

UNIVERSITY OF WASHINGTON, SEATTLE

# ASIAN LINGUISTICS WORKBOOK

SPRING 2009

2009 EDITION COMPILED AND REVISED BY ZEV HANDEL  
FOR USE IN ASIAN 401

BASED ON HAL SCHIFFMAN'S *ASIAN LINGUISTICS WORKBOOK*  
DRAFT VERSION - NOT FOR DISTRIBUTION OR CITATION



Contents

Acknowledgments

Phonetics

Phonemics and Phonology

Morphology

Morphophonology

Syntax

Historical Linguistics

(Writing Systems)

## Acknowledgments

This is an unfinished major revision of the *Asian Linguistics Workbook* originally compiled by Professor Hal Schiffman with the assistance of various members of the faculty and staff of the University of Washington's Asian Languages & Literature department.

Prof. Schiffman devoted an enormous amount of time and effort to collecting data and problem sets to explicate the basic concepts of the field of linguistics through Asian language examples. Although the workbook that he compiled was a gold mine of valuable data, the passage of time had, by the 2000s, rendered it impractical for a number of reasons.

The aims of the current revisions are:

- 1) To replace the Americanist and other phonetic notations with International Phonetic Alphabet where appropriate;
- 2) To re-order the problem sets so that they progress more deliberately from simple to complex;
- 3) To eliminate some problem sets and introduce others in order to improve the overall efficacy of the workbook;
- 4) To correct errors.

The revision is still very much a work in progress. Students and instructors will note gaps, inconsistencies, and errors. One major gap is in these acknowledgments, which do not yet adequately credit the sources of many of the problem sets.

I would be grateful to students and faculty if they would point out errors and make suggestions for improvements.

Zev Handel, Seattle, March 2009

# Chapter 1: Phonetics and Phonology

## 1.1 Phonetics

### 1.1.1 Phonetics Exercises

#### 1. Transcription (International Phonetic Alphabet)

Transcribe the sounds as you would pronounce them when speaking slowly and clearly. Consider [w j l ɹ] to be consonant sounds. Don't forget to transcribe aspiration!

a. Write appropriate phonetic symbols within the brackets provided to represent the *initial* consonant or consonant cluster sounds of each of the following English words:

<i>phrase</i>	[ _____ ]	<i>whine</i>	[ _____ ]	<i>quite</i>	[ _____ ]
<i>cure</i>	[ _____ ]	<i>then</i>	[ _____ ]	<i>shoot</i>	[ _____ ]
<i>jump</i>	[ _____ ]	<i>chart</i>	[ _____ ]	<i>psychology</i>	[ _____ ]
<i>chronic</i>	[ _____ ]	<i>think</i>	[ _____ ]	<i>thrill</i>	[ _____ ]

b. Write appropriate phonetic symbols within the brackets provided to represent the *final* consonant or consonant cluster sounds of each of the following English words:

<i>dozed</i>	[ _____ ]	<i>fifth</i>	[ _____ ]	<i>forced</i>	[ _____ ]
<i>garage</i>	[ _____ ]	<i>strength</i>	[ _____ ]	<i>myths</i>	[ _____ ]
<i>innings</i>	[ _____ ]	<i>coughed</i>	[ _____ ]	<i>days</i>	[ _____ ]
<i>sixth</i>	[ _____ ]	<i>booths</i>	[ _____ ]	<i>flinched</i>	[ _____ ]
<i>thanked</i>	[ _____ ]	<i>couldn't</i>	[ _____ ]	<i>clothes</i>	[ _____ ]

c. Write appropriate phonetic symbols within the brackets provided to represent the *vowel* sounds of each of the following English words:

<i>his</i>	[ _____ ]	<i>love</i>	[ _____ ]	<i>nod</i>	[ _____ ]
<i>beg</i>	[ _____ ]	<i>latch</i>	[ _____ ]	<i>trees</i>	[ _____ ]
<i>blaze</i>	[ _____ ]	<i>died</i>	[ _____ ]	<i>rude</i>	[ _____ ]
<i>node</i>	[ _____ ]	<i>coin</i>	[ _____ ]	<i>should</i>	[ _____ ]
<i>put</i>	[ _____ ]	<i>caught</i>	[ _____ ]	<i>mouse</i>	[ _____ ]

d. Transcribe the following words phonetically:

<i>shrink</i>	[ _____ ]	<i>then</i>	[ _____ ]	<i>three</i>	[ _____ ]
<i>phrased</i>	[ _____ ]	<i>chrome</i>	[ _____ ]	<i>cuter</i>	[ _____ ]
<i>flunked</i>	[ _____ ]	<i>judges</i>	[ _____ ]	<i>once</i>	[ _____ ]
<i>whiled</i>	[ _____ ]	<i>seizure</i>	[ _____ ]	<i>pressure</i>	[ _____ ]

*honest* [            ]    *probably* [            ]    *surprised* [            ]

**2. Symbolization**

Supply IPA symbols to represent each of the following phonetic descriptions:

- a. voiced alveolar stop                    [     ]
- b. voiceless aspirated bilabial stop    [     ]
- c. voiceless alveopalatal fricative     [     ]
- d. high front unrounded vowel          [     ]
- e. mid-low back rounded vowel          [     ]
- f. velar nasal                              [     ]

**3. Phonetic Descriptions**

Describe in articulatory phonetics terminology the sounds represented by each of the following IPA symbols (e.g. “[t] is a voiceless unaspirated alveolar stop”; “[u] is a high back unrounded vowel”):

- a. [p] \_\_\_\_\_
- b. [ʃ] \_\_\_\_\_
- c. [õ] \_\_\_\_\_
- d. [æ] \_\_\_\_\_
- e. [k<sup>h</sup>] \_\_\_\_\_
- f. [ɛ] \_\_\_\_\_
- g. [t̚] \_\_\_\_\_
- h. [y] \_\_\_\_\_
- i. [ŋ] \_\_\_\_\_

**4. Natural Classes**

In each group, circle the symbol that represents a sound that lacks a feature (e.g. a place of articulation, a manner of articulation, roundedness) shared by the others, then name the feature that it lacks:

- a. p<sup>h</sup>    m    b    n    p            is not \_\_\_\_\_
- b. i    e    u    ɛ    æ            is not \_\_\_\_\_
- c. s    z    ʃ    dʒ    ʒ            is not \_\_\_\_\_
- d. l    m    n    ŋ    ɲ            is not \_\_\_\_\_
- e. y    u    e    o    ɔ            is not \_\_\_\_\_

## 1.2 Phonemics and Phonology

### 1.2.1 Example: Japanese Fricatives

Consider the phonemic status of [h] and [f] in Japanese based on the following data. (Note that here the symbol [f] actually represents a voiceless bilabial fricative, IPA [ɸ].)

1.	[haha]	'mother'	/ _____ /
2.	[hoho]	'cheek'	/ _____ /
3.	[he]	'fart'	/ _____ /
4.	[heso]	'navel'	/ _____ /
5.	[fug <u>u</u> ]	'poisonous blowfish'	/ _____ /
6.	[fud <u>z</u> i]	'Mt. Fuji'	/ _____ /
7.	[hi]	'day'	/ _____ /
8.	[haku]	'spit out'	/ _____ /
9.	[hiku]	'draw out'	/ _____ /
10.	[fuku]	'blow'	/ _____ /

Do [f] and [h] belong to separate phonemes or allophones of a single phoneme? Explain your conclusion, and write appropriate phonological rules. Then rewrite the words above in a phonemic notation.

**Solution:** We find no minimal pairs contrasting [f] and [h]. Furthermore, these sounds are in complementary distribution, i.e. they occur in different non-overlapping environments and never contrast. [f] occurs only before the vowel [u], and [h] occurs before all other vowels. As voiceless fricatives, the two sounds are similar. Therefore, we conclude that these two sounds are allophones of a single phoneme. Since [h] occurs in more environments, we will name the phoneme /h/.

/h/ → [f] before [u]	or	/h/ → [f] / _u
→ [h] elsewhere		→ [h] elsewhere

The phonemic forms of the words are in notation identical to the phonetic forms, with the exception of #5 /hugu/, #6 /hudzi/, and #10 /huku/.

**Note:** In all of the problems in this section, you may assume that phonetic and phonemic notation will be identical aside from those phones on which you are asked to carry out analysis. In other words, when asked to rewrite the words above in phonemic notation, you need only be concerned about whether the phonemic notation for [h] and [f] will differ from the phonetic notation, and may copy out the other phonetic symbols unchanged.

### 1.2.2 Hypothetical Language A

Consider the status of [a] and [ə] based on the following data:

- |                      |              |                |                |
|----------------------|--------------|----------------|----------------|
| 1. [fam <u>u</u> ]   | 'rowboat'    | 10. [ʔigə]     | 'timely'       |
| 2. [latu <u>ki</u> ] | 'thighbone'  | 11. [feʔə]     | 'yesterday'    |
| 3. [pu <u>g</u> an]  | 'lollipop'   | 12. [ʔitimaxə] | 'early'        |
| 4. [d <u>a</u> m]    | 'down'       | 13. [ʃipolə]   | 'quiz'         |
| 5. [g <u>a</u> ʃ]    | 'bog'        | 14. [tʃinmə]   | 'grief'        |
| 6. [un <u>jan</u> f] | 'door'       | 15. [ɣiʃə]     | 'to misinform' |
| 7. [wif <u>æ</u> g]  | 'window'     | 16. [ɣomsə]    | 'goose'        |
| 8. [m <u>a</u> ʃan]  | 'dictionary' | 17. [fanrə]    | 'birth-bath'   |
| 9. [m <u>a</u> nfæ]  | 'no'         | 18. [paŋrə]    | 'garrulous'    |

1. Do [a] and [ə] belong to separate phonemes, or are they allophones of the same phoneme? State their distribution.

---



---



---

2. Based on your answer, rewrite the following words phonemically:

- |                     |              |           |
|---------------------|--------------|-----------|
| a. [fam <u>u</u> ]  | 'rowboat'    | / _____ / |
| b. [ʔigə]           | 'timely'     | / _____ / |
| c. [ʃipolə]         | 'quiz'       | / _____ / |
| d. [ɣomsə]          | 'goose'      | / _____ / |
| e. [m <u>a</u> ʃan] | 'dictionary' | / _____ / |
| f. [fanrə]          | 'birth-bath' | / _____ / |

