

## A CRITIQUE OF THE IPA CHART (REVISED TO 1993)

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Casi inmediatamente después de la publicación de Akamatsu (1992), salió la nueva versión del cuadro del IPA (revisado hasta 1993). Este trabajo es, hasta cierto punto, una consecuencia del artículo y la revisión anteriores. En él se comparan las dos últimas versiones del IPA entre sí, con el fin de observar qué cambios se han producido en la última versión y con qué efecto. Aunque, después de todo, no parece que haya ninguno verdaderamente importante, los que se producen se explican con detalle.

Palabras clave: mecanismo de aire pulmonico<sup>1</sup>, mecanismo de aire velárico, mecanismo de aire glotático, clics, eyectivas, implosivas.

Some readers of *Contextos* may remember that in Akamatsu (1992), I submitted to a critical examination the IPA chart revised to 1951, 1979 and 1989, this last being the latest edition at the time of the publication of that paper. No sooner had Akamatsu (1992) appeared than the IPA brought out a yet new version of the IPA chart, this one revised to 1993, which was published as the centre-piece in *JIPA* Vol. 23 Number 1 (June). I attach a reproduction of this revised (and the latest, as at 1996) version of the IPA chart and a reproduction of the 1989 version of the

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<sup>1</sup> Nota del Consejo de Redacción: El profesor Akamatsu, como se puede comprobar en los resúmenes en inglés correspondientes que aparecen al final del presente volumen, nos envió, entre otras, las siguientes palabras clave: *pulmonic airstream mechanism*, *velaric airstream mechanism*, y *glottalic airstream mechanism*. Los términos *pulmonic*, *velaric* y *glottalic* no corresponden, como él mismo nos hizo notar, con los españoles *pulmonar*, *velar* y *glotal*, por lo que hemos decidido hacerlos equivalentes a *pulmónico*, *velárico* y *glotático*.

IPA chart at the end of the present paper for the reader to consult while going through this paper. Incidentally, *JIPA* stands for *Journal of the International Phonetic Association*.

The appearance of the 1993 version of the IPA chart subsequent to that of Akamatsu (1992) makes it imperative that I should have a critical look at the latest version and compare it with the 1989 version in the interest of readers of *Contextos*, hence the present paper.

The most important thing I undertake in what follows is to compare the 1993 version with the 1989 version and point out to the reader what changes have been made.

1. The 1989 version (in fact, like all the previous versions) was horizontally rectangular, but the 1993 version is vertically rectangular. This is the result of a new arrangement of the individual sections of the IPA chart effected in the 1993 version whereby the vowels and consonants are no longer presented side by side at the top of the sheet but, instead, the consonants are presented at the top taking up the whole breadth of the sheet and the vowels are now transferred to a space somewhat below the consonants. One advantage of practical order resulting from this renovation would be that the 1993 version of the IPA chart can be more easily reproduced on a page in a book on phonetics and the reader can consult it without straining his neck.

2. One particular feature of the 1993 version but absent in the 1989 version is the provision of the section designated 'consonants (non-pulmonic)' which groups together in one block all the consonants articulated with the use of the velaric airstream mechanism (i.e. clicks) and the glottalic airstream mechanism (i.e. voiced implosives and ejectives). Note that *voiceless* implosives have now been deleted. Note at the same time that it would be wrong to think that some of the ejectives have been dropped; instead, as the expression 'Ejectives 'as in...', implies, the ejectives indicated are meant to be only some of the possible ejectives and there can be other ejectives (of different places of articulation) which the limited space cannot afford to include. Neither the velaric airstream mechanism nor the glottalic airstream mechanism is the

pulmonic airstream mechanism, hence the use of the expression 'non-pulmonic' by the IPA.

3. What seems rather significant is the fact that all the five clicks which already figured in the 1989 version but were presented under 'other symbols' -- the placement I objected to in 6.1 in Akamatsu (1992) -- are now found in what I consider a more reasonable place and manner, so that my objection has now been met in this respect. However, on the other hand, my objection, stated in Akamatsu (1992), regarding the symbols for most clicks (with the exception of ʘ) which made their first appearance in the 1989 version, remains the same. I still consider them cumbersome and confusing and prefer the symbols the IPA used for clicks in the versions prior to the 1989 one.

