

Introduction to English Linguistics (II)



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Chapter 5. Phonology (I)

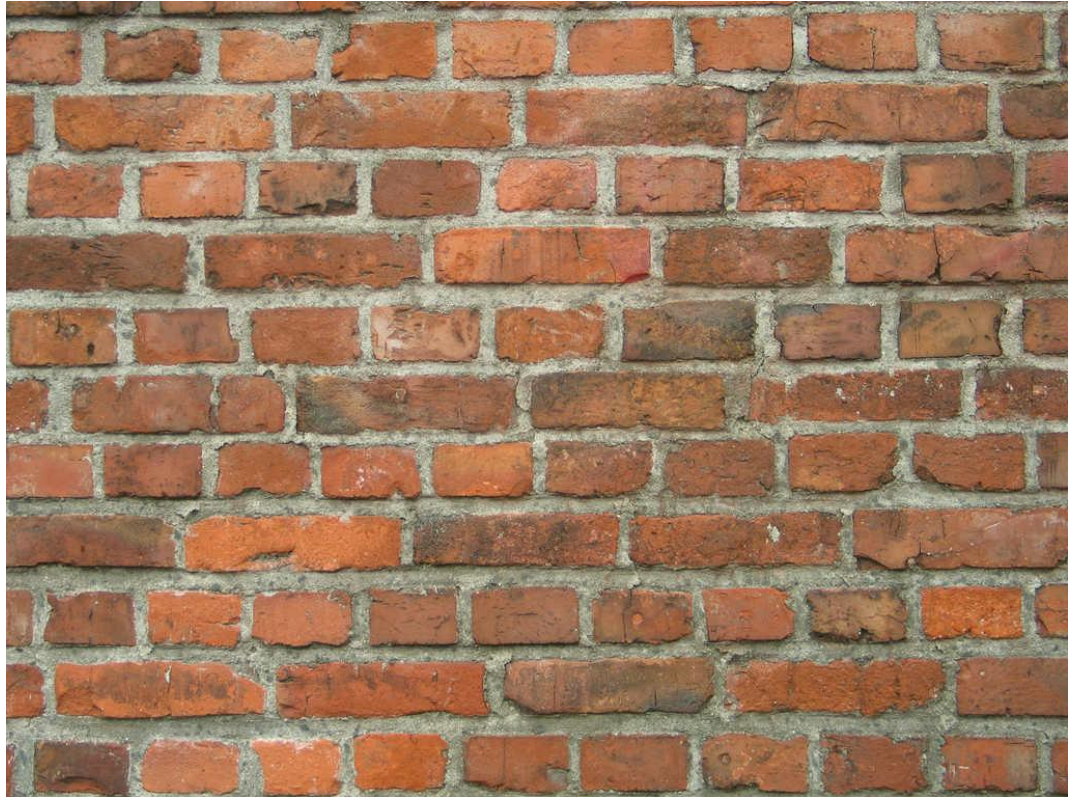
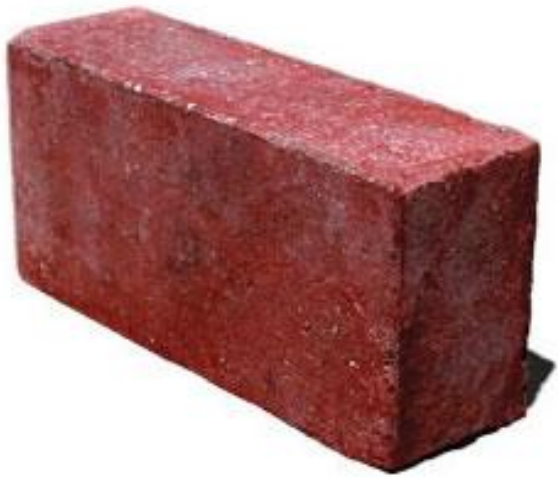
(226-238)

1. What is Phonology?
2. Pronunciation of Morphemes
3. Phonemes

1. What is Phonology?

- the study of **sound patterns** in human language

cf. phonetics vs. phonology:
properties vs. systems (= patterns)



- Phonological knowledge is a part of linguistic knowledge.
- It enables recognition and production of speech.
- It enables a speaker to know which sounds can occur where.
- Application of the knowledge is unconscious.
cf. aspiration

2. The Pronunciation of Morphemes

2.0 Minimal Pairs

2.1 The Pronunciation of Plurals

2.2 Exceptions to the Plural Rule

2.3 Allomorphy in English

- **minimal pairs:**

two different forms that are **identical** in every way **except for one sound segment** that occurs in the same place in the string



- cf. consonants...