### 1.2.3 Korean Sibilants (and 'Shibilants')

Consider the status of [s] and [ʃ] based on the following Korean data:

- |               |                  |                |                     |
|---------------|------------------|----------------|---------------------|
| 1. [saram]    | 'person'         | 10. [ʃigan]    | 'time, hour'        |
| 2. [set]      | 'three'          | 11. [sɛʃi]     | 'three o'clock'     |
| 3. [sugʌn]    | 'towel'          | 12. [ʃiʃihada] | 'be dull, insipid'  |
| 4. [sʌm]      | 'island'         | 13. [ʃihʌm]    | 'examination'       |
| 5. [sɛ]       | 'bird'           | 14. [ʃinmun]   | 'newspaper'         |
| 6. [undʒʌnsu] | 'driver'         | 15. [tʃiʃi]    | 'instructions'      |
| 7. [wisʌŋ]    | 'satellite'      | 16. [tʃʌmʃim]  | 'lunch'             |
| 8. [mosun]    | 'contradiction'  | 17. [sanʃin]   | 'mountain spirit'   |
| 9. [mansɛ]    | 'long live ...!' | 18. [paŋʃim]   | 'absent-mindedness' |

1. Do [s] and [ʃ] belong to separate phonemes, or are they allophones of the same phoneme? State their distribution.

2. Based on your answer, rewrite the following words phonemically:

- |    |           |                  |           |
|----|-----------|------------------|-----------|
| a. | [sɛ]      | 'bird'           | / _____ / |
| b. | [mansɛ]   | 'long live ...!' | / _____ / |
| c. | [tʃʌmfɪm] | 'lunch'          | / _____ / |
| d. | [ʃɪnmun]  | 'newspaper'      | / _____ / |
| e. | [sɛt]     | 'three'          | / _____ / |

### 1.2.4 Kannada Retroflex Liquids

1. Where is Kannada spoken, and to what language family does it belong?

---



---

Consider the status of [l] and [ɭ] (a retroflex lateral, IPA [ɭ]) in Kannada based on the following data. [:] indicates that the preceding vowel is long.

- |     |         |                 |
|-----|---------|-----------------|
| 1.  | [kollu] | 'kill'          |
| 2.  | [hulɪ]  | 'sour tamarind' |
| 3.  | [he:ɭu] | 'say'           |
| 4.  | [ke:ɭu] | 'ask, hear'     |
| 5.  | [illi]  | 'here'          |
| 6.  | [huli]  | 'tiger'         |
| 7.  | [he:lu] | 'defecate'      |
| 8.  | [yo:ɭu] | 'seven'         |
| 9.  | [ki:ɭu] | 'uproot'        |
| 10. | [eli]   | 'rat'           |
| 11. | [ha:lu] | 'milk'          |
| 12. | [koɭɭu] | 'buy'           |

2. Do [l] and [ɭ] belong to separate phonemes, or are they allophones of one phoneme?

a. If your conclusion is that they belong to distinct phonemes, describe the environments in which they contrast, and if possible, provide minimal pairs.

b. If your conclusion is that they are allophones, describe the distinct environments in which they occur in complementary distribution.

---



---



---



---

### 1.2.5 Punjabi Tone

1. Where is Punjabi (also written Panjabi) spoken, and to what language family does it belong?

---



---

In the Punjabi data below, the symbols  $\grave{v}$ ,  $\bar{v}$ ,  $\acute{v}$  (where  $v$  is any vowel) represent three different tones.  $\grave{v}$  indicates a low tone,  $\bar{v}$  indicates a mid tone, and  $\acute{v}$  indicates a high tone. Phonetically, Punjabi has three different tones. Your task is to determine how many phonemic tones Punjabi has. Does Punjabi have one phonemic tone with three allophonic tones, two phonemic tones (one of which has two allophonic tones), or three phonemic tones?

- |     |         |              |           |
|-----|---------|--------------|-----------|
| 1.  | [kòra:] | 'horse'      | / _____ / |
| 2.  | [là:i]  | 'disgrace'   | / _____ / |
| 3.  | [cà:]   | 'peep'       | / _____ / |
| 4.  | [kōra:] | 'unused'     | / _____ / |
| 5.  | [cá:]   | 'tea'        | / _____ / |
| 6.  | [kàr]   | 'chisel'     | / _____ / |
| 7.  | [kóra:] | 'leper'      | / _____ / |
| 8.  | [kār]   | 'bottom'     | / _____ / |
| 9.  | [kár]   | 'boil'       | / _____ / |
| 10. | [lā:i]  | 'stuck'      | / _____ / |
| 11. | [cā:]   | 'enthusiasm' | / _____ / |
| 12. | [lá:i]  | 'detached'   | / _____ / |

2. How many phonemic tones does Punjabi have? Justify your answer by identifying contrasting environments or complementary distribution.

a. If your conclusion is that they belong to distinct phonemes, indicate the environments in which they contrast, and if possible, provide minimal pairs.

---



---

b. If your conclusion is that there are fewer than three phonemic tones, rewrite the words above in a phonemic transcription.

### 1.2.6 Korean Liquids

Korean [l] is a dental lateral, with the tongue positioned at the back of the upper front teeth. Korean [ɾ] is pronounced with a flap of the tip of the tongue at this same position. Consider the following Korean data containing these two sounds.

- |                             |               |                 |                       |
|-----------------------------|---------------|-----------------|-----------------------|
| 1. [nal]                    | 'day'         | 10. [nari]      | 'day (subject form)'  |
| 2. [ppalɢan]                | 'red'         | 11. [saram]     | 'person'              |
| 3. [kil]                    | 'road'        | 12. [kiri]      | 'road (subject form)' |
| 4. [sosɒl]                  | '(a) novel'   | 13. [juri]      | 'glass'               |
| 5. [ɒlgul]                  | 'face'        | 14. [urɢɒ]      | 'anxiety'             |
| 6. [tɢɒban]                 | 'half'        | 15. [uri]       | 'we'                  |
| 7. [aldɒɢip <sup>hi</sup> ] | 'as you know' | 16. [irwɒl]     | 'January'             |
| 8. [jɒl]                    | 'ten'         | 17. [kuɾɢɒjo]   | 'draw (a picture)'    |
| 9. [halmɒni]                | 'grandmother' | 18. [harabɒɢzi] | 'grandfather'         |

1. What is the phonemic status of [l] and [ɾ] in Korean? Justify your answer and describe the distribution of the two sounds.

---



---

2. Rewrite the following words in phonemic notation.

- |                |                       |           |
|----------------|-----------------------|-----------|
| a. [nal]       | 'day'                 | / _____ / |
| b. [nari]      | 'day (subject form)'  | / _____ / |
| c. [kil]       | 'road'                | / _____ / |
| d. [kiri]      | 'road (subject form)' | / _____ / |
| e. [halmɒni]   | 'grandmother'         | / _____ / |
| f. [harabɒɢzi] | 'grandfather'         | / _____ / |

### 1.2.7 Sinhala Apical Stops

1. Where is Sinhala (also called Sinhalese) spoken, and to what language family does it belong?

---



---

In the following data, [ɖ] and [ɗ] represent retroflex stops (IPA [ɖ] and [ɗ]). Doubled vowel symbols (e.g. [aa]) represent long vowels.

- |              |                |                  |              |
|--------------|----------------|------------------|--------------|
| 1. [daa]     | 'day'          | 15. [baɖu]       | 'goods'      |
| 2. [dihaawə] | 'direction'    | 16. [ɖaadija]    | 'sweat'      |
| 3. [niwaaɖu] | 'vacation'     | 17. [adə]        | 'today'      |
| 4. [palaatə] | 'province'     | 18. [madi]       | 'not enough' |
| 5. [dakunu]  | 'southern'     | 19. [daruwo]     | 'children'   |
| 6. [ɖrajwər] | 'driver'       | 20. [padintʃije] | 'residence'  |
| 7. [tiɬə]    | 'thirty'       | 21. [iiɖə]       | 'to that'    |
| 8. [tawə]    | 'still'        | 22. [deewi]      | 'might give' |
| 9. [nidahas] | 'independence' | 23. [ɖokɖə]      | 'doctor'     |
| 10. [badu]   | 'taxes'        | 24. [aɖə]        | 'half'       |
| 11. [tænə]   | 'place'        | 25. [wæɖə]       | 'work'       |
| 12. [atə]    | 'hand'         | 26. [poɖi]       | 'little'     |
| 13. [ɖaanu]  | 'to bite'      | 27. [aɖə]        | 'eight'      |
| 14. [mæɖə]   | 'middle'       | 28. [ɖikə]       | 'a few'      |

2. Are retroflex stops [ɖ] and [ɗ] phonemically distinct from alveolar stops [t] and [d]? Justify your answer.

---



---



---

3. If you have determined that [ɖ] and [ɗ] are not phonemically distinct from [t] and [d], then rewrite the following words in a phonemic transcription of your choice.

- |    |           |              |           |
|----|-----------|--------------|-----------|
| a. | [ɖrajwər] | 'driver'     | / _____ / |
| b. | [ɖaanu]   | 'to bite'    | / _____ / |
| c. | [baɖu]    | 'goods'      | / _____ / |
| d. | [adə]     | 'today'      | / _____ / |
| e. | [madi]    | 'not enough' | / _____ / |

f.	[dɔktə]	‘doctor’	/ _____ /
g.	[wædə]	‘work’	/ _____ /
h.	[pɔ̀ɰi]	‘little’	/ _____ /
i.	[aʔə]	‘eight’	/ _____ /
j.	[ʔikə]	‘a few’	/ _____ /

### 1.2.8 Thai Aspirated Stops

The following data contain instances of [p-], [p<sup>h</sup>-], [-p]; [t-], [t<sup>h</sup>-], [-t]; [k-], [k<sup>h</sup>-], [-k]. (The hyphen is used to indicate the position of the sound in the word: C- indicates an initial sound, and -C a final sound.) The symbols  $\grave{v}$ ,  $\hat{v}$ ,  $\acute{v}$  (where  $v$  is any vowel) represent different tones, and are irrelevant to this problem.

