

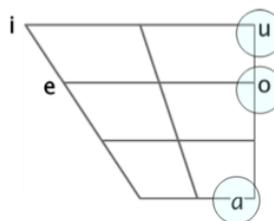
1. (a)	ts = [+ anterior] [-distributed] tʃ = [- anterior] [+ distributed]	(d)	i = [+ high] [+ tense] ε = [-high] [-tense]
(b)	i = [+syllabic] j = [-syllabic]	(e)	ϕ = [-voice], [-labiodental] v = [+ voice], [+ labiodental]
(c)	e = [-labial] [-round] [+ front] [-back] o = [+ labial] [+ round] [-front] [-back]		

2. (a) The segments [t, s, d, z, n] of inventory 2 are all alveolar sounds comprising the natural class of speech sounds that can be defined simply as [+ **coronal**].

	Bilabial	Labiodental	Dental	Alveolar	Post-alveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d				k			
Nasal				n							
Fricative		f		s z						h ʕ	
Affricate											
Approximant								w			
Lateral Approximant											

(b) The segments [ʕ, k, u, o, a, w] are all sounds made with the tongue dorsum close to the “back” of the vocal tract, and although the features chart identifies the [back] feature for [k] as 0 (it “doesn’t care about” the [back] feature), I believe that “backness” is the only thing the segments have in common so I call the class [+ | 0 back] (plus or 0 back). It might be better to

	Bilabial	Labiodental	Dental	Alveolar	Post-alveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d				k			
Nasal				n							
Fricative		f		s z						h ʕ	
Affricate											
Approximant								w			
Lateral Approximant											



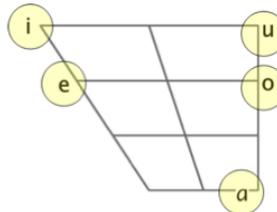
start with the common element of “place of articulation,” however, so that would mean [+DORSAL] [-front| 0 front]. According to FeaturePad, this is incorrect, but I can see no other solution at this point :(

(c) The segments [f, p, k, h] make-up the class of voiceless stops and fricatives, but without any alveolar sounds. The common features of the class are [-coronal], [-voice].

	Bilabial	Labiodental	Dental	Alveolar	Post-alveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d				k			
Nasal				n							
Fricative		f		s z						h ʕ	
Affricate											
Approximant								w			
Lateral Approximant											

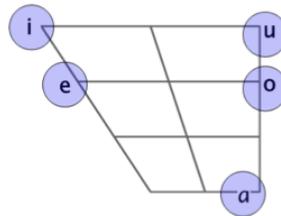
(d) The segments [ʕ, u, o, w, a, b, d, z, n, i, e] comprise the set of voiced consonants as well as all the vowel sounds, so these can be simply categorized as [+voice].

	Bilabial	Labiodental	Dental	Alveolar	Post-alveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d				k			
Nasal				n							
Fricative		f		s z						h ʕ	
Affricate											
Approximant								w			
Lateral Approximant											



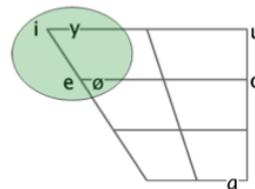
(e) The segments [i, u, e, o, a, w] make up the class of [+DORSAL] [-consonantal] sounds.

	Bilabial	Labiodental	Dental	Alveolar	Post-alveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d				k			
Nasal				n							
Fricative		f		s z						h ʕ	
Affricate											
Approximant								w			
Lateral Approximant											



3. (a) The segment [ʃ] does not belong in the set [c, ʃ, j, i, e, y, ø, j]. The feature [+front] specifies this natural class for the sample segment inventory.