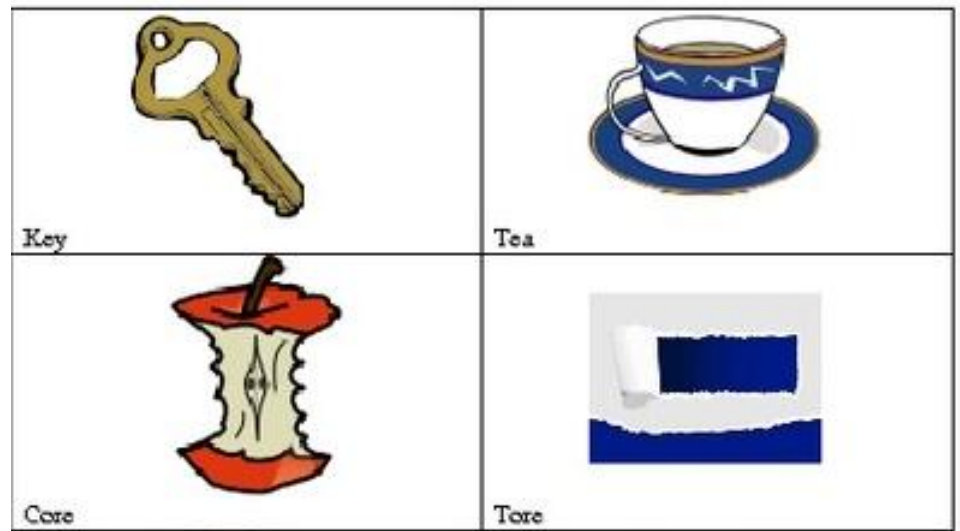
bead vs. *deed*

bowl vs. *dole*

rube vs. *rude*

lobe vs. *load*

etc.



- cf. vowels...

beat vs. *bit* vs. *bait* vs. *bet* vs. *bat*
vs. *bite* vs. *boot* vs. *but* vs. *boat*
vs. *bought* vs. *bout* vs. *bot...*



sheep



ship



heat



hit



eel



ill

- cf. glides...

bile vs. *bowel* vs. *boil*...

N.B. A diphthong is a single vowel.

- **Contrastive sounds** can be found by the **minimal pair** test.

- nonsense words, possible words, accidental gaps
- Finding contrastive sounds by means of minimal pairs may not be easy because of accidental gaps

- cf. [e] vs. [ɛ] contrast

<i>ether</i>	vs.	<i>either</i>
<i>teeth</i>	vs.	<i>teethe</i>
<i>thigh</i>	vs.	<i>thy</i>
<i>mouth</i>	vs.	<i>mouthe</i>
<i>loath</i>	vs.	<i>loathe</i>
<i>wreath</i>	vs.	<i>wreathe</i>
<i>sheath</i>	vs.	<i>sheathe</i>

2.1 The Pronunciation of Plurals

- *dog, dogs, cat, cats, bus, buses*

A: *cab, cad, bag, love, lathe, cam, can, bang, call, bar, spa, boy*

B: *cap, cat, back, cuff, faith*

C: *bus, bush, buzz, garage, match, badge*

D: *child, ox, mouse, criterion, sheep*

- How do you know how to pronounce these words?

- allomorphs for plural morpheme:

[z], [s], [əz]

- **Rule Formation 1:**

Allomorph Environment (After x)

[z]

[kæb], [kæd], [bæg], [l_Λv], [leð],
[kæm], [kæɲ], [bæŋ], [kɔl], [bar],
[spa], [bɔɪ]...

