

# Phonology Continued

LING 201

Spring 2024

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# Quiz #6

- We're going to skip the quiz tonight so that we have enough time to cover everything.
- Being present tonight fulfils your quiz grade, so make sure to sign in on the attendance sheet at my desk at the end of class.
- Also, to be clear, you are all always totally welcome to eat in class. This is always the case, but it's especially relevant to some of you during Ramadan.

# Phonological Rules

madre	padre
[madre]	[padre]
'mother'	'father'

What are these pairs of words called?

They are **minimal pairs**: identical except for the sound in question, **and** the words have different meanings.

mio	pio
[mio]	[pio]
'my'	'pious'

What do they tell us about [p] and [m] in Italian?

Both [p] and [m] can appear in the same contexts, #\_a and #\_i (at the start of a word, before [a] and [i])

They are in contrastive distribution.

This means [p] and [m] are allophones of **two separate phonemes**, /p/ and /m/

# Phonological Rules

What about this?

Is this a minimal pair?

butter      butter

Why not?

The words don't mean something different.

[<sup>1</sup>bʌ.təɹ]      [<sup>1</sup>bʌ.rəɹ]

Consistently, throughout English, [r] and [t] are not contrastive. In some accents of English, /t/ is realized as [r] in certain contexts.

kitten      kitten

How about this?

[<sup>1</sup>kɪ.t̚n̩]      [<sup>1</sup>kɪ.ʔn̩]

[t] and [ʔ] aren't contrastive, either. They're also allophones of the same /t/ phoneme, appearing in certain contexts.

[t], [r], and [ʔ] are in **complementary** distribution.

# Phonological Rules

- Since what we just saw are not minimal pairs, the distribution of [ʔ] and [r] is predictable. We can write rules to show where each one will show up.
- These are descriptive rules. Not prescriptive rules. What's the difference?
- To write a rule, first write out the contexts in which each sound appears.
- Then, observe from those contexts if you've got any minimal pairs. (We did this step already for these sounds.)
- Then, see if you can make any generalizations.

# Phonological rules

- In which of these columns does /t/ show up as [ɾ]?



'æ\_ɹ

fatter

faster

's\_ɹ

'ʌ\_ɹ

mutter

maternal

ə\_'ɹ

'ε\_ɹ

metal

metallic

ə\_'æ

'i\_I

eating

eat

'i\_#

'i\_i

meaty



meats

'i\_s

- What context do all of the words in the left column have in common that none of the words in the right column do?
- [ɾ] always shows up after a stressed vowel and before an unstressed vowel or unstressed syllabic consonant.
- Syllabic consonants usually function just like vowels, so we include them with V.
- /t/ → [ɾ] / 'V\_V
- Flapping is a **weakening** rule.

# Phonological rules

- In which of these columns does /t/ show up as [ʔ]?

			
'I_#	kit	kitten	'I_ŋ
'n_ə	Fanta	fountain	'ɑv_ŋ
'n_ə	mention	mutton	'ʌ_ŋ
'æ_ə	batter	curtain	'ɹ_ŋ
's_ŋ	fasten	fatten	'æ_ŋ

- What context do all of the words in the right column have in common that none of the words in the left column do?
- [ʔ] always shows up after a vowel (or syllabic consonant) and before a syllabic n.
- /t/ → [ʔ] / V\_ŋ

# Phonological Rules

- A lot of rules apply to **natural classes**. For example, vowels form a natural class, as we have invoked in our rules so far. Voiceless stops form a natural class. Nasals form a natural class. Velar obstruents form a natural class. Etc. (Think of place, manner, and voicing.)

- What are the voiceless stops in English? /p/ /t/ /k/

- Consider these words:

pin spin apple

top stop eating

kin skin weekend

- In what context are all the voiceless stops aspirated? #\_ 'V
- Note that they all behave in the same way in terms of aspiration.
- Aspiration is a **strengthening** rule.



