

Phonological features: charts

Pulmonic [–syll, +cons, –son] consonants

	[+labial]			[+coronal]									[+dorsal]							
[–voi]	p	ɸ	f	ɸ̥	θ	t	ʈ	s	ʈ̥	ʃ	ʃ̥	c	ç	k	x	q	χ	ħ		
[+voi]	b	β	v	ɸ̥	ð	d	ɸ̥	z	ɸ̥	ʒ	ʒ̥	ʝ	j	g	ɣ	g	ʁ	ʕ		
[±cont]	–	+	+	–	+	–	–	+	–	+	+	–	+	–	+	–	+	+		
[±strid]	–	–	+	–	–	–	+	+	–	+	+	–	–	–	–	–	–	–		
[±del. rel.]	–	+	+	–	+	–	+	+	–	+	+	–	+	–	+	–	+	+		
[±ant]				+	+	+	+	+	–	–	–									
[±dist]				+	+	–	–	–	–	+	+									
[±high]													+	+	+	+	–	–	–	
[±low]													–	–	–	–	–	–	–	+
[±back]													–	–	+	+	+	+	+	+
[±front]													+	+	–	–	–	–	–	–

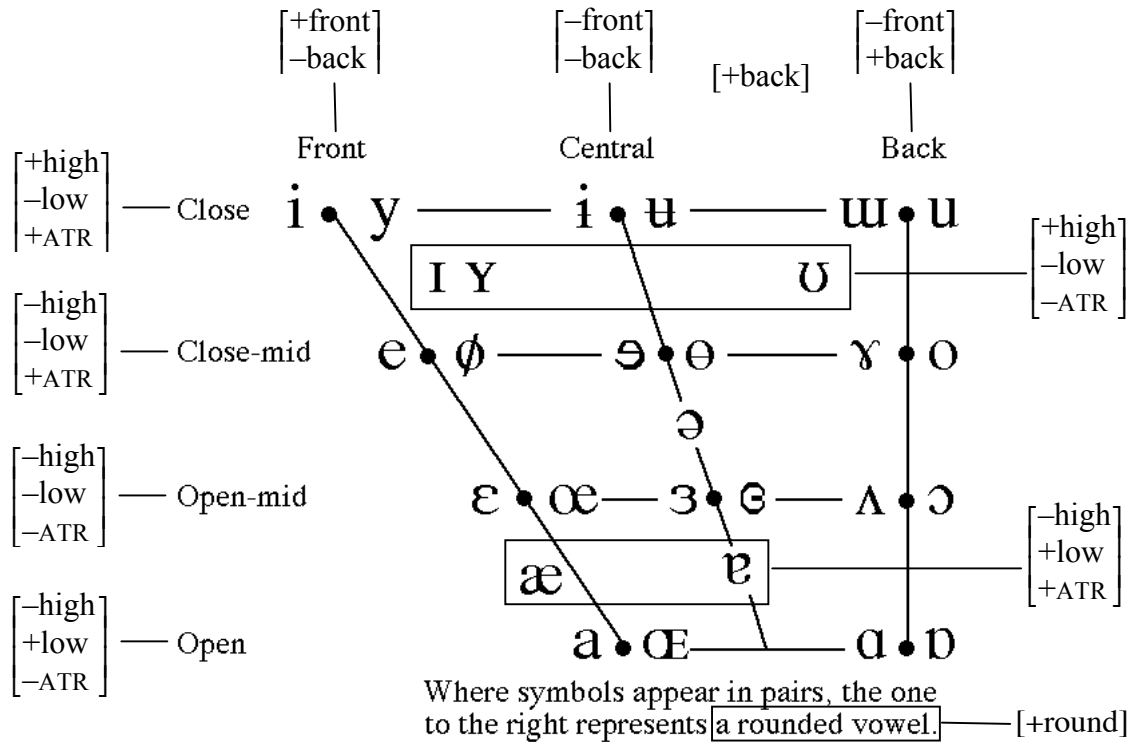
Pulmonic [–syll, +cons, +son] consonants

	[+labial]			[+coronal]									[+dorsal]						
[+voi]	m	ɸ	ɱ	ɱ̥	ɱ̥	n	l	r	r̥	ɺ	ɺ̥	ɲ	ɺ̥	ŋ	ɺ̥	ɴ	ʀ		
[±approx]	–	–	–	–	+	–	+	+	+	–	+	–	+	–	+	–	+		
[±nas]	+	–	+	+	–	+	–	–	–	+	–	–	+	–	+	–	–		
[±cont]	–	–	–	–	–	–	–	?	?	–	–	?	–	–	–	–	?		
[±lat]	–	–	–	–	+	–	+	–	–	–	+	–	–	+	–	+	–		
[±ant]				+	+	+	+	+	+	–	–								
[±dist]				+	+	–	–	–	–	–	–								
[±high]													+	+	+	+	–	–	
[±low]													–	–	–	–	–	–	–
[±back]													–	–	+	+	+	+	+
[±front]													+	+	–	–	–	–	–

Pulmonic [–syll, –cons] consonants

	ʔ	h	ɦ	w	ʋ	ɪ	ɹ	j	ɥ	
[±voi]	–	–	+	+	+	+	+	+	+	
[±son]	–	–	–	+	+	+	+	+	+	
[±approx]	–	–	–	+	+	+	+	+	+	
[±cont]	–	+	+	+	+	+	+	+	+	
[±s.g.]	–	+	+	–	–	–	–	–	–	
[±c.g.]	+	–	–	–	–	–	–	–	–	
[±round]				+					–	–
[±high]				+					+	+
[±back]				+					–	+
[±front]				–					+	–

A closer look at phonological features for vowels



Some (further) considerations:

1. Recall that all vowels and syllabic consonants are [+syllabic].
2. The perceptible vowel space is not huge, so it's rare (but not absolutely impossible) for a language to distinguish all of the vowels along a particular featural dimension.
3. Vowels are difficult to pin down impressionistically (even instrumentally, sometimes!), and so transcriptions can vary even when people are trying to use the IPA. In particular, you'll rarely find anyone making all those mid-central distinctions; [ə] is a catch-all.
4. Some typical non-IPA substitutions: [y] = [ü], [ɣ] = [ö], [ø] = [ö], [a] = [æ], [ɑ] = [a].
5. As indicated by the somewhat triangular shape of the vowel space, front-back distinctions are closer (and thus harder to perceive) among lower vowels. Lip rounding is often used to accentuate front-back distinctions, but rounding your lips is also harder to do the more open your mouth is. Languages thus tend to have just one low vowel, *usually* somewhere in the [a]-[ɶ] region; if there are two, they *tend* to be the highly distinct [ɑ] and [æ], etc.
6. Because the tongue body and tongue root are different areas of the same (fairly flexible) muscle mass, some feature combinations are phonetically "sympathetic" while others are less so. For example, raising and/or fronting the tongue body tends to bring the tongue root along with it, so that the best [+high, -back] vowel is also [+ATR]. Lowering and/or backing the tongue body likewise tends to affect the tongue root, but in the opposite way.
7. Some of these "sympathetic relations" are also acoustic in nature: raising the tongue body and advancing the tongue root both lower F1 while the opposite movements both raise F1, backing the tongue body and rounding the lips both lower F2, etc.