[s]

[kæp], [kæt], [bæk], [k_Λf], [feθ]...

[əz]

[b_Λs], [b_Uf], [b_Λz], [g_əraʒ], [mætf],
[bædʒ]...

- **Rule Formation 2:**

Allomorph Environment (After x)

[z]

[b], [d], [g], [v], [ǒ], [m], [n],
[ŋ], [l], [r], [a], [ɔ_I]...

[s]

[p], [t], [k], [f], [θ]...

[əz]

[s], [ʃ], [z], [ʒ], [tʃ], [dʒ]...

- **Rule Formation 3:**

Allomorph Environment (After x)

[z]

voiced nonsibilant segments

[s]

voiceless nonsibilant segments

[əz]

sibilant segments

- **Phonological rules** for plural suffix *-(e)s*: /z/
- Rule (1):
Insert a [ə] before the plural morpheme when a regular noun ends in a **sibilant** — /s,z,š,ž,č,ǰ/ — giving [əz]
- Rule (2):
Change the plural morpheme to **voiceless** [s] when a voiceless sound precedes it.

- Derivation

	bus+pl	butt+pl	bug+pl
Basic representation	/bʌs+z/	/bʌt+z/	/bʌg+z/
Apply rule (1)	ə	NA	NA
Apply rule (2)	NA	s	NA
Phonetic representation	[bʌsəz]	[bʌts]	[bʌgz]

- Rule ordering is important.

Basic representation	/bʌs+z/
Apply rule (2)	s
Apply rule (1)	ə
Phonetic representation	*[bʌsə]

- morphophonemic rules

2.2 Exceptions to the Plural Rule

- *child, ox, woman, foot, mouse, sheep...*
- mental representation of plural forms?

2.3 Allomorphy in English: Additional Examples

[Past tense]

- A: *gloat, state, raid, ...* add [əd]
- B: *grab, hug, seethe, love, buzz, rouge, judge, fan, ram, long, kill, care, tie, bow, hoe...*
add [d]
- C: *reap, peak, unearth, huff, kiss, wish, pitch, patch...* add [t]

[Past tense]

- A: *gloat, state, raid, ...* add [əd]
- B: *grab, hug, seethe, love, buzz, rouge, judge, fan, ram, long, kill, care, tie, bow, hoe...* add [d]
- C: *reap, peak, unearth, huff, kiss, wish, pitch, patch...* add [t]

- **Characteristic features:**

- A: **non-nasal alveolar stops** >> [əd]
- B: **voiced, except for [d]** >> [d]
- C: **voiceless, except for [t]** >> [t]

- Phonological rules for past tense suffix: *-ed*: /d/
- Rule (1):
Insert a [ə] before the past-tense morpheme when a regular verb ends in an **alveolar stop** — /t, d/ — giving [əd].
- Rule (2):
Change the past-tense morpheme to a **voiceless [t]** when a voiceless sound precedes it.

- [Negative prefix]
 - **homorganic nasal rule**
 - [ĩn] before vowels: *inexcusable, inattentive*
before alveolars: *intolerable, indefinable, insurmountable*
 - [ĩm] before labials: *impossible, imbalance, immaterial*
 - [ĩŋ] before velars: *incomplete, inglorious*
- ※ **Change the place** of articulation of the nasal negative morpheme to **agree with the place of articulation** of a following consonant.

3. Phonemes

- 3.1 Vowel Nasalization and Allophones
- 3.2 Stop Aspiration and Allophones
- 3.3 Complementary Distribution

[Phoneme]

- the phonological units of language

[Related concepts]

- phoneme, allophone,
'individual' sounds,
'distinctive' sounds,
'contrastive' sounds

- **phoneme:**
the basic form of a sound that the hearer's mind senses
- **allophone:**
actual sound corresponding to the phoneme in various environments
- e.g. phoneme /p/
allophones [p^h], [p]

3.1 Vowel Nasalization and Allophones

be	[bi]	bead	[bid]	bean	[bĩn]
roe	[ro]	robe	[rob]	roam	[rõm]
lay	[le]	lace	[les]	lame	[lem]

cf. Non-words:

