

International Phonetic Alphabet

= IPA

THE INTERNATIONAL PHONETIC ALPHABET (revised for 2005)

CONSONANTS (approximate)

Category	Symbol	Category	Symbol	Category	Symbol	Category	Symbol
Plosive	p, b	Stop	t, d	Labiodental	f, v	Labial	m, n
Fricative	s, z	Stop	k, g	Labiodental	f, v	Labial	m, n
Nasal	ɱ	Stop	t͡ʃ, d͡ʒ	Labiodental	f, v	Labial	m, n
Liquoid	l, ɭ	Stop	t͡ʃ, d͡ʒ	Labiodental	f, v	Labial	m, n
Approximant	ɹ, ɻ	Stop	t͡ʃ, d͡ʒ	Labiodental	f, v	Labial	m, n

Vowel trapezoid diagram showing the relative positions of various vowel sounds.

Paul Passy
1859-1940

Henry Sweet
1845-1912

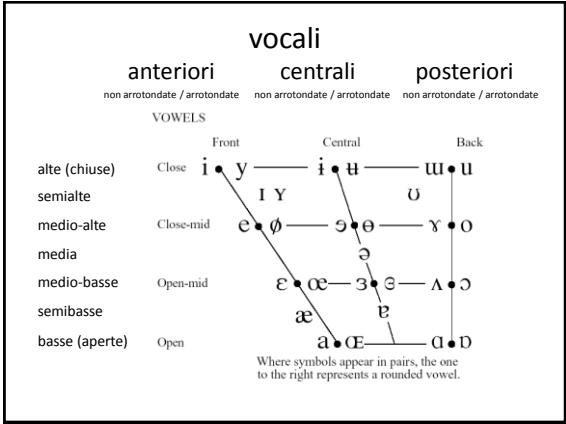
apparato fonatorio

Labels in the diagram: labbra, denti, alveoli, palato duro, cavità nasale, uvula, faringe, pliche vocali, laringe, trachea, esofago.

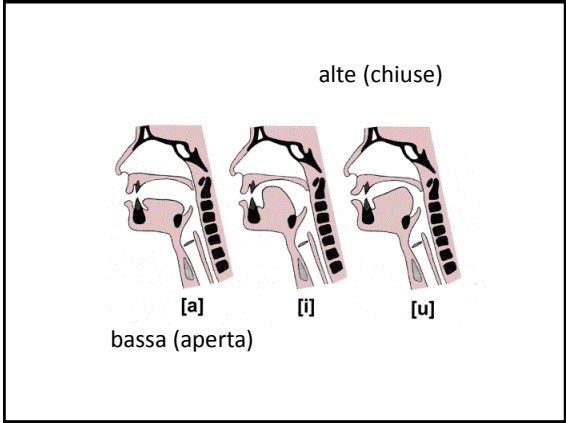
nessun ostacolo / ostacolo

vocali consonanti

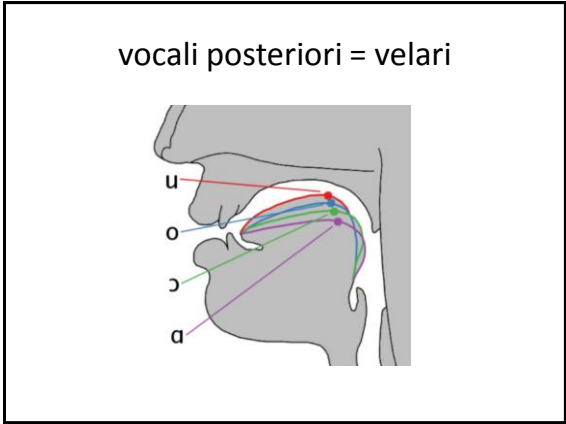
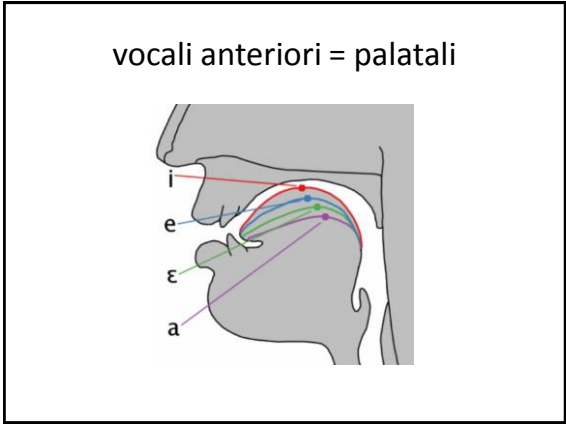
trapezio vocale



