



Phonology II

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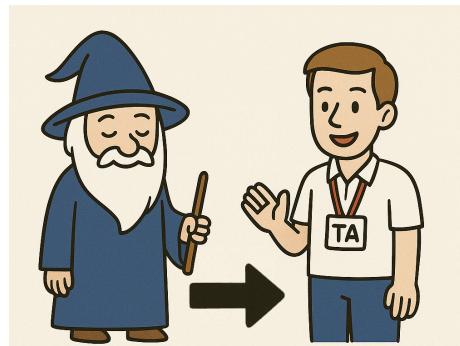
Previously on 201

[sorcerer] and [TA]

are two allophones of the same phoneme /Merlin/

/Merlin/ → [sorcerer] / _ (when saving the world)

/Merlin/ → [TA] / _ (in 201 classroom)



First Previous Directory Next Last /Merlin/ and /Arthur/ are separate phonemes

phoneme: a set of sounds that speakers of a language treat as being the same (/t/)

allophone: each individual possible sound that a phoneme could surface as (t^h) and [t]

contrastive distribution: switching out one phoneme for another results in a different meaning

- these word pairs are called **minimal pairs**
- they detect which sounds are **phonemes**

complementary distribution: switching a sound out for another one *does not* change the meaning

- they are **allophones** of the same phoneme

Phonological Processes

assimilation

- a sound segment changes to become **more similar** to another nearby sound segment
- we can measure in terms of comparing their features
- **English** plural /-s/ → [z] after a **voiced** stop
 - [k^hæts], vs. [dɒgz]

dissimilation

- a sound changes to become **less similar** to another segment
- **Latin to English** loanword
 - [peregrinu] → [pilgrim]
- The first **[r]** dissimilates to an **[l]** to become less like the second **[r]**

When you start looking like your dog



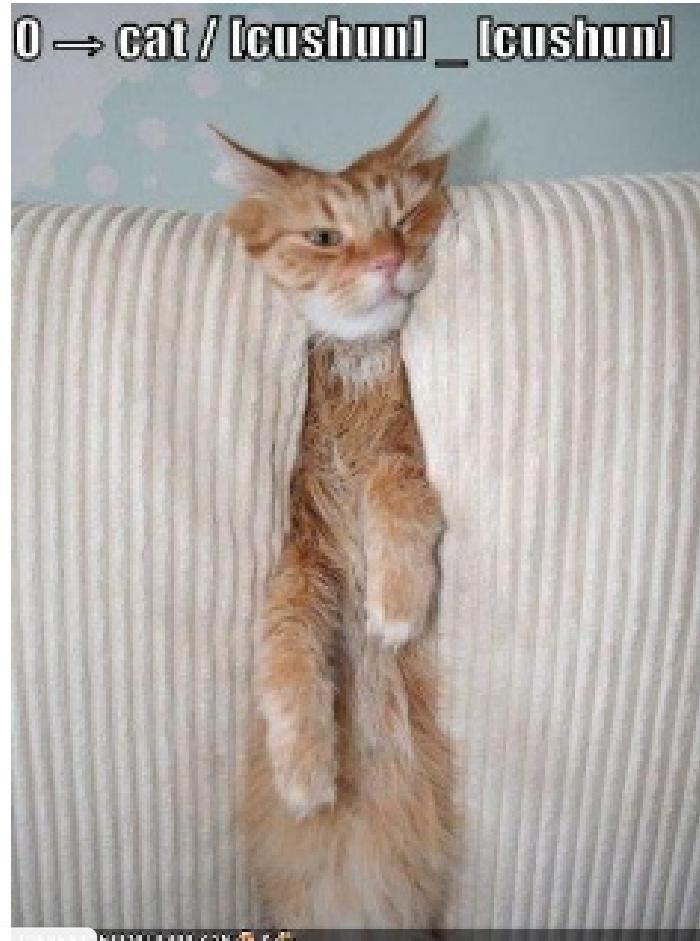
近朱者赤近墨者黑

(jìn zhū zhě chì jìn mò zhě hēi)

