1 Introduction

There will be no questions directly about phonetics or morphology on the final, yet you will need certain skills you learned in studying the chapters on phonetics and morphology in order to answer questions on typology, syntax, social variation, and acquisition, so the first two sections of the review are about what you need to be able to DO with your phonetics and morphology knowledge. Sections 2 and 3 are about the phonetics and morphology skills you should have.

Sections 4-8 are about the material you should know from social variation, syntax, typology, and acquisition. Section 9 summarizes the material you should know.

2 Phonetics

The questions in (2.1) and (2.2) are all best answered by looking at an appropriately labeled chart or charts in your book.

(2.1) Consonants

(2.1a) Find the fricatives of English.
(2.1b) Find the stops of English
(2.1c) Find the affricates of English.
(2.1d) Find the nasals of English
(2.1e) Find the liquids of English.
(2.1f) Are the classes in (2.a)-(2.e) manners or places?
(2.1g) Find any remaining sonorants than were not listed in (2.a)-(2.e) and classify them by manner. Note: I really mean ALL remaining sonorants in English.
(2.1h) Find any consonants of English not listed in previous questions.
(2.1i) Give at least one example of a labiovelar sound. Give at least one example of a language that has a labiovelar sound.

(2.2) Vowels
(2.2a) Find the back vowels of English.
(2.2b) Find the front vowels of English.
(2.2c) Find the low vowels of English.
(2.2d) Find the high vowels of English.
(2.2e) Find the mid vowels of English
(2.2f) Find the rounded vowels of English.

(2.3) Sound classes: Obstruents (stops, fricatives, affricates) and Sonorants (Nasal, liquids, glides)
Obstruents

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Stops</td>
<td>p</td>
<td>b</td>
<td>t</td>
<td>d</td>
<td></td>
<td></td>
<td></td>
<td>k</td>
</tr>
<tr>
<td>Fricatives</td>
<td>f</td>
<td>v</td>
<td>θ</td>
<td>ð</td>
<td>s</td>
<td>z</td>
<td></td>
<td>ʃ</td>
</tr>
<tr>
<td>Affricates</td>
<td></td>
<td></td>
<td>ts</td>
<td>dʒ</td>
<td></td>
<td></td>
<td></td>
<td>h</td>
</tr>
</tbody>
</table>

Sonorants

<table>
<thead>
<tr>
<th>Sonorants</th>
<th>Nasals</th>
<th>Liquids</th>
<th>Glides</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nasals</td>
<td>m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquids</td>
<td>n</td>
<td>l</td>
<td></td>
</tr>
<tr>
<td>Glides</td>
<td></td>
<td></td>
<td>m</td>
</tr>
</tbody>
</table>

IPA Chart for English Consonants

Notice that w and æ occur twice! As if these sounds were made in two different places. In fact they are. They are labiovelar sounds made in two places.

Phones that occur right next to a partner in the same cell are voiced voiceless pairs (voiceless on the left).

The phone l occurs directly above and in the same cell with r. These two are special cases. They are both liquids, both alveolar. In fact they are very similar phonetically.

3 Morphology

3.1 Basic concepts
3.1a Morpheme
3.1b Allomorph
3.1c Root, base (∼ stem), affix (prefix, suffix)
3.1d Derivational morphology
   3.1di Creates new words which may have unpredictable meaning
   (apply + -(c)ation = application, inform + -(c)ation = information)
   3.1dii May change part of speech
   (V + -(c)ation = N)
   3.1diii Lots of exceptions: (write + -(c)ation = * writation)
3.1e Inflectional morphology: Forms a single word, marks grammatical categories like person/number
(3.1ei) Creates new forms of a single word which always have predictable meaning
\((\textit{apply} + -\textit{ed} = \textit{applied}, \textit{inform} + -\textit{s} = \textit{informs})\)

(3.1eii) Never changes part of speech \((V + -\textit{ed} = V, V + -\textit{s} = V)\)

(3.1eiii) Irregular forms but no exceptions \((\textit{broke, went, flew}, \text{but no verbs without past tense})\)

(3.2) Find the inflectional morphemes of English (Table 4.15)

(3.3) Examples of grammatical categories marked by inflectional morphemes (no complete list, they differ from language to language)
   (3.3a) Person (1st, 2nd, 3rd)
   (3.3b) Number (singular, plural)
   (3.3c) Gender (masculine, feminine, neuter)
   (3.3d) Tense (present, past, future)
   (3.3e) Comparative/Superlative
   (3.3f) Case (nominative, accusative, dative, genitive, ...)

