MALTESE MORPHOPHONEMICS[1]

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0.0 *Phonological preliminaries*

0.01 *Phonemic chart of Maltese consonants*[2]

	BILABIAL	LABIODENTAL	DENTAL	ALVEOLAR	ALVEOPALATIAL	PALATAL	VELAR	PHARYNGEAL	GLOTTAL	
STOPS	p b		t d				k g		q	
FRICATIVES		f v		s z	š			h		
AFFRICATES				ȼ ʒ	č j					
NASALS	m			n						
LATERAL				l						
TRILL				r						
SEMIVOWELS	w					y				

[1]Maltese is a Semitic language spoken by the 320,000 inhabitants of the Maltese archipelago comprising Malta, Gozo, Comino and Cominetto, and lying approximately 60 miles south of Sicily and 180 miles east of the Tunisian coast. This portion of a description of Maltese, which forms part of a larger work *The Phonology and Morphology of Maltese*, now in progress, is based on the native speech of the author who was born in the town of Sliema, Malta, and lived there for fifteen years.

[2]With the exception of /ȶ/, all the symbols have been taken from Pike's *Phonemics* (Ann Arbor, 1947). /ȶ/ is here used for the sake of convenience instead of the more usual digraph *dz*.

0.02 *Phonemic chart of Maltese vowels*

	FRONT	CENTRAL	BACK
High	/i/ /ii/		/u/ /uu/
Mid	/e/ /ee/		/o/ /oo/
Low		/a/ /aa/	

0.03 *Prosodic features*

0.031 Terminal junctures

/ˀ/ upward glide
/./ downward glide
/,/ mesojuncture

0.032 Internal juncture

/+/ open transition
/–/ close transition (between words)[3]

0.033 Stress

primary /ˈ/
secondary /ˌ/
weak / /

0.0331 Primary stress is almost always predictable. It falls on the long vocalic nucleus nearest the final word boundary, or on the short vowel preceding the consonant cluster nearest the final boundary. In words without long vowels or consonant clusters, it falls on the penultimate syllable of the word.

0.1 *Phonotactics*

0.11 Initial consonant clusters of the pattern C^1C^2.

[3]Close transition within words is indicated by ordinary spacing between phonemic symbols.

C^1 \ C^2	p	t	k	q	b	d	g	f	s	š	h	v	z	ś	č	ć	j	m	n	l	r	w	y
p		pt	pk	pq				pf	ps	pš	ph				pć	pč				pl	pr		py
t	tp		tk	tq				tf			th							tm	tn	tl	tr	tw	ty
k	kp	kt							ks	kš								km	kn	kl	kr	kw	ky
q		qt			qb	qd		qf	qs	qš	qh		qz					qm	qn	ql	qr	qw	
b						bd	bg					bv	bz				bj	bm	bn	bl	br	bw	by
d					db		dg					dv	(dz)					dm	dn	dl	dr	dw	dy
g					gb	gd						gv	gz			gź			gn		gr	gw	
f		ft	fk	fq					fs	fš	fh							fm	fn	fl	fr	fw	fy
s	sp	st	sk	sq				sf			sh			sć				sm	sn	sl	sr	sw	sy
š	šp	št	šk	šq	šb	šd	šg	šf	šs		šh				šč			šm	šn	šl	šr	šw	šy
h		ht	hk	hq	hb	hd		hf	hs	hš			hz				bj	hm	hn	hl	hr	hw	hy
v					vb	vd	vg										vj			vl	vr		vy
z					zb	zd	zg					zv					zj	zm		zl	zr	zw	zy
ć																							
č	čp							čf			čh							čm	čn	čl	čr	čw	
ś																							
j					jb		jg											jm	jn	jl	jr	jw	
m																			mn	ml			
n																							
l																							
r																							
w																							
y																							