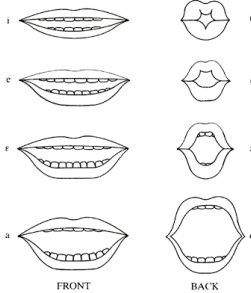
innalzamento / abbassamento



avanzamento / arretramento



non arrotondamento /
arrotondamento
delle labbra

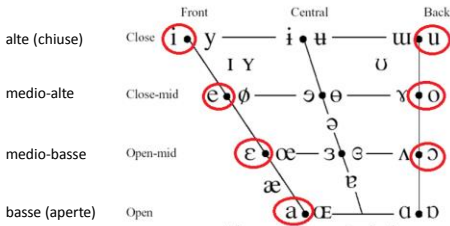


vocali dell'italiano

anteriori centrali posteriori

non arrotondate / arrotondate non arrotondate / arrotondate non arrotondate / arrotondate

VOWELS



Where symbols appear in pairs, the one to the right represents a rounded vowel.

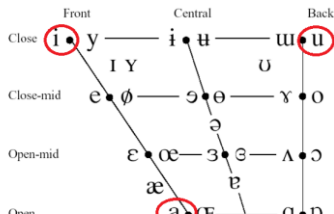
arabo classico

(brevi e lunghe)

anteriori posteriori

non arrotondate / arrotondate non arrotondate / arrotondate

VOWELS



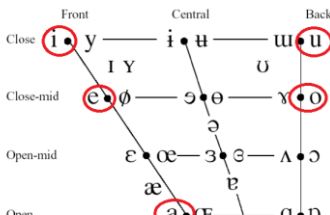
Where symbols appear in pairs, the one to the right represents a rounded vowel.

spagnolo

anteriori posteriori

non arrotondate / arrotondate non arrotondate / arrotondate

VOWELS



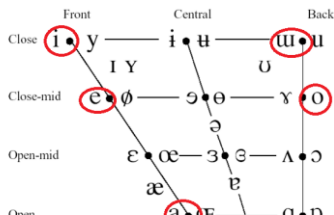
Where symbols appear in pairs, the one to the right represents a rounded vowel.

giapponese

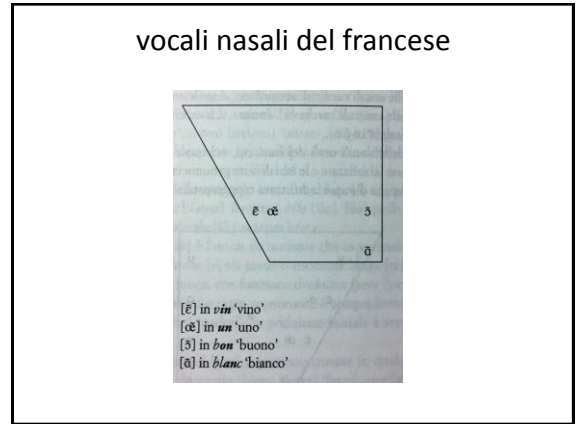
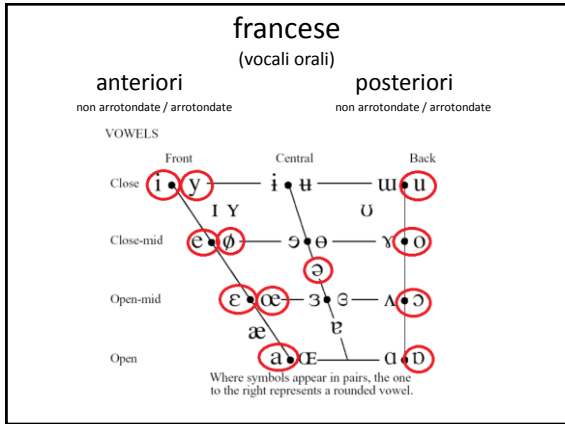
anteriori posteriori