	Bilabial	Labiodental	Dental	Alveolar	Post-alveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d			c j	k	q		
Nasal	m			n				ŋ			
Fricative	ɸ	f	θ	s	ʃ			x			
Affricate				ts dz	tʃ dʒ						
Approximant							j	w			
Lateral Approximant				l							

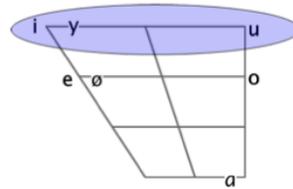


(b) The segment [j] doesn't belong in this set: [t, ts, tʃ, θ, s, ʃ, d, dz, dʒ, j, n, l]. The natural class these make up is [+CORONAL] [-DORSAL].

	Bilabial	Labiodental	Dental	Alveolar	Post-alveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d			c j	k	q		
Nasal	m			n				ŋ			
Fricative	ɸ	f	θ	s	ʃ			x			
Affricate				ts dz	tʃ dʒ						
Approximant							j	w			
Lateral Approximant				l							

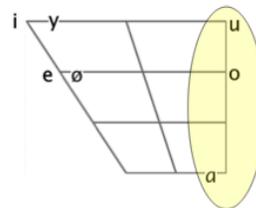
(c) The segment [dʒ] should not be included in the set [c, k, x, ~~dʒ~~, ʃ, ŋ, i, u, y, w, j]. This natural class can be specified using the single feature [+high].

	Bilabial	Labiodental	Dental	Alveolar	Post-alveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d			c ʃ	k	q		
Nasal	m			n				ŋ			
Fricative	ɸ	f	θ	s	ʃ			x			
Affricate				ts dz	tʃ dʒ						
Approximant							j	w			
Lateral Approximant				l							



(d) I pursued several different proposals, none of which really panned out definitively. At first, based on the consonant and vowel charts, it seemed that the segment [j] “doesn’t belong” in the set [k, x, ŋ, o, u, y, a, w, j], but that’s not true: these segments (plus the front vowels) make up the class [+DORSAL][-CORONAL]. And while [j] is (unlike the other segments) [+front], segments [k, x, ŋ] theoretically “don’t care” about this feature ([0front]).

	Bilabial	Labiodental	Dental	Alveolar	Post-alveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d			c ʃ	k	q		
Nasal	m			n				ŋ			
Fricative	ɸ	f	θ	s	ʃ			x			
Affricate				ts dz	tʃ dʒ						
Approximant							j	w			
Lateral Approximant				l							

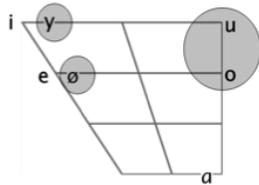


Removing the sole nasal [ŋ] from the group also doesn’t yield a clear answer, because that still leaves us with all the front vowels, which we don’t want. Perhaps [a] doesn’t fit, because it’s the only segment that’s [+low]? Actually, that proposal looks best at this point, given that the remaining segments are in fact all [-low], but that also leaves us with the problem that other segments in the inventory are also in this class but not part of our segment sample.

Again, as with problem 2b, I'm inclined to say that the "backness" feature of the vowels as being the single feature shared with the velar segments, and that the [j] is the outlier in this segment set.

(e) The segment [l] doesn't belong in the set [p, ɸ, f, b, m, l, o, u, y, ø, w], which consists of [+LABIAL] sounds in the sample inventory.

	Bilabial	Labiodental	Dental	Alveolar	Post-alveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d			c ɟ	k	q		
Nasal		m		n				ŋ			
Fricative	ɸ	f	θ	s	ʃ			x			
Affricate				ts dz	tʃ dʒ						
Approximant							j	w			
Lateral Approximant				l							



4a [-delayed release] -----> [+delayed release] / V _____
[+continuant]

4b [-coronal] -----> [+delayed release] / V _____
[-delayed release]

4c 0 -----> [-syllabic] / [+syllabic] _____ [+syllabic]
[+front] [-round] _____ [-front]
[-low]

4d [+consonantal] -----> [+dorsal] / _____ [-round]
[+high] [+tense]
[-low]
[+front]
[-back]

4e n -----> [place:] / _____ [-continuant]
[-nasal]
[place:]