0.12 Medial consonant clusters of the pattern C^1C^2.

C^1 \ C^2	p	t	k	q	b	d	g	f	s	š	h	v	z	ć	č	ś	j	m	n	l	r	w	y
p		pt		pq					ps										pn	pl	pr		py
t	tp		tk	tq				tf			th							tm	tn	tl	tr	tw	ty
k		kt							ks	kš	kh							km	kn	kl	kr	kw	ky
q		qt			qb	qd			qs	qš								qm	qn	ql	qr	qw	
b						bd											bj		bn	bl	br		by
d					db													dm	dn	dl	dr	dw	dy
g																	gj		gn				
f		ft		fq					fs										fn	fl	fr		fy
s	sp	st	sk	sq				sf			sh							sm	sn	sl	sr	sw	sy
š		št	šk	šq				šf											šn	šl	šr	šw	šy
h		ht		hq				hf	hs	hš								hm	hn	hl	hr	hw	hy
v							vg						vz				vj			vl			
z						zd												zm	zn	zl	zr		zy
ć																							
c		ct						cf												cl		cw	
ś																							
j					jb														ja	jl	jr		jy
m	mp	mt	mk	mq	mb	md		mf	ms	mš	mh		mz				mj		mn	ml	mr	mw	my
n		nt	nk	nq		nd	ng		ns	nš	nh		nz				nj			nl		nw	ny
l	lp	lt	lk	lq	lb	ld		lf	ls	lš	lh			lć				lm	ln			lw	ly
r	rp	rt	rk	rq	rb	rd	rg	rf	rs	rš	rh	rv	rz		rč		rj	rm	rn	rl		rw	ry
w																							
y																							

0.13 Final consonant clusters of the pattern C^1C^2.

C^1 \ C^2	p	t	k	q	b	d	g	f	s	ṡ	h	v	z	ż	č	ċ	j	m	n	l	r	w	y
p		pt							ps	ṗs	ph												
t																							
k									ks	k̇s													
q									qs	q̇s													
b																							
d																							
g																							
f									fs	ḟs													
s		st	sk	sq																			
ṡ			ṡk																				
h				hq					hs	ḣs													
v																							
z																							
ż																							
č																							
ċ																							
j																							
m	mp									ṁs	mh												
n		nt	nk						ns						nč								
l	lp	lt	lk	lq					ls	l̇s	lh			lż				lm					
r	rp	rt	rk	rq					rs	ṙs	rh							rm	rn				
w																							
y																							

0.14 Initial clusters of the shape $C^1C^2C^3$:

/spt spl stq stm str spr stf štr zbr/

0.15 Medial clusters of the shape $C^1C^2C^3$:

/spl str skr stl štř
šmš rpr rpt rtr rkr
rbl rdn rgr rqn rwr
rċy lbl ldr lsn lmt
qbl mpy ndb nth ntr
nkw nql ndl ndr ngw
čsm/

0.16 There are no final clusters of the shape $C^1C^2C^3$.

1.0 *Morphophonemics*

1.1 *Morphophonemic alternation*

Maltese displays a considerable variety of synchronic morphophonemic changes (both segmental and prosodic) largely dictated by phonotactic constraints in the language. This paper will deal specifically with phonologically defined alternations, which are, in the main, automatic. They include partial and complete assimilation (progressive and regressive), dissimilation, neutralization of

voicing in prejunctural position, loss of segmental length, stress shift, replacement of vowels in unstressed position, epenthesis, metathesis, and vowel-semivowel alternation. Morphemically conditioned changes will be presented in a future study of Maltese in which the inflected categories will be described.

