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THE LOWLAND KENYAH POSTERIOR IMPLOSIVES:  
 A TYPOLOGICAL REVERSAL

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ABSTRACT. The Kenyah languages of central Borneo form a distinct unit within the North Sarawak group of Austronesian languages. In northern Sarawak there is a well-defined contrast between types that have been called 'Highland Kenyah' and 'Lowland Kenyah'. A key difference between these sets of closely-related languages is the reflexes of Proto-North Sarawak/Proto-Kenyah \*b, \*d, \*j, \*g and \*b<sup>h</sup>, \*d<sup>h</sup>, \*j<sup>h</sup>, \*g<sup>h</sup>, which are distinguished (usually as *b, d, j, g* vs. *p, t, c, k*) in Highland Kenyah, but show a complex set of innovations in some varieties of Lowland Kenyah. The most striking of these changes in the dialect spoken by the Lebu' Vu' Kenyah at Long Sela'an and Long Ikang, and the Long Tikan Kenyah at Long San, is the shift of voiced aspirates to phonetic implosives that were generalized to the reflexes of \*b, \*d, \*j, \*g as final syllable onsets, leading to merger of the two series. Because it was conditioned, this merger produced complementation between [b]/[ɓ], [dʒ]/[dʒ̰], and [g]/[g̰] (\*d lenited before implosion was generalized, preventing merger). Most remarkably, the reduction of Proto-Kenyah nasal-obstruent clusters in these dialects has begun to produce new instances of [dʒ] and [g], but not [b] and [d], producing contrastive implosives only at palatal and velar positions, a reversal of the distributional preference commonly associated with implosive stops in cross-linguistic perspective.

1. The typology of implosives (Greenberg 1970:127)

<u>Injectives</u>	<u>Ejectives</u>
front of vocal tract	back of vocal tract
voiced stops	voiceless stops

Wang (1968): implosive affricates are phonetically impossible.

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 TABLE 1: THE CONSONANT SYSTEM OF LONG SELA'AN

p	t	k	ʔ
b [b, ɓ]	d [d]	j	g
		d <sup>y</sup>	g̰
m	n		ŋ
	s		h
	l		
	r		
w		y	

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TABLE 2: THE NORTH SARAWAK LANGUAGE GROUP (after Blust 1974)

- NORTH SARAWAK
- I. BINTULU
  - 1. Bintulu
- II. BERAWAN-LOWER BARAM
  - A. BERAWAN
    - a. WEST BERAWAN
      - 1. Long Terawan
    - b. EAST BERAWAN
      - 1. Batu Belah
      - 2. Long Teru
      - 3. Long Jegan
  - B. LOWER BARAM
    - 1. Kiput
    - 2. Lemeting/Belait
    - 3. Narum
    - 4. \*Lelak
    - 5. Miri
    - 6. \*Dali'
- III. KENYAH
  - A. HIGHLAND KENYAH
    - 1. Long Anap
    - 2. Long Atun
    - 3. Long Jeeh
    - 4. Long Nawang
  - B. LOWLAND KENYAH
    - a. TYPE A
      - 1. Long Ikang
      - 2. Long Selaan
      - 3. Long San
    - b. TYPE B
      - 1. Long Wat
      - 2. Long Luyang (Sebop)
    - c. TYPE C
      - 1. Long Labid (Penan)
      - 2. Long Lamai (Penan)
      - 3. Long Merigam (Penan)
  - C. Unclassified
    - 1. Long Dunin<sup>1</sup>

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<sup>1</sup> In previous publications I have listed Long Dunin (autonym: Uma' Pawa') as a separate branch of Highland Kenyah. It is a close relative of Lebu' Kulit, spoken in Kalimantan, about which Soriente (2006:xix) says "Lebu' Kulit is only one member of the branch that includes also Lebu' Timai, Uma' Ujok, Uma' Pawa' and Uma' Kelep." In view of ongoing questions about its proper position it seems best to leave it as unclassified until more information is forthcoming.

IV. DAYIC

A. MURUT GROUP

a. LUN DAYEH/LUN BAWANG

1. Long Semado

b. KELABIT GROUP

1. Long Napir

2. Long Seridan

3. Bario

4. Pa' Dalih

5. Long Lellang

6. Tring

7. Sa'ban

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TABLE 3: THE SPLIT OF PMP VOICED OBSTRUENTS  
IN NORTH SARAWAK LANGUAGES

pre-PNS	Kelabit	Bintulu	Long Anap	Long Sela'an	
*abu	abuh	avəw	abu	abu	ashes/hearth
*təbu	təb <sup>h</sup> uh	təbəw	təpu	təbu	sugarcane
*bulu	buluh	vuləw	bulu	bulu	feather
*əbuk	əb <sup>h</sup> uk	ʙuk	puk	buk	head hair
*ŋadan	ŋadan	ñaran	ŋadan	ŋaran	name
*pədu	pəd <sup>h</sup> uh	lə-pədəw	pətu	pədəw	gall
*dua	duəh	ba (< g <sup>w</sup> a)	dua	luə	two
*ədaw	əd <sup>h</sup> o	daw	taw	daw	day
*tuju?	tudu?	tuju?	tuju?	(tud <sup>y</sup> ək)	seven
*əjan	əd <sup>h</sup> an	k-əjan	can	d <sup>y</sup> an	ladder
*jalan	dalan	-----	jalan	jalan	road
*əja	əd <sup>h</sup> əh	-----	ca	d <sup>y</sup> o	one
*gatəl	gatəl	-----	(jatən)	gatən	itch(y)
*məgəl	məg <sup>h</sup> əl	məgən	məkən	pəgən	sleep <sup>2</sup>