1.	[bâ:]	‘crazy’	17.	[t <sup>h</sup> am]	‘make, do’
2.	[ráp]	‘take’	18.	[ta:]	‘eye’
3.	[rî:p]	‘hurry’	19.	[tra:]	‘stamp’
4.	[p <sup>h</sup> â:]	‘cloth’	20.	[tôn]	‘classifier for plants’
5.	[p <sup>h</sup> rɛ:]	‘silk cloth’	21.	[rák]	‘love’
6.	[pâ:]	‘aunt’	22.	[lû:k]	‘child’
7.	[pla:]	‘fish’	23.	[mâ:k]	‘good’
8.	[paj]	‘let’s go’	24.	[k <sup>h</sup> â:]	‘kill’
9.	[t <sup>h</sup> i:]	‘classifier for instances’	25.	[k <sup>h</sup> ru:]	‘teacher’
10.	[dâ:]	‘curse’	26.	[k <sup>h</sup> â]	‘yes’ (woman speaking)
11.	[di:]	‘sure, it’s good’	27.	[k <sup>h</sup> it]	‘figure out’
12.	[rót]	‘car’	28.	[ka:]	‘crow’
13.	[mÿ:t]	‘dark’	29.	[kla:ŋ]	‘middle’
14.	[dráj]	‘drive’	30.	[kin]	‘eat’
15.	[t <sup>h</sup> â:]	‘landing-place’	31.	[kly:n]	‘to swallow’
16.	[t <sup>h</sup> âw]	‘go around, visit’	32.	[kâ:w]	‘emerge’

1. Are the aspirated consonants allophones of other phonemes, or are they phonemically distinct?

---



---



---

### 1.2.9 Gujarati Retroflexes and Sibilants

1. Where is Gujarati spoken, and to what language family does it belong?

In the following Gujarati data, [ɽ], [ɖ], [ɳ] and [ʂ] represent retroflexes (IPA [ɽ], [ɖ], [ɳ], [ʂ]). [ʃ] is a pre-palatal fricative (IPA [ʃ]). Long vowels are indicated by a macron.

- |             |                    |            |           |
|-------------|--------------------|------------|-----------|
| 1. [kār]    | 'car'              | 10. [śū]   | 'you saw' |
| 2. [tār]    | 'telegram'         | 11. [śi]   | 'mistake' |
| 3. [ɽār]    | 'tar'              | 12. [śāp]  | 'ear'     |
| 4. [mān]    | 'respect'          | 13. [sāp]  | 'save'    |
| 5. [māɳ]    | 'type of pot'      | 14. [pāse] | 'she saw' |
| 6. [nāɖ]    | 'artery, pulse'    | 15. [rūsī] | 'enough'  |
| 7. [nād]    | 'loud noise'       | 16. [rūśī] | 'put'     |
| 8. [spəʃɽ]  | 'clear'            | 17. [kəʃɽ] | 'jump'    |
| 9. [ʃtesən] | 'railroad station' |            |           |

2. Are the retroflex consonants phonemically distinct from their corresponding dental consonants? Justify your answer, making reference to their distribution.

---



---



---

3. What is the phonemic status of the three fricatives [s], [ʃ], [ʂ]? Is it possible to group two or more of these sounds into a single phoneme? If so, state the allophones of the phoneme and the environment in which they appear. If not, state the contrasting distribution that confirms their phonemic status.

---



---



---

### 1.2.10 Korean Stop Consonants

Analyze the distribution of the voiceless/voiced pairs [p] [b], [t] [d], [k] [g], and [tʃ] [dʒ]. (The sounds written with doubled letters [pp], [tt], [ttʃ] etc. are tense consonants, and are not relevant to this problem. In IPA they could be written with the diacritic for 'strong articulation' ̚, e.g. [t̚]. You should ignore them when carrying out your analysis.)

- |           |          |             |                    |
|-----------|----------|-------------|--------------------|
| 1. [kawl] | 'autumn' | 15. [kawri] | 'autumn (subject)' |
|-----------|----------|-------------|--------------------|

- |                             |                                     |
|-----------------------------|-------------------------------------|
| 2. [kʌnnuunda] 'walks'      | 16. [paŋgapta] 'glad (to see s.o.)' |
| 3. [sɛk] 'color'            | 17. [ppalgan] 'red'                 |
| 4. [ttʌk] 'rice cake'       | 18. [ibalso] 'barber shop'          |
| 5. [param] 'wind'           | 19. [ttʃalba] 'is short'            |
| 6. [pat] 'cultivated field' | 20. [kanbame] 'last night'          |
| 7. [kap] 'price'            | 21. [tʃido] 'map'                   |
| 8. [tal] 'moon'             | 22. [pando] 'peninsula'             |
| 9. [nɛt] 'four'             | 23. [idzʌŋdo] 'this extent'         |
| 10. [ton] 'money'           | 24. [agi] 'baby, child'             |
| 11. [igʌt] 'this thing'     | 25. [kadzʌŋ] 'the most'             |
| 12. [tʃan] 'cup'            | 26. [pudzʌŋ] 'irregularity'         |
| 13. [tʃoŋi] 'paper'         | 27. [kandzʌŋ] 'soy sauce'           |
| 14. [tʃʌm] 'point, dot'     | 28. [ʌhaktʌŋ] 'language school'     |

1. Are there any minimal pairs in this data which demonstrate a phonemic contrast between the members of a voiced/voiceless pair? If so, list them.

---

2. Which of the eight sounds in the four voiced/voiceless pairs

- a. occur in word-initial position? \_\_\_\_\_
- b. occur in word-final position? \_\_\_\_\_
- c. occur in word-medial position? \_\_\_\_\_

3. Are the voiced and voiceless sounds phonemically distinct, or does each pair consist of allophones of a single phoneme? Justify your answer with reference to the distribution of the sounds, and if you establish new phonemes, describe the environments in which the allophones occur. *Hint:* Make sure that your phonological rules adequately explain the pronunciation of [paŋgapta] 'glad (to see s.o.)'!

---



---



---



---



---

4. Rewrite the following words in phonemic notation.

- a. [paŋgapta] 'glad (to see s.o.)' / \_\_\_\_\_ /

- |    |           |               |           |
|----|-----------|---------------|-----------|
| b. | [tʃan]    | ‘cup’         | / _____ / |
| c. | [iɣʌt]    | ‘this thing’  | / _____ / |
| d. | [kanbame] | ‘last night’  | / _____ / |
| e. | [aga]     | ‘baby, child’ | / _____ / |
| f. | [idzʌŋdo] | ‘this extent’ | / _____ / |

### 1.2.11 Chinese Low Vowels

These words of Standard Mandarin Chinese contain three different low vowels: [a], [A], and [ɑ]. The symbol [A] represents a low central vowel halfway between [a] and [ɑ]; in IPA it could be symbolized [ɑ̟]. [tɕ tɕʰ ɕ] are palatals that are pronounced slightly farther back and with a higher, flatter tongue than are [tʃ tʃʰ ʃ]. Tone classes are indicated by superscript numbers 1 through 4; they are not relevant to this problem.

- |    |           |          |     |          |           |
|----|-----------|----------|-----|----------|-----------|
| 1. | [tʰan²]   | ‘chat’   | 9.  | [tʰA¹]   | ‘he/she’  |
| 2. | [xaw³]    | ‘good’   | 10. | [maŋ²]   | ‘busy’    |
| 3. | [ʃaj³]    | ‘shine’  | 11. | [kwaj⁴]  | ‘strange’ |
| 4. | [maj³]    | ‘buy’    | 12. | [tɕjA¹]  | ‘home’    |
| 5. | [tɕʰjaw²] | ‘bridge’ | 13. | [laj²]   | ‘come’    |
| 6. | [maw¹]    | ‘cat’    | 14. | [tɕʰaŋ²] | ‘long’    |
| 7. | [ʃwaŋ¹]   | ‘pair’   | 15. | [maj⁴]   | ‘sell’    |
| 8. | [kʰan⁴]   | ‘look’   |     |          |           |

1. How many low vowel phonemes are there: one, two, or three?

---

2. If any of these low vowels is in complementary distribution and can be collapsed into a single phoneme, choose a symbol for the phoneme(s) and indicate in which environment the allophones appear.

---



---



---



---

### 1.2.12 Tamil Apical Stops

1. Where is Tamil spoken, and to what language family does it belong?

---



---

In the following data, [ɖ] and [ɗ] represent retroflex stops (IPA [ɖ] and [ɗ]), and [t] and [d] represent dental stops. Long vowels are indicated by [:]. Doubled consonant letters (like [tt]) can be interpreted either as long consonants or as a cluster of two identical consonants.

- |              |               |                  |           |
|--------------|---------------|------------------|-----------|
| 1. [ta:ttɑ:] | 'grandfather' | 11. [kaɳɖe:]     | 'you saw' |
| 2. [pa:ɖɖi]  | 'grandmother' | 12. [tappɐ]      | 'mistake' |
| 3. [pattɐ]   | 'ten'         | 13. [ka:ɖɐ]      | 'ear'     |
| 4. [pa:ɖɖɐ]  | 'song'        | 14. [ka:ppɑ:ttɐ] | 'save'    |
| 5. [tandi]   | 'wire'        | 15. [pa:ttɑ:]    | 'she saw' |
| 6. [reɳɖɐ]   | 'two'         | 16. [po:dũ]      | 'enough'  |
| 7. [anda]    | 'that'        | 17. [po:ɖũ]      | 'put'     |
| 8. [ve:ɳɖã:] | 'don't want'  | 18. [kudi]       | 'jump'    |
| 9. [uɳɖɐ]    | 'there is'    | 19. [kuɖi]       | 'drink'   |
| 10. [vande:] | 'you came'    | 20. [paɖɖɐ]      | 'silk'    |

2. List all minimal pairs you can find in which any two of [ɖ], [ɗ], [t], [d] contrast, and state your conclusion about which pairs of sounds must belong to different phonemes.

---



---



---

3. For the pairs of sounds which do not appear to contrast, can you state distributional environments that are complementary? Bear in mind that suprasegmental features like consonant length are part of the environment in which segments occur.

---



---



---

4. Based on your answers to the previous questions, state whether the four sounds belong to distinct phonemes, or if they can be collapsed into a smaller number of phonemes.

---



---



---

5. Identify each phoneme, give it a symbol, and write phonological rules to indicate the conditions under which each allophone appears.