# Phonological rules

- If asked to describe the distribution of [t], [ɾ], [t<sup>h</sup>], and [ʔ], given the data we've seen so far, we would write the following:

- /t/ →      [ɾ]/      'V\_V  
                 [ʔ]/      V\_ŋ  
                 [t<sup>h</sup>]/    #\_ 'V  
                 [t]/      else

In prose, we could write: /t/ is realized as [ɾ] after a stressed vowel and before an unstressed vowel, [ʔ] after a vowel and before a syllabic [n], [t<sup>h</sup>] at the start of a word before a stressed vowel, and [t] elsewhere.

# Phonological rules

- Another kind of rule is **assimilation** – where a speech sound changes in some way to suit its context. Sounds often assimilate their place to the place of the following sound.

- /n/ → [m]/ \_\_bilabial consonants  
[ŋ]/ \_\_velar consonants  
[n]/ else
- /V/ → [Ṽ]/ \_\_N

Vowels are nasalized before nasal consonants.

Vowels (V) and nasal consonants (N) are natural kinds.

[ʌmbəlɪvəb̃]

[ʌmpɹaɪvəb̃]

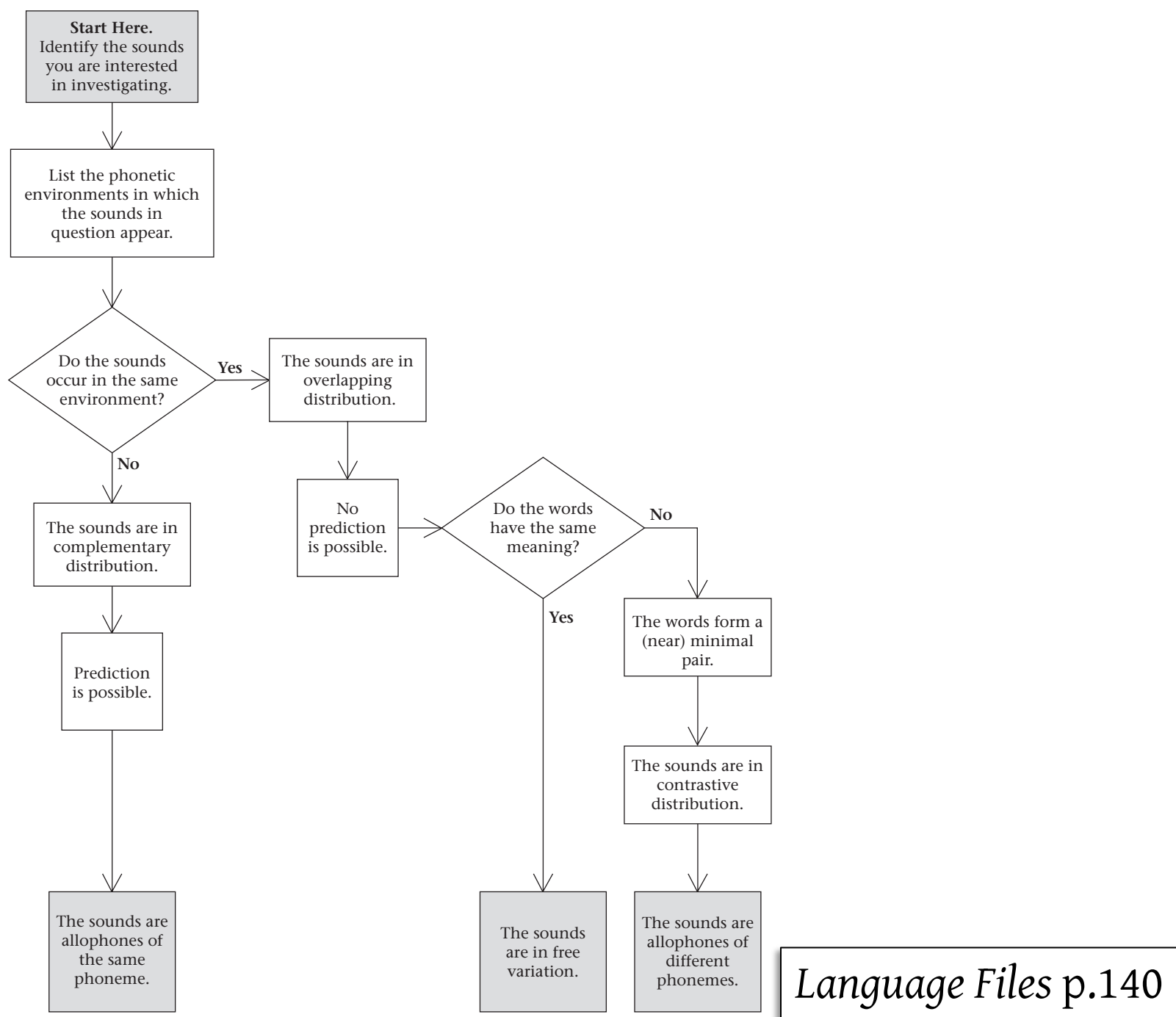
[ɪŋkæɾɪb̃]