JOHN OHALA: THE AERODYNAMIC VOICING CONSTRAINT

“The “Aerodynamic Voicing Constraint (AVC) has long been recognized in phonetics-phonology (Chao 1936, Ohala 1983, Passy 1890): voicing requires a sufficient airflow through the adducted vocal cords. The airflow requires a sufficient pressure difference ( $\Delta P$ ) between subglottal pressure ( $P_s$ ) and oral pressure ( $P_o$ ). During an obstruent, air accumulates in the oral cavity, thus increasing  $P_o$ . When the  $P_o$  approaches  $P_s$ , the airflow falls below that needed for vocal cord vibration and thus voicing is extinguished.”

(1) pre-PNS voiced geminates became PNS voiced aspirates, which then evolved separately into implosives and voiceless obstruents.

<sup>2</sup> Meanings vary across languages: Kelabit *məg<sup>h</sup>əl* ‘stay with a small child to make him sleep’, Bintulu *məgən* ‘to sleep’, Long Sela’an *pəgən* ‘to lie down’, Long Anak *məkən* ‘to lie down, rest’.

(2) pre-PNS voiced geminates became PNS implosives, which then evolved separately into voiced aspirates and voiceless obstruents.

(3) pre-PNS voiced geminates split simultaneously into voiced aspirates in Kelabit, and implosives in Bintulu and Lowland Kenyah dialects such as Long Sela'an.

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TABLE 4: REFLEXES OF PROTO-KELABIT-LUN DAYEH VOICED ASPIRATES IN KELABIT-LUN DAYEH DIALECTS

PKLD	*b <sup>h</sup>	*d <sup>h</sup>	*g <sup>h</sup>	
Pattern 1	b <sup>h</sup>	d <sup>h</sup>	g <sup>h</sup>	(Bario, Pa' Omor, Long Lellang, Long Semado LD)
Pattern 2	p	t	k	Pa' Mada
Pattern 3	p	c	k	Long Terawan Tring
Pattern 4	p	s	k	Batu Patung, Pa' Dalih, Sa'ban
Pattern 5	f	c	k	Long Pala LD
Pattern 6	f	s	k	(Long Napir, Long Seridan)

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TABLE 5: REFLEXES OF PROTO-KENYAH VOICED OBSTRUENTS IN THREE GROUPS OF LOWLAND KENYAH LANGUAGES

Proto-Kenyah	TYPE A Long Sela'an	TYPE B Long Wat	TYPE C Long Labid	
*abu	[abu]	[avəw]	[aβəuʔ]	hearth
*təb <sup>h</sup> u	[təbu]	[təbəw]	[təbəuʔ]	sugarcane
*bulu	[bulu]	[bulun]	[bulun]	feather
*əb <sup>h</sup> uk	[buk]	[buək]	[bək]	head hair
*ŋadan	[ŋaran]	[ŋaran]	[ŋaran]	name
*pəd <sup>h</sup> u	[pədəw]	[pədun]	[pədun]	gall (bladder)
*dua	[luə]	[luah]	[duəh]	two
*əd <sup>h</sup> aw	[daw]	----	[daw]	day
*tujuʔ	[tudəkʔ]	[tujəkʔ]	[tju:ʔ]	seven
*əj <sup>h</sup> an	[dʲan]	----	[dʒan]	ladder
*jalan	[dʲalan]	----	[dʒalan]	road
*əj <sup>h</sup> a	[dʲa]	[dʒah]	[dʒah]	one
*gəm	[gəm]	[gəm]	[gəm]	foot/leg
*məg <sup>h</sup> əl	[pəgən]	[pəgən]	[pəgən]	lie down/sleep
*gatəl	[gatən]	[katən]	[gatən]	itch(y)