- *[bĩ]*[bĩd] *[bin]
- *[lě] *[lěs] *[lem]
- *[bǣ] *[bǣd] *[bæŋ]

- Rule: **Nasalize a vowel or diphthong before a nasal segment.**

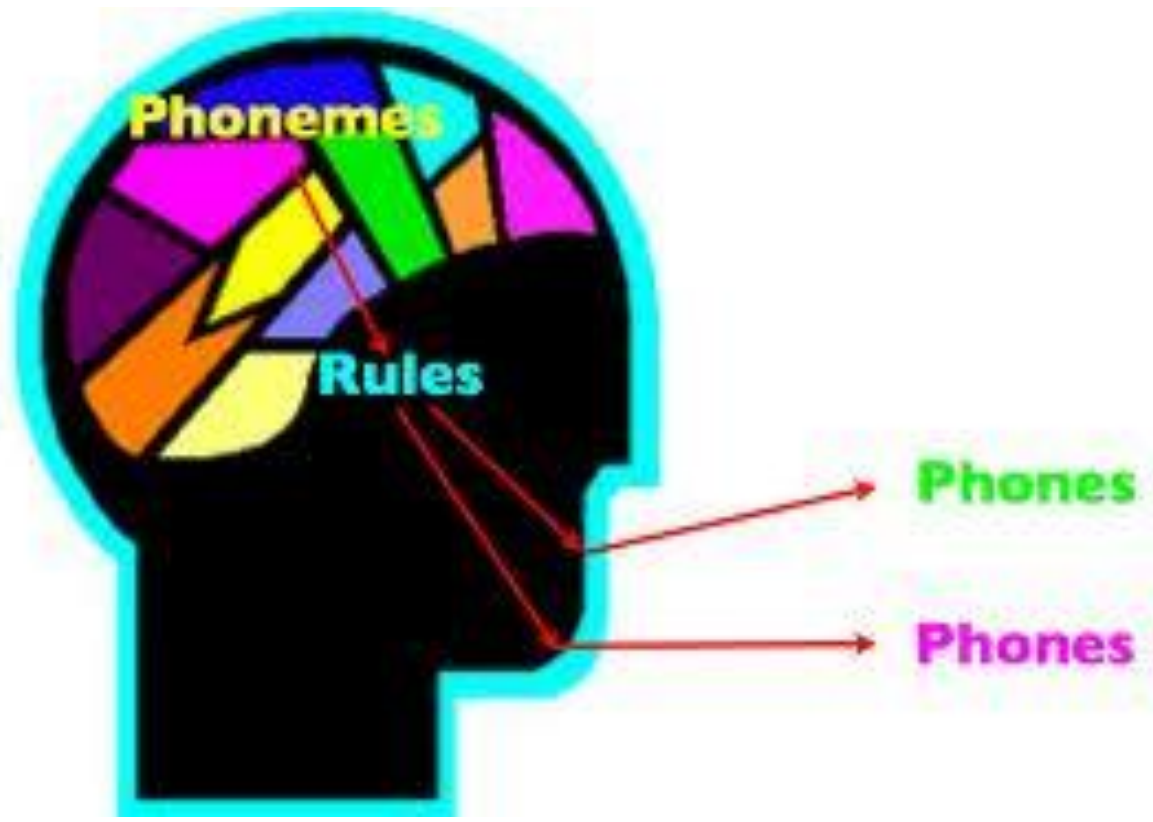
- Oral/Nasal vowels do not contrast in English.
- **Allophones** are **predictable** phonetic variant of a phoneme (because their occurrences are **rule-governed**.)

- Unlike **nasality** modulation, **tongue height** modulation for vowels contrasts in English.

beat	[bi:t]	[i]	boot	[bu:t]	[u]
bit	[bɪt]	[ɪ]	but	[bʌt]	[ʌ]
bait	[beɪt]	[e]	boat	[bo:t]	[o]
bet	[bet]	[ɛ]	bought	[bɔ:t]	[ɔ]
bat	[bæt]	[æ]	bout	[baʊt]	[aʊ]
bite	[baɪt]	[aɪ]	bot	[bɒt]	[ɒ]

- ✘Any two of these words form a **minimal pair**.

