

1. Jakobson and Halle's distinctive features (1956)

Feature	Opposed to	Acoustic description	Articulatory description
1. Vocalic	Nonvocalic	Sharply defined formant structure	Voiced, with free passage of air through vocal tract
2. Consonantal	Nonconsonantal	Low total energy	Obstruction in vocal tract
3. Compact	Diffuse	Energy concentrated in central area of spectrum	High ratio of front resonance chamber to back
4. Tense	Lax	High energy with greater spread across spectrum and longer duration	Greater deformation of vocal tract from its rest position
5. Voiced	Voiceless	Periodic low frequency excitation	Vocal cord vibration
6. Nasal	Oral	Additional formants and less intensity in existing formants	Coupling of nasal cavity
7. Discontinuous	Continuant	Interruption or abrupt transition	Rapid closure and opening of vocal tract
8. Strident	Mellow	High intensity noise	'Rough-edged' effect at point of articulation
9. Checked	Unchecked	Higher rate of energy discharge	Glottalized
10. Grave	Acute	Energy concentrated in lower frequencies	Peripheral (towards front or back of vocal tract)
11. Flat	Plain	Downward shift or weakening of upper frequencies	Narrowed aperture (e.g. by lip rounding)
12. Sharp	Plain	Upward shift of upper frequencies	Reduced oral cavity and widened pharynx

2. Chomsky and Halle's universal set of phonetic features (1968)

Feature	Articulatory description
<i>Major class features</i>	
1. Sonorant (Nonsonorant = obstruent)	Produced with vocal tract cavity configuration in which spontaneous voicing is possible.
2. Vocalic (Syllabic)	Constriction does not exceed that of high vowels, and position of vocal cords allows spontaneous voicing. (Proposed renaming of vocalic)
3. Consonantal	Radical obstruction in mid-sagittal region of vocal tract
<i>Cavity features</i>	
4. Coronal	Produced with blade of tongue raised from neutral position
5. Anterior	Produced with obstruction in front of palato-alveolar region
6. High	Tongue body above neutral position
7. Low	Tongue body below neutral position
8. Back	Tongue body retracted from neutral position
9. Round(ed)	Narrowing of lip orifice
10. Distributed	Constriction extends for some distance along direction of airflow
11. Covered	Pharynx walls narrowed and tensed and larynx raised (in vowel production)
12. Glottal constriction	Constriction of vocal cords
13. Nasal	Lowered side(s) of mid-section of tongue
14. Lateral	
<i>Manner of articulation features</i>	
15. Continuant (Noncontinuant = stop)	Primary constriction in vocal tract does not block air flow.
16. Instantaneous release	Instantaneous release (of stops)
<i>(Chomsky and Halle's discussion, 1968, pp, 318-22, suggests two release features:</i>	
16a Instantaneous versus delayed release of primary closures	
16b Instantaneous versus delayed release of secondary closures)	
17. Velar(ic) suction	Velar closure producing suction (clicks)
18. Implosion	Glottal closure producing suction (implosives)
19. Velar(ic) pressure	(Velar closure producing pressure-no evidence of use in language)
20. Ejection	Glottal closure producing pressure (ejectives)
21. Tense	Deliberate, accurate, maximally distinct articulation (of

(Nontense=lax)	supraglottal musculature)
<i>Source features</i>	
22. Heightened subglottal pressure	Tenseness in subglottal musculature producing greater subglottal pressure
23. Voiced (Nonvoiced=voiceless)	Vocal cord vibration(induced by appropriate glottal opening and airflow)
24. Strident	Turbulence(in fricatives and affricates)caued by nature of surface,rate of airflow and angle of incidence at point of articulation
<i>Prosodic features</i> (listed but not discussed in chomsky and Halle 1968)	
25. Stress	
26. Pitch(high, low, elevated, rising, falling, concave)	
27. Length	

3. Ladefoged's "Traditional Features" (1982)

Feature	Values	Description of physical scale
1. Glottalic	Ejective Pulmonic Implosive	Upward or downward movement of the glottis
2. Velaric	Click	Degree of suction of air in mouth
3. Voice	Glottal stop Laryngealized Voiced Murmur Voiceless	Degree of glottal stricture
4. Aspiration	Aspirated Unaspirated Voiced	Delay in onset of voicing
5. Place	Bilabial Labio-dental Dental Alveolar Retroflex Palato-alveolar Palatal Velar Uvular Pharyngeal Glottal	Location of articulation
6. Labial	Labial	Approximation of centers of lips
7. Sop	Stop Fricative	Degree of approximation of articulators
8. Nasal	Nasal	Lowering of soft palate
9. Lateral	Lateral	Amount of airflow over sides of tongue
10. Trill	Trill	Vibration of articulator
11. Flap	Flap	Rate of articulatory movement
<i>(Ladefoged notes uncertainty about the characterization of flaps)</i>		
12. Sonorant	Sonorant	Amount of acoustic energy
13. Sibilant	Sibilant	Amount of high-frequency
14. Grave	Grave	Ratio of low-to high-frequency energy
15. Height	4 height 3 height 2 height 2 height	Inverse of frequency of first formant (distinguishing four degrees of vowel height)
16. Back	Back	Difference between frequencies of formants two

		and one
17. Round	Round	Inverse of distance between corners of lips
18. Wide	Wide	Advancement of tongue root
19. Rhotacized	Rhotacized	Lowering of frequency of formant three
20. Syllabic	Syllabic	(No agreed physical scale)

4. Components in dependency phonology (Anderson and Ewen 1987)

Gesture	Subgesture	Components
Categorial	Phonatory	Consonantality or periodicity: a scale ranging from V 'relatively periodic' to C 'periodic energy reduction'
	Initiatory	Degree of glottal opening: a scale encompassing aspiration as well as voicing, represented by the extent to which a component O is prominent ; O is absent in the glottal stop G glottalicness (in glottalic sounds, absent in pulmonic) K Velaricness (present in clicks, absent for other sounds)
Articulatory	Locational	i frontness (acutness, sharpness) a lowness (sonority) u roundness (gravity, flatness) ə centrality l linguality (present in sound in which the blade or body of the tongue is active) t apicality d dentality r retracted tongue root (present in pharyngeal consonants and in vowels with narrowed pharynx) α advanced tongue root (relevant only to languages with distinguish vowels with advanced tongue root from vowels with neutral tongue root posture) λ laterality
	Oro-nasal	n nasality