non arrotondate / arrotondate non arrotondate / arrotondate

VOWELS



Where symbols appear in pairs, the one to the right represents a rounded vowel.



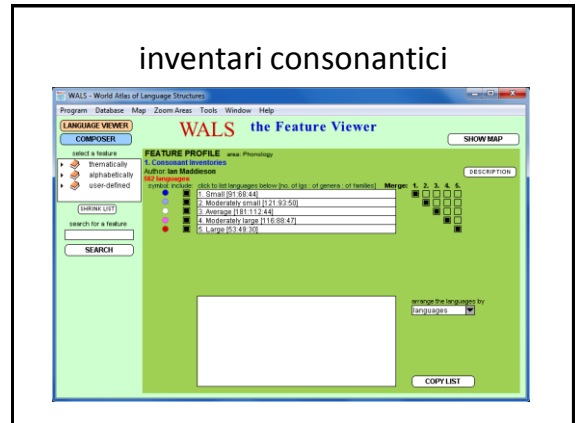
consonanti

THE INTERNATIONAL PHONETIC ALPHABET (revised to 2005)

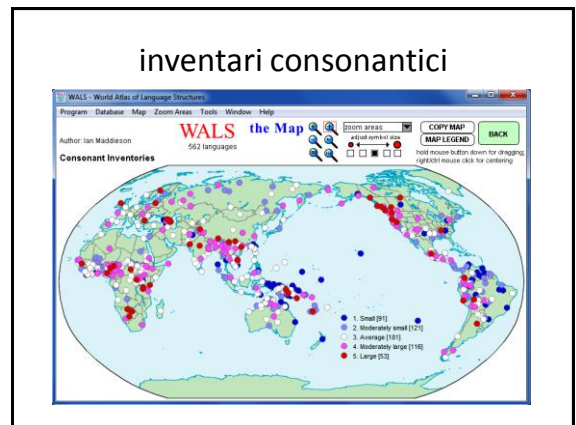
CONSONANTS (PULMONIC) © 2005 IPA

	Bilabial	Labiodental	Dental	Alveolar	Post-alveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d		ʈ ɖ	c ɟ	k ɡ	q ɢ		ʔ
Nasal	m	ɱ		n		ɳ	ɲ	ŋ	ɴ		
Trill				r					ʀ		
Tap or Flap		ɸ		ɾ		ɽ					
Fricative	ɸ β	f v	θ ð	s z	ʃ ʒ	ʂ ʐ	ç ʝ	x ɣ	χ ʁ	ħ ʕ	h ɦ
Lateral fricative				ɬ ɮ							
Approximant		ʋ		ɹ		ɻ	j	ɰ			
Lateral approximant				l		ɭ	ʎ	ʟ			

Where symbols appear in pairs, the one to the right represents a voiced consonant. Shaded areas denote articulations judged impossible.