---



---



---

### 1.2.13 Tamil Rounded and Unrounded Vowels

### 1.2.14 Hindi Phonemics

### 1.2.15 Japanese Sibilants

### 1.2.16 Tamil Vowel Length

The following data contain examples of phonetically short and phonetically long vowels.

- |             |                 |             |               |
|-------------|-----------------|-------------|---------------|
| 1. [taṭṭi]  | 'stick'         | 9. [i:sai]  | 'music'       |
| 2. [ta:ṇḍi] | 'having jumped' | 10. [inda:] | 'here (is)'   |
| 3. [u:rʌ]   | 'town'          | 11. [inda]  | 'this'        |
| 4. [solʌ]   | 'say'           | 12. [ku:ḍʌ] | 'dwell'       |
| 5. [so:rʌ]  | 'cooked rice'   | 13. [kuḍʌ]  | 'give'        |
| 6. [pe:sʌ]  | 'speak'         | 14. [po:j]  | 'having gone' |
| 7. [pesakʌ] | 'error'         | 15. [poj]   | '(a) lie'     |
| 8. [u:si]   | 'needle'        | 16. [uppʌ]  | 'salt'        |

1. Is vowel length phonemically distinctive in Tamil? State the reasons for your answer.

---



---



---



---



---



---

### 1.2.17 Japanese Stops and Affricates

Consider the following Japanese data:

1.	[ototoi]	'day before yesterday'	/ _____ /
2.	[atama]	'head'	/ _____ /
3.	[atsui]	'hot'	/ _____ /
4.	[tʃitʃi]	'father'	/ _____ /
5.	[te]	'hand'	/ _____ /
6.	[tsuba]	'spittle'	/ _____ /
7.	[tʃi]	'blood'	/ _____ /
8.	[tambo]	'rice field'	/ _____ /
9.	[to]	'door'	/ _____ /
10.	[tsuune]	'always'	/ _____ /

1. Based on this data, analyze the phonemic status of [t], [ts], [tʃ]. State the distribution of each sound.

---



---



---

2. Rewrite the words above in phonemic transcription.

### 1.2.18 Vietnamese Doubly-Articulated Stops

The following set of Vietnamese words contains instances of a single segment called a labiovelar stop, notated [kʰ]. These stops are articulated with a simultaneous labial and velar closure. The symbol [ɓ] represents an implosive voiced bilabial stop. Vietnamese is a tonal language, but the representation of tone has been omitted here for simplicity.

1.	[ɓip]	'to bluff'	20.	[əukʰ]	'snail'
2.	[zaukʰ]	'height'	21.	[kuəj]	'smile'
3.	[muəp]	'squash'	22.	[aukʰ]	'brain'
4.	[lak]	'lost'	23.	[hɔp]	'box'
5.	[sep]	'fold'	24.	[nuək]	'water'
6.	[səjk]	'aslant'	25.	[ku]	'root, bulb'
7.	[kew]	'pull'	26.	[həp]	'to meet'
8.	[ŋəukʰ]	'jewel'	27.	[ŋup]	'to sink'
9.	[ɓik]	'thud'	28.	[ŋukʰ]	'prison'
10.	[dap]	'pile up'	29.	[həjk]	'to grin'
11.	[dak]	'strong'	30.	[ŋiəp]	'heritage'
12.	[kik]	'kik'	31.	[nuək]	'hot'

- |            |              |           |                  |
|------------|--------------|-----------|------------------|
| 13. [əp]   | 'hamlet'     | 32. [ʃək] | 'step, grade'    |
| 14. [ɲip]  | 'rhythm'     | 33. [xɛk] | 'monkey'         |
| 15. [mɛp]  | 'lid, edge'  | 34. [kɛt] | 'braid, weave'   |
| 16. [kukʰ] | 'daisy'      | 35. [kiə] | '(over) there'   |
| 17. [ʃuə]  | 'to step'    | 36. [ʃəp] | 'slap, smack'    |
| 18. [ɲik]  | 'to shift'   | 37. [zəp] | 'armor, martial' |
| 19. [viək] | 'work, task' | 38. [zak] | 'threadbare'     |

1. What is the distribution of the labiovelar stop [kʰ]?

---

---

2. Is [kʰ] a distinct phoneme, or is it an allophone of another phoneme? If it is an allophone, say which phoneme it is an allophone of, and justify your answer.

---

---

---

---

# Chapter 2: Morphology

## 2.1 Directions for Solving Problems

Just as in phonology we are interested in the variant forms of phonemes (the *allophones*) and the distribution of those variants in different environments, in morphology we are interested in the variant forms of morphemes (the *allomorphs*) and the distribution of those variants in different environments. Those environments might be phonological or morphological; in other words, they might be determined by neighboring sounds (regardless of the morphemes those sounds are in) or by neighboring morphemes. Your task in most of these exercises is to identify the morphemes, their allomorphs, and the distribution of those allomorphs. You may assume that language data is provided in phonemic notation.

In terms of notation, morphemes are presented in curly braces. They may be written in phonemic form (with or without slashes) or orthographic form. For example, { *wide* } { wajd } { /wajd/ } are all acceptable representations of the same English morpheme. Allomorphs are usually written phonemically, but may be written orthographically if confusion will not result. Thus we can say that { *wide* } has two allomorphs, /wajd/ (as in *wide*, *widen*) and /wid/ (as in *width*).

### 2.1.1 How to do Morphological Analysis

Separate (or *segment*) the words into meaningful units. Look for complementary distribution that allows you to assign different units to a single morpheme. For example, /tʃajld/ occurs in the word *child* and /tʃɪld-/ occurs in the word *children*. We can identify these two forms as allomorphs of a single morpheme { *child* }, the latter occurring before /rɛn/. In turn, /rɛn/ can be identified as an allomorph of { plural -s } that occurs after the root { *child* }.

Sometimes our morphological analysis involved identifying the *morphological classes* into which a set of words can be divided. The members of a morphological class all have a particular morphological behavior in common. For example, we might place in one morphological class all English nouns that take the plural allomorph /-s/, and place in a second morphological class all English nouns that take the plural allomorph /-z/. The nouns *book*, *hat*, *polyp* would belong to the first class, and the nouns *bug*, *braid*, *crab* to the second. As a second example, we might try to identify the morphological classes of English verbs according to their behavior when inflected for the past tense. We might put in the first class all those verbs that have no distinct allomorph when inflecting for the past tense, and in the second class those that have a distinct allomorph involving a changed vowel. In the first class we would place *talk* (cf. *talked*), *live* (cf. *lived*), and *chew* (cf. *chewed*). We could call this class the *regular verbs*. In the second class we would place *sing* (cf. *sang*), *dive* (cf. *dove*), and *stick* (cf. *stuck*).

As the two examples above show, we can identify morphological classes of a set of words or morphemes by two different kinds of morphological behavior. One is the alternation patterns found in the allomorphs of the words or morphemes themselves (as in the English

verbs and their past tense forms). The second is according to which allomorphs of other morphemes attach to them (as in the English nouns and their plural forms).

### 2.1.2 Example: English Nominal Derivatives in *-th*

There is a set of adjectives in English to which the suffix [θ] (spelled *th*) can be added, deriving a noun meaning ‘state of (adj.)’. The same nominalizing suffix can also be added to some verbs. For example:

<u>Adjective/Verb</u>		<u>Derived Noun</u>	
1.	<i>broad</i> /bɹɑd/	<i>breadth</i> /bɹædθ/	
2.	<i>dear</i> /diɑ/	<i>dearth</i> /dɑθ/	
3.	<i>deep</i> /di:p/	<i>depth</i> /dɛpθ/	
4.	<i>gird</i> (verb) /gɹɪd/	<i>girth</i> /gɹθ/	
5.	<i>high</i> /haj/	<i>height</i> /hajtθ/ <sup>1</sup>	
6.	<i>long</i> /lɔŋ/	<i>length</i> /lɛŋθ/	
7.	<i>true</i> /tɹu/	<i>truth</i> /tɹuθ/	
8.	<i>steal</i> (verb) /stil/	<i>stealth</i> /stɛlθ/	
9.	<i>warm</i> /wɔɹm/	<i>warmth</i> /wɔɹmθ/	
10.	<i>wide</i> /wajd/	<i>width</i> /widθ/	

1. Perform a morphological analysis of this data: identify all of the morphemes, and describe the shape and distribution of their allomorphs.

**Solution 1:** The noun-deriving suffix { *-th* } has the single allomorph /θ/, which occurs unconditionally. Most of the adjective and verb roots have different allomorphs that occur before { *-th* }.

**Solution 2:** The noun-deriving suffix { *-th* } has two allomorphs: /tθ/ occurs after { *high* }, and /θ/ occurs elsewhere. Most of the adjective and verb roots have different allomorphs that occur before { *-th* }.

The allomorphs of the roots are listed below. Allomorphs of { *high* } will be described differently depending on whether we apply solution 1 or solution 2.

<u>Morpheme</u>	<u>Allomorph In Isolation</u>	<u>Allomorph Before { <i>-th</i> }</u>
1. { <i>broad</i> }	/bɹɑd/	/bɹæd-/
2. { <i>dear</i> }	/diɑ/	/dɑ-/
3. { <i>deep</i> }	/di:p/	/dɛp-/
4. { <i>gird</i> }	/gɹɪd/	/gɹ-/
5. { <i>high</i> }	/haj/	(1) /hajt-/ (2) /haj-/

---

<sup>1</sup> Some speakers use the form /hajt/.

6. { <i>long</i> }	/lɔŋ/	/lɛŋ-/
7. { <i>true</i> }	/tɹu/	/tɹu-/
8. { <i>steal</i> }	/stɪl/	/stɛl-/
9. { <i>warm</i> }	/wɔɹm/	/wɔɹm-/
10. { <i>wide</i> }	/wajd/	/wɪd-/

## 2.2 Morphology Exercises

### Terminology

When doing the exercises in this section, it will be helpful to have a basic understanding of some of the more common terms referring to various grammatical categories. Look up and briefly define the following terms. You may use any reference that is available, but be sure you are providing a definition appropriate to the field of linguistics.

infinitive	_____
	_____
imperative	_____
	_____
causative	_____
	_____
hortative	_____
	_____
transitive	_____
	_____
intransitive	_____
	_____
gerund	_____
	_____

### 2.2.1 Indonesian Numeral Classifiers

### 2.2.2 Ainu Causative Verb Formation

1. Where is Ainu spoken, and to what language family does it belong?

---



---

The following data are from the Shizunai dialect of Ainu. Analyze the morphology of

causative verb formation based on the data. The data are phonemic; slashes have been omitted for typographic convenience here and in subsequent exercises.

