

## APPENDIX

The following six tables present re-interpretations by MCA on the consonant systems of six Khoisan languages proposed by Güldemann (2001:Tables 4 to 6 and 8 to 10). The re-interpretation focuses on the classification in terms of the types and series that are shown in the vertical axis. The classificatory labels in the horizontal axis follow Güldemann's terms, namely, EGR (i.e. egressive), IGR (i.e. ingressive), Lb (i.e. labial), Dt (i.e. dental), Al (i.e. alveolar), Pl (i.e. palatal), Vl (i.e. velar), Uv (i.e. uvular), Gl (i.e. glottal), -Af (i.e. affricated), -Lt (i.e. lateral), shown in the first and second rows of each table.

**Table I** A classification of !Xóǀ consonants based on the revised version of “cross-Khoisan consonant chart”. (A re-interpretation of Güldemann’s (2001:23) Table 4 by MCA)

	EGR Lb	EGR Al	EGR Al-Af	IGR Lb	IGR Dt	IGR Pl	IGR Al	IGR Al-Lt	EGR Vl	EGR Uv	EGR Uv-Af	EGR Gl
<b>Fricatives</b>												
Plain	f	s								χ		h
<b>Simple stops</b>												
Plain	p	t	ts	k⊙	k	k‡	k!	k	k	q		ʔ
Voiced	b	d	dz	g⊙	g	g‡	g!	g	g	ɠ		
<b>Complex stops</b>												
Voiceless ejective		t'	ts'	k⊙'	k '	k‡'	k!'	k  '	k'	q'	qχ'	
Voiced ejective											ɠqχ'	
Voiceless aspirated	p <sup>h</sup>	t <sup>h</sup>	ts <sup>h</sup>	k⊙ <sup>h</sup>	k  <sup>h</sup>	k‡ <sup>h</sup>	k! <sup>h</sup>	k   <sup>h</sup>	k <sup>h</sup>	q <sup>h</sup>		
Voiced aspirated	b <sup>h</sup>	d <sup>h</sup>	dz <sup>h</sup>	g⊙ <sup>h</sup>	g  <sup>h</sup>	g‡ <sup>h</sup>	g! <sup>h</sup>	g   <sup>h</sup>	g <sup>h</sup>	ɠ <sup>h</sup>		
<b>Stop clusters</b>												
Plain + /χ/		tχ	tsχ	k⊙χ	k χ	k‡χ	k!χ	k  χ				
Voiced + /χ/		dχ	dzχ	g⊙χ	g χ	g‡χ	g!χ	g  χ				
Plain + /qχ'/	pqχ'	tqχ'	tsqχ'	k⊙qχ'	k qχ'	k‡qχ'	k!qχ'	k  qχ'				
Voiced + /qχ'/		dqχ'	dzqχ'	g⊙qχ'	g qχ'	g‡qχ'	g!qχ'	g  qχ'				
Plain + /q/				k⊙q	k q	k‡q	k!q	k  q				
Plain + /ɠ/				k⊙ɠ	k ɠ	k‡ɠ	k!ɠ	k  ɠ				
Plain + /q <sup>h</sup> /				k⊙q <sup>h</sup>	k q <sup>h</sup>	k‡q <sup>h</sup>	k!q <sup>h</sup>	k  q <sup>h</sup>				
Plain + /ɠ <sup>h</sup> /					k ɠ <sup>h</sup>		k!ɠ <sup>h</sup>	k  ɠ <sup>h</sup>				
Plain + /q'/				k⊙q'	k q'	k‡q'	k!q'	k  q'				
Plain + /h/				k⊙h	k h	k‡h	k!h	k  h				
Voiced + /h/				g⊙h	g h	g‡h	g!h	g  h				
Plain + /ʔ/				k⊙ʔ	k ʔ	k‡ʔ	k!ʔ	k  ʔ				
<b>Simple nasals</b>												
Plain	m	n		m⊙	ɲ	ɲ‡	ɲ!	ɲ				
Voiceless				m̥⊙	ɲ̥	ɲ̥‡	ɲ̥!	ɲ̥				
<b>Complex nasals</b>												
Glottalized nasal	ʔm	ʔn		ʔm⊙	ʔɲ	ʔɲ‡	ʔɲ!	ʔɲ				
<b>Non-nasal sonorants</b>												
		l										