(3.4) Derivation always occurs closer to the stem than inflection (equivalent: Inflection always occurs closer to the edge of the word)

Here \textit{hard}, is the \textbf{root} for the entire word.
It is also the \textbf{base} to which \textit{-en} attaches, while \textit{harden} is the base to which \textit{-s} attaches. Note that the inflectional affix \textit{-s} attaches \textbf{outside} the derivational affix \textit{-en}. 
4 Phonology

(4.1) Basic concepts
   (4.1a) Complementary distribution: What it is, how to state it, the elsewhere trick
   (4.1b) The consequence of complementary distribution: Two phones are allophones of a single phoneme
   (4.1c) What a **minimal pair** is: Two words with the same number of sounds that differ in exactly one position, such as Thai [pʰaa] and [paa].
   (4.1d) What a minimal pair means: Non-complementary distribution. Two phones occurring in exactly the same environment. In the Thai minimal pair, [pʰ] and p are shown occurring in exactly the same environment.
   (4.1e) What the phonemic representation / / is and what the phonetic representation [ ] is. How to write the phonemic representation when there are allophones.

Steps in solving a phonology problem

(a) Are there minimal pairs? You’re done! These are separate phonemes.¹
(b) List the environments for the sounds you’re interested in.
(c) Are the environments overlapping?
   (i) Yes. You’re done! These are separate phonemes²
   (ii) No.³ They are allophones. You must state the distribution of the allophones.

---

¹Your answer should state the phones are separate phonemes and list the minimal pairs.
²Your answer should specify where the environments overlap.
³This means the phones are in complementary distribution.
Stating the distribution

1. The sound with the most varied distribution is the elsewhere allophone

2. Try to characterize where the other sound(s) occur(s). Call the other sound (or one of the other sounds if there are more than one) x below.

   a. Try to find a single generalization which unites all the sounds that can follow x

   b. If a failed, try to find a single generalization which unites all the sounds that can precede x

   c. If a and b failed, try to find a generalization which characterizes the sounds preceding and following x; for example, x occurs between vowels.

   d. Make sure the generalization you formulated in step a, b, or c excludes all the other allophones.


4. If you have been asked to give a phonemic representation of a word, give a transcription in which all the allophones of the phoneme you’re describing have been replaced with the elsewhere allophone.

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
<th>Distributions of Mokilese i, ū</th>
</tr>
</thead>
<tbody>
<tr>
<td>uduk</td>
<td>‘flesh’</td>
<td>u and ū</td>
</tr>
<tr>
<td>kaskas</td>
<td>‘to throw’</td>
<td>i, ū</td>
</tr>
<tr>
<td>pokí</td>
<td>‘to strike something’</td>
<td>i, ū</td>
</tr>
<tr>
<td>pil</td>
<td>‘water’</td>
<td>p, t, #, d</td>
</tr>
<tr>
<td>apid</td>
<td>‘outrigger support’</td>
<td>k, s, p, d</td>
</tr>
<tr>
<td>ludzuk</td>
<td>‘to tackle’</td>
<td>p, s, l, d3, k</td>
</tr>
<tr>
<td>pisan</td>
<td>‘full of leaves’</td>
<td></td>
</tr>
<tr>
<td>tupukta</td>
<td>‘bought’</td>
<td></td>
</tr>
<tr>
<td>puko</td>
<td>‘basket’</td>
<td></td>
</tr>
<tr>
<td>kisa</td>
<td>‘we two’</td>
<td></td>
</tr>
<tr>
<td>supwo</td>
<td>‘firewood’</td>
<td></td>
</tr>
<tr>
<td>kamwokiti</td>
<td>‘to move’</td>
<td></td>
</tr>
</tbody>
</table>
4.1 Sample problems