4. Under 2 above, I noted that *voiceless* implosives have now been deleted. This is, I hasten to add, not because the IPA has come to regard voiceless implosives to be physiologically impossible to articulate but because the IPA Council has come out in its majority in favour of the proposal put forward at the Kiel convention (August, 1989) that recognition of the symbols β, ɓ, ɗ, ɠ, and ɡ (which designate voiceless implosives of different places of articulation) should be withdrawn. Recourse to the use of the diacritic ̤ (thus e.g. p̤) or < (thus e.g. p<) for voicelessness instead remains an acceptable option to the IPA, but the IPA makes no recommendation for symbolizing voiceless implosives in any one particular way at present.

5. Let us now look at the main table of consonants in the 1993 version. Instead of 74 symbols appearing in the corresponding table in the 1989 version, we now find 58 symbols, the reduced number being ascribable to the disappearance from the main table of the 16 symbols for ejectives and implosives, which now appear in the afore-mentioned section consisting of the symbols for consonants articulated with the non-pulmonic airstream mechanism (i.e. clicks, implosives, ejectives). The fundamental characteristic of the main table of consonants in the 1993 version is that all the consonants represented therein are articulated with the *pulmonic* airstream mechanism. This is therefore the principal difference between

the two versions in question in the presentation of the symbols for consonants.

6. All the 58 symbols for consonants in the main table in the 1993 version already occurred in the 1989 version. There is no difference between the two versions in this respect. Their placement in respect of the manner of articulation and place of articulation is precisely the same in the two versions. Any and all remarks, critical or otherwise, that I have made in Akamatsu (1992) are therefore still valid with regard to the placement of these symbols.

7. There is just one change in the main table for consonants in that the intersection between 'pharyngeal' and 'plosive' which was indicated by way of a wholly unshaded box has now been replaced by an *unshaded half* of the original box for 'voiceless' but a *shaded half* for 'voiced'. In other words, the 1993 version implies that 'voiced pharyngeal plosive' is articulatorily impossible, but 'voiceless pharyngeal plosive' is not attested in languages. Note, however, that according to Maddieson (1984: 215, 315), 'voiced pharyngeal plosive', which he represents by \*q, occurs in Iraqw [sic]. Some of the unshaded boxes in connection with which I put queries in 12 in Akamatsu (1992) remain exactly the same.

8. We leave the consonants and turn our attention to the vowels. In the 1993 version, the vowels are placed on the same type of quadrilateral as in the 1989 version, i.e. the same shape as the one we find in the 'normalized' representation of the cardinal vowels that was originally devised by Daniel Jones (see e.g. Fig. 23a and fn. 9 which are both on p. 37 in Jones 1964) and is used in most phonetics manuals of our day. The four levels of opening in the articulation of the cardinal vowels, i.e. 'close', 'close-mid', 'open-mid' and 'open', and the three degrees of horizontal depth, i.e. 'front', 'central' and 'back', are retained as in the 1989 version.

9. The number of the symbols for the vowels differs, however, between the two versions. The 1989 version has 25 symbols, while the 1993 version has 28. The 25 symbols in question are identical in both the 1989 and 1993 versions. They are as follows : i, y, ɪ, ʊ, ɘ, u, ɨ, ʏ, ɤ, ø, ʉ, ɔ, ə, ɐ, ɛ, œ, ʌ, ɔ̄, æ, ɐ̄, a, œ̄, ɑ and ɒ. Of these, ə and ɐ̄, which are two