**Table II** A classification of #Khomani consonants based on the revised version of “cross-Khoisan consonant chart”. Doke’s two clicks [!ŋɦ] and [!ŋɦ] are omitted because their phonemic status is unclear, and as Güldemann (2001:27) states, their obvious counterparts in other Khoisan languages are not found. (A re-interpretation of Güldemann’s (ibid.:26) Table 5 by MCA)

	EGR Lb	EGR Al	EGR Pl	IGR Lb	IGR Dt	IGR Pl	IGR Al	IGR Al-Lt	EGR Vl	EGR Uv	EGR Uv-Af	EGR Gl
<b>Fricatives</b>												
Plain		s								χ		h
<b>Simple stops</b>												
Plain	p	t	c	k⊙	k	k‡	k!	k	k			ʔ
Voiced	b		ɟ	g⊙	g	g‡	g!	g	g			
<b>Complex stops</b>												
Voiceless ejective		ts'			k '	k‡'	k!'					qχ'
Voiceless aspirated		t <sup>h</sup>		k⊙ <sup>h</sup>	k  <sup>h</sup>	k‡ <sup>h</sup>	k! <sup>h</sup>	k   <sup>h</sup>				
<b>Stop clusters</b>												
Plain + /χ/		tχ	cχ		k χ	k‡χ		k  χ				
Plain + /qχ'/					k qχ'		k!qχ'	k  qχ'				
Plain + /h/					k h	k‡h	k!h					
Plain + /ʔ/				k⊙ʔ	k ʔ	k‡ʔ	k!ʔ	k  ʔ				
<b>Simple nasals</b>												
Plain	m	n	ɲ	m⊙	ŋ	ŋ‡	ŋ!	ŋ	ŋ			
<b>Complex nasals</b>												
Glottalized nasal					ʔŋ	ʔŋ‡	ʔŋ!					
<b>Non-nasal sonorants</b>												
	w	r	j									

**Table III** A classification of Jul'hoansi consonants based on the revised version of "cross-Khoisan consonant chart". (A re-interpretation of Güldemann's (2001:29) Table 6 by MCA)

	EGR Lb	EGR Al	EGR Al-Af	EGR Pl	IGR Dt	IGR Pl	IGR Al	IGR Al-Lt	EGR Vl	EGR Uv	EGR Uv-Af	EGR Gl
<b>Fricatives</b>												
Plain		s		ʃ						χ		h
Voiced		z		ʒ								
<b>Simple stops</b>												
Plain	p	t	ts	tʃ	k	kʈ	k!	k	k			
Voiced	b	d		dʒ	g	gʈ	g!	g	g			
<b>Complex stops</b>												
Voiceless ejective			ts'	tʃ'	k '	kʈ'	k!'	k  '	k'		qχ'	
Voiced ejective			dz'	dʒ'								
Voiceless aspirated	p <sup>h</sup>	t <sup>h</sup>	ts <sup>h</sup>	tʃ <sup>h</sup>	k  <sup>h</sup>	kʈ <sup>h</sup>	k! <sup>h</sup>	k   <sup>h</sup>	k <sup>h</sup>			
Voiced aspirated	b <sup>h</sup>	d <sup>h</sup>	dz <sup>h</sup>	dʒ <sup>h</sup>	g  <sup>h</sup>	gʈ <sup>h</sup>	g! <sup>h</sup>	g   <sup>h</sup>	g <sup>h</sup>			
<b>Stop clusters</b>												
Plain + /χ/		tχ	tsχ	tʃχ	k χ	kʈχ	k!χ	k  χ				
Voiced + /χ/		dχ	dzχ	dʒχ	g χ	gʈχ	g!χ	g  χ				
Plain + /qχ'/		tqχ'			k qχ'	kʈqχ'	k!qχ'	k  qχ'				
Voiced + /qχ'/					g qχ'	gʈqχ'	g!qχ'	g  qχ'				
Plain + /h/					k h	kʈh	k!h	k  h				
Voiced + /h/					g h	gʈh	g!h	g  h				
Plain + /ʔ/												
<b>Simple nasals</b>												
Plain	m	n			ŋ	ŋʈ	ŋ!	ŋ				
<b>Non-nasal sonorants</b>												
	w	r		j								