4.1.1 Sindhi

1. [pɔnu] ‘leaf’ 7. [tɔru] ‘bottom’
2. [vɔdʒu] ‘opportunity’ 8. [kʰəto] ‘sour’
4. [ɡədo] ‘dull’ 10. [bənu] ‘forest’
5. [dɔru] ‘door’ 11. [bɔtʃu] ‘be safe’

Figure 1: Data for Sindhi Problem

Examine the data from Sindhi, an Indo-European language spoken in India and Pakistan, above and answer the following questions:

(4.1.1) Consider [pʰ], [p], and [b]. Are they allophones of the same phoneme or do they belong to separate phonemes? Identify the type of distribution (complementary or non-complementary). If they are in complementary distribution, state the environments in which the sounds occur.

(4.1.2) Is the relationship among these phones the same as it is in English. Why or why not?

(4.1.3) Give the phonemic representation of [pʰɔnu] (‘hood of snake’), [bɔtʃu] (‘be safe’), and [pɔnu] (‘leaf’).
4.1.2 Canadian French

<table>
<thead>
<tr>
<th></th>
<th>phoneme</th>
<th>word</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>[tu]</td>
<td>‘all’</td>
</tr>
<tr>
<td>2</td>
<td>[abut⁵i]</td>
<td>‘ended’</td>
</tr>
<tr>
<td>3</td>
<td>[tɛl]</td>
<td>‘such’</td>
</tr>
<tr>
<td>4</td>
<td>[tab]</td>
<td>‘stamp’</td>
</tr>
<tr>
<td>5</td>
<td>[tʰimíd]</td>
<td>‘timid’</td>
</tr>
<tr>
<td>6</td>
<td>[tʰit]</td>
<td>‘title’</td>
</tr>
<tr>
<td>7</td>
<td>[telegram]</td>
<td>‘telegram’</td>
</tr>
<tr>
<td>8</td>
<td>[trɛ]</td>
<td>‘very’</td>
</tr>
<tr>
<td>9</td>
<td>[kyltʰyr]</td>
<td>‘culture’</td>
</tr>
<tr>
<td>10</td>
<td>[minvt]</td>
<td>‘minute’</td>
</tr>
<tr>
<td>11</td>
<td>[tʰy]</td>
<td>‘you’</td>
</tr>
<tr>
<td>12</td>
<td>[tʰvb]</td>
<td>‘judge’</td>
</tr>
</tbody>
</table>

Figure 2: Data for Canadian Problem [tʰ] is a voiceless alveolar affricate. [y] and [y] are high, front, rounded vowels, tense and lex respectively (the rounded analogs of [i] and [i]).

Examine the data from Canadian French above, and answer the following question:

(4.1.1) Consider [tʰ] and [t]. Are they allophones of the same phoneme or do they belong to separate phonemes? If they are in complementary distribution, state the environments in which the sounds occur.

(4.1.2) Write the phonemic representations of [tɛl] (‘such’) and [kyltʰyr] (‘culture’).
5 Social variation

(5.1) Basic concepts

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dialect</td>
<td>A variety of a language spoken by a particular group (ethnicity, region, class, age, gender)</td>
</tr>
<tr>
<td>Standard dialect</td>
<td>The dialect taught in school, used in formal writing, heard on newscasts</td>
</tr>
<tr>
<td>Nonstandard dialect</td>
<td>Any dialect but the standard</td>
</tr>
<tr>
<td>Style/register</td>
<td>A variety of a language spoken in a particular kind of social situation</td>
</tr>
<tr>
<td>Language contact</td>
<td>When speakers of two languages or two varieties of one language live in the same community</td>
</tr>
<tr>
<td>Code-switching</td>
<td>Switching back and forth between varieties in a language contact situation</td>
</tr>
<tr>
<td>Situational code-switching</td>
<td>Code-switching in a single situation</td>
</tr>
</tbody>
</table>