1.11 *Voicing assimilation*

Maltese consonants are of two kinds, i.e. voiced and voiceless. The tables in 0.11, 0.12, 0.13, 0.14 and 0.15, setting forth the initial, medial, and final clusters of the language, indicate a constraint whereby voiced consonants do not generally cluster with voiceless ones. When pairs of voiced and voiceless sounds are brought together as a result of grammatical process or juxtaposition of words, there often occurs the phenomenon of voicing assimilation (usually regressive), a fact we can express in the following general rules:

1.111 *Rule I*

$$\underset{[+\text{voice}]}{\text{cns}} \longrightarrow \underset{[-\text{voice}]}{\text{cns}} \quad / \_\_ \underset{[-\text{voice}]}{\text{cns}}$$

Examples: (a) /b/ → /p/

/hapta/	'knock' (N)
/habat/	'he knocked'
/rapta/	'bond'
/rabat/	'he tied'
/sapta/	'slam' (N)
/sabbat/	'he slammed'
/šipka/	'a net'
/šbiiki/	'nets'
/imbapsiyn/	'tampered with'
/baabas/	'he tampered with'

(b) /d/ → /t/

/qatfa/	'a stroke of the oar'
/qadef/	'he rowed'
/aatsa/	'a ducking'
/oodos/	'he dived'

(c) /z/ → /s/

/sfiyn/	'dancing'
/zifen/	'he danced'

1.112 *Rule II*

$$\text{cns}_{[-\text{voice}]} \longrightarrow \text{cns}_{\begin{bmatrix}+\text{voice}\\+\text{obstruent}\end{bmatrix}} \quad / \_\_ \text{cns}_{[+\text{voice}]}$$

Examples: (a) /f/ → /v/

/vdaal/	'remains'
/fadal/	'it remained'
/vdeytna/	'you redeemed us'
/feda/	'he redeemed'

(b) /s/ → /z/

/zdiiri/	'waistcoats'
/sidriyya/	'waistcoat'
/mizduwt/	'blocked'
/satt/	'he blocked'
/hazda/	'fright'
/hasat/	'he startled'
/imfizzdiyn/	'spoilt (children)'
/fessuwt/	'a spoilt child'

1.12 *Assimilation of point of articulation*

The following additional examples of regressive assimilation display phonemic changes taking the form of gain or loss of distinctive features related to points of articulation. They suggest the rule:

1.121 *Rule III*

$$\text{cns}_{\begin{bmatrix}\text{alveolar}\\\text{nasal}\end{bmatrix}} \longrightarrow \text{cns}_{\begin{bmatrix}\text{labiodental}\\\text{nasal}\end{bmatrix}} \quad / \_\_ \text{cns}_{[\text{labiodental}]}$$

Examples: /n/ → /m/

/imfaqt/	'I spent'	[imfaqt]
/nefaq/	'he spent'	

/qamfuwt/	'hedgehog'	[qaɱfuwt]
/qniifet/	'hedgehogs'	
/mimfuuh/	'inflated'	[miɱfu:h]
/nefah/	'he inflated'	
/mimfuwt/	'pierced'	[miɱfuwt]
/nifet/	'he pierced'	
/dam-fiiq/	'this man has recovered'	[daɱ-fi:q]
/daan/	'this' (M)	
/fiiq/	'he recovered'	
/mim-fuuq/	'from above'	[miɱ-fu:q]
/minn/	'from'	
/fuuq/	'above'	
/mim-veneeɕya/	'from Venice'	[miɱ-vene:ɸya]
/minn/	'from'	
/veneeɕya/	'Venice'	
/kim-vyoola/	'it was violet'	[kiɱ-vyo:la]
/kiin/	'he, it was'	
/vyoola/	'violet'	

1.13 *Complete assimilation*

The kinds of assimilation dealt with so far have consisted of instances of *partial* assimilation, that is, the segment undergoing modification remained phonemically distinct from the adjacent segment by which it was affected. The following examples display *complete* assimilation, in which the modified segment has taken on the complete bundle of distinctive features proper to its neighbour.

1.131 *Assimilation of /l/*

As in Arabic, the definite article /l-/ (or /il-/) is assimilated by the following consonant when the latter happens to be one of the following: /t, d, n, s, z, ɕ, ʑ, š, and č/, e.g.