- ### WALS
- small** (from 6 to 14 consonants)
 - moderately small** (15-18)
 - average** (19-25)
 - moderately large** (26-33)
 - large** (34 or more consonants)



rotokas



/p, t, k, b, d, g/

consonanti non polmonari implosive | eiettive (iniettive)

CONSONANTS (NON-PULMONIC)

Clicks	Voiced implosives	Ejectives
◌ǀ	◌ɓ	◌ʼ
◌ǃ	◌ɗ	◌pʼ
◌ǂ	◌ɗ̥	◌tʼ
◌ǁ	◌ɟ	◌kʼ
◌ǁ̥	◌ɠ	◌sʼ

http://it.wikipedia.org/wiki/Consonante_implosiva
http://it.wikipedia.org/wiki/Consonante_eiettiva

implosive e eiettive = glottidali



glottide =
segmento
intermedio
della laringe

consonanti eiettive

quechua
<http://www.phonetics.ucla.edu/vowels/chapter12/quechua.html>

	FALATO-ALVEOLAR	VELAR	UVULAR
VOICELESS	tʃaka	kʉjɔ	qaɔ
	'bridge'	'to move'	'tongue'
ASPIRATED	tʃʰaka	kʰɔjɔ	qʰaɔ
	'large ant'	'to whistle'	'shawl'
EJECTIVE	tʃʰakaʼ	kʰɔjɔʼ	qʰaɔʼ
	'hoarse'	'to twist'	'tomato sauce'

consonanti implosive (iniettive)

igbo (Nigeria)
<http://www.phonetics.ucla.edu/vowels/chapter12/igbo.html>

	LABIAL	ALVEOLAR
VOICED	ɓa	ɗa
	'to get rich'	'to cut'
VOICELESS	ɓa	ɗa
UNASPIRATED	'to carry'	[name]
ASPIRATED	ɓʰa	ɗʰa
	'to squeeze'	'to blame'
BREATHY	ɓʷa	ɗʷa
VOICED	'to peel'	'to fall'
VOICELESS	ɓʷa	ɗʷa
IMPLOSIVE	'to gather'	'to chew'
VOICED	ɓa	
IMPLOSIVE	'to dance'	

[l]

https://upload.wikimedia.org/wikipedia/commons/f/f4/Alveolar_lateral_click.ogg

CONSONANTS (NON-PULMONIC)

Clicks		Voiced implosives		Ejectives
◌	Bilabial	ɓ	Bilabial	ʼ
◌	Dental	ɗ	Dental/alveolar	pʼ
◌!	(Post)alveolar	ɟ	Palatal	tʼ
◌≠	Palatoalveolar	ɠ	Velar	kʼ
◌	Alveolar lateral	ɠ	Uvular	sʼ
				Alveolar fricative

toni

svedese

anden ['āndən] 'ʻanatra'
anden ['āndēn] 'lo spirito'

https://en.wikipedia.org/wiki/Swedish_phonology

lituano

tono discendente

týrė 'indagava, indagavano'

tono ascendente

tĩrė 'poltiglia'

cinese

Play

STANDARD CHINESE ma			
Chinese Character	Tone symbol	Tone description	English gloss
媽	1	high level	'mother'
麻	2	high rising	'hemp'
馬	4	low falling	'horse'
罵	5	high falling	'scold'

cantonese

Play

CANTONESE si			
Chinese Character	Tone symbol	Tone description	English gloss
詩	1	high level	'poem'
試	2	mid level	'to try'
事	3	low level	'matter'
時	4	low falling	'time'
使	5	low high	'to cause'
市	6	low mid	'city'

<http://www.phonetics.ucla.edu>

UCLA Phonetics Lab Data

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Map index

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A Course in Phonetics 3rd Ed Peter Ladefoged
 Thomson/Wadsworth Publishers

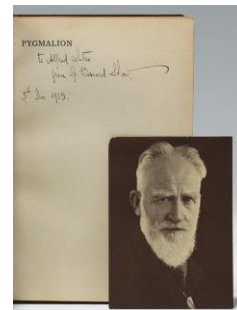
Sounds and Communications 2nd Ed Peter Ladefoged
 Blackwell Publishers

Peter Ladefoged
1925-2006



(George Cukor, 1964)

George Bernard Shaw
1856-1950
Pygmalion (1913)