of the central vowels and were placed a little to the left of the centre line in the 1989 version, are now placed *on* the centre line itself in the 1993 version. Actually, in the 1989 version,  $\text{ø}$  and  $\text{ə}$  were indicated as a pair of central vowels ( $\text{ø}$  is rounded while  $\text{ə}$  is not) of an identical degree of opening (intermediate between 'close-mid' and 'open-mid'), so that it can be said that these two symbols cannot be placed on top of each other in the diagram without causing visual difficulty to the reader. No problem of how to place  $\text{ø}$  and  $\text{ə}$  arises in the 1993 version because  $\text{ø}$  is now placed away from  $\text{ə}$ , at 'close-mid', leaving  $\text{ə}$  as the sole genuinely central vowel (i.e. with regard to both the 'front'-back' axis and 'close'-'open' axis in the diagram). The reason for the different placement of  $\text{ə}$  in the 1989 and 1993 versions does not apply to the different placement of  $\text{ɜ}$  in the two versions, for  $\text{ɜ}$  was not placed side by side with another central vowel symbol of the same degree of opening in the 1989 version; it could very well have already been placed where it is placed in the 1993 version, that is, directly on the centre line, if the IPA wanted to. Anyway, as it stands,  $\text{ɜ}$  in the 1993 version is presented as the sole central vowel whose degree of opening is intermediate between 'open-mid' and 'open', just as, conceivably, in the 1989 version. Apart from  $\text{ə}$  and  $\text{ɜ}$ , the rest, i.e. 23 out of the 25 vowel symbols being considered so far, are placed in exactly the same fashion in the 1993 version as they were in the 1989 version.

10. We now need to turn to 3 vowel symbols, i.e.  $\text{ɜ}$ ,  $\text{ə}$ , and  $\text{ɔ}$  which appear in the 1993 version as symbols *new* to the cardinal vowel diagram in the IPA chart; of these,  $\text{ɜ}$  figured already in the section 'other symbols' in the 1989 version as well as the 1951 and 1979 versions. All these three symbols designate three of the central vowels. The first of the three above, i.e.  $\text{ɜ}$ , is of course not unfamiliar to phoneticians in general, particularly phoneticians of English phonetics, in that this symbol is the equivalent of  $\text{ə}$ : which stands for the vowel as in *er* (a hesitation noise in English) which is the same as the vowel of *of*, *say*, *bird*, in non-rhotic pronunciation. (I am here disregarding another possible pronunciation of *er* as  $[\text{ɜ}:\text{ɜ}]$ .) Catford (1977: 178) too writes that '[ $\text{ɜ}$ ] is a common variety of English RP vowel in *bird*.' One would be justified to assume that only the quality (but not the quantity, i.e. the length) of the vowel represented by

the symbol ə is relevant in the IPA chart. The symbol ə already occurred in *The Principles of the International Phonetic Association* (1949: 7) and designated a 'variety of central vowel'. As it occurs in the 1993 version of the IPA chart, ə stands for a vowel which is central unrounded open-mid. The two other vowel symbols, i.e. ɔ and ɘ, are quite new to the IPA chart, though, as Pullum *et al.* (1986: 51) say, the symbol ɔ was used by Kurath (1939: 125) but to stand for œ. I should add that the symbol ɘ which is subtly similar to but different from ɔ (notice which side, on the right or left, the depressed part occurs in the two different symbols) was used by Abercrombie (1967: 161) and Catford (1977: 178) to stand for the same vowel as the new symbol ɔ in the 1993 version is made to. Also according to Pullum *et al.* (1986: 47), the symbol ɘ was already used, though not yet with an official IPA sanction, by Abercrombie (1967: 161) and Catford (1977: 178) to stand for precisely the vowel that the IPA makes it stand for in the 1993 version; in other words, the IPA has now ended up officially sanctioning the proposal put forward two to three decades ago by these individual phoneticians. Of these two new symbols introduced in the 1993 version, ɔ designates a vowel which is central rounded open-mid and hence the rounded counterpart of ə. The other new vowel symbol ɘ designates a central unrounded close-mid vowel, i.e. the unrounded counterpart of ɘ already mentioned in 9.