Literally means:

one who mixes with vermillion will turn red
while one who touches the ink will become black

Phonological Processes



insertion/epenthesis

- a sound segment is **added** to a word
- **English** glide insertion
 - 'I am', 'see it', 'do it', 'you and I'

deletion/elision:

- a sound is **removed** from a word
- **English**
 - rock [ænd] roll → rock [n] roll
- **Kazakh** vowel hiatus resolution
 - [sa.rw ar.ba] → [sa.rar.ba] ('yellow trolley')

strengthening/weakening

- sound segments get "**stronger**" or "**weaker**" in terms of the **Sonority Scale**

Sonority Scale

Sonority	Type	Son/Obs	Cons/Vow
(lowest)	plosives		
	fricatives	Obstruents	
	nasals		Consonants
	liquids		
	high vowels	Sonorants	
(highest)	non-high vowels		Vowels

A typical Sonority Hierarchy Reproduced by UKT from:

http://en.wikipedia.org/wiki/Sonority_hierarchy 081112

voiced sounds are **more sonorous** than voiceless sounds

higher sonority

(weaker)

vowels

glides

liquids

nasals

fricatives

affricates

stops

lower sonority

(stronger)



Phonological Processes



strengthening

- sound segments get "**stronger**" in terms of the **Sonority Scale**
- in some varieties of **American English**
 - [wɪθ] → [wɪt] ('with')
 - [θəm] → [dəm] ('them')
 - (fricative → stop)

weakening

- sound segments get "**weaker**" in terms of the **Sonority Scale**
- again, in **American English**
 - /t/ → [ɾ] in *butter, better, water*
 - /t/ becomes voiced and is no longer a stop

Practice: Phonological Processes

What phonological processes do these examples exhibit? How can you tell?

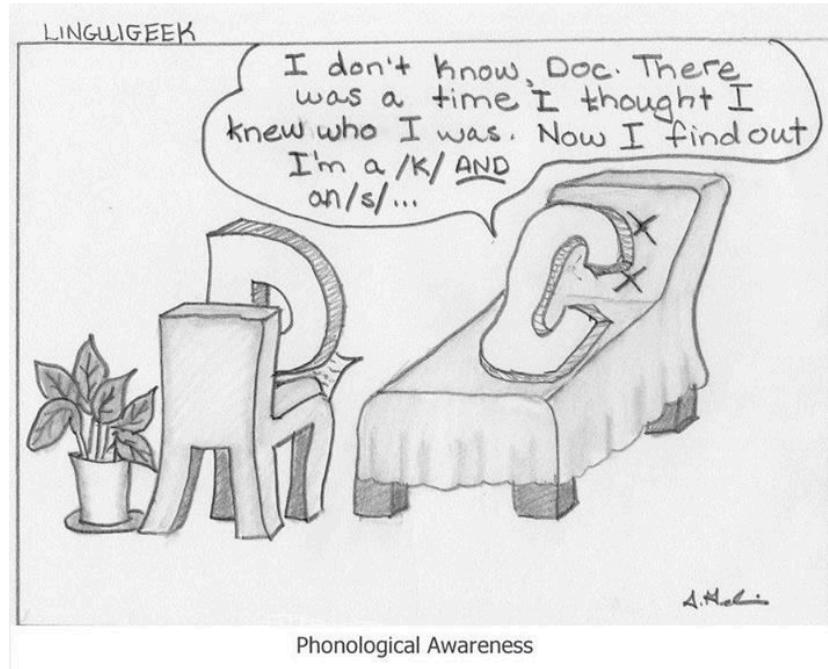
1. English speakers often pronounce "hamster" as "hampster"
2. The prefix ***in-*** ('not') in English is pronounced:
 - [in] in *indirect*, *intolerant*
 - [im] in *impossible*, *imbalance* and
 - [ɪn] in *incredible*, *ingratitudo*
3. "tsunami" is pronounced: , but it is often pronounced
 - [**tsunami**] in Japanese, but
 - [**sunami**] sometimes in English



Phonological Awareness

Practice: Phonological Processes

What phonological processes do these examples exhibit? How can you tell?