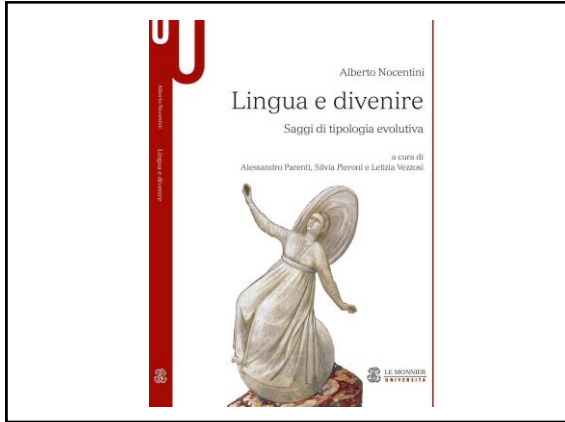
Henry Sweet
1845-1912



sequenza CCV- non ammessa

= una sola consonante a inizio di parola

basco
lingue uraliche
lingue turciche



Alberto Nocentini
1944-

Le radici ie. **mor-/morm-* ‘incubo’
e **bū-/bub-* ‘spauracchio’
e il sistema fonologico indeuropeo

occlusive dell'italiano

THE INTERNATIONAL PHONETIC ALPHABET (revised to 2005)

CONSONANTS (PULMONIC) © 2005 IPA

	Bilabial	Labiodental	Dental	Alveolar	Post-alveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b		t d		ʈ ɖ	c ɟ	k ɡ	q ɢ			ʔ
Nasal	m	ɱ	n	ɲ		ɳ	ɲ	ŋ	ɴ		
Trill	ʙ		ʀ						ʀ		
Tap or Flap		ⱱ	ɾ			ɽ					
Fricative	ɸ β	f v	θ ð	s z	ʃ ʒ	ʂ ʐ	ç ʝ	x ɣ	χ ʁ	ħ ʕ	h ɦ
Lateral fricative				ɬ ɮ							
Approximant		ʋ		ɹ		ɻ	j	ɰ			
Lateral approximant			l		ɭ		ʎ	ʟ			

Where symbols appear in pairs, the one to the right represents a voiced consonant. Shaded areas denote articulations judged impossible.

simmetria nel
sistema delle occlusive
italiano

	sorde	sonore
bilabiali	/p/	/b/
dentali	/t/	/d/
velari	/k/	/g/

simmetria nel
sistema delle occlusive
greco classico

	sorde	sonore	sorde aspirate
bilabiali	/p/	/b/	/p ^h /
dentali	/t/	/d/	/t ^h /
velari	/k/	/g/	/k ^h /

simmetria nel sistema delle occlusive

sanscrito

Occlusives	Voiceless plosives		Voiced plosives		Nasals
	unaspirated	aspirated	unaspirated	aspirated	
Velar	क ka	ख kha	ग ga	घ gha	ङ na
Palatal	च ca	छ cha	ज ja	झ jha	ञ ña
Retroflex	ट ta	ठ tha	ड da	ढ dha	ण ña
Dental	त ta	थ tha	द da	ध dha	न na
Labial	प pa	फ pha	ब ba	भ bha	म ma
Sonorants and fricatives					
	Palatal		Retroflex	Dental	Labial
Sonorants	य ya	र ra	ल la	व va	
Sibilants	श sha	ष sha	स sa		
Other letters					
	ह ha	ळ la	ः		

consonanti occlusive dell'indoeuropeo

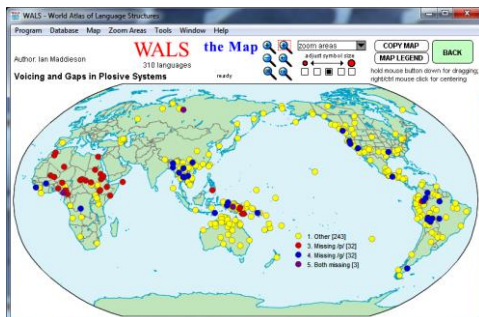
	sorde	sonore	sonore aspirate
labiali	p	[b]	bh
dentali	t	d	dh
velari	k	g	gh
labiovelari	k ^w	g ^w	g ^w h

[*b]

casella (quasi) vuota

caselle vuote

caselle vuote



*bū-/bub- 'spauracchio, insetto'

LINGUE CELTICHE
gall. *bū* 'spauracchio', *bugan* 'demonio', *bubach* 'spaventapasseri' e 'demonio';
gael. *bocan*, *bocnach* 'demonio', corn. *bucca* 'spirito delle miniere e del mare'.