11. The minor re-arrangement of some pre-existing vowel symbols, mentioned above in 9, coupled with the introduction of a few new symbols (mentioned just above in 10) and placed appropriately in the 1993 version, has resulted in the cardinal vowel diagram being given quite a symmetrical outlook, but in reality not much more so than in the 1989 version. I will explain this straightaway. Already in the 1989 version, the vowels were presented largely in pairs, e.g. i and y, ɘ and ɘ, ɑ and ɒ, etc. (to give just a few examples), the members of each such pair being differentiated by virtue of one (e.g. i) being unrounded and the other (y) rounded but otherwise identical (both i and y being close and front). There were 11 such pairs in the 1989 version, and 12 (thus, an increase of just one pair) in the 1993 version. There were 3 unpaired vowels in the 1989 version, namely ʊ, æ, and ɛ, but their number

increased to four in the 1993 version with the addition of the new unpaired vowel, ə. This is why I have said that the symmetry in the presentation of the vowels in pairs in the 1993 version that initially strikes the eye of the reader is not significantly greater than that in the 1989 version. It may be perfectly possible that the IPA did not have a basic motive to present or re-present the vowels in a more neat and symmetrical fashion in the 1993 version, and indeed the point of symmetry may not be of the utmost importance in such charts as the IPA chart. It is suspected that a future revised IPA chart may well bring about further changes in this respect.

12. I have indicated here and there further above that, in the 1993 version, the consonants articulated with the pulmonic airstream mechanism are presented in the main table while those articulated with the non-pulmonic airstream mechanism are grouped in a separate smaller table. In reality, this is not the whole story, for the 1993 version provides, in addition, a further section named 'other symbols' and consisting of a dozen or so consonant symbols. We recall (cf. Akamatsu 1992) that a section also called 'other symbols' appeared in the 1989 version as well. Comparison between the two versions in connection with the section 'other symbols' shows up the similarities and the differences. We see that 'other symbols' in the 1993 version is the same as that in the 1989 version *minus the five clicks* which have now gone into the section 'consonants (non-pulmonic)' in the 1993 version. The rest remains identical except in connection with ɜ (see below in this section). In other words, there has just been a re-organization in the 1993 version of what was in 'other symbols' in the 1989 version. The only important renovation therefore relates to an unambiguous recognition of, and the resultant presentation of, those consonants articulated with the non-pulmonic airstream mechanism. This category of consonants is thus finally accorded their due right in one block in the chart. Whatever remarks I made previously in Akamatsu (1992) in connection with 'other symbols' in the 1989 version remain largely valid. I must specifically refer now to ɜ which was the only vowel symbol to be incongruously present among consonant symbols in 'other symbols' in the 1989 version.

This symbol which the 1989 version said is 'additional mid central vowel' and seemed not fully recognized enough to figure in the cardinal vowel diagram has, as the reader will have seen, been properly incorporated, as standing for a central unrounded open-mid vowel to pair with the newly introduced vowel symbol  $\text{ø}$ , in the cardinal vowel diagram in the 1993 version.

13. The section called 'diacritics' consisting of 31 diacritics each of which is accompanied by one or two examples illustrating its use in the 1993 version is identical with that in the 1989 version except that the order in which the diacritics are presented has been slightly modified. The reader may recall that I did not propose to discuss the section 'diacritics' in Akamatsu (1992) for lack of space, though it is true that I briefly indicated possible phonological implications of the use by IPA of the diacritic for 'devoicing', i.e. (as in [m̥]), in 11.2.

14. Similarly, I did not propose to discuss in Akamatsu (1992), nor do I mean to in the present paper, the section called 'suprasegmentals' which is provided in both the 1989 and 1993 versions. The contents of 'suprasegmentals' are exactly the same in the two versions. I need to mention just one thing. We see, among others, the two diacritics,  $\nearrow$  (global rise) and  $\searrow$  (global fall), which are so placed as to be clearly understood to pertain to 'tones & word accents' (as the IPA puts it) in the 1993 version but which were not so placed in the 1989 version. When one compares the two versions in this particular respect, one is even led to wonder if the placement of  $\nearrow$  and  $\searrow$  in the 1989 version was purely and simply a misarrangement and, as a result, the two diacritics could and should have been placed in the same way as they are in the 1993 version. If our supposition is correct, then the section 'suprasegmentals' in the two versions can be said to be identical.

