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Section 1: Thursdays 3:00–4:00
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Discussion Handout 5

October 7, 2021

(1) Today:
(1) Dispersion
(1) Phonation Types
(1) Airflow Mechanisms

Perceptual Dispersion and Phonation Types

(2) Perception Dispersion:
   a. In order to make two sounds more distinct, they may differ in more than one 'dimension' of perceptual space.
   b. Front/Back distinctions are often parallel to Rounded/Unrounded distinctions.
   c. [ʃ] rounding in English
   d. Distinct sounds will naturally 'drift apart' for ease of perception unless there are other pressures (articulatory, mergers, etc.)
   e. This is a main device in language change: Korean's three-way voicing distinction ('plain', aspirated, 'tense') to a two way voicing distinction with tone (aspirated with low tone, aspirated with high tone, 'tense'

(3) Phonation Types:
   a. Modal Voice (Voiced): Regular vibrations of the vocal cords
   b. Voiceless: Lack of vibration of the vocal cords; arytenoid cartilages usually apart
   c. Breathy: Vocal cords vibrating but without appreciable contact; arytenoid cartilages further apart than in modal voice
   d. Creaky: Vocal cords vibrating anteriorly, but with the arytenoid cartilages pressed together; lower airflow than in modal voice

(4)

	Voiceless	Breathy	Modal (Voiced)	Creaky
Glottis:	Open	Slightly Constricted	Constricted	Very Constricted
Arytenoid Cartilages:	No Contact	Little Contact	Contact	Pressed Together
Cords:	No Vibration	Slight Vibration	Regular Vibration	Slow Vibration
Example:	[t]	[d̤]	[d]	[d̰]

Airflow Mechanisms

(5) Flow Direction

a. Egressive: compression causes high pressure; exhalation (if pulmonic)
b. Ingressive: rarefaction causes low pressure; inhalation (if pulmonic)

(6)

	Pulmonic	Glottalic	Velaric
Pressure Source	Lungs	Larynx	Velum and Tongue
Egressive Version	'Typical' sounds	Ejectives	(Velaric egressive)
Ingressive Version	(Pulmonic ingressive)	Implosives	Clicks

(7) Airflow Mechanisms

a. Pulmonic Egressive: 'Typical' sounds, known to exist in all spoken languages. Lungs constrict, and air is forced through the throat into the mouth.
b. Pulmonic Ingressives: Generally paralinguistic; 'inwards hiss', 'inhaled affirmative'. Lungs expand, and air is forced from outside of the mouth into the lungs.
c. Glottalic Egressive: Ejectives; the glottis closes, larynx raises to create high pressure between glottis and oral obstruction, oral obstruction is released with higher pressure before larynx lowers and glottis opens.
d. Glottalic Ingressive: Implosives; larynx lowers to create low pressure between glottis and oral obstruction, oral obstruction is released airflow into the mouth due to the low pressure within the mouth.
e. Velaric Egressives: Generally paralinguistic; 'French dismissal'. The back of the tongue makes full contact with the velum and another obstruction further towards the opening of the mouth is made, the tongue is positioned to squeeze the cavity of air to cause high pressure, the obstruction is released.
f. Velaric Ingressives: Clicks; The back of the tongue makes full contact with the velum and another obstruction further towards the opening of the mouth is made, the tongue is positioned to expand (suck) the cavity of air to cause low pressure, the obstruction is released.

(8) Variation in Clicks

a. Clicks have back closure somewhere along the velum: this allows some variation.
   (i) Back closure can include nasality (oral vs. nasal)
   (ii) Back closure can happen in a velar or uvular position
   (iii) Back closure can co-occur with voicing, ejection, etc.
b. Clicks are typically written by a symbols representing their back closure, followed by their front closure.
   (i) [k⊙] = voiceless oral click with velar back closure and bilabial front closure
   (ii) [ɴ̥!] = voiceless nasal click with uvular back closure and (post)-alveolar front closure

(9) Kinds of questions to ask:

a. Which vowels have both a high F1 and F2?
b. Why are there no clicks with uvular front closure?
c. Which sound is least likely to be voiceless: nasals or fricatives?