[ɪŋɡæɪt]

[ʌnstɑpəb̃]

[ʌnvɑɪnɪsd̃]

“bilabial consonants” and “velar consonants” are natural kinds



## Sindhi

The following data are from Sindhi, an Indo-European language of the Indo-Aryan family, spoken in Pakistan and India. Examine the distribution of the phones [p], [p<sup>h</sup>], and [b]. Determine if the three are allophones of separate phonemes or allophones of the same phoneme. What is your evidence? Is the relationship among the sounds the same as in English? Why or why not? [ŋ] and [d] are the voiced retroflex nasal and oral stop.

<b>a.</b> [pənʊ]	'leaf'	<b>g.</b> [barʊ]	'weight'
<b>b.</b> [ɖak <sup>h</sup> ə]	'grape'	<b>h.</b> [k <sup>h</sup> irʊ]	'milk'
<b>c.</b> [ɖəpʊ]	'fear'	<b>i.</b> [put <sup>h</sup> i]	'back'
<b>d.</b> [p <sup>h</sup> əŋʊ]	'hood of snake'	<b>j.</b> [bənʊ]	'forest'
<b>e.</b> [kənʊ]	'ear'	<b>k.</b> [p <sup>h</sup> əɾʊ]	'arrow head'
<b>f.</b> [perʊ]	'foot'	<b>l.</b> [abʊ]	'water'

- Let's do this together.

I'll write the contexts on the board in marker.

# Midterm Review

# Midterm

- Next week (19 March 2024)
- Open book – handwritten notes, printed notes, printed textbook – but not open laptop or phone.
- Bring looseleaf and a pen or pencil.
- 10 points in total, 1 point per question.
- Self-timed, up to 8:10pm (class's end time).
- You can leave once you've turned it in.



# MIDTERM REVIEW RULES

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- Four teams.
- Two people on each team will use their phone as a buzzer by joining our game on the website [buzzin.live](http://buzzin.live)
- (Of course, other teammates can hit the buzzer.)
- Thirty-two questions, divided over three rounds.
- Rounds 1 and 2: Each team earns one point per question correctly answered.
- In round 2, each team loses one point per question incorrectly answered.
- Round 3: Each team earns three points per question correctly answered.
- In all rounds, if your team answers incorrectly, the other team gets to answer (if they want) before you can try again.
- The team with the most points at the end wins.
- All members of the winning team will receive 1 extra credit point on their midterm.

# Round One

15 questions

1 point for each correct answer

No penalty for wrong answers



# Round 1

1. What is articulatory phonetics?
2. In terms of articulation, what's the difference between [t] and [d]?
3. What does it mean, anatomically, for a sound to be voiced?
4. Approximately how many vowels are there in English?
5. Where in a syllable structure can [i] appear in English?
6. What is the difference between vowels and consonants, in terms of syllable structure?
7. Which IPA symbol represents the coda of the word "crumb" in English?
8. What's the difference between a monophthong and a diphthong?