15. So what is the upshot of the comparative examination of the 1989 and 1993 versions of the IPA chart? As I see it, there is no major change in contents from the one to the other version. Whatever change that *has* occurred can be summarized below.

(i) The cardinal vowel diagram has undergone some change in that firstly, a few new vowel symbols (to be exact, three, i.e.  $\text{ɜ}$ ,  $\text{ɞ}$ , and  $\text{ø}$ )



have been added, bringing the total of the vowel symbols from 25 to 28; and secondly, some of the pre-existing vowel symbols (to be exact, three, i.e.  $\text{ø}$ ,  $\text{ə}$  and  $\text{ɐ}$ ) have been re-arranged, with the result that there are now 12 of the vowels presented in pairs (one member of the pair being unrounded and the other rounded) and 4 presented as being unpaired, as compared with 11 pairs and 3 unpaired in the 1989 version.

(ii) The somewhat disorganized presentation of consonants in the 1989 version has been appreciably, if not completely, tidied up in the 1993 version in that there are now two tables of consonants, one big and the other small, so that consonants articulated with the pulmonic airstream mechanism are in one table while those articulated with the non-pulmonic airstream mechanism are in the other table. The re-organization in the placement of consonant symbols is not totally tidy, however, for just over a dozen consonant symbols are still unaccommodated in either of the above-mentioned two tables of consonants but are presented in a section called 'other symbols'. Some, at least, of the consonants therein could be incorporated in the big table of consonants, but this is presumably not the intention of the IPA for some reason or other.

(iii) As for the section 'other symbols', the main change from the 1989 version to the 1993 version consists in removing all the five clicks from that section in order to place them in the newly created small table of consonants all of which are articulated with the non-pulmonic airstream mechanism. This is a good move. Also, the symbol  $\text{ɜ}$ , described as 'additional mid central vowel', has been removed from the section 'other symbols' so as to be incorporated in the cardinal vowel diagram. This also is a good move.

(iv) There is in practice no change at all in the section called 'suprasegmentals'. The only 'cosmetic' change is to move  $\text{ˆ}$  (global rise) and  $\text{˘}$  (global fall) in such a way that they are now together with other diacritics standing for pitch phenomena like 'extra high', 'downstep', 'rising', 'falling', etc. with which 'global rise' and 'global fall' are evidently in better company.

(v) Finally, I should all the same mention that there is *no* change in the section called 'diacritics'.

16. The IPA chart has in recent years been actively and frequently debated by the IPA, in their organ journals, at association meetings and at council meetings. The result of this is that revised versions of the IPA chart flow out one after another, unlike in the past. It is a healthy sign that the IPA is not dormant and serious consideration is being given to the IPA chart which, whichever version it may be, is reproduced in most serious books on phonetics being published in our day, whether they are on general phonetics or on the phonetics of particular languages. The fact that the symbols that are presented in the IPA chart are useful and are utilized in such books is no surprise. It is difficult to predict -- it would be unnecessary to -- the precise directions in which the revisions will go. The quick succession with which the revised versions of the IPA chart are being brought out, however, has the inevitable result of confusing writers and teachers of phonetics. A brief survey of recently published books on phonetics will show that the version of the IPA chart being reproduced in these books lags behind, so that one still sees the 1989 version being reproduced in many of the recent books. To refer to just a couple of cases, both Laver (1994) and Cruttenden (1994: 32) reproduce the 1989 version but without identifying which version it is. In both cases, one easily guesses that the inclusion of the 1993 version was impossible as the books would have already gone to press. In some other books on phonetics published even at relatively recent dates, one may still encounter the 1979 version in them. This may be due to the fact that not all writers of books on phonetics are members of the IPA who can regularly read *JIPA*. The present writer is not a member of the IPA but continues to be interested in the activity of the IPA and its publications and can consequently keep abreast of the revised versions of the IPA chart. It is quite likely, however, that a number of readers or even writers of books on phonetics and linguistics may not yet be aware of the existence of the 1993 version of the IPA chart, hence a modicum of contribution that this paper might make to the general public of phoneticians and linguists outside the IPA.