	<u>Verb Stem</u>	<u>Gloss</u>	<u>Causative Verb</u>	<u>Gloss</u>
1.	kore	'give'	korere	'make s.o. give'
2.	epakasnu	'teach'	epakasnure	'make s.o. teach/tell'
3.	nu	'hear'	nure	'tell'
4.	e	'eat'	ere	'serve (food)'
5.	hopuni	'get up'	hopunire	'wake s.o.'
6.	nukar	'see'	nukare	'show'
7.	kor	'have'	kore	'give'
8.	kar	'make'	kare	'make s.o. make'
9.	ek	'come'	ekte	'make s.o. come'
10.	ahup	'enter'	ahupte	'make s.o. enter'
11.	wen	'be bad'	wente	'destroy, ruin'
12.	rikip	'ascend'	rikipte	'make s.o. ascend'

2. List all the allomorphs of the causative suffix in this dialect of Ainu.

---



---

3. Is the distribution of these allomorphs conditioned phonologically? If so, explain the phonological environments in which they occur.

---



---

### 2.2.3 Korean Subject Markers

The Korean nouns below are all marked as subjects.

1.	tʃoŋika	'paper'	8.	pali	'foot'
2.	pɛka	'boat'	9.	tosakwani	'library'
3.	ulika	'we'	10.	hakseŋi	'student'
4.	ʃaŋʌka	'English'	11.	tʃipi	'house'
5.	namuka	'tree'	12.	ikasi	'this thing'
6.	tʃʰaka	'car'	13.	muli	'water'
7.	hakkjoka	'school'	14.	sʌuli	'Seoul'

1. Identify the allomorphs of the subject marker, and describe their distribution.

---



---



---



---

## 2.2.4 Kannada Infinitives

Consider the following data from Kannada. The infinitive form of the verb is derived by affixing an infinitive morpheme to the verb stem, which is in most cases (including those listed below) identical to the non-polite imperative form of the verb. Your task is to analyze the morphology of the verb stems and the infinitive affix.

	<u>Imperative</u>	<u>Gloss</u>	<u>Infinitive</u>	<u>Gloss</u>
1.	ba:	'come'	baralu	'to come'
2.	ho:gu	'go'	ho:galu	'to go'
3.	ma:ḍu	'make'	ma:ḍalu	'to make'
4.	to:rsu	'show'	to:rsalu	'to show'
5.	no:ḍu	'see'	no:ḍalu	'to see'
6.	ku:t-kollu	'sit'	ku:t-kollalu	'to sit'
7.	se:ru	'meet'	se:ralu	'to meet'
8.	kollu	'kill'	kollalu	'to kill'
9.	ka:ṇu	'seem'	ka:ṇalu	'to seem'
10.	a:gu	'become'	a:galu	'to become'
11.	iru	'be'	iralu	'to be'
12.	ha:ku	'put'	ha:kalu	'to put'
13.	biḍu	'leave'	biḍalu	'to leave'
14.	kuḍi	'drink'	kuḍijalu	'to drink'
15.	kali	'study'	kalijalu	'to study'

1. Are there allomorphs of the verb stem that are used in the formation of the infinitive? If so, describe the allomorphs.

---



---



---



---

2. How many allomorphs does the Kannada infinitive suffix have? What is their

distribution?

---



---



---



---

### 2.2.5 Japanese Verbal Morphology

The first column contains positive polite forms of Japanese verbs. The second column contains plain negative forms of the same verbs. Both are formed by the addition of suffixes to a verb root. Your task is to arrive at the simplest morphological explanation that accounts for this data. (Note that phonemic /u/ is realized phonetically as [u].)

	<u>Polite positive</u>	<u>Gloss</u>	<u>Plain negative</u>	<u>Gloss</u>
1.	sakimasu	'bloom'	sakanai	'not bloom'
2.	kakimasu	'write'	kakanai	'not write'
3.	nomimasu	'drink'	nomanai	'not drink'
4.	imasu	'be, exist'	inai	'not exist'
5.	mimasu	'see'	minai	'not see'
6.	suimasu	'suck'	suwanai	'not suck'
7.	aimasu	'meet'	awanai	'not meet'
8.	kaimasu	'buy'	kawanai	'not buy'
9.	kawakimasu	'dry'	kawakanai	'not dry'

1. Identify the polite positive and plain negative verb suffixes, and list all the allomorphs of each.

---



---



---



---

2. Identify the verb root morphemes and any allomorphs. Group the verbs into classes according to their patterns of allomorphy. An analysis that is as general as possible, i.e. that results in the smallest number of classes, is preferred.

---



---



---



---

3. Based on your analysis, provide the root and the negative form of the following polite positive verbs:

- a. fukimasu 'wipe'      root: \_\_\_\_\_      'not wipe': \_\_\_\_\_  
 b. makimasu 'roll up'      root: \_\_\_\_\_      'not roll up': \_\_\_\_\_  
 c. ojogimasu 'swim'      root: \_\_\_\_\_      'not swim': \_\_\_\_\_

### 2.2.6 Ainu Transitive Verb Formation

### 2.2.7 Bengali Verb-Tense Morphology

### 2.2.8 Tamil Echo-Word Reduplication

The expressions in the second column differ from the words in the first column in having the meaning '... and similar things'. The derivation of these expressions is productive--that is, native speakers can continue to create new expressions in this way. Analyze the morphological system that derives the expressions from the base words. For this exercise, you may assume that the base words consist of a single morpheme. (Note: *r* represents a voiced retroflex approximant, IPA [ɻ]. This is the sound represented by *l* in the Romanized spelling of the word Tamil.)

	Base Word	Gloss	Derived Form	Gloss
1.	ka:ppi	'coffee'	ka:ppi ki:ppi	'coffee and other beverages'
2.	puli	'tiger'	puli kili	'tigers and other animals'
3.	po:jɽɽu	'going'	po:jɽɽu ki:ɽɽu	'going and other activities'
4.	ve:le	'work'	ve:le ki:le	'work and other tasks'
5.	paɾam	'fruit'	paɾam kiɾam	'fruit and other perishables'
6.	ko:ɟil	'temple'	ko:ɟil ki:ɟil	'temples and other buildings'
7.	paɾaɽɽe	(an epithet)	paɾaɽɽe kiɾaɽɽe	'epithets and other aspersions'
8.	tandram	'plan'	tandram kindram	'plans and other plots'
9.	kuppe	'garbage'	kuppe kippe	'garbage and other trash'
10.	ɟuɳam	'character'	ɟuɳam kiɳam	'character and other qualities'

1. Describe the morphological process by which the expressions are derived. Your description should be in terms of combinations of morphemes. Identify all of the morphemes

involved, and their allomorphs.

---



---



---



---

### 2.2.9 Korean Clitics

A clitic attaches phonologically to a word just like an affix, but functionally may attach to an entire phrase. Many so-called ‘grammatical particles’ are technically clitics.

The forms in Group A consist of a noun stem plus the clitic /-kwa/ or /-wa/ ‘and’. The forms in Group B consist of a noun stem plus a clitic having two allomorphs that means ‘with, to, as,’ etc.

	<u>Group A</u>	<u>Gloss</u>	<u>Group B</u>	<u>Gloss</u>
1.	tʃoŋiwa	‘paper and’	tʃoŋilo	‘with paper’
2.	namuwa	‘trees and’	namulo	‘of wood’
3.	tʃipkwa	‘house and’	tʃipuulo	‘to the house’
4.	mulkwa	‘water and’	mullo	‘with water’
5.	ikatkwa	‘this thing and’	ikaʃulo	‘with this thing’
6.	hakseŋkwa	‘student and’	hakseŋuulo	‘as a student’
7.	sʌulkwa	‘Seoul and’	sʌullo	‘to Seoul’
8.	tʃ <sup>h</sup> awa	‘car and’	tʃ <sup>h</sup> alo	‘by car’
9.	k <sup>h</sup> alkwa	‘knife and’	k <sup>h</sup> allo	‘with a knife’
10.	natkwa	‘sickle and’	nasulo	‘with a sickle’
11.	hankwulkwa	‘Korean alphabet and’	hankwullo	‘in the Korean alphabet’
12.	pʌsuwa	‘bus and’	pʌsuulo	‘by bus’
13.	nalkwa	‘day and’	nallo	‘daily’
14.	hakkjowa	‘school and’	hakkjolo	‘to school’
15.	toʃakwankwa	‘library and’	toʃakwanuulo	‘to the library’
16.	ʃʌŋawa	‘English and’	ʃʌŋalo	‘in English’
17.	palkwa	‘foot and’	pallo	‘with the foot’
18.	pitkwa	‘comb and’	pisulo	‘with a comb’

1. State the distribution of the allomorphs /-kwa/ and /-wa/ in the Group A forms in terms of phonological environment.

---



---



---



---

2. Identify and name the clitic morpheme in the Group B forms, identify its allomorphs, and state their distribution. Are the conditioning environments phonological or morphological?

---



---



---



---

3. Some of the noun stems show an alternation in their stem-final consonant. (In other words, some of the stems have two allomorphs which differ in the final consonant.) By comparing the corresponding forms in Groups A and B, identify these stems and state the nature of the alternation and the conditioning factors.

---



---



---



---

## 2.2.10 Telugu Future-Habitual and Hortative

## 2.2.11 Japanese Gerunds

Among the many forms that Japanese verbs can take, there is an important set that are sometimes called *gerunds*. These are noun-like forms of verbs that are used for many different purposes in the language. Because of the wide variety of usages, they are difficult to translate simply into English in the absence of context. For our purposes we will simply gloss them with English words ending in *-ing*. In addition to the gerunds, the informal and formal forms of the verbs are listed as well.

