the singular which has a corresponding voiced plural: /k^w'ələ̱h-a/ 'child', pl. /k^w'əliʕ/ (LT96:97).

6.2. Continuancy

The next set of alternations provides stronger evidence that the plural forms are basic to the input. Whereas the singular stem will often end in or contain a velar fricative (18a below), the plural counterpart always corresponds to a velar stop. However, some of the stops are ejectives (18b & d), and others are plain voiceless stops (18a & c). If we take the [-continuant] stop or ejective as the input, we have a more principalled explanation for the alternation, since this correctly predicts the output. Furthermore, it is extremely rare for fricatives to be ejective. There is a phonetically grounded reason that fricatives, which are produced with a continuous airstream, are generally incompatible with the feature [constricted glottis]: first, it is difficult to produce a fricative while the airstream is constricted, and secondly, it is difficult to compress air in the post-closure cavity if air is constantly streaming out of the cavity. We may therefore formalize this constraint as:

(17) *[CG, + CONT]
The features [constricted glottis] and [+continuant] are incompatible.

Let us now examine the data:

		Singular	Plural		
(18) a.	x k	ləx-a	lək	'fire'	LT96:97
		ʔəx-a	ʔək	'skin'	LT96:97
		ʔiɲʃəx	ʔiɲʃik	'spear'	LT97:511
	Nonfinal	bəxl-a	bəkɨl	'mule' (>Sem.)	LT96:97
		dʒəxəl-a	dʒəkəl	'bird'	LT96:97
		ləxən	ləkə́n	'ulcer'	P60:112
		dɨxr-a	dɨkɨr	'feces'	LT97:511
b.	x k’	gax-á	gák’ ~ gak’ɨ́k’	'cave'	P60:112; P58:387
	Nonfinal	laxl-a	lak’ɨl	'bee'	P58:385
c.	x^w k^wNonfinal	ʔɨx^win-a	ʔɨk^win(i)	'woman'	LT96:97
d.	x^w k^w’	sax^w-a	sak^w’	'fat (n.)'	LT96:97
		tix^w-á	tík^w’	'light'	P58:386
		nɨx^wax^w	nɨx^wak^w’-ti	'husband's father'	P58:387
	Nonfinal	ʔɨx^wr-a	ʔɨk^w’ɨ́r	'brother'	P58:385
e.	w k^w	sɨwan-a	sɨk^{w}ən	'thief'	LT97:511

As in the case with voicing, roots which are ineligible to bear a particular feature are skipped over. All the cases in (18) that are skipped involve either /l/ or /n/, both of which are controversially defined as continuants. Nasals are phonetically classified as stops, and thus [-continuant], since they sometimes induce occlusion (Kenstowicz 1994), though the airstream is continously egressive through the nasal cavity. Conversely, the lateral is typically specified for [+continuant] since in Spanish, for example, it patterns with vowels, liquids, and fricatives in triggering spirantization of stops (Kenstowicz 1994:487). The Blin data suggest that

(19) LATNAS/ +CONT
If a segment is lateral or nasal, it cannot bear the feature [+continuant]

(20) a. ləkˉ + SG -a → ləx-a
[+cont]
'fire'

b. ləkənˉ + SG → ləxən
[+cont]
'ulcer'

Note that the singular suffix in the word 'ulcer' has no segmental material associated with it–only the floating feature [+continuant].

The following tableau shows that the featural alignment of the singular suffix is violated by the more highly-ranked constraint LATNAS/ +CONT, and thus candidate (21a) is optimal. Although (21b) respects ALIGN-R, it produces an ill-formed nasal which is simultaneously a fricative: perhaps *ləkəz͡n or *ləkəž):

(21)

ləkən + SG | [+cont]	LATNAS/ -CONT	ALIGN-R
a. ☞ləxən		*
b. ləxəd͡n	*!	

6.3. Voicing and Continuancy

The next class of mutations involves both voicing and continuancy, though the feature values appear to be reversed between singular and plural for [cont]. In the labial mutations of (22a), which are quite pervasive throughout the language, a stem-final /b/ in the singular, whether or not it is followed by the suffix /-a/, corresponds to /f/ in the plural. Recall that in (13), plural stems which contained a voiceless stop corresponded to voiced stops in the singular, while in (18), the plurals with stops ([-continuant]) corresponded to fricatives ([+continuant]) in the singular. This suggests that the two features may act independently of each other and it further affirms the morphologically conditioned nature of consonant mutation.

As in other mutations, the ALIGN-R constraint is ranked low because it is often violated; medial consonants undergo mutation. Other voicing and continuancy alternations such /d ~ s/ (22b) and /dʒ ~ ʃ/ (22c) exactly parallel /b ~ f/, while in one case there is an additional twist such as the feature for palatalization /d ~ ʃ/ (22d).