/it-tiiqa/	'the window'
/id-dinya/	'the world'
/in-naar/	'the fire'
/is-saara/	'overtime'
/iz-zarbuwna/	'the shoe'
/iɕ-ɕiyyu/	'the uncle'
/iʑ-ʑoona/	'the zone'

/iš-šaar/	'the month'
/iċ-ċayta/	'the joke'.

The assimilation of /l/ is also noticeable in rapid speech where the forms

/saykolna/	'we are going to have'
/hadilna/	'he took away from us'
/amilna/	'we made'
/lilna/	'to us'
/kilna/	'we ate'
/kemmilna/	'how long have we been?'

are normally realized as follows:

/saykonna/
/hadinna/
/aminna/
/linna/
/kinna/
/kemminna/

1.132 *Sibilant assimilation*

Maltese displays two kinds of sibilant assimilation; one is occasioned by the juxtaposition of /ši/ 'what' with words beginning with /s/ and /z/, e.g.

/sseraq/	'What did he steal?'
/seraq/	'he stole'
/ssemat/	'What did she hear?'
/semat/	'she heard'
/zzammlek/	'What did he charge you?'
/zamm/	'he kept'
/zzebah/	'What did he paint?'
/zebah/	'he painted'

the other, by the co-cocurence of the discontinuous morpheme /ma...š/ and verb forms ending in /s/ and /č/, e.g.

/mababaššš/	'he did not tamper with'
/baabas/	'he tampered with'
/mamešš/	'he did not touch'
/mess/	'he touched'
/mahallaššš/	'he did not pay'
/hallas/	'he paid'

/mahariċċ/	'he did not go out'
/hareċ/	'he went out'
/mahejjiċċ/	'he did not exhort'
/hejjeċ/	'he exhorted'

1.14 *Dissimilation*

This is rather rare in the Maltese language. It can be observed in the replacement of /n/ by /l/ when the morpheme /nofs/ 'half' occurs with /naar/ 'day' in /nofs-inaar/ 'midday', which is often realized as /lofs-inaar/.

1.15 *Neutralization of voicing in pre-junctural position*

All final voiced obstruents occurring in underlying forms are phonetically realized as voiceless segments, a fact we can express in the following manner:

1.151 *Rule IV*

$$\begin{bmatrix} \text{cns} \\ +\text{obstruent} \\ +\text{voice} \end{bmatrix} \longrightarrow \begin{bmatrix} \text{cns} \\ +\text{obstruent} \\ -\text{voice} \end{bmatrix} \quad / \_\_ \#$$

Examples:

/ktiip/	'book'
/kodba/	'books'
/biip/	'door'
/bibiin/	'doors'
/kelp/	'dog'
/kelba/	'bitch'
/hatt/	'I took'
/hadna/	'we took'
/mart/	'sickness' (coll.')
/marda/	'a sickness'
/porok/	'laxatives'
/porga/	'laxative'
/stanek/	'metal rods'
/stanga/	'metal rod'
/griik/	'a Greek'
/griigi/	'Greeks'
/aziys/	'dear' (M)
/aziyza/	'dear' (F)

/pastaas/	'rude' (M)
/pastaaza/	'rude' (F)
/boros/	'paper bags'
/borza/	'a paper bag'
/gaječ/	'cages'
/gajja/	'a cage'
/hjiič/	'glass'
/hjiija/	'a piece of glass'
/hareč/	'he went out'
/harjet/	'she went out'

1.16 *Stress shift and loss of segmental length*

In Maltese, stress tends to co-occur with vocalic length. Thus, any stress shift concomitant with grammatical processes, e.g. pluralization, negativization, etc., is often accompanied by loss or displacement of vocalic length, e.g.