- phone:
a particular realization (= pronunciation)
of a phoneme
- The **collection of phones** that are the realizations
of the same phoneme are called the **allophones**
of that phoneme.



phoneme

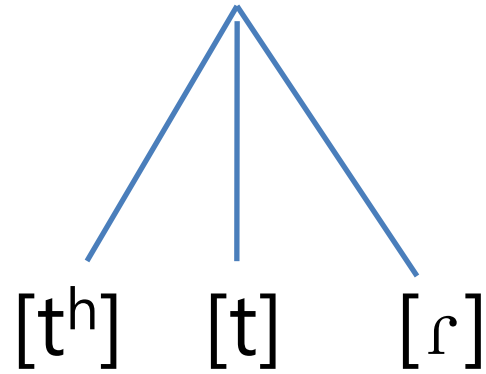
/t/

allophones

[t^h]

[t]

[ɾ]



3.2 Stop Aspiration and Allophones

- allophones of the phoneme /t/: [t^h] [t] [ɾ]

tick [t^h_Ik]

stick [st_Ik]

hits [h_It_s]

bitter [b_Iɾə]

- ※ Pronouncing *tick* as [t^h_Ik], [t_Ik], [ɾ_Ik] will not change meaning, but only awkward for the last two.
- ※ Most phonemes have more than one allophone, and the phonological rules dictate when the different allophones occur.