LINGUE GERMANICHE
ags. *pūca* 'coboldo', ingl. *Puck*, ant. isl. *þuki* 'demonio', norv. *puge* 'coboldo' e
'spavento', sved. dial. *puke* 'demonio', sved. *skräpuk* 'spaventapasseri', 'demonio' e
'bruco'; ingl. *bogey*, dial. *bugan* 'demonio', *bug* 'spauracchio', 'scarafaggio', 'pidoc-
chio', 'verme della frutta', *bug-bear* e *bugaboo* 'spauracchio'; sved. *bobba* 'insetto',
'bruco', norv. dial. *bobbe* 'spaventapasseri', m. ingl. *bobbe* 'insetto', 'lombrico', ingl.
dial. *bob* 'piccolo insetto', 'pidocchio', 'verme'.

LINGUE BALTICHE
lit. *bubaitis* 'spauracchio', 'spaventapasseri', *bubaitis* 'spavento', *būžys* 'spaurac-
chio' e 'insetto', lett. *būca*, *būzis* 'pidocchio'; lit. *biūbis* 'spettro', lett. *būbis*, *bubēlis*,
bubūlis 'spauracchio'.

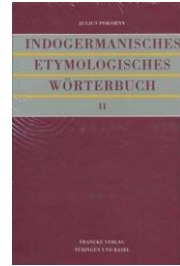
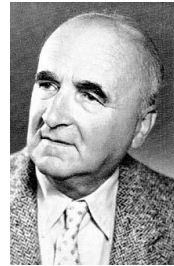
***bū-/bub-**
 'spauracchio, insetto'

LINGUE SLAVE
 russ. *bud'* 'esclamazione infantile', *buka* 'spauracchio', *bukaika* 'scarafaggio'; pol. *bud'* 'esclamazione infantile', *buba*, *bubak* 'spauracchio', *bobo* e *bobak* 'spavento'; cec. *bubik* 'spauracchio', s.-cr. *buba* 'baco da seta', 'insetto'; bulg. *buba* 'verme', 'baco da seta', *bubolečka* 'insetto'.

LEGA BALTICA
 alb. *bubë* 'spauracchio', 'scarafaggio', 'baco da seta', *bubai* 'verme', 'lombrico', *bubrec* 'insetto', 'formica', *buburecë* 'scarafaggio'; rum. *buburuză* 'scarafaggio'; neogr. *μπουμπούλας*, *μπουμπούλας* (cioè *bubūlas*, *bubūlas*) 'spauracchio' e 'scarafaggio'.

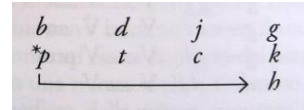
DIALETTI ROMANZI
 occit. *bubau* 'spauracchio', *bobu* 'baco da seta'; romanc. *bubhao* 'spauracchio' e 'scarafaggio'; lomb. *bubau* 'spauracchio' e 'scarafaggio'; piem. *bubija* 'spauracchio' e 'verme'; ven. *bao* 'spauracchio' e 'scarafaggio'; friul. *bao* 'spauracchio' e 'verme', *bobò* 'spauracchio' e 'insetto'; tosc. *bau* 'spauracchio', *bobò* 'spauracchio' e 'insetto'; calab. *bubbau* 'spauracchio', 'verme', 'insetto'; sard. *babbai* 'spauracchio' e 'insetto'.