/biip/	'door'
/bi'biin/	'doors'
/'deera/	'appearance'
/de'riit/	'appearances'
/'looba/	'a game'
/lo'biit/	'games'
/triiq/	'street'
/tri'qaat/	'streets'
/'daamet/	'she was a long time'
/mada'metš/	'she was not a long time'
/'saabet/	'she found'
/masa'betš/	'she did not find'
/'laabna/	'we played'
/malab'niiš/	'we did not play'
/'riida/	'he wanted it'
/mari'diiš/	'he did not want it'

where the stressed /VV/ in the first word of each pair is paralleled by unstressed /V/ in the corresponding syllable of the second.

Changes in consonantal length, too, can be phonologically conditioned, as when some final geminates suffer reduction when followed in close transition by a sequence beginning with a consonant. Note the alternation /kem/ ~ /kemm/ in these examples:

/kem-taak/	'How much did he give you?'
/kemm-inti-pastaas/	'How rude you are!'
/kem-daam/	'How long did he stay?'
/kemm-u/	'How much is it?'
/kem-saap/	'How many did he find?'
/kemm-ahna/	'How many are we?'

The same contrast in consonant length can be seen in the alternation /ek/ ~ /ekk/ attested in these forms:

/ek-triyt?/	'Is that what you want?'
/ekk-aamel?/	'Is that what he did?'
/ek-rayt?/	'Is that what you saw?'
/ekk-aazel?/	'Is that what he chose?'
/ek-qalli/	'That's what he told me'
/ekk-ahyaar/	'That's better'

1.17 *Replacement of vowels in unstressed position*

In Maltese, stress shift can sometimes also be accompanied by qualitative vowel changes besides the quantitative ones described in the preceding section, e.g. /íi/ → /e/ /___CCV́

Examples:

/'kiisah/	'cold' (S)
/kes'hiyn/	'cold' (P)
/'kiifer/	'ungrateful' (S)
/kef'riyn/	'ungrateful' (P)
/'miilah/	'salty' (S)
/mel'hiyn/	'salty' (P)
/'niiqes/	'missing' (S)
/neq'siyn/	'missing' (P)
/'iini/	'happy' (S)
/en'yiyn/	'happy' (P)
/'bniidem/	'human being'
/bned'miyn/	'human beings'
/'tliita/	'three'
/tle'tiyn/	'thirty'

Instances of other vowel changes are listed below:

/'sabi/[4]	'boy'

[4] This form is now obsolete, though the plural is still commonly used.

/su'biin/	'boys'
/'aatu/	'lid'
/ot'yiin/	'lids'
/'hasi/	'capon'
/ho'siin/	'capons'
/onq/	'neck'
/e'nuuq/	'necks'

1.18 *Epenthesis*

This is a very common occurrence in the paradigm of the Imperfective of tri-literal and quadri-literal verbs, the plural of which often displays tri-consonantal clusters:

Examples: (a) *Tri-literal verbs*[5]

/ni*rkb*u/	'we ride'
/na*hdm*u/	'we work'
/ni*lmb*u/	'we catch sight of'
/ni*ksr*u/	'we break'
/ta*hsl*u/	'you wash'
/ti*rpb*u/	'you win'
/ti*jbd*u/	'you pull'
/yi*šbt*u/	'they throw'
/yi*sbt*u/	'they curse'
/yi*skr*u/	'they get drunk'

(b) *Quadri-literal verbs*

/infi*šklu*/	'we obstruct'
/inha*rptu*/	'we ruin'
/imba*ndlu*/	'we swing'
/tizzer*squ*/	'you slide'
/isse*fsfu*/	'you whisper'
/dbe*rbqu*/	'you squander'
/ifa*rfru*/	'they dust'
/ige*mgmu*/	'they grumble'
/iza*nznu*/	'they wear for the first time'.

