LINGUISTICS 120A
Final Examination Study Guide

These are the main topics that you should prepare for the final examination. The exam consists of problems similar to those on Assignments.

Phonemes and allophones (contrast and complementary distribution)

From a data set, you should be able to work out which sounds are in contrast with each other and which ones are in complementary distribution by examining environments where the sounds appear. For example, in Korean, you should be able to discover that the unaspirated lax stops, such as [p], are in contrast with the aspirated lax stops, such as [pʰ], because both can appear word initial before the vowel [a]. On the other hand, the voiceless unaspirated lax stops, such as [p], are in complementary distribution with the voiced stops, such as [b], because the voiceless stops only appear at the beginning or end of a word and the voiced stops appear only between vowels.

Features

(1) You should be able to characterize a natural class of sounds using the minimum number of features that identifies all and only the sounds of that class. For example, in English, the features [+coronal, +anterior, -continuant] identifies just the sounds /t, d, n/, that is, the natural class of sounds that involve complete oral blockage at the alveolar point of articulation.

(2) You should be able to use features on the “right side” of the arrow in a rule to show exactly how a set of sounds change. For example, a rule showing that English /t, d, n/ become flaps [ɾ, ř] after a vowel when initiating an unstressed syllable would be

\[
\begin{align*}
\text{[+coronal, +anterior, -continuant]} & \rightarrow \left[ \begin{array}{c}
\text{(+approximant)} \\
\text{(+flap)} \\
\text{(+sonorant)}
\end{array} \right] \\
& \text{[/+syllabic][-stress]}
\end{align*}
\]

(Parentheses around features suggest that the change to [+approximant] would force the other features to change as well.)

(3) You should know how to use variables to show that the values of the features specified with the same variable must match for “+” or “-”. For example,

\[
\begin{align*}
\text{[-sonorant]} & \rightarrow \left[ \text{[αvoice]} \right] \\
& \text{[/-sonorant, αvoice]}
\end{align*}
\]

means that the segment that changes and the segment in the environment must both be [+voice] or both be [-voice].

Morphology, underlying forms, alternation

You should be able to segment morphologically complex words into their constituent morphemes. In phonology, the main reason that we want to be able to do this is in order to identify how sounds alternate in pronunciation when the morphological environment changes. For example, you should be able to morphologically analyze the words inoperable, intolerable, impossible, inconceivable, irreplaceable, illegible to show that they all have a prefix “in” and a suffix “able”. Moreover, you should be able to deduce that the underlying form of the prefix is /in/ (how do you know that is is /in/ and not /il/?) and that the alternations in the pronunciation of the prefix are conditioned by the initial sounds of the roots to which the prefix is added.
Affects of rules: neutralization, rule ordering, and derivations

You should understand what is meant by a position of neutralization and how application of phonological rules can lead to neutralization. For example, in Korean, at the end of a word, all obstruents at a particular point of articulation neutralize to the voiceless lax stops at that point of articulation, e.g. /t, tʰ, s/ → [t]. Word final position is thus a position of neutralization and the rule changing the sounds in this way is a neutralizing rule. REMEMBER THAT YOU NEVER CHOOSE A FORM OF NEUTRALIZATION AS AN UNDERLYING FORM!

The order of application of phonological rules sometimes makes a difference in outcome. For example, we suggested that English [ŋ] is underlying /ŋ/. To derive the sound [ŋ] at the end of a word like sing, we need two rules, (1) NASAL ASSIMILATION that assimilates /n/ to /g/, and (2) g-DELETION, which drops /g/ at the end of a word after ƞ. The rules must be ordered (1)-(2). We can demonstrate this using a derivation, in which we apply the rules in each order to the same underlying form. Only one ordering produces the right result.

