

Lgcs 10, Intro Ling. Lecture Notes. Thurs 21 Oct 2010.

0. Announcements

- Exam 3: Tentatively set for Thurs., Nov. 11th. On Chapter 12: Phonology.
- Assignment 5 will be assigned next Tues., and due a week later, Nov. 2nd.
- Reading for next time: Chapter 12, up to but not including Section 12.8.
- Screening of the film *The Linguists* Oct. 28th. Rose Hills Theater. Time: TBA.
- No class Thurs., Nov. 4th.
- Grading scale:

A+ 100	A 94-99	A- 90-93
B+ 87-89	B 83-86	B- 80-82
C+ 77-79	C 73-76	C- 70-72
D+ 67-69	D 63-66	D- 60-62

1. Phonology: Study of sound systems

Every language has a set of **phonemes**, those sounds that can distinguish words. These sounds are also said to be **distinctive**, **contrastive**, or **in contrast** (the terms are all equivalent.) Phonemes are written between slashes / /.

One way to determine whether two sounds are separate phonemes is to see if they occur in a **minimal pair**. A minimal pair is a set of two different words that differ in exactly one sound in the same place in the word. E.g., the minimal pair [mi] 'me' and [ni] 'knee' show that /m/ and /n/ are separate phonemes in English.

A generalization of the minimal pair is the minimal triplet, quadruplet, etc. (pp. 532-533). In fact, we were able to establish most of the phonemic inventory of English by using 'frames'. For example, we used the frame /h__d/, for example, to establish much of the vowel inventory.

Not all sound differences are distinctive. [e] and [ɛ] are both sounds of English, but these two sounds are **not** distinctive. The phonetic difference between them cannot be used to distinguish words.

Rather, these two sounds are **predictable variants** of the same phoneme, /e/: [ɛ] occurs before voiceless obstruents, while [e] occurs elsewhere.

The phonetic variants of a phoneme are called its **allophones**. Allophones are written between brackets []. The elsewhere case is taken as basic (in this case, /e/.)

We can state precisely the distribution of these allophones with a **phonological rule**:

- (1) *Shortening*: High front mid tense vowel → short / __ voiceless obstruents

The arrow reads as 'become(s)', and the forward slash reads as 'in the environment'.

*Note that phonological rules are **based on natural classes**. Your rules should make reference to natural classes, not specific sounds.*

The rule is in fact more general, applying to all English vowels:

- | | | | |
|------------|-----------|--------|-----------|
| (2) heed | [hid] | heat | [hit] |
| (3) rode | [rod] | wrote | [rot] |
| (4) clog | [klog] | clock | [klak] |
| (5) mad | [mæd] | mat | [mæt] |
| (6) lug | [lʌg] | luck | [lʌk] |
| (7) strive | [stʃraɪv] | strife | [stʃraɪf] |

Thus, the rule should be revised:

- (8) *Shortening*: V → V / __ voiceless obstruents

Summarizing so far:

- (9) **Phonemic Variation**
a. Phonemes vary with context.
b. This variation is rule-governed.

A **phonemic analysis** of a language, then, involves two things:

- a set of phonemes;
- a set of phonological rules that specify the distribution of the allophones of those phonemes.

Sounds systems are thus set up so that a language may have only a small set of phonemes, but have thousands of predictable variants of those phonemes.

Why should languages work this way? Why should phonemes vary in pronunciation? This is likely at least in part functionally motivated.

For example, in the case of *Shortening*, the variants of vowels may serve as extra cues that the following consonant is voiceless or voiced, as voicing distinctions in consonants can be difficult to perceive at the end of a word. Thus, the variants help make words **perceptually distinct**.

Other principles appear to drive other rules. Here is a second example from English:

- (10) money [mʌni] month [mʌnθ]
 (11) pan [pæn] panther [pænt̬ə]
 (12) ten [tɛn] tenth [tɛnθ]

Here, we have two phonetic variants of /n/: [n] and [n̬], with the former only appearing before dentals. We can formalize this as follows:

- (13) *Nasal Place Assimilation* (NPA)
 Alveolar nasals → dental / __ dentals

In this case, we have a clear case of assimilation. It is easier for a speaker to pronounce /n/ as a dental sound before another dental sound. Variations in the pronunciation of /n/ aid in **ease of articulation**.

1.1 Derivations

The phonemic representation of a word is also called its **underlying representation**. This is the shape of the word before any phonological rules have applied. We can provide a **derivation** to show how the phonetic (or **surface** representation) of a word is derived, by applying phonological rules to the underlying representation:

- (14) Underlying representation (UR): /hid/ /hit/
 Shortening n/a hit
 Surface representation (SR): [hid] [hit]

1.2 Phonological analysis of unfamiliar languages

One language's allophone can be another language's phoneme.

In doing a phonological analysis of an unfamiliar language, you will want to figure out, given any two sounds, whether they belong to distinct phonemes, or are allophones of the same phoneme.

Minimal pairs can tell you whether two sounds are separate phonemes.

A fairly reliable method for determining whether two sounds are allophones of the same phoneme is to see whether they are in **complementary distribution**. Two sounds are in complementary distribution if they never occur in the same phonetic environment. If two sounds are in complementary distribution, they are probably allophones of the same phoneme. These are the predictable variants of a phoneme, varying based on context.

Note on **near-minimal pairs** (pp. 534-535).

Sometimes it is **not** possible to find minimal pairs. Consider, for example, [ð] and [ʒ] in English. However, the absence of a minimal pair doesn't prove much. If these two sounds were allophones of the same phoneme, we'd expect some rule to govern their distribution. This is clearly not the case. Instead, we have in fact **near-minimal pairs** (pairs that would be minimal except for some irrelevant difference):

- (15) tether vs. pleasure
 neither vs. seizure

There is nothing about the differences in the phonetic environments of these sounds that could explain their distribution as allophones of a single phoneme.

Also: **The Criterion of Phonetic Similarity**. (pp. 548-549).

Practice: (23) Mokilese, (24) Sindhi, (25) Italian, (26) Spanish, (29) Korean, (33) Spanish, (34) Canadian French.