(5.2) Misconceptions: Accent is only ONE component of what makes dialects differ

<table>
<thead>
<tr>
<th>Term</th>
<th>Wrong</th>
<th>Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slang</td>
<td>A nonstandard variety of a language</td>
<td>New words or old words with new meanings that usually fade fast (<em>crib</em>)</td>
</tr>
<tr>
<td>Accent</td>
<td>A nonstandard variety of a language</td>
<td>A nonstandard pronunciation of a language</td>
</tr>
</tbody>
</table>

(5.3) Sources of variation:

(5.3a) Place: New York City, England
(5.3b) Social class: working class, middle class
(5.3c) Ethnicity, Race
(5.3d) Situation: Formal, informal

(5.4) R-drop in New York City (Labov 1972)
<table>
<thead>
<tr>
<th></th>
<th>R-ful</th>
<th>R-less</th>
</tr>
</thead>
<tbody>
<tr>
<td>fourth</td>
<td>ф.т̥</td>
<td>ф.т̥</td>
</tr>
<tr>
<td>floor</td>
<td>ф.т̥</td>
<td>ф.т̥</td>
</tr>
<tr>
<td>there</td>
<td>т̥.т̥</td>
<td>т̥.т̥</td>
</tr>
<tr>
<td>cart</td>
<td>к.т̥</td>
<td>к.т̥</td>
</tr>
</tbody>
</table>

**Experiment**  
Interview salespeople in large department stores, ranging from low prestige to highest.

**Hypothesis**  
Higher prestige stores will do less R-dropping.

**Method**  
Ask a question to which the answer is 4th floor. Pretend not to have heard the answer and request a repetition. First answer is casual speech. Second is Careful speech.

**Result:** Less R-drop in salespeople in upscale stores, in fact less R-drop on the upper floors (more expensive goods) of the same store.

(5.5) Some ways in which dialect sound systems differ:

(5.5.1) Merger: /w/ and /m/, /о/ and /а/

(5.5.2) Restricted merger: /i/ and /ɛ/ before nasals, /ei/ and /æ/ and /ɛ/ before т̥
(5.6) Pidgins, Creoles

Lingua Franca  the language of interaction when people who speak different languages need to interact on a regular basis

English in Singapore: Malay, Chinese, Tamil
French in Haiti
Latin 100 A.D.

Pidgin  A rudimentary language with minimal grammatical rules and a small lexicon; arises in contact situations where there is no natural lingua franca

Neo-Melanesian, Chinese pidg
English, Nauru Pidgin

Lexifier  The language from which the pidgin takes most of its words

Creole  When children learn the Pidgin as a first language, and a Pidgin becomes a full-fledged language, it is called a Creole.

Australian Roper River Creole, Sranan, Saramaccan, Gyanese English

(5.7) Post-Creole continuum

Basilect  the most Creole-like

Guyanese English (Bell 1975)

mi bm gi: æm wan

Acrolect  the least Creole-like

ai geyv him wan

Mesolects  a range of dialects in between

a díd gi i: wan
6 Syntax

6.1 Parts of speech

N Noun
Adj Adjective
V Verb
P Preposition
Det Determiner
Aux Auxiliary (Syntactic Category I)
Deg Degree Word
Adv Adverb

6.2 Heads, Complements, Specifiers

\[ X = N \]

\[
\begin{array}{c}
\text{XP} \\
\text{(Specifier)} \\
X' \\
\text{(Complement)} \\
X \\
\text{Head}
\end{array}
\]

\[
\begin{array}{c}
\text{Det} \\
\text{That} \\
N' \\
\text{picture} \\
N \\
\text{PP} \\
\text{P'} \\
\text{P} \\
\text{of} \\
\text{NP} \\
\text{N'} \\
\text{N} \\
\text{Mary}
\end{array}
\]