I happen to be aware of a certain current movement witnessed in a small section of Japanese university teachers of English (and in the

publication of English-Japanese dictionaries) to indicate foreign language pronunciation (so far, mainly English pronunciation) by use of *kana* characters (one type of Japanese characters) to the exclusion of phonetic symbols based on the IPA-proposed symbols. I consider this movement to be infelicitous, pernicious and deplorable. Recourse to the IPA symbols is not only desirable but necessary in books on phonetics and teaching of phonetics in general. Whatever one may find as faulty, problematic or controversial, the IPA symbol system cannot be surpassed by other systems. We shall look at future revisions of the IPA chart with critical but benevolent eyes.

## REFERENCES

- ABERCROMBIE, D. (1967). *Elements of General Phonetics*. Edinburgh University Press. Edinburgh.
- AKAMATSU, T. (1992). 'A Critique of the IPA Chart (Revised to 1951, 1979 and 1989)'. *Contextos*, X/19-20, pp. 7-45. León. Centro de Estudios Metodológicos e Interdisciplinarios. Universidad de León.
- CATFORD, J. C. (1977). *Fundamental Problems in Phonetics*. Edinburgh University Press. Edinburgh.
- CRUTTENDEN, A. (1994). *Gimson's Pronunciation of English*. 5th ed. of A. C. Gimson, *An Introduction to the Pronunciation of English* (1st ed. 1962, 2nd ed. 1970, 3rd ed. 1980, 4th ed. (revised by S. Ramsaran) 1989). Revised by Cruttenden. London: Edward Arnold.
- JONES, D. (1964). *An Outline of English Phonetics*. 9th ed. Cambridge: W. Heffer & Sons Ltd.
- JOURNAL OF THE INTERNATIONAL PHONETIC ASSOCIATION (JIPA)*, Vol. 23, No. 1, June, 1993.
- KURATH, H. (1939). *Handbook of the Linguistic Geography of New England*. Brown University. Providence, R. I.
- LAVER, J. (1994). *Principles of Phonetics*. Cambridge. Cambridge University Press.

- MADDIESON, I. (1986). *Patterns of Sounds*. Cambridge: Cambridge University Press.
- PULLUM, G. K. and LADUSAW, W. A. (1986). *Phonetic Symbol Guide*. The University of Chicago Press. Chicago and London.
- The Principles of the International Phonetic Association* (1949). London: International Phonetic Association.



THE INTERNATIONAL PHONETIC ALPHABET (revised to 1993)

CONSONANTS (PULMONIC)

	Bilabial	Labiodental	Dental	Alveolar	Postalveolar	Retrolaryngeal	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	ʙ			ʀ					ʀ		
Tap or Flap				ɾ		ɽ					
Fricative	ɸ β	f v	θ ð	s z	ʃ ʒ	ɬ ɮ	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.

CONSONANTS (NON-PULMONIC)

Clicks	Voiced implosives	Ejectives
◌ ʘ Bilabial	ɓ Bilabial	as in
◌ ǀ Dental	ɗ Dental/alveolar	◌ ɓ Bilabial
◌ ǃ (Postalveolar)	ɗ̣ Palatal	◌ ɗ Dental/alveolar
◌ ǁ Palatoalveolar	ɠ Velar	◌ ɠ Velar
◌ ǁ Alveolar lateral	ɠ Uvular	◌ ɠ Alveolar fricative