Maltese phonotactics favours clusters of the shapes OOO, OOR, RRR, ROR, and RRO,[6] where O stands for *obstruent* and R for

[5] The pertinent clusters are shown in italics.
[6] Provided the first radical is not a nasal. Thus /ni*lmb*u/ 'we catch sight of' is acceptable, but not /*ni*mrd*u/. The correct form of this is /nimirdu/ 'we fall ill'.

resonant. As all the clusters occurring in the examples given above conform to these permissible phoneme sequences, they do not display epenthetic vowels. Clusters of the form ORO, however, are *not* tolerated. Consequently, verb forms presenting potential clusters of this shape invariably feature an epenthetic vowel intervening between the first and second consonants of the cluster, e.g.

/nitil*f*u/	'we lose'
/nisil*t*u/	'we choose'
/yoholqu/	'they create'
/yokor*b*u/	'they moan'
/yišor*b*u/	'they drink'

Though the occurrence and position of the epenthetic vowel are predictable, it is not possible *in every case* to predict its nature. In a great number of cases, however, there is a rule of vowel harmony operating between the vowel preceding the first consonant of the cluster and the epenthetic vowel, e.g.

/no*h*or*j*u/	'we go out'
/nokor*b*u/	'we moan'
/ni*f*ir*b*u/	'we rejoice'
/nitil*f*u/	'we lose'
/nizil*q*u/	'we slip'
/no*q*om*s*u/	'we hop'

1.19 *Metathesis*

A fairly common phenomenon in Maltese is the occurrence of metathesis, whereby two contiguous[7] phonemes exchange position to conform with certain phonological rules or preferences attested in the language. Thus, in certain verbs, the affix /-t-/ changes places with the first radical of the verb, e.g.

/štehet/	'he threw himself'
/šehet/	'he threw'
/irtabat/	'he obligated himself'
/rabat/	'he tied'
/inštorop/	'it shrunk'
/šorop/	'he drank'
/irtafa/	'it got pulled up'
/rafa/	'he lifted'

[7]Metathesis does, on very rare occasions, occur between non-contiguous phonemes as in the rather sub-standard rendition /konolla/ for /kolonna/ 'a pillar'.

/instema/	'he was heard'
/sema/	'he heard'
/intefah/	'it got inflated'
/nefah/	'he inflated'
/imtett/	'he lay down'
/mett/	'he laid'
/instaap/	'he was found'
/saap/	'he found'
/imtela/	'it got filled'
/mela/	'he filled'
/intebah/	'he realized'
/nebbah/	'he opened (someone's) eyes'
/instamat/	'he got scalded'
/samat/	'he scalded'
/iltaqa/	'he met'
/laqa/	'he received (a person)'

Examples of the occurrence of /-t-/ in the normal position are given below:

/trabba/	'he was brought up'
/rabba/	'he nurtured'
/thallat/	'it got mixed up'
/hallat/	'he mixed'
/tharreč/	'he underwent training'
/hareč/	'he went out'
/twessa/	'it got widened'
/wessa/	'he widened'
/tkisser/	'it got smashed'
/kisser/	'he smashed'
/tfattar/	'it got flattened'
/fattar/	'he flattened'
/tkiššef/	'he made inquiries'
/kišef/	'he uncovered'

Some Maltese speakers reverse the positions of the first and second radicals in the pronunciation of certain verb forms and say

/kpeyt/	'I cried' instead of /pkeyt/
/qpayt/	'I remained' instead of /pqayt/

This procedure, is, however, inadmissible in standard speech.

1.20 *Vowel-semivowel alternation*

Maltese vowels do not generally cluster. In keeping with this phonological constraint, the morpheme /u/ 'and' alternates between /u/ and /w/ depending on the presence and absence of vowels in adjacent positions, e.g.

/mara-w-raajel/	'a woman and a man'
/janni-w-mariyya	'John and Mary'
/hobza-w-sikkiyna/	'a loaf and a knife'
/isseba-w-nofs/	'seven-thirty'
/tifel-u-tifla/	'a boy and a girl'
/raajel-u-mara/	'a man and a woman'
/dar-u-karo¢¢a/	'a house and a car'

When, in very deliberate speech, /u/ occurs before a word beginning with a vowel, they are normally separated by the intervention of open juncture, e.g.