**Table IV** A classification of Kxoe consonants based on the revised version of “cross-Khoisan consonant chart”. The palatalized velars transcribed as [ky gy kxy] in Köhler’s chart are excluded because their phonemic status is unclear. (A re-interpretation of Güldemann’s (2001:33) Table 8 by MCA)

	EGR Lb	EGR Al	EGR Pl	IGR Dt	IGR Pl	IGR Al	IGR Al-Lt	EGR Vl	EGR Uv	EGR Uv-Af	EGR Gl
<b>Fricatives</b>											
Plain		s	ʃ						χ		h
<b>Simple stops</b>											
Plain	p	t	tʃ	k	kʈ	k!	k	k	q		ʔ
Voiced	b	d	dʒ	g	gʈ	g!	g	g			
<b>Complex stops</b>											
Voiceless ejective		tʼ	tʃʼ	k ʼ	kʈʼ	k!ʼ	k  ʼ	kʼ		qχʼ	
Voiceless aspirated	p <sup>h</sup>	t <sup>h</sup>		k  <sup>h</sup>	kʈ <sup>h</sup>	k! <sup>h</sup>	k   <sup>h</sup>	k <sup>h</sup>			
<b>Stop clusters</b>											
Plain + /χ/		tχ	tʃχ	k χ	kʈχ	k!χ	k  χ				
Plain + /qχʼ/		tqχʼ		k qχʼ	kʈqχʼ	k!qχʼ	k  qχʼ				
Plain + /q/				k q	kʈq	k!q	k  q				
Plain + /h/				k h	kʈh	k!h	k  h				
Plain + /ʔ/				k ʔ	kʈʔ	k!ʔ	k  ʔ				
<b>Simple nasals</b>											
Plain	m	n		ŋ	ŋʈ	ŋ!	ŋ	ŋ			
<b>Other nasals</b>											
Glottalized nasal				ŋ̚	ŋ̚ʈ	ŋ̚!	ŋ̚				
<b>Non-nasal sonorants</b>											
	w	r									

**Table V** A classification of Nama (Namibian Khoekhoe) consonants based on the revised version of “cross-Khoisan consonant chart”. (A re-interpretation of Güldemann’s (2001:35) Table 9 by MCA)

	EGR Lb	EGR Al	EGR Al-Af	IGR Dt	IGR Pl	IGR Al	IGR Al-Lt	EGR VI	EGR Uv	EGR Gl
<b>Fricatives</b>										
Plain		s							χ	h
<b>Simple stops</b>										
Plain	p	t		k	k‡	k!	k	k		?
<b>Complex stops</b>										
Voiceless aspirated			ts <sup>h</sup>					k <sup>h</sup>		
<b>Stop clusters</b>										
Plain + /χ/				k χ	k‡χ	k!χ	k  χ			
Plain + /h/				k h	k‡h	k!h	k  h			
Plain + /ʔ/				k ʔ	k‡ʔ	k!ʔ	k  ʔ			
<b>Simple nasals</b>										
Plain	m	n		ŋ	ŋ‡	ŋ!	ŋ			
<b>Non-nasal sonorants</b>										
		r								

**Table VI** A classification of Sandawe consonants based on the revised version of “cross-Khoisan consonant chart”. (A re-interpretation of Güldemann’s (2001:37) Table 10 by MCA)

	EGR Lb	EGR Al	EGR Al-Af	EGR AL-Lt	EGR Pl	IGR Dt	IGR Al	IGR Al-Lt	EGR VI	EGR Uv	EGR Gl
<b>Fricatives</b>											
Plain	f	s		ɬ						χ	h
<b>Simple stops</b>											
Plain	p	t	ts	tl		k	k!	k	k		?
Voiced	b	d	dz	dɬ		g	g!	g	g		
<b>Complex stops</b>											
Voiceless aspirated	p <sup>h</sup>	t <sup>h</sup>	ts <sup>h</sup>			k  <sup>h</sup>	k! <sup>h</sup>	k   <sup>h</sup>	k <sup>h</sup>		
Voiceless ejective			ts’	tɬ’					k’		
<b>Stop clusters</b>											
Plain + /ʔ/						k ʔ	k!ʔ	k  ʔ			
<b>Simple nasals</b>											
Plain	m	n				ŋ	ŋ!	ŋ			
<b>Non-nasal sonorants</b>											
	w	r		l	j						