NP case

Specifier that
Head picture
Complement of Mary
### 6.3 What modifies what

<table>
<thead>
<tr>
<th>Part Of Speech</th>
<th>Specifier</th>
<th>Head</th>
<th>Complement</th>
<th>Phrasetype</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preposition (P)</td>
<td>in</td>
<td>[np the house]</td>
<td>PP</td>
<td></td>
</tr>
<tr>
<td>Preposition (P)</td>
<td>[deg right]</td>
<td>under [np the porch]</td>
<td>PP</td>
<td></td>
</tr>
<tr>
<td>Verb (V)</td>
<td>write</td>
<td>[np a letter]</td>
<td>VP</td>
<td></td>
</tr>
<tr>
<td>Verb (V)</td>
<td>[adv never]</td>
<td>answer [np a letter]</td>
<td>VP</td>
<td></td>
</tr>
<tr>
<td>Noun (N)</td>
<td>[det a]</td>
<td>picture [pp of the ocean]</td>
<td>NP</td>
<td></td>
</tr>
<tr>
<td>Noun (N)</td>
<td></td>
<td>pictures [pp of the ocean]</td>
<td>NP</td>
<td></td>
</tr>
<tr>
<td>Adjective (Adj)</td>
<td>[deg quite]</td>
<td>afraid [pp of ducks]</td>
<td>Adjp</td>
<td></td>
</tr>
<tr>
<td>Adjective (Adj)</td>
<td></td>
<td>glad/sad [s that John left]</td>
<td>Adjp</td>
<td></td>
</tr>
</tbody>
</table>

### 6.4 Movement

**D-Structure for passives**

```plaintext
IP
  NP
    I'
      +Pst
        V
          be
            stolen
              NP
                the painting
```

**S-Structure for passives**

```plaintext
IP
  NP
    Det
      N
        the painting
            +Pst
              V
                be
                  stolen
                    NP
                      the painting
```
D-Structure for questions  S-Structure for questions

7  Typology

(7.a) Know the difference between a universal (violations impossible) and a tendency (violations marked)

(7.b) Know what an implicational universal/tendency is.

(7.c) Understand the notation for implicational universals (hierarchies) and understand the following implicational universals:

- Stops > Fricatives > Affricates
- Voiceless Obstruents > Voiced Obstruents
- Voiced Sonorants > Voiceless Sonorants
- Short vowels > Long Vowels
- Oral vowels > Nasal Vowels

(7.d) Know the basic word order types (SVO, SOV, VSO, VOS, OSV, and OVS) and what they mean, and which are marked. Know what VO and OV mean.

(7.e) Know what the word order tendencies go with being VO and what word order tendencies go with being VO.
(7.f) Know the morphological types and what they mean:

<table>
<thead>
<tr>
<th>Analytic (Isolating)</th>
<th>Synthetic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Polysynthetic</td>
</tr>
<tr>
<td></td>
<td>Agglutinating</td>
</tr>
<tr>
<td></td>
<td>Fusional</td>
</tr>
</tbody>
</table>

Each word consists of a single morpheme. Grammatical categories such as tense expressed by separate words.

Languages often aren’t completely one type or the other (English); but you should know how to recognize clear cases.
8 Acquisition

(8.1) Argument against imitation (overgeneralization of existing patterns and partial replication of
existing patterns) [p. 352]
(8.1.1) goed, breaked, runned
(8.1.2) When I can go?
Children learn patterns; they don’t just imitate what they hear.

(8.2) Errors
(8.2.1) Phonology

Simplify consonant clusters

[s] + stop delete [s] stop → [tap]
stop + liquid delete liquid try → [taj]
fricative + liquid delete liquid from → [ttextturnvm]
nasal + voiceless stop delete nasal spoon → [bud]

Substitution

<table>
<thead>
<tr>
<th>Target sound</th>
<th>Change</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>fricative</td>
<td>Stopping</td>
<td>sing → [tnŋ]</td>
</tr>
<tr>
<td>affricate</td>
<td>Stopping</td>
<td>John → [dan]</td>
</tr>
<tr>
<td>liquid</td>
<td>Gliding</td>
<td>laughing → [jaefŋ]</td>
</tr>
<tr>
<td>liquid</td>
<td>Gliding</td>
<td>rock → [wak]</td>
</tr>
<tr>
<td>nasal</td>
<td>Denasalization</td>
<td>spoon → [bud]</td>
</tr>
</tbody>
</table>

(8.2.2) Morphology: Irregular forms learned first, regular patterns overextended to words
with irregular forms in adult grammar (Section 4.1)