/raajel-u + armla/	'a man and a widow'
/issateyn-u + aašra/	'two-thirty'
/habbat-u + ithol/	'knock and enter'
/inhasel-u + ilbes/	'wash and get dressed'

In much the same manner, /i/ alternates with /y/ in the third person singular and plural of verb forms in the Imperative, e.g.

/uwwa-ymuwr/	'he goes'
/uwwa/	'he'
/illum-imuwr/	'today he is going'
/illum/	'today'
/marru-yfiččuwa/	'they went to look for her'
/marru/	'they went'
/deyyem-ikellima/	'he always talks to her'
/deyyem/	'always'
/issa-ykellima/	'now he will talk to her'
/issa/	'now'

1.21 *Automatic vs non-automatic alternation*

It must be pointed out that though the morphophonemic alternations accounted for in the preceding sections have been described as 'automatic', this was not intended in any absolute sense. Thus, the 'automatic' nature of rule II may be called into question by reason of its failure to come into operation in the following examples:

/nitnet/	'it stank'
/difnet/	'she buried'
/qatlet/	'she killed'

where we would expect the forms /*nidnet/, /*divnet/, /*qadlet/. Clearly, we have here a need for an overriding morphophonemic rule taking the form of a constraint on the participation of resonants in voicing assimilation. Neutralization of voicing, too, is far from being automatic to the extent of being completely predictable. Note the alternation /b/ ~ /p/ in the examples cited below:

/biip/	'door'
/bibiin/	'doors'
/biiba/	'door' (of a car)
/biib-zayr/	'a small door'
/biip-iswet/	'a black door'
/biip-ahdar/	'a green door'
/biip-isfar/	'a yellow door'

Given the tendency for the final segment of /biip/ to display the distinctive feature of voicing when followed by a vocalic segment (/bibiin/, /biiba/), it would seem reasonable to expect the same to occur in the last three examples quoted, particularly, as the sequence /biib-zayr/ provides us with an instance of assimilation across word juncture (external sandhi). The fact that we do not get the forms /*biib-iswet/, /*biib-ahdar/, and /*biib-isfar/ serves to indicate that the seemingly automatic processes described above are subject to morphophonemic rules still requiring formulation.

1.22 *Morphophonemic symbols*

Nevertheless, inasmuch as it is possible in a fairly regular manner to correlate the morphemic alternations described in the preceding sections with factors of phonological environment, it enhances the simplicity and brevity of our linguistic description to adopt a set of morphophonemic symbols enabling us to establish a single unchanging representation for each morpheme regardless of the environment. Thus, full phonemes that are in partial complementary distribution under specifiable conditions will be accounted submembers of one morphophoneme.

Criteria of simplicity aside, the adoption of morphophonemic symbols will also yield information about the special relations existing among certain phonemes that appear, at least on a lower level, to be completely distinct.

1.23 *Table of Morphophonemes*

On the basis of the above alternations, the following tentative set of morphophonemes is suggested:

1.24 *Consonants*

MORPHOPHONEMIC SYMBOLS	PHONEMIC SUBMEMBERS AND THEIR ENVIRONMENTS						
	/V_V	/_cns [+obstr +voice]	/_cns [+obstr +voice]	/_cns [labiodental]	/_cns [+obstr +voice]	/_#	ELSEWHERE
F	f	v					
T	t	d					
K	k	g					
B	b		p			p	
D	d		t			t	
G	g		k			k	
J	j		c			č	
C					≠		
Z	z					s	
Ž	≠					ǂ	
N				m			n

1.25 *Vowels*

MORPHOPHONEMES	PHONEMIC SUBMEMBERS AND THEIR ENVIRONMENTS			
	/C_C	/C_CV	/V#_(C V)	C#_(+ C)
I	i	e		
A	a	o		
W			w	u
Y			y	i

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