Julius Pokorny (1887-1970)
 IEW

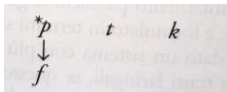


1959

Paul Hopper



arabo



sistema consonantico proto-uralico

	Orali	Nasali	Affricate	Fricative	Liquide
	Occlusive				
Bilabiali	<i>p</i>	<i>m</i>		<i>w</i>	
Dentali	<i>t</i>	<i>n</i>		(<i>θ</i>)	
Alveolari				<i>s</i>	<i>l, r</i>
Alveo-palatali		<i>ɲ</i>	<i>ʧ</i>	<i>ʃ</i>	<i>ʎ</i>
Palatali				(<i>θ'</i>)	
Velari	<i>k</i>	<i>ŋ</i>		<i>ɣ</i>	

ungherese

$*p \rightarrow f/ \# _ V$
 $*k \rightarrow h/ \# _ V \text{ post}$
 $*k \rightarrow k/ \# _ V \text{ ant}$
 $*t \rightarrow t/ \# _ V$

toscano (italiano)

$*b \rightarrow d \ g$
 \downarrow
 v

Roman Jakobson

1896-1982



Oslo 1957

III

*Gli studi tipologici e il loro contributo
alla linguistica storica comparata*

sorde ~ sonore ~ sonore aspirate

non esiste

problemi

1 serie sorda vs. 2 serie sonore
rarissimo

problemi

alta frequenza delle sonore aspirate nelle forme
indoeuropee ricostruite

problemi

assenza delle occlusive sonore nei suffissi

teoria delle glottidali

sorda ~ glottidale ~ sonora

sorda ~ glottidale ~ sonora

8% delle lingue del mondo

33% delle lingue che hanno tre serie di occlusive

André-Georges Haudricourt 1911-1996



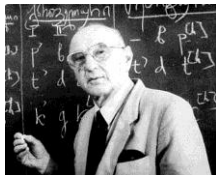
consonanti occlusive dell'indoeuropeo

	sorde	implosive	sonore
labiali	p	[b]	b
dentali	t	ɖ	d
velari	k	ɡ	g
labiovelari	k ^w	ɡ ^w	g ^w

Paul Hopper

consonanti occlusive
dell'indoeuropeo

	sorde	eiettive	sonore
labiali	p	[pʰ]	b
dentali	t	tʰ	d
velari	k	kʰ	g
labiovelari	kʷ	kʷʰ	gʷ

Tamaz Gamkrelidze
1929-Vjačeslav Ivanov
1938-

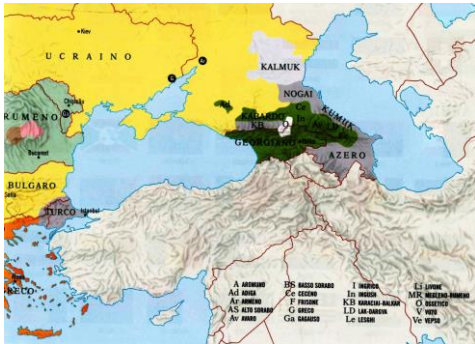
georgiano



georgiano

	Labiale	Dentale/ Alveolare	Post- alveolare	Velare	Uvulare	Glottale
aspirata	pʰ	tʰ		kʰ		
sonora	b	d		g		
eiettiva	pʰ	tʰ		kʰ	qʰ	

lingue caucasiche



consonanti occlusive dell'indoeuropeo

	sorde	eiettive	sonore
labiali	p(h)	[p']	b(h)
dentali	t(h)	t'	d(h)
velari	k(h)	k'	g(h)
labiovelari	k ^w (h)	k ^w	g ^w (h)

vantaggi

il 25% delle lingue con consonanti glottidali non ha l'occlusiva bilabiale (/b/ o /p'/)

(= *b nella ricostruzione tradizionale)

vantaggi

assenza di radici del tipo *deg-

il georgiano non ammette radici del tipo *t'ek'-

vantaggi

assenza di consonanti sonore nei suffissi

il georgiano non ammette consonanti glottidali nei suffissi