

Introduction to Linguistics

Phonology.

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Readings

For this class (recommended, optional):

Fromkin's *An introduction to language*. The chapter on Phonetics (up until the section on prosodic features) and the chapter on Phonology (the sections on phonemes and phonemic rules).

In the tenth edition these are Chapters 5 and 6.

Additional book: E.C. Zsiga *The Sounds of Language: An Introduction to Phonetics and Phonology*, 2013.

This is a very nice book. You are not required to read it, but if you want to learn more you can take a look at it.

Video (optional):

Dialect coach Erik Singer breaks down 32 Actors' accents: YouTube

1 Basic terminology

Phonetics vs Phonology

Phonetics – studies the sounds of human speech (their articulatory and acoustic properties)

Phonology – studies the system of sounds in (a particular) language.

Phone vs phoneme vs allophone

[*phone*] – any distinct speech sound.

/*phoneme*/ – a unit of sound in the sound system of a particular language that can distinguish one word from another (ABSTRACT).

allophone – distinct speech sounds corresponding to a phoneme.

Complementary distribution: X and Y are said to be in complementary distribution if they cannot appear in the same context (environment). Allophones of a phoneme are in complementary distribution.

Accidental gaps – possible but non-existent words.

Example: In English /b/ and /p/ are distinct phonemes, while [p] and [p^h] are **allophones** of the phoneme /p/. In Korean, in contrast, the distinction between [b] and [p] is **phonetic**, while the distinction between /p/ and /p^h/ is **phonemic** (there are pairs of words /pul/ 'fire' vs /p^hul/ 'grass').

Question: In your opinion, why do we use /p/ and not /p^h/ to mark the phoneme in English?

Example: English voiced consonants *bet/pet*, *geek/keek*, *sink/think* – a distinctive (phonological) feature. Non-distinctive feature in English: nasal vowels *bean-bead*, *roam-robe*.

At home. 1: Take a pair of phonemes in Hungarian and find a minimal pair to illustrate the phonemic status.

At home. 2: Find a minimal pair to illustrate the phonemic status in English of the following phonemes: /p/ and /f/, /r/ and /l/, /f/ and /v/.

At home. 3: Study the IPA charts for vowels and consonants. Do the 'read and write in English' exercise below.

! Orthography does not necessarily represent the sounds of a language

Example: *Did he believe that Caesar could see the people seize the seas?*

2 Distinctive features

2.1 Features

Feature geometry: features can be grouped together (place of articulation, manner of articulation, voice...)

Example:

[p] – [+consonantal], [labial], [-voiced], [-nasal]

[b] – [+consonantal], [labial], [+voiced], [-nasal]

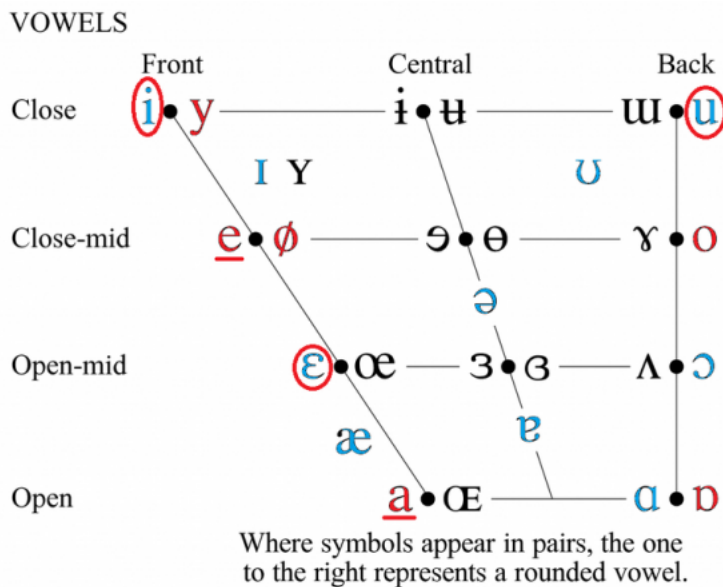
[m] – [+consonantal], [labial], [+voiced], [+nasal]

Binary features: [±rounded] for vowels, [±voice] for consonants. In other areas of linguistics: [±animate] for nouns, [±plural] number in many languages.