1. English

- [t] sound in *operate, create, mutate* becomes [ʃ]
- [ʃ] in *operation, creation, mutation*

2. English adjectival suffix *-al* is

- "al" in *naval, vocal, capital, coronal*, and
- "-ar" in *solar, lunar, velar, angular*, but
- "al" in *floral, lateral* (not * *florar, laterar*)

3. English

- [r] in *atom* [ærəm], *metal* [mərəl] becomes [ɾ]
- [t^h] in *atomic* [ət^hamɪk], *metallic* [mət^hælik]

Step-by-Step Phonological Analysis

1. write the preceding and following segment
(environment) for **the sound you're testing**

2. do they occur in the same or different environments?
 ◦ **same**: *contrastive* → separate phonemes
 ◦ **different**: *complementary* → allophones

3. consider the **commonality** of environments of allophones

4. **simplify** the environments (V_V , $\#_C$, etc.)

5. rewrite simplified environments as
phonological rules

d	ð
[#_a]	[o_o]
[#_e]	[i_a]
[#_a]	[o_o]
[#_u]	[u_a]
[#_e]	[a_o]
[#_e]	[e_o]

- /d/ → d / #_
- /d/ → ð / V_V

Practice: Phonological Analysis

Consider this data from Italian:

For the pair of sounds [i]-[ɛ] and [n]-[ŋ]:

- write the **phonetic environments** in which each sound occurs
- are the two sounds in complementary or contrastive **distribution**?
- are the two sounds separate **phonemes** or **allophones** of the same phoneme in Italian?
- if they are **allophones**, what is the phonological rule for the change?

Italian

[tinta] 'dye'

[tingo] 'I dye'

[tenda] 'tent'

[tenʃo] 'I keep'

[nero] 'black'

[fungo] 'mushroom'

[dantsa] 'dance'

[bjanʃka] 'white'

[dʒɛnte] 'people'

[anke] 'also'

[sapone] 'soap'

[fanʃo] 'mud'

Practice: Kazakh

Examine the sounds [ɑ] and [æ] in this data from **Kazakh**. Do you notice any patterns?

Does the pattern suggest the sounds are in **contrastive** or **complementary** distribution? Are they separate **phonemes** or **allophones** of the same phoneme?

- | | |
|---------------------------|----------------------------------|
| 1. [qɑr] 'snow' | 7. [tŋkær] a name |
| 2. [kært] 'old' | 8. [æke] 'father' |
| 3. [ɑq] 'white' | 9. [ɑuɑ] 'brother' |
| 4. [zɑnbaɾ] a name | 10. [vɑlum] 'scholar' |
| 5. [ækelu] 'to bring' | 11. [gælon] 'gallon' |
| 6. [gæzet]
'newspaper' | 12. [qɑzu] 'horse
intestines' |

ɑ	æ
q_r	

Practice: Kazakh

Examine the sounds [ɑ] and [æ] in this data from **Kazakh**. Do you notice any patterns?

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| 3. [ɑq] 'white' | 9. [ɑβɑ] 'brother' |
| 4. [zɑnbaɾ] a name | 10. [βɑlum] 'scholar' |
| 5. [ækelu] 'to bring' | 11. [gælon] 'gallon' |
| 6. [gæzet]
'newspaper' | 12. [qɑzu] 'horse
intestines' |

a	æ
q_r	k_r
#_q	#_k
z_N	g_Z
β_r	k_r
#_β	#_k
β_#	g_I
β_l	
q_z	

THE END, THANK YOU EVERYONE!

Homework VIII is due **Dec 07** (Synday)

last office hour on **Dec 10** (Wednesday)
I will still be *available by appointment!*

last day to submit late homework/assignment is **Dec 10** (Wednesday)

The final exam is on **Dec 19** at **12:00 - 03:00 pm** in the lecture room **ABE 1180**