9. What's a minimal pair?
10. Give a minimal pair for English [b] and [d].
11. Give a minimal pair for English [n] and [ŋ].
12. Give a minimal pair for English [i] and [u].
13. What is complementary distribution?
14. What is contrastive distribution?
15. How do you articulate a nasal speech sound?

# Round Two

15 questions

1 point for each correct answer

1 point deducted for wrong answers

# Round 2

1. How do descriptivism and prescriptivism differ?
2. What's a descriptive rule?
3. Give an example.
4. What's a prescriptive rule?
5. Give an example.
6. What do linguists say about 'double negatives,' like "I don't have no money"?

7. Many animals can communicate, including vocally. Does this mean animals have language? Why or why not?
8. Humans have language. Does this mean all human communication is linguistic? Why or why not?
9. What's the difference between a phoneme and an allophone?
10. What does this rule mean? /k/ → [k<sup>h</sup>]/#\_ 'v
11. What are “vocal organs”? Give an example of one.
12. What is a “natural class”? Give an example.
13. Pronounce the following word: [ə.'dʒʌst]
14. Pronounce the following word: ['tʃaɪld.hʊd]
15. Why is the IPA more useful for transcribing sounds than a script like that used for English, Russian, or Arabic?

# Round Three

2 questions

3 points for each correct answer

No penalty for wrong answers

# Round 3

- Each team will receive 3 packets, each containing the two questions for this round. You'll work in groups to answer these questions.
- Don't flip your packet right-side-up until I tell you to.
- Each question has three sub-questions (i-iii). The first team to answer each sub-question correctly – in writing – will earn 3 points for that question. Buzz in when your team has the right answers.
- We'll do question 1 (which is on page 1) first. Then, after a team wins, we'll move on to question 2.
- Don't rush! Be careful. If your team gets it wrong, you can't buzz in again until another team goes and also gets it wrong.

# Question 1

1. This question, adapted from *Language Files*, is worth three points. You must write the answer to each sub-question correctly for your team to earn the points.

The following data are from Standard Italian, an Indo-European language of the Romance family, spoken in Italy. Examine the distribution of the phones [n] and [ɲ] and answer the questions that follow.

a) [tinta] 'dye'	g) [tingo] 'I dye'
b) [tɛnda] 'tent'	h) [teŋgo] 'I keep'
c) [dantsa] 'dance'	i) [funɡo] 'mushroom'
d) [nero] 'black'	j) [bjaŋka] 'white'
e) [dʒɛnte] 'people'	k) [aŋke] 'also'
f) [sapone] 'soap'	l) [faŋgo] 'mud'

- i. State the phonetic environments in which the sounds [n] and [ɲ] appear.
- ii. Identify any natural classes of sounds that appear in the environments you've provided.
- iii. Given what you know about the distribution of sounds and the environments you've listed, are [n] and [ɲ] in complementary or contrastive distribution?



# Question 2

2. This question, adapted from *Language Files*, is worth three points. You must write the answer to each sub-question correctly for your team to earn the points.

Standard Spanish is an Indo-European language of the Romance family. Examine the phones [d] and [ð] below.

a) [drenar] 'to drain'	g) [duða] 'doubt'
b) [dentro] 'within'	h) [bendito] 'blessed'
c) [dia] 'day'	i) [laðear] 'to tilt'
d) [aðonde] 'where'	j) [aldea] 'village'
e) [ajuða] 'help'	k) [deðo] 'finger'
f) [iðioma] 'language'	l) [toldo] 'canopy'

- i. Are [d] and [ð] allophones of one phoneme or of separate phonemes?
- ii. If they are allophones of one phoneme, state a rule that describes their distribution. (Otherwise, write "NA".)
- iii. If they are allophones of separate phonemes, give a minimal pair that proves this. (Otherwise, write "NA".)