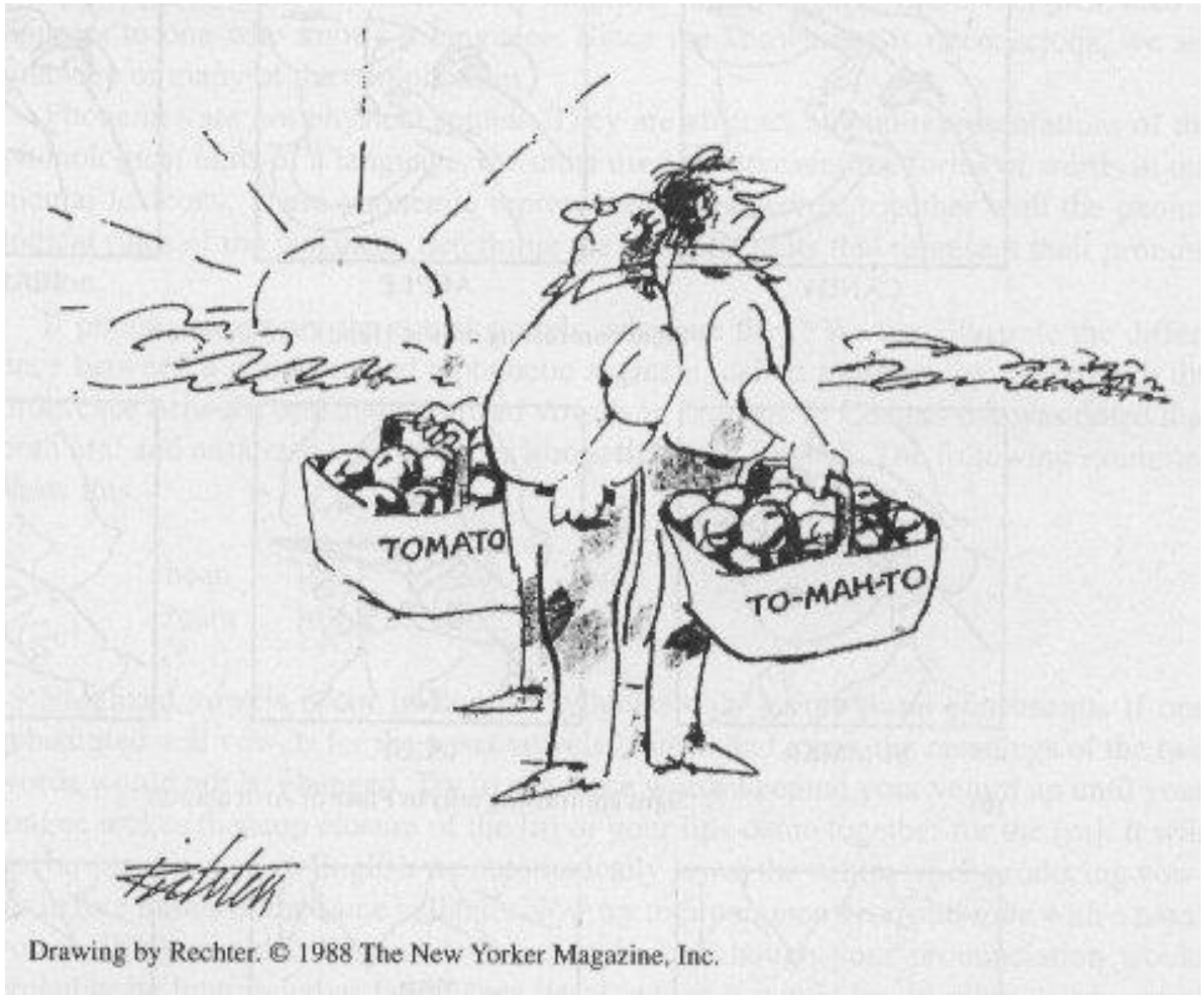
3.3 Complementary Distribution

[Free variation: no meaning contrast]

cf. *don't, can't, butter, water, button,....*

cf. *rope, target, cake,....*

cf. *economics,*



Drawing by Rechter. © 1988 The New Yorker Magazine, Inc.

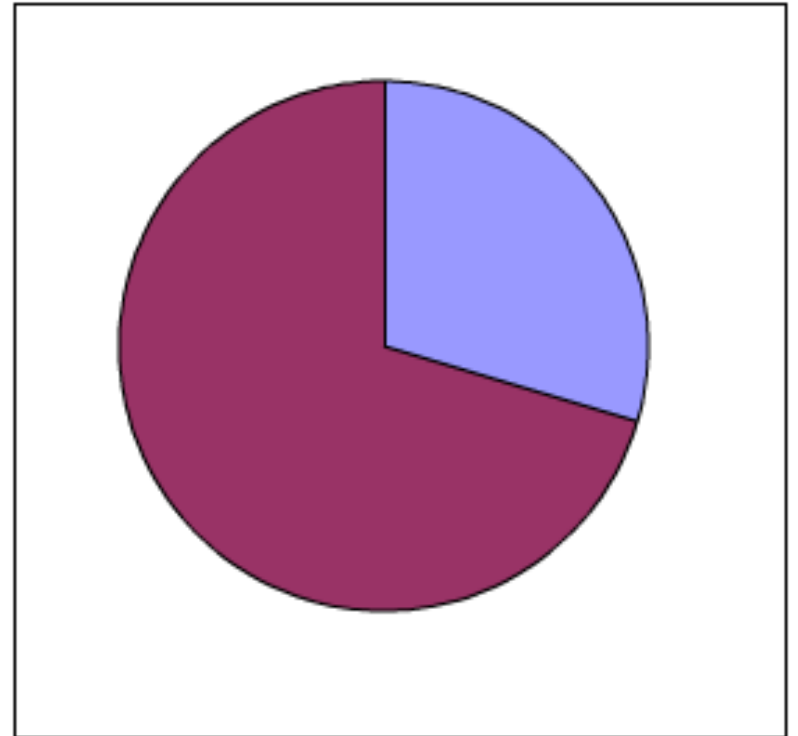
Another example is the old song from the 1930s:

You say either [iðər] and I say [aɪðər],
You say [niðər] and I say [naɪðər],
[iðər] [aɪðər] [niðər] [naɪðər],
let's call the whole thing off.

[Complementary Distribution]

dead - alive

present - absent



[Complementary distribution]



- When sounds are in complementary distribution, they do not contrast with each other.
- A phoneme is a set of phonetically similar sounds that are in complementary distribution.
- Speakers of a language generally perceive the **different allophones** of a single phoneme as the **same sound** or phone. << **valuable misconception!**

Thank you!

See you next week!