	Gloss	Informal Form	Formal Form	Gerund
1.	'write'	kaku	kakimasu	kaite 'writing'
2.	'drink'	nomu	nomimasu	nonde 'drinking'

3.	'walk'	aruku	arukimasu	aruite 'walking'
4.	'play'	asobu	asobimasu	asonde 'playing'
5.	'smell'	kagu	kagimasu	kaide 'smelling'
6.	'hurry'	isogu	isogimasu	isoide 'hurrying'
7.	'blow'	huku	hukimasu	huite 'blowing'
8.	'points'	sasu	sasimasu	sasite 'pointing'
9.	'win'	katu	katimasu	katte 'winning'
10.	'die'	sinu	sinimasu	sinde 'dying'

1. The gerunds are formed by suffixing a morpheme to a verb stem. What are the allomorphs of the suffix, and what conditions their occurrence? (Bear in mind as you answer this problem that the verb stems may have allomorphs as well.)

---



---



---



---

2. In answering the previous question, you may have discovered that some of the verb stems involved have several allomorphs. Which stems have different allomorphs, and what are they?

---



---



---



---

3. Based on your answer to the previous question, how many different classes would you divide these verbs up into? Group the verbs into classes according to their patterns of allomorphy. How can you define each class?

---



---



---



---

## 2.2.12 Tamil Case

## 2.2.13 Japanese Gerunds (II)

## 2.2.14 Kannada Negative Formation

## 2.2.15 Kannada Contingent, Past, and Present

## 2.2.16 Sinhala Noun Plurals

## 2.2.17 Korean Numeral Classifiers

## 2.2.18 Brahui Verb Conjugation

1. Where is Brahui spoken, and to what language family does it belong?

---

In the following data, retroflex sounds are notated by a subscript dot, and long vowels are marked by a macron. Four inflectional forms of each verb are given.

	Gloss	Infinitive	Imperative (2p sg)	Past (3p sg)	Prohibitive (2p sg)
1.	'leave'	illiŋ	illa	illā	illipa
2.	'devastate'	bēliŋ	bēla	bēlā	bēlipa
3.	'distinguish'	birriŋ	birra	birrā	birripa
4.	'crack'	tʃaliŋ	tʃala	tʃalā	tʃalipa
5.	'lick'	tʃaṭṭiŋ	tʃaṭṭa	tʃaṭṭā	tʃaṭṭipa
6.	'lose'	goiŋ	goa	goā	goipa
7.	'cover'	hāliŋ	hāla	hālā	hālipa
8.	'win'	kattiŋ	katta	kattā	kattipa
9.	'grind'	nusiŋ	nusa	nusā	nusipa
10.	'uproot'	loṛiŋ	loṛa	loṛā	loṛipa
11.	'rot'	saṛiŋ	saṛa	saṛā	saṛipa
12.	'agree'	ṭahiŋ	ṭaha	ṭahā	ṭahipa
13.	'buzz'	zuŋiŋ	zuŋa	zuŋā	zuŋipa
14.	'squeeze'	piḷiŋ	piḷa	piḷā	piḷipa
15.	'drive out'	miṛiŋ	miṛa	miṛā	miṛipa
16.	'swell'	ɣaʒziŋ	ɣaʒza	ɣaʒzā	ɣaʒzipa

2. Based on the data, identify a verb stem for each verb, and write them to left of each line

of data. Note any allomorphs of the stems.

3. Describe the formation of the infinitive, imperative, past, and prohibitive forms in terms of the morphemes and allomorphs that are involved.

---



---

4. How many classes of verbs are illustrated by this data?

---



---

### 2.2.19 Brahui Past Stem Conjugation

### 2.2.20 Khmer Causative Verb Conjugation

1. Where is Khmer spoken, and to what language family does it belong?

---



---

Khmer has a number of prefixes that are added to verbal bases to derive causative verbs (or other kinds of derived verbs). In the data below, tone marks have been omitted for simplicity.

	<u>Simple Verb</u>	<u>Gloss</u>	<u>Derived Verb</u>	<u>Gloss</u>
1.	riəj	to be scattered	pra:j	to scatter (tr.)
2.	riən	to learn	priən	to teach
3.	ŋu:t	to bathe (intr.)	p <sup>h</sup> ŋo:t	to bathe (tr.)
4.	caŋ	to be defeated	p <sup>h</sup> caŋ	to defeat
5.	de:k	to go to bed	p <sup>h</sup> de:k	to bed (tr.)
6.	ruəm	to gather (intr.)	p <sup>h</sup> ruəm	to round up
7.	ɲəs	to hatch	p <sup>h</sup> ɲəs	to hatch (tr.)
8.	cu:t	to close (intr.)	p <sup>h</sup> cu:t	to join (tr.)
9.	cum	to unite (intr.)	prəcum	to unite (tr.)
10.	beh	to pick	prəbeh	to keep on picking
11.	k <sup>h</sup> am	to bite	prək <sup>h</sup> am	to bite one another
12.	mɔ:l	to look	prəmaɔl	to estimate
13.	haɣ	to fly (intr.)	bəŋhaɣ	to fly (tr.)
14.	k <sup>h</sup> os	to be in error	bəŋk <sup>h</sup> os	to cause a mistake

15.	kəp	to be pleased	bəŋkəp	to please
16.	co:l	to enter	bəŋco:l	to cause to enter
17.	to:c	to be small	bənto:c	to diminish in power
18.	doh	to grow (intr.)	bəndoh	to plant
19.	bak	to be broken	bəmbak	to break (tr.)

2. List all of the allomorphs of the causative prefix. Are any of the allomorphs conditioned predictably by the environment?

---



---

3. Which verbs have different allomorphs that occur with the causative prefix? List all of the allomorphs.

---



---

4. How many classes of verbs should be established to account for this data? Define the classes, and say which verbs are in each class.

---



---



---



---



---

## Chapter 3: Morphophonology

### 3.1 Directions for Solving Problems

### 3.2 Morphophonology Exercises

# Chapter 4: Syntax

## 4.1 Directions for Solving Problems

In these problems you will be asked to analyze sentences in order to determine their syntactic structure. In some cases you will be asked to draw trees indicating that structure; in other cases you will be asked to describe transformations that derive one type of sentence from another; and in other cases you will be asked to describe the relationship between syntax and inflectional forms. In all cases the sentences are presented as sequences of words separated by spaces. You may assume that the words are presented in phonemic notation unless otherwise stated.

If you are asked to describe the syntax of a linguistic structure, this means identifying the words involved, specifying the order in which they occur, and indicating what kinds of inflection and agreement are found, if any.

The best approach to these problems is to first identify the meaning of as many of the words as possible by comparing the sentences with their English meanings. The second thing to do is to compare pairs of sentences that are minimally different in meaning (for example, a positive form with a negative form, or a present form with a past form, or a masculine singular form with a masculine plural form), so that you can identify the syntactic difference that correlates with the difference in meaning. The syntactic difference might involve constituent order, additional words or morphemes, or changes in agreement.

## 4.2 Syntax Exercises

### 4.2.1 Japanese Syntax

### 4.2.2 Tamil Case Syntax

### 4.2.3 Thai Syntax

The following are Thai sentences. The diacritic marks on vowels represent tones; they are not relevant to syntactic analysis. The tones are:  $\acute{v}$  high,  $\grave{v}$  low,  $\check{v}$  rising,  $\hat{v}$  falling,  $v$  (unmarked) mid. There is no gender distinction in Thai third-person pronouns. The pronouns below have all been translated “she”, but they could all also mean “he”.

Begin your analysis by identifying the meaning or function of as many words as possible.

<u>Thai Sentence</u>	<u>English Translation</u>
1. $k^h\acute{a}w$ pen $k^hru$ :	She is a teacher.
2. $k^h\acute{a}w$ pen $k^hru$ : t $^h\hat{a}j$ máj	She is a teacher, isn't she?

- |   |  |
|---|--|
| 3. k <sup>h</sup> áw pen k <sup>h</sup> ru: rə <sup>2</sup>           | You mean she's a teacher? <sup>3</sup> |
| 4. k <sup>h</sup> áw mâj t <sup>h</sup> âj k <sup>h</sup> ru:         | She's not a teacher.                   |
| 5. k <sup>h</sup> áw mâj t <sup>h</sup> âj k <sup>h</sup> ru: rə      | You mean she's not a teacher?          |
| 6. k <sup>h</sup> un pen t <sup>h</sup> ahă:n t <sup>h</sup> âj máj   | You're a soldier, aren't you?          |
| 7. k <sup>h</sup> un pen t <sup>h</sup> ahă:n rə                      | You mean you're a soldier?             |
| 8. k <sup>h</sup> un mâj t <sup>h</sup> âj t <sup>h</sup> ahă:n rə    | You mean you're not a soldier?         |
| 9. t <sup>h</sup> ahă:n pen k <sup>h</sup> ru:                        | The soldier is a teacher.              |
| 10. k <sup>h</sup> ru: pen t <sup>h</sup> ahă:n t <sup>h</sup> âj máj | The teacher is a soldier, isn't she?   |
| 11. t <sup>h</sup> ahă:n pen k <sup>h</sup> ru: rə                    | You mean the soldier is a teacher?     |
| 12. t <sup>h</sup> ahă:n mâj t <sup>h</sup> âj k <sup>h</sup> ru:     | The soldier is not a teacher.          |
| 13. k <sup>h</sup> ru: mâj t <sup>h</sup> âj t <sup>h</sup> ahă:n rə  | You mean the teacher isn't a soldier?  |
| 14. k <sup>h</sup> áw di:   | She is good.                           |
| 15. t <sup>h</sup> ahă:n kèn  | The soldier is clever.                 |
| 16. k <sup>h</sup> un di: máj   | Are you good?                          |
| 17. k <sup>h</sup> ru: di: rə   | You mean the teacher is good?          |
| 18. k <sup>h</sup> áw mâj kèn   | She isn't clever.                      |
| 19. k <sup>h</sup> áw mâj kèn rə                                      | You mean she isn't clever?             |
| 20. t <sup>h</sup> ahă:n mâj di: rə                                   | You mean the soldier isn't good?       |
| 21. k <sup>h</sup> ru: mâj dii t <sup>h</sup> âj máj                  | The teacher isn't good, is she?        |
| 22. t <sup>h</sup> ahă:n kèn t <sup>h</sup> âj máj                    | The soldier is clever, isn't she?      |

1. Is there a copular verb (i.e. a verb meaning “to be”) in Thai? If so, what is it?
2. Describe the syntax of the positive declarative copular sentence (“A is B”) in Thai. In other words, what are the words involved, and in what order do they occur?
3. Describe the syntax of the positive declarative sentence that a subject possesses a quality (e.g. “Subj. is good”, “Subj. is clever”) in Thai.
4. How is negation expressed in Thai syntax? What rule can you propose to convert a positive sentence into a negative one? (*Hint*: You might need different rules for different types of sentences.)
5. What kinds of inflection are found in this data?
6. How many different question structures are found in this data?
7. *Tag questions* in English are questions of the form “*Statement*, is(n't) he/she/it?”. They

<sup>2</sup> Note that this syllable has a number of possible pronunciations, including *rə*, *lə*, *ri*, and *li* in various tones.