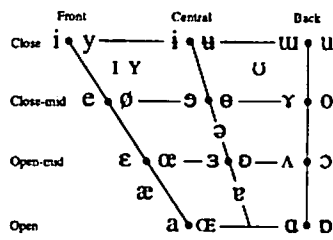
SUPRASEGMENTALS

	Primary stress	Secondary stress	Long	Half long	Extra short	Syllable break	Mixed (floss) group	Major (reiteration) group	Linking (absence of a break)
	ˈ	ˌ	ː	ˑ	˚	◌◌	◌◌	◌◌	◌◌
	ˈ	ˌ	ː	ˑ	˚	◌◌	◌◌	◌◌	◌◌
	ˈ	ˌ	ː	ˑ	˚	◌◌	◌◌	◌◌	◌◌
	ˈ	ˌ	ː	ˑ	˚	◌◌	◌◌	◌◌	◌◌
	ˈ	ˌ	ː	ˑ	˚	◌◌	◌◌	◌◌	◌◌
	ˈ	ˌ	ː	ˑ	˚	◌◌	◌◌	◌◌	◌◌
	ˈ	ˌ	ː	ˑ	˚	◌◌	◌◌	◌◌	◌◌
	ˈ	ˌ	ː	ˑ	˚	◌◌	◌◌	◌◌	◌◌
	ˈ	ˌ	ː	ˑ	˚	◌◌	◌◌	◌◌	◌◌
	ˈ	ˌ	ː	ˑ	˚	◌◌	◌◌	◌◌	◌◌

TONES & WORD ACCENTS

LEVEL	CONTOUR
Extra high	˥
High	˦
Mid	˧
Low	˨
Extra low	˩
Downdrop	˨˩˥
Upstep	˨˩˨˥
Rising	˩˥
Falling	˥˩
High rising	˥˩˥
Low rising	˨˩˥
Rising falling	˩˥˩
Global rise etc	˩˥˩˥
Global fall	˥˩˥˩

VOWELS



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

OTHER SYMBOLS

ʌ Voiceless labial-velar fricative	ɕ ʑ Alveolo-palatal fricatives
ʋ Voiced labial-velar approximant	ɺ Alveolar lateral flap
ɥ Voiced labial-palatal approximant	ɺɥ Simultaneous ɺ and ɥ
ɸ Voiceless epiglottal fricative	Affricates and double articulations can be represented by two symbols joined by a tie bar if necessary
ʕ Voiced epiglottal fricative	
ʔ Epiglottal plosive	

kp ts

DIACRITICS

Diacritics may be placed above a symbol with a descender, e.g. ɲ̃

◌ ˥ Voiceless	◌ ˥˥ Breathy voiced	◌ ˥˥˥ Dental
◌ ˥˥ Voiced	◌ ˥˥˥ Creaky voiced	◌ ˥˥˥ Apical
◌ ˥˥˥ Aspirated	◌ ˥˥˥ Lateralized	◌ ˥˥˥ Laminar
◌ ˥˥˥ More rounded	◌ ˥˥˥ Labialized	◌ ˥˥˥ Nasalized
◌ ˥˥˥ Less rounded	◌ ˥˥˥ Palatalized	◌ ˥˥˥ Nasal release
◌ ˥˥˥ Advanced	◌ ˥˥˥ Velarized	◌ ˥˥˥ Lateral release
◌ ˥˥˥ Retracted	◌ ˥˥˥ Pharyngealized	◌ ˥˥˥ No audible release
◌ ˥˥˥ Centralized	◌ ˥˥˥ Velarized or pharyngealized	
◌ ˥˥˥ Mid-centralized	◌ ˥˥˥ Rhotic	◌ ˥˥˥ (˥˥˥ = voiced alveolar fricative)
◌ ˥˥˥ Syllabic	◌ ˥˥˥ Lowered	◌ ˥˥˥ (˥˥˥ = voiced bilabial approximant)
◌ ˥˥˥ Non-syllabic	◌ ˥˥˥ Advanced Tongue Root	◌ ˥˥˥
◌ ˥˥˥ Rhoticity	◌ ˥˥˥ Retracted Tongue Root	◌ ˥˥˥