Non-binary features: [front]/[back]/[central] place. In other areas: [feminine]/[masculine]/[neuter] gender in German; [singular]/[dual]/[plural] number in Irish.

IPA: International Phonetic Alphabet online

2.2 Vowels



English – blue, Hungarian – red; red underlined – only long

2.3 Consonants

THE INTERNATIONAL PHONETIC ALPHABET (2005)

CONSONANTS (PULMONIC)

	Bilabial	Labio-dental	Dental	Alveolar	Post-alveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Epi-glottal	Glottal
Nasal	m	ɱ	n			ɳ	ɲ	ŋ	ɴ			
Plosive	p b	ɸ β	t d			ʈ ɖ	c ɟ	k ɡ	q ɢ			
Fricative	ɸ β	f v	θ ð	s z	ʃ ʒ	ʂ ʐ	ç ʝ	x ɣ	χ ʁ	ħ ʕ	ħ ʕ	h ɦ
Approximant		ʋ	ɹ			ɻ	j	ɰ				
Trill	ʙ		r						ʀ		ʀ	
Tap, Flap		ⱱ	ɾ			ɽ						
Lateral fricative			ɬ ɮ			ɮ	ɬ	ɮ				
Lateral approximant			l			ɭ	ʎ	ʎ				
Lateral flap			ɺ			ɻ						

Where symbols appear in pairs, the one to the right represents a modally voiced consonant, except for murmured *h*. Shaded areas denote articulations judged to be impossible. Light grey letters are unofficial extensions of the IPA.

Lateral – releasing air down the sides of the tongue.

Approximant – produced by bringing one articulator (the tongue or lips) close to another without actually touching it.

Exercise

Read and write in English.

Wæn tɪd: mæn hu kæn hæ n dəl ə ril rod mæ ʃin. dɔdʒ tʃæ lɛ n jʊ ræ li.
 ðɛr ar spɛ ʃɪ l mæn hu di vɛ lə p æ n ə l most spi ri tʃu ə l æ tæ tʃ mɛ n t tu ðɛr kɑ: z.
 ðe wæ n t ə no nɔ n sɛ n s rod mæ ʃin ðæt græ b z ə rə f wain dɪ ŋ strɛ tʃ ə v rod æ n d
 holdz ɔ n. wæn ðæt ste z lo æ n d klo s tu ðə rod la ik ə sne k. for ðiz mæn, dɔ dʒ
 bi l d z tʃæ lɛ n jʊ ræ li. ə tɹɪ m, tə f kɑ r ðæt hæ g z ɛ v ə ri i n tʃ ə v rod i t go z
 o vər. hwai? bi kɑ z ə v tʃæ lɛ n jʊ r z tɔ r ʃæn bɑ r səs pən ʃən. no mæ ʃi ko il spɹɪ ŋ z for
 ðɪ s kɑ r – on li rɛ s pɔ n sɪ v tɔ r ʃən bɑ r z wɪ l du. ðe kəm ba in tu gɪ v ju
 ə fɔ r m, ɔ nɛ s t ra id ə l ðə ta im.

Hint: *Dodge, Challenger Rallye, trim, taut, torsion bar suspension, coil spring, torsion bar, leaf spring.*

Exercise

Compare English and Dothraki consonants. You can listen to spoken Dothraki here (scroll down for the recording): [online](#).

Dothraki consonants:

		Labial	Dental	Alveolar	Postalveolar	Velar	Uvular	Glottal
Plosive	voiceless		t [t]			k [k]	q [q]	
	voiced		d [d]			g [g]		
Affricate	voiceless				ch [tʃ]			
	voiced				j [dʒ]			
Fricative	voiceless	f [f]	th [θ]	s [s]	sh [ʃ]	kh [x]		h [h]
	voiced	v [v]		z [z]	zh [ʒ]			
Nasal		m [m]	n [n]					
Trill				r [r]				
Tap				r [r]				
Approximant	central				y [j]	w [w]		
	lateral		l [l]					

! IPA includes some additional tables, for example, the one for the affricates and the one for clicks. You can listen to the famous click song here: [YouTube](#).