Boundaries

You should understand how the presence of morpheme, word, and phrase boundaries can affect the application of phonological rules. We argued for three kinds of boundaries: (1) a + boundary, which shows that there is a morpheme boundary but the boundary has no phonological effects that would not also be true if no boundary were present: For example, in longer ‘more long’ the sequence preceding the boundary is pronounced [ŋ], as it would be in finger, where there are no boundaries. (2) a # boundary, which is typical of certain morphemes and perhaps between words in a compound: For example, in long#er ‘someone who longs’, the written sequence ng is pronounced [ŋ], as it would be at the of a word. (3) a ## boundary, which would be typical at the end of a phrase and would block many phonological rules: The English /t/ flapping rule applies within a word (meter), across a # boundary (heat#er), and even across ## if the /t/ is before the boundary (get##around), but not across ##when ## is to the left of the /t/ (happy##times).

Syllables

You should be able to apply the three step syllabification procedure: (1) associate each vowel with a syllable nucleus, (2) associate consonants preceding each vowel with an onset if the consonant(s) could begin a word (the Maximum Onset Principle); (3) associate remaining consonants following each vowel with a coda. You should be able to label the nodes of a syllable tree as Nucleus (N), Onset (O), Coda (C), and Rime (R). You should be familiar with the tendency for syllables to increase in sonority from beginning to end, making CV the universally preferred syllable type, and differences between onsets and codas, including (a) greater variety of onsets than codas, (b) preference for more sonorous consonants as codas but no such preference in onsets, (c) neutralization of consonant distinctions in codas, and (d) the tendency for CC onsets to increase in sonority but CC codas to decrease in sonority (the Sonority Sequencing Principle). These facts about preferred syllable structure have implications for the nature of phonological rules, such as lenition and neutralization rules applying to syllable codas and epenthesis and syncope rules that work to create syllables with “better” onsets and codas.
Rules of 1%-99% productivity

The point of this topic is that we would like to recognize certain processes as phonological rules even if they do not apply 100% of the time. We divided these cases into four types:

(1) Exception features: Mark an exception to an otherwise entirely general rule as [-rule n], for example, intonation would be marked [-nt-FLAPPING] as one of only a couple of words that do not flap /nt/ as in winter [wɪɾ̃ɹ̩]. Mark an item that unexpectedly undergoes a general rule that would exclude such items from undergoing it, such as marking the German neuter plural Flöße as [+umlaut] since it is the only neuter plural with the –e plural ending that undergoes umlaut.

(2a) Minor rules that apply generally: If we impose enough restrictions on a rule, usually including some restrictions on which morphemes or word classes it applies to, the rule can apply almost every time its environment is met (including application to “wugs”). Thus, PLURAL f-VOICING for words like life/lives applies to virtually every word if it is a NOUN, if it has the PLURAL SUFFIX –s, if the syllable ending is f is STRESSED, if the word is NOT DERIVED from a non-noun (the noun laugh does not have a plural [lævz] because the base is a verb, and if the vowel is not [-high, -tense] (cuff, with vowel [ʌ], does not have plural *[kʌvz]). A wug-noun like neaf could conceivably have a plural neaves since it meets all the restrictions.

(2b) Minor rules that apply only to marked items: A rule, probably restricted as in (2a), applies to enough items to call it a phonological “rule”, but it seems to be non-productive (no one would apply it to a “wug”). FRICATIVE VOICING in verbs, such as life/live, bath/bathe, applies to a fair number of verbs, but speakers seem to have memorized them. A wug-noun like treef would probably not be converted to a verb ?*treeve.

(3) Morphologically specific rules: There are morphemes with alternant pronunciations, where the alternants depend on phonological conditions. The rules governing these alternations should probably just list the alternants and their environments along with the morpheme. For example,

English {INDEFINITE ARTICLE} \rightarrow an / _V
\rightarrow a / _C.

Studying for the Final

Questions on the final will be modeled after the assignment problems. The best way to study is to review assignments and also discussion problems found in the course reader. KEYS TO ALL THE ASSIGNMENTS AND DISCUSSION PROBLEMS ARE POSTED ON THE 120A WEB SITE. If you understand WHY the solutions are as they are and HOW one arrived at those solutions, you will do fine on the final.