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Analysis (1)

p	t		k	ʔ
b		j	g	
	d			

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Analysis (2)

p t k ?  
 b d dʷ ɡ

Analysis (3)

p t k ?  
 b d j ɡ

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TABLE 6: REFLEXES OF PROTO-KENYAH PRENASALIZED  
 VOICED OBSTRUENTS

Proto-Kenyah	Long Anap	Long Sela'an	
*kələmbit	kələmbit	kələvit	shield
*ləmbam	ləmbam	ləvam	a flood
*ŋətəmbu	ŋətəmbu	ŋətəvu	blow out water
*sambaw	sambaw	savaw	watery (as porridge)
*sambiʔ	sambeʔ	savIʔ	native guitar
*səmbaʔ	səmbaʔ	səvaʔ	feel affection for
*lunduʔ	lundoʔ	luruʔ	to sleep
*məndəm	məndəm	mərəm	dark, dim
*ndaŋ	ndaŋ	raŋ	wall hook
*ndən	ndən	ulu rən	headrest, pillow
*ndiŋ	ndiŋ	riŋ	wall
*nduŋ	nduŋ	ruŋ	nose
*nduʔ	ndoʔ	ruʔ	to bathe
*kanjaw	pə-kanjaw	kajaw	show-off, flirt
*məŋjam	ŋjam	məjam	clever, skilled
*pəkənja	pəkənja	pəkəja	to quarrel
*jaŋgaw	jaŋgaw	jaŋgaw	slim and tall
*manjan	manjan	manjan	papaya <sup>3</sup>
*iŋgiŋ	iŋgiŋ	iŋgiŋ	edge
*ŋgaŋ	ŋgaŋ	ŋgaŋ ~ gaŋ	handspan
*ŋgin	ŋgin	gin	carry, convey
*təŋgan	təŋgan	təŋgan ~ təgan	floor

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FIGURE 1: ORDERING DIFFERENCES FOR  
 \*mb > -v- and \*nd > -r- IN LOWLAND KENYAH, TYPE A

PK	*təbu	*abu	*sambaw	Change
1.	təbu	abu	sambaw	(GI)

<sup>3</sup> The referents of both \*sambiʔ and \*manjan are foreign introductions that did not arrive in Borneo until after the breakup of Proto-Kenyah. However, both show the same sound correspondences as native forms, and it is possible that at least \*manjan referred to some other plant prior to knowledge of the South American papaya.

2.	təbu	abu	sabaw	(CR)
3.	təbu	abu	savaw	(LEN)
PK	*pəfu	*paday	*lundu?	
1.	pəfu	paday	ludu?	(CR)
2.	pəfu	paray	luru?	(LEN)
3.	pəfəw	paray	luru?	(OC)

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Analysis (4)

p	t		k	ʔ
b		j	g	
	d	dʷ	ɟ	

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Analysis (5)

p	t		k	ʔ
ʙ		j	g	
	d	dʷ	ɟ	

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Analysis (6)

p	t		k	ʔ
b	d	j	g	
		dʷ	ɟ	

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APPENDIX 1: PHONETIC TRANSCRIPTIONS OF THE LONG SELAAN  
VOICED OBSTRUENTS<sup>4</sup>

[b]: [baa] ‘husked rice’, [baaʔ] ‘swollen’, [baat] ‘heavy’, [babuj] ‘wild boar’, [bai] ‘area between longhouse and river’, [bajan] ‘to pay’ (< Malay), [bajəŋ] ‘machete, bush knife’, [bakun] ‘basket’, [bala] ‘red’, [balu] ‘widow’, [baluj] ‘wind’, [baŋət] ‘sea’, [baʔoʔ] ‘odor, smell’, [baraʔ] ‘to tell, report’, [basəʔ] ‘wet’, [batəŋ] ‘log’, [batək] ‘belly’, [batu] ‘stone’

[ʙ]: [aʙət] ‘loincloth’, [abu] ‘ashes; hearth’, [abun] ‘cloud, mist’, [ʙə] ‘vagina’, [ʙə] ‘fishing pole’, [ʙuj] ‘dust (as chalk dust)’, [ʙuk] ‘head hair’, [gəbən] ‘picture’ (< Malay), [ib] ‘thousand’, [kabaʔ] ‘downriver’, [kabiəŋ] ‘left side’, [kələbaw] ‘carabao, water buffalo’ (< Malay), [labə] ‘fishing line’, [labuʔ] ‘to fall’, [ləbə] ‘button’, [libaw] ‘shallow’, [libəʔ] ‘low’, [lubəŋ] ‘hole (in ground, wall)’, [mabaw] ‘to weed a garden’

[dʲ]: [dʲalan] ‘path, road’, [dʲaŋgaw] ‘tall’, [dʲaʔət] ‘bad’, [iəʔ dʲə] ‘other’, [dʲin] ‘from’, [dʲipə] ‘tooth’, [dʲəlaʔ] ‘tongue’, [dʲiʔiək] ‘small’, [dʲuləʔ] ‘spit, saliva’, [kadʲaw] ‘to show off’, [mədʲam] ‘clever, skilled’, [pəkədʲa] ‘to quarrel’

[dʲʲ]: [dʲʲadʲiʔ] ‘a promise’ (< Malay), [dʲʲan] ‘notched log ladder’, [dʲʲə] ‘one’, [dʲʲamuk] ‘sandfly; housefly’, [dʲʲap] ‘ten’, [dʲʲipa] ‘opposite bank’, [dʲʲuʔ] ‘far’, [kələdʲa] ‘to work’

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<sup>4</sup> Stress was invariably recorded as final in citation forms. Forms that contain both plain and implosive obstruents are underlined.