		Singular	Plural		
(22)a.	b f	jɨb-á	jɨ́f	'leopard'	P60:112
		keləb	kelə́f	'fence'	P58:385
		mərb-a	mərɨf	'needle'	LT96:97
		wərəb-á	wərə́f	'river'	P58:386
		bamb-á	bámf-i	'fig tree'	P58:386
		ʔɨttɨb	ʔɨttɨf	'navel'	LT97:511
		ʕərəb	ʕərəf	'blind man'	LT97:511
		arɨb	arɨf	'tomb'	Z76:122
		gɨrob	gɨrof	'body'	Z76:122
	Nonfinal	ləbbək-a	ləffək	'heart'	LT96:97
		ʔabaj	ʔafaj-ti	'enemy'	LT96:97
		ʔɨbɨn	ʔɨfɨn	'bladder'	P58:385
		gəbə́n-a	gəfə́n	'river bank'	P58:385
		wabɨr-a	wafɨr	'lizard'	LT97:508
		ʔəmbɨl-a	ʔənfɨl	billy goat'	LT97:508
		ábin	áfin	'guest, stranger'	Z76:122
b.	d s	mad-a	mas	'friend'	LT96:97
		ʕawəd	ʕawə́s	'fool'	P58:385
		ámid	ámis	'Thursday' (> Sem.)	Z76:122
	Nonfinal	fədən	fəsən	'seed'	LT97:511

c.	d ʃ	Nonfinal	kidiŋ	kiʃiŋ	'field'	LT96:97
			gɨdiŋ	gɨʃiŋ	'dog'	LT96:97
			dan	ʃán	'brother'	P58:385
d.	dʒ ʃ	Nonfinal	gəndʒin-á	gənʃ'in	'slave'	P58:385
e.	w k^w	Nonfinal	siwan-a	sɨk^wən	'thief'	LT96:97
			tawin-a	tak^{w}in	'clothes'	P60:112

As I have indicated in each display, there are again instances in which the featural alignment constraint ALIGN-R is violated precisely when the stem ends in a nasal. Since such features as [+cont] are incompatible with nasal, this markedness constraint outranks the alignment constraint.

The plural marker for the class in (a) and (b) is floating features [+voice], [-continuant]. The small class in (c) removes palatalization; the small set in (d) is affricated; (e) is lenited into a labial sonorant from a labiovelar obstruent.

6.4. Voicing and Sonority

An additional mutation type involves a plural /t/ corresponding to the singular in /r/ (23a), a mutation also found in Seereer-Siin (Mc Laughlin 2000). I have found one token of /t/ corresponding to /l/ in the singular (23b), and only two tokens of plural /k^w/ corresponding to /w/ in the singular (23c).

(23)a.	r t	gir-a	git	'mountain'	LT96:97
		dʒəggir-a	dʒəggit	'monkey'	LT96:97
		ʃənʃur-a	ʃənʃut	'ant'	LT96:97
		ʔəmər-a	ʔəmət-ət	'year'	LT96:97
		lilor-a	lilot-a	'pigeon'	LT96:97
		maʃir	maʃit	'sickle'	P60:112
		ʃimár	ʃimát	'tail'	P58:385
		niħar	niħát	'chest'	P58:385
		ʔunar	ʔunat	'week'	LT97:509
		ʔəx^{w}ər	ʔəx^{w}ət	'head/roof'	LT97:509
		gəmər	gəmət	'rope' (> Sem.)	LT97:509
b.	l t	ʔələl-a	ʔələt	'heifer'	P60:112

These correspondences involve the feature [sonorant], which is the chief difference between the voiceless obstruent /t/ and the sonorant /r/, which is typically realized as a tap medially and a trill finally. I envision the formalism as before, with a floating feature [+sonorant] associated with the singular morpheme (whether or not is has the suffixal /-a/). Although obstruents by definition do not bear [+sonorant], and thus we would predict, following the previous patterns, that the feature would dock on something compatible, this feature aligns in such a way as to be "feature-changing".

6.5. Laterality

The final mutating feature is [-lateral], which is associated with the singular morpheme. All stem-final plurals in this category ending in /l/ have singulars with corresponding /r/.

(24)a.	r l	wixir	ʔə-wixil	'bull'	LT96:98
		bir-a	bil	'bull/ox'	LT96:98
		ʕətər-a	ʕətəl	'pea'	LT96:98
		bəxər	bəxl-in	'adult'	LT96:98
		ʔixir	ʔixil	'father'	P58:385
		gər	gəl	'calf'	LT97:511

6.6. Multiple Processes

The most complex aspect of mutation involves morphemes which combine more than one mutation within the morpheme. Almost every conceivable combination of floating features is attested:

		Singular	Plural		
(25)a.	d/s, g^w/k^w	g^wədɨg^w	g^wəsɨk^w	'belly'	P58:385
b.	x/k, r/l	ʔɨxɨr	ʔɨkɨl	'father'	LT97:511 (note var.)
c.	x/k', r/l	səxər-a	sək'əl	'honey/kinds of h.'	LT96:97
		bəxɨr	bək'lɨl	'eldest son'	P58:386
d.	x^w/k^w', r/l	dɨx^{w}ar-a	dɨk^w'ɨl	'donkey'	LT96:97
e.	b/nf, r/l	kələmbu-ra	kələnfu-t	'drum'	LT97:507
f.	b/f, r/t	ʃabɨr	ʃafɨt	'leather rope'	P58:385
		kəbar	kəfat	'milking pail'	P58:385
		abír	afít	'corn bag'	Z76:122
		gibár	gifát	'wooden plate'	Z76:122
		ʃabɨr	ʃafɨt	'leather rope'	P58:385
		kəbar	kəfat	'milking pail'	P58:385
		gibár	gifát	'wooden plate'	Z76:122
g.	d/s, g^w/k^w	g^wədɨg^w	g^wəsɨk^w	'stomach/womb'	LT96:97

Due to space limitations, a full, formalized analysis can only be sketched here. However, I have suggested that these cases involve multiple instances of featural alignments, alignments which can violate ALIGN-R in response to markedness constraints. We turn next to the formation of plurals through the interplay of both reduplication and mutation.