Affricate – two 'co-pronounced' consonants.

Diphthong – two 'co-pronounced' vowels.

Exercises

- Provide phonemic transcriptions for the following words (Received Pronunciation; consult the Oxford Dictionary and IPA). Describe each phoneme in terms of place and manner of articulation. *dog, cat, ice, snow, seed, bear, there*
- For each group of sounds listed, state the phonetic feature(s) they all share.
Example: [p], [b], [m] – bilabial, stop, consonant
 - [g], [p], [t], [d], [k], [b]
 - [u], [ʊ], [o], [ɔ]
 - [i], [e], [ɪ], [ɛ]
 - [t], [s], [ʃ], [p], [k], [tʃ], [f], [h]
- Provide IPA symbols and descriptions (vowel/consonant, place, manner, (un)rounded, voiced/voiceless, etc.) for the sounds that correspond to the letters highlighted in the following words. If there is a difference between American English and British English, choose one variant and mark which one (AE or BE).
Rub, water, loud, vet, caught, bought, walk, cook, lake, bat, shelf, mother, tall, canvas, deep, juice, bird.
- Why do English speakers say [gʊd bɔːdɪɡ] instead of [gʊd mɒnɪŋ] when they have a cold? (1 point max)

3 Rules

Phonemic string → phonetic pronunciation / context

A → B / X _ Y

Example: feature changing rules

How can we describe these transformations?

1. *hand-picked* /hænd pɪkt/ → /hæn pɪkt/ (/d/ deletion) → [hæ:m pɪkt] (assimilation)
2. *hand-grenade* /hænd grɪneɪd/ → /hæn grɪneɪd/ (/d/ deletion) → [hæ:ŋ grɪneɪd] (assimilation)

Types of rules: Assimilation, dissimilation, feature addition rules, lenition, fortition, segment addition (epenthesis), deletion rules.

Rule ordering : feeding vs bleeding

Feeding: the application of the first rule creates a context in which the second rule can now apply.

Bleeding: the application of the first rule creates a context in which the second rule can no longer apply.

Example: (1) k → tʃ / _i, (2) i → u / k_

Underlying: /ki/. Simultaneous application of the two rules: [tʃu]. Ordering 1-2: [tʃi]. Ordering 2-1: [ku].

Exercises

1. Consider these phonetic forms of Hebrew words:
[v] – [b]: bika 'lamented', migbal 'limited', javar 'broke' (masc.), favra 'broke' (fem.), ?ikev 'delayed', bara 'created'

Assume that these words and their phonetic sequences are representative of what may occur in Hebrew. In your answers, consider classes of sounds rather than individual sounds.

Answer the following questions:

- (a) Are [b] and [v] allophones of one phoneme? Are they in complementary distribution? In what phonetic environments do they occur? Can you formulate a phonological rule stating their distribution?
 - (b) Here is a word with one phone missing. A blank appear in place of the missing sound: hid_ik. What consonant ([b] and/or [v]) can appear in the blank?
2. Write the following rules in plain English:
 - (a) [plosive] → ∅ / ___ C_[nasal]
 - (b) ∅ → [ə] / C__CC
 - (c) V_[-rounded] → [αplace] / ___(C)V_[αplace]
 3. Write a rule for the deletion (omission) of /t/ in words and phrases like *postman*, *must be*, *post doc*. Write a second rule that would describe deletion of /t/ if it was obligatory in *postman* and *must be*, but prohibited in *post doc*.
 4. Consider the following alternation that occurs in English: The prefix *con-*, meaning 'with', has three different variants: *conduct* [kɒndʌkt], *complain* [kəmpleɪn], *Congress* [kɒŋɡrɛs]. Describe it as assimilation, dissimilation, lenition, fortition, epenthesis, or deletion. Write down a formal rule/formal rules for the alternation.
 5. Write a formal rule based on this description: Voiceless stops and fricatives become voiced between sonorants.