Development of affixes

<table>
<thead>
<tr>
<th>Stage</th>
<th>Affix acquisition</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>case-by-case learning</td>
<td>PL boys, men; PAST walked, ran</td>
</tr>
<tr>
<td>2</td>
<td>overuse of general rule</td>
<td>PL mans; PAST runned</td>
</tr>
<tr>
<td>3</td>
<td>master of exceptions</td>
<td>PL men; PAST ran</td>
</tr>
</tbody>
</table>

(8.2.3) Meaning (Section 10.3.2)

(8.2a) Overextension: in low vocabulary stage (~ 50 words), many words are extended past their adult meanings based largely on perceptual features (Section 10.3.2)

(8.2b) Underextension: Kitty is the name of the family pet but not used for other
cats. *Dog* not used for Chihuahuas. **Prototypical** category members are the best category members.

(8.2.c) Some perceptual features less complicated: *big* easier than *long* and *tall*

(8.2.4) Syntax: (Section 5.4) Some order dependencies. Auxiliaries must be acquired before inversion can be acquired, and there is usually a delay between the two events, so Movement constructions may be more complicated:

D-Structure for questions

\[
\begin{array}{c}
\text{CP} \\
\text{C'} \\
\text{C} \\
\text{I'} \\
\text{I} \\
\text{NP} \\
\text{N} \\
\text{Aristotle} \\
\text{VP} \\
\text{Det} \\
\text{NP} \\
\text{N} \\
\text{which} \\
\end{array}
\]

S-Structure for questions

\[
\begin{array}{c}
\text{CP} \\
\text{C'} \\
\text{C} \\
\text{I'} \\
\text{I} \\
\text{NP} \\
\text{N} \\
\text{which} \\
\text{languages} \\
\text{VP} \\
\text{Det} \\
\text{NP} \\
\text{N} \\
\text{which} \\
\text{languages} \\
\end{array}
\]

9 Summary

(9.1) Phonetics
(a) Consonant sound classes: Place, manner, voiced/unvoiced, obstruent/sonorant
(b) Vowel sound classes: Height, Frontness/Backness, Rounding
(c) Ways in which a single sound might vary: slight change of place, voicing

(9.2) Morphology
(a) Be able to break words up into morphemes
(b) Know what an *allomorph* is and be able to identify the allomorphs of a morpheme.

(9.3) Phonology
(a) Complementary distribution: What it is, how to state it, the elsewhere trick
(b) The consequence of complementary distribution: Two phones are allophones of a single phoneme
(c) What a minimal pair means: Non-complementary distribution. Two phones occurring in
(d) What the phonemic representation / / is and what the phonetic representation [ ] is. How to write the phonemic representation when there are allophones.

(9.4) Social Variation
(a) How dialects vary (phonology, lexicon, syntax)
(b) What kinds of social variables produce language variation (region, race, ethnicity, gender, situation)
(c) Labov’s results (Variation across speakers correlating with social class and within speakers for formality of situation for r-drop in New York City)
(d) Pidgins, Creoles
(e) Post-creole continuum

(9.5) Syntax
(a) Parts of speech
(b) Heads, complements, adjuncts
(c) Movement

(9.6) Typology
(a) Know the difference between a universal (violations impossible) and a tendency (violations marked)
(b) Know what an implicational universal/tendency is.
(c) Understand the notation for implicational universals:
(d) Know the basic word order types (SVO, SOV, VSO, VOS, OSV, and OVS) and what they mean, and which are marked. Know what VO and OV mean.
(e) Know what the word order tendencies go with being VO and what word order tendencies go with being VO.
(f) Know the basic morphological types, analytic, polysynthetic, agglutinative, fusional

(9.7) Acquisition
(a) Argument against imitation
(b) Phonology: consonant cluster simplification, stopping, gliding, denasalization
(c) Morphology: The 3 stages of affix acquisition
(d) Meaning overextension/underextension. Concepts may differ in complexity.
(e) Syntax: Some syntactic processes depend on acquiring the right grammatical morphemes first, movement processes may delay acquisition