7. Plural Formation through Reduplication and Mutation

Yet another method of Blin plural formation involves a complex interaction between mutation (analyzed in §6) and reduplication (§5). As Mc Laughlin (2000) has noted, the interaction of these two processes is rare, and thus the data and partial analysis here lay the groundwork for some important findings. Section 7.1 looks at devoicing, §7.2 on devoicing and continuancy, and §7.3 on laterality.

7.1. Devoicing

There are a few interesting cases of voiced consonants in the singular corresponding to voiceless consonants in the plural. The reduplicant is usually aligned right, but occasionally, as in 'thorn', the first item in (26a), the final consonant is not reduplicated and a medial one is instead.

(26)

a.	g k	ʔɨgɨm	ʔɨkɨkɨm	'thorn'	LT96:97
		dɨng-á	dɨnk-ík	'vein; tendon'	P60:112
		ʔəg	ʔəg-ɨk ~ ʔək-ɨk	'maternal uncle'	P58:387; LT97:51
b.	g^w k^w	ʔɨng^w-i	ʔɨng^w-ɨk^w	'teat'	P58:387

The devoicing within the reduplicant is reminiscent of the emergence of the unmarked, though there is a need for such mutations in contexts other than reduplication.

7.2. Voicing and Continuancy

If, as I argue, the plural stem is taken to end in /f-/, then reduplication is straightforward, with simple BR correspondence and right-alignment of the reduplicant. The singular would then undergo voicing and stopping as in the mutations of (22a).

If, however, the singular were taken as basic, (which is possible given the different feature values associated with the singular in sets (18) and (20)), the analysis could be one of 'reduplicative back-copying', in which 'the overapplication or underapplication of some process in the base, under pressure to preserve identity with the reduplicant' (Kager 1999:244), which would show emergence of the unmarked. While this is an intriguing possibility, it is inconsistent with the analysis proposed here and seems to violate Occam's Razor.

(27)

a.	b f	ʔəb	ʔəfɨf	'mouth'	P58:386
		gɨrɨb	gɨrfɨf	'knee'	LT97:510
		gɨb	gɨfɨf	'shield'	P58:386
		gɨmb-i	gɨmfɨf	'stick'	LT96:97
		dərɨb	dərf-ɨf	'road/path'	LT97:511
		ʔəb-a	ʔəf-ɨf	'well'	LT97:510
b.	d s	ʕɨd	ʕɨsɨs	'door'	LT96:97
		kad	kasɨs	'stomach'	P58:386
c.	d͡ʒ ʃ	mand͡ʒ-í	manʃɨʃ	'grindstone'	P58:386
d.	x k	gɨx	gɨkɨk	'horn'	P58:387
e.	x k’	gax-á	gák’ ~ gak’ɨk’	'cave'	P60:112; P58:387

7.3. Laterality

A similar process is found for the features of laterality:

(28)	r l	sɨr	sɨlɨl	'vein'	LT96:98
		tər	təlɨl	'breast bone'	P58:387

The underlying plural form contains the [+lateral] /l/, which is reduplicated in straightforward fashion. The singular however, causes mutation to the [-lateral] /r/.

7.4. Formalization

The following constraint contributes to a formal understanding of the processes in this section:

(29) IDENT=BR(F)
Let α be a segment in B, and β be a correspondent of α in R. If α is [γF], then β is [γF].

The constraint IDENT=BR(F) ensures that any particular feature F is the same in both base and reduplicant. This constraint is often outranked for the 'emergence of the unmarked' in cases in which the reduplicant is less marked than the base. In Blin, as we saw in the simple reduplicated plurals in (5), and in (27), reduplication isn't violated and the reduplicant is faithful in identity to the base. In the singulars, however, we see violation of constraint (14), IDENT-IO(F) with respect to such features as [voice], [sonorant], [continuant], and [lateral]. It is therefore lower-ranked than (29).

8. Conclusion

The significance of this paper lies in being the first formal, not simply descriptive, treatment of Blin plurals. It argues, along with Mc Laughlin (2000), that mutation is featural affixation, thus contributing to a formalism of consonantal mutation and constaints in subsegmental phonology (Zoll 2001). Finally, it briefly examined the interplay between reduplication and mutation, with a preliminary analysis which must be fleshed out in future work. In addition to examining the implications of this data for Correspondence Theory, the grammar of Blin will be better understood when constraints proposed for the nominal system are compared with those proposed for the verbal system (Fallon 2004).

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