<sup>3</sup> Here “you mean” in the English translation is meant to express intense curiosity as part of a follow-up question requesting more information.

are questions that convey an assumption that the statement is correct. For example, if I ask “Today is Wednesday, isn’t it?” I am indicating that I assume that today is Wednesday. How are tag questions formed in Thai?

8. What are the semantic and syntactic differences between *máj* and *rə*? In other words, how do they differ in meaning and how do they differ in their structural role in sentence formation?

9. *Extra Credit*: Does it appear that Thai has a distinct adjective part of speech, or that adjectives are a type of verb? Explain.

### 4.2.4 Hindi Syntax

Consider the following Hindi sentences, which all involve the verb 'to sell'. Long vowels are indicated with a macron, e.g. [ā], or by doubling, e.g. [ũũ]. *y* represent a palatal glide [j]. *c* represents an affricate [tʃ]. (The Hindi words are transcribed in a way that is not entirely phonetically accurate, but this is not relevant to the problem.)

The following abbreviations are used:

<i>m.</i>	masculine	<i>prox.</i>	proximate (= near to the speaker)
<i>f.</i>	feminine	<i>dist.</i>	distant (= far from the speaker)
<i>pol.</i>	polite	<i>sg.</i>	singular
<i>inf.</i>	informal	<i>pl.</i>	plural

Each of the sentences below begins with a personal pronoun. The remaining words are all verbs. The last word of each sentence is a form of the present tense verb 'to be'. Half of the sentences contain a syntactic construction that expresses habitual action; the other half contain a syntactic construction that expresses progressive (i.e. ongoing) action.

	<u>Hindi Sentence</u>	<u>English Translation</u>
1.	māĩ bectā hũũ	I ( <i>m.</i> ) habitually sell.
2.	māĩ bectī hũũ	I ( <i>f.</i> ) habitually sell.
3.	tū bectā he	You ( <i>sg. m.</i> ) habitually sell.
4.	tū bectī he	You ( <i>sg. f.</i> ) habitually sell.
5.	yah bectā he	He ( <i>prox.</i> ) habitually sells.
6.	yah bectī he	She ( <i>prox.</i> ) habitually sells.
7.	vah bectā he	He ( <i>dist.</i> ) habitually sells.
8.	vah bectī he	She ( <i>dist.</i> ) habitually sells.
9.	ham becte hāĩ	We ( <i>m.</i> ) habitually sell.
10.	ham bectī hāĩ	We ( <i>f.</i> ) habitually sell.
11.	tum becte ho	You ( <i>inf. pl. m.</i> ) habitually sell.
12.	tum bectī ho	You ( <i>inf. pl. f.</i> ) habitually sell.
13.	āp becte hāĩ	You ( <i>pol. pl. m.</i> ) habitually sell.
14.	āp bectī hāĩ	You ( <i>pol. pl. f.</i> ) habitually sell.
15.	ye becte hāĩ	They ( <i>prox. m.</i> ) habitually sell.
16.	ye bectī hāĩ	They ( <i>prox. f.</i> ) habitually sell.
17.	ve becte hāĩ	They ( <i>dist. m.</i> ) habitually sell.
18.	ve bectī hāĩ	They ( <i>dist. f.</i> ) habitually sell.
19.	māĩ bec rahā hũũ	I ( <i>m.</i> ) am selling.
20.	māĩ bec rahī hũũ	I ( <i>f.</i> ) am selling.

21. tū bec rahā hε	You ( <i>sg. m.</i> ) are selling.
22. tū bec rahī hε	You ( <i>sg. f.</i> ) are selling.
23. yah bec rahā hε	He ( <i>prox.</i> ) is selling.
24. yah bec rahī hε	She ( <i>prox.</i> ) is selling
25. vah bec rahā hε	He ( <i>dist.</i> ) is selling.
26. vah bec rahī hε	She ( <i>dist.</i> ) is selling.
27. ham bec rahe hāī	We ( <i>m.</i> ) are selling.
28. ham bec rahī hāī	We ( <i>f.</i> ) are selling.
29. tum bec rahe ho	You ( <i>inf. pl. m.</i> ) are selling.
30. tum bec rahī ho	You ( <i>inf. pl. f.</i> ) are selling.
31. āp bec rahe hāī	You ( <i>pol. pl. m.</i> ) are selling.
32. āp bec rahī hāī	You ( <i>pol. pl. f.</i> ) are selling.
33. ye bec rahe hāī	They ( <i>prox. m.</i> ) are selling.
34. ye bec rahī hāī	They ( <i>prox. f.</i> ) are selling.
35. ve bec rahe hāī	They ( <i>dist. m.</i> ) are selling.
36. ve bec rahī hāī	They ( <i>dist. f.</i> ) are selling.

1. Based on the data above, what appears to be the *root* (or *stem*) of the verb ‘to sell’?
2. What are the various forms of the present tense of ‘to be’? What meanings do they have? (Your answer to the second part of this question should specify such things as person, number, gender, proximate/distal, and informal/polite, as relevant.)
3. What affix is used to indicate habituality? Does this morpheme have allomorphs?
4. What morpheme indicates progressivity? Does this morpheme have allomorphs?
5. What are the morphemes for the various Hindi personal pronouns? How does the pronominal system compare with that of English?<sup>4</sup>
6. Describe the syntax of the habitual verbal construction, i.e. what are the words involved, how are they inflected, and in what order are they put together to form a phrase?
7. Describe the syntax of the progressive (“-ing”) verbal construction.
8. Can separate morphemes be established for inflections ‘singular’, ‘plural’, ‘masculine’, ‘feminine’ on all of the verbs that inflect? If so, list them. If not, what meanings can be established for the inflectional affixes?
9. What rules of agreement can be stated about verbs in Hindi? (Agreement refers to inflectional changes that one word, such as a verb, undergoes in a way that is conditioned by the presence of certain forms of other words (such as pronouns) in the sentence. For example, we say that in English ‘She eats,’ ‘eats’ agrees with the third-person singular subject ‘she’.) Do

---

<sup>4</sup> *Pronominal* is the adjective form of *pronoun*.

verbs agree with subject pronouns in all three of person, number, and gender? When more than one verb is present in the sentence, do all of them inflect to agree with the pronouns, or just some of them?

# Chapter 5: Historical Linguistics

## 5.1 Directions for Solving Problems

The problems in this section present data that illustrate historical changes in various languages or language families. Some of the examples are from hypothetical languages or language families. Others are from real languages and language families, although in some cases the data have been regularized or otherwise simplified. Your task is to reconstruct the changes that have occurred, and to propose hypothetical historical forms (called *proto-forms*, marked with an \*) from which the later forms have developed. In all cases you will look for *cognate forms* and extract from them *regular sound correspondences*.

Once you have reconstructed a set of proto-phonemes from which these regular sound correspondences derive, you will be asked to specify the nature of the sound changes that have taken place in each language. Among the types of changes you are likely to encounter are voicing or devoicing of consonants, palatalization, deletion, lowering, raising, fronting, backing, metathesis, gemination (i.e. lengthening of consonants), nasalization, etc.

## 5.2 Historical Linguistics Exercises

### 5.2.1 South Dravidian

Examine the following cognate sets from the two Dravidian languages Kannada and Tamil. (Note: *r̥* represents a voiced retroflex approximant, IPA [ɻ].)

	<u>Tamil</u>	<u>Kannada</u>	<u>Gloss</u>
1.	puli	huli	'tiger'
2.	pa:mpɸ	ha:wu	'snake'
3.	pattɸ	hattu	'ten'
4.	pejar	hesaru	'name'
5.	pa:lɸ	ha:lu	'milk'
6.	pu:	hu:	'flower'
7.	perɸkɸ	heppu	'curdled milk'
8.	uppɸ	uppu	'salt'
9.	alappɸ	alapu	'confusion' (Tamil); 'fatigue' (Kannada)
10.	appa:	appa:	'father'
11.	ippai	ippe	'kind of tree'
12.	erɸpatɸ	eppatu	'seventy'
13.	oppɸ	oppu	'agree'
14.	katappɸ	kadapu	'cheek'

15. tappə            tappu            ‘mistake’

Assume that these two languages are descended from a common ancestor, Proto-South-Dravidian.

1. In the first seven words, the Tamil forms begin with /p/ and the Kannada forms begin with /h/. Yet elsewhere we see Tamil /p/ corresponding to Kannada /p/. Can the word-initial /p/ and /h/ be reconstructed as a single proto-phoneme, or must they be reconstructed as two proto-phonemes? Explain your reasons, reconstruct the proto-phonemes, and provide rules to explain the development of word-initial /p/ and /h/.

2. List all of the vowel correspondences illustrated by these cognate sets. (In this data, consider /j/ to be a consonant, not a vowel.) For each correspondence, reconstruct a proto-phoneme. Finally, provide rules for all of the sound changes that the vowels have undergone in both languages.

### 5.2.2 Hypothetical Language Family Tenmori

The following data are from daughter languages (Dalguh, Dalgui, Dalguj, Dalguk) of the hypothetical language family Tenmori. Your task is to propose reconstructions for the cognate sets, and indicate which sound changes have taken place in the development of each daughter language from the common ancestor. (Note: ʀ represents a voiced retroflex approximant, IPA [ɻ]. ttʃ represents a long [tʃ].)

	Reconstruction	Dalguh	Dalgui	Dalguj	Dalguk	Gloss
1.	* _____	koɭamu	kuɭa	kulam	ɭuka	‘tank’
2.	* _____	palu	pallu	pal	lapu	‘grass’
3.	* _____	kosu	kossu	kos	soku	‘bug’
4.	* _____	poɭu	puɭu	pul	ɭupu	‘mat’
5.	* _____	maramu	marra	maram	rama	‘tree’
6.	* _____	tʃelamu	tʃilla	silam	litʃa	‘some’
7.	* _____	paɳamu	paɳa	panam	ɳapa	‘money’
8.	* _____	koʀandai	kuʀandai	kurand	ʀukandai	‘child’
9.	* _____	erakku	irrakku	rak	ikaru	‘wing’
10.	* _____	pokalu	pukkalu	pukal	kupalu	‘day’
11.	* _____	otʃakamu	uttʃaka	sakam	ukatʃa	‘dawn’

1. First, ignore the Dalguk language data in the last column. List all correspondence sets that you find in the other three languages. For each correspondence set, reconstruct a proto-phoneme. (Remember that overlapping sets in complementary distribution may reflect a single proto-phoneme!) Write the reconstructed Proto-Tenmori form to the left of each cognate set.

2. Write out a set of rules that describe the changes of the proto-phonemes into the

phonemes of Dalguh, Dulgui, and Dalguj. Be sure to specify which changes occurred in which languages.

3. Now compare the Dalguk data with the reconstructed Proto-Tenmori forms. What sound changes must be specified to account for the development of these forms?

4. Consider the two proto-forms *\*irattam* ‘blood’ and *\*karam* ‘spice’. Say what forms of these words you would expect to find in all four languages.

### 5.2.3 Tungusic

1. Where are Tungusic languages spoken? To what larger language family do some scholars believe Tungusic belongs?

---

	<u>Evenki</u>	<u>Nanai</u>	<u>Manchu</u>	<u>Gloss</u>
1.	ha:kin	pa:	faxun	‘liver’
2.	talū	talo	tolxon	‘birchbark’
3.	dawa-	daba-	daba	‘to cross (e.g. a mountain)’
4.	tuyə	tuə	tuwəri	‘winter’
5.	bi-	bi-	bi-	‘be’
6.	kala-	kala-	xala-	‘exchange’
7.	həmun	pəmun	femen	‘lip’
8.	baka-	ba:-	baxa-	‘obtain, find’
9.	də:r	dərə	dərə	‘surface’
10.	dʒuga	dʒoa	dʒuwari	‘summer’
11.	dʒəp-	dʒəp-	dʒe-	‘eat’
12.	goro	goro	goro	‘far’
13.	dʒapka	dʒakpa	dʒaka	‘shore, edge’
14.	tʃarki:-	tʃagdzan	ʃara-	‘(become) white’
15.	tʃimki	tʃumtʃuən	ʃimxun	‘little finger’
16.	do:ldi:-	do:ldzi:-	dondzi-	‘hear’
17.	koldok	koldon	xoldon	‘cedar’
18.	tʃikə:n	tʃiən	ʃikə	‘urine’
19.	bolo	bolo	bolori	‘autumn’
20.	ga-	ga-	gai-	‘take’
21.	gərbi:	gərbu	gəbu	‘name’
22.	hokto	pokto	fokto	‘fabric, garment’

- 23. tar                    t̄ai                    t̄ərə                    ‘that’
- 24. kaltaka            kalta:                xontoxo              ‘half’
- 25. t̄jiməl-            t̄jimə-                ʃimə-                ‘get wet’ (Evenki form is dialectal)

2. Write out all of the correspondence sets involving word-initial consonants.

3. How many initial consonant phonemes must be reconstructed for Proto-Tungusic? Describe the sound changes that each proto-phoneme has undergone in the development of the daughter languages.

### 5.2.4 Chinese

The following are cognate sets from three Chinese languages: Standard Mandarin of Beijing, Wu spoken in Suzhou (near Shanghai), and Cantonese spoken in Guangzhou (near Hong Kong). We will be concerned with consonants and tones; you may ignore vowel correspondences (including w). A single superscript number represents a short tone.

	Gloss	(Char.)	Beijing	Suzhou	Guangzhou	Proto-Chinese Consonants
1.	‘capital city’	京	tʃiŋ <sup>55</sup>	tʃin <sup>44</sup>	kiŋ <sup>55</sup>	_____
2.	‘gold’	金	tʃin <sup>55</sup>	tʃin <sup>44</sup>	kəm <sup>55</sup>	_____
3.	‘catty’	斤	tʃin <sup>55</sup>	tʃin <sup>44</sup>	kən <sup>55</sup>	_____
4.	‘root’	根	kən <sup>55</sup>	kən <sup>44</sup>	kən <sup>55</sup>	<b>*k-n</b>
5.	‘light (adj.)’	輕	tʃʰiŋ <sup>55</sup>	tʃʰin <sup>44</sup>	hiŋ <sup>55</sup>	_____
6.	‘tangerine’	橘	tʃy <sup>35</sup>	tʃyʔ <sup>44</sup>	kwət <sup>5</sup>	_____
7.	‘guest’	客	kʰy <sup>51</sup>	kʰɑʔ <sup>44</sup>	hak <sup>5</sup>	_____
8.	‘carve’	刻	kʰy <sup>51</sup>	kʰyʔ <sup>44</sup>	hək <sup>5</sup>	_____
9.	‘rob’	劫	tʃiɛ <sup>35</sup>	tʃii <sup>44</sup>	kip <sup>5</sup>	_____
10.	‘timid’	怯	tʃʰiɛ <sup>51</sup>	tʃʰii <sup>44</sup>	hip <sup>5</sup>	_____
11.	‘fruit’	果	kwɔ <sup>214</sup>	kəu <sup>52</sup>	kwɔ <sup>35</sup>	_____

1. The ancestor language Proto-Chinese had three possible *stop* endings in syllables: \*-p, \*-t, \*-k. In this problem you will determine how many *nasal* endings there were in Proto-Chinese. *Hint:* The only conditioning factor involved in the development of Proto-Chinese consonant endings in these three languages is word-final position. The sound changes were otherwise unconditioned.

a. List all the sound correspondences involving *nasal* endings that are found in this data, and for each set, indicate which cognate sets they appear in.

---



---

b. How many nasal endings did Proto-Chinese have, and what were they?

---

c. Give sound laws for the development of the Proto-Chinese nasal endings in each of the three languages.

---



---

d. For each of the three languages, describe the developments of the three Proto-Chinese stop endings.

---



---



---

2a. List all the regular sound correspondences involving word-initial consonants, describe their environments, and say whether any of the correspondence sets are in complementary distribution.

---



---



---

b. Reconstruct the proto-language's word-initial consonants, and describe the sound changes of each initial consonant in each of the three languages.

---



---



---

3. Write the initial consonants and ending consonants that you have reconstructed in the column labeled "Proto-Chinese Consonants". (This has been done for you in cognate set #4.)

4. What are the four tone correspondences exemplified by these cognate sets?

i. \_\_\_ / \_\_\_ / \_\_\_    ii. \_\_\_ / \_\_\_ / \_\_\_    iii. \_\_\_ / \_\_\_ / \_\_\_    iv. \_\_\_ / \_\_\_ / \_\_\_

5a. There is one pair of overlapping tone correspondences. What is it?

---

b. Are the members of this pair in complementary distribution? Explain your answer. (Hint: Aspiration is involved.)

---



---



---

c. How many proto-tones need to be reconstructed in the parent language to account for these two overlapping correspondence sets? \_\_\_\_\_

d. How many proto-tones need to be reconstructed in the parent language to account for all four tone correspondences? \_\_\_\_\_

6. The English word *kumquat* is borrowed from a Chinese compound made up of the two morphemes found in sets #2 and #6. Which of these three Chinese languages do you think the word is borrowed from?

---

### 5.2.5 Korean

Compare the following words from the Standard dialect of Korean (spoken in Seoul, the capital) and the dialect of Cheju Island, located off the southern tip of the Korean peninsula. Both dialects are descended from Middle Korean.

	<u>Cheju</u>	<u>Seoul</u>	<u>Middle Korean reconstruction</u>
1. 'moon'	təl	tal	_____
2. 'bridge'	təli	tali	_____
3. 'flesh'	səl	sal	_____
4. 'fly (n.)'	p <sup>h</sup> əli	p <sup>h</sup> ali	_____
5. 'feel'	məndʒida	mandʒida	_____
6. 'teach'	kəlʉtʃ <sup>h</sup> ida	kalʉtʃ <sup>h</sup> ida	_____
7. 'do'	həda	hada	_____

1. Provide reconstructions in the blanks above, then describe below the sound changes of the Middle Korean vowels into each of the two dialects.

---



---

### 5.2.6 Korean

The North Kyongsang dialect is spoken in the Southeast of Korea. Both it and Seoul dialect are descended from Middle Korean.

<u>Gloss</u>	<u>N. Kyongsang</u>	<u>Seoul</u>
--------------	---------------------	--------------

1.	'shrimp'	sebi	seu
2.	'silkworm'	nube	nue
3.	'mortar'	hobak	hwak
4.	'hairpiece'	talbi	tali
5.	'cold'	tʃʰubun	tʃʰu:n
6.	'pretty'	kobun	koun

1. What one change has taken place in the development from Middle Korean to Seoul dialect in *every one of these words*? What is the technical term for this kind of change?

---



---

### 5.2.7 Japanese

These cognate sets are from the Tokyo dialect and the Shuri dialect (spoken on the island of Okinawa). Both dialects are descended from a common ancestor.

	Gloss	Tokyo	Shuri	Proto-language
1.	'rock'	ifi	ifi	_____
2.	'shoulder'	kata	kata	_____
3.	'hot water'	ju	ju	_____
4.	'grass'	kusa	kusa	_____
5.	'rain'	ame	ami	_____
6.	'open'	akete	akiti	_____
7.	'wine'	sake	saki	_____
8.	'hair'	ke	kii	_____
9.	'breath'	iki	iitji	_____
10.	'fog'	kiri	tjiri	_____
11.	'sash'	obi	ubi	_____
12.	'string'	o	uu	_____
13.	'sleeve'	sode	sudi	_____
14.	'heart'	kokoro	kukuru	_____

1. Reconstruct the words in the parent language. For the purposes of this problem, you may ignore vowel length by treating all long vowels as if they were short.

2. Two notable sound changes have taken place in the Shuri dialect, one involving consonants and one involving vowels. These changes must have occurred in a particular order. Say what these changes are, what order they occurred in, and explain your reasoning.

---

---

---

---

---