Assignment #3 suggested solutions

A. Exercises from the textbook: Phonology problems

a) Exercise 4 on Korean (pp. 310-311). (10 points)

You probably didn’t have trouble seeing that both [l] and [r] are in complementary distribution. The challenge is to figure out which one is the underlying form. If each one occurs in the same number of environments, then obviously we cannot tell. But for this particular exercise, you should be able to see that [r] only occurs before a vowel, whereas [l] occurs before consonants and word-finally. A simple rule for this case of allophony is as follows:

/\l/ → [r] / ___ V

If we assume that [r] is the underlying form, then the rule would look like this:

/\r/ → [l] / ___ \{C\}

This second rule is obviously more complex than the first one, hence the first analysis wins out on the basis of simplicity (Occam’s razor, remember?).

b) Exercise 5 on German (p. 311). (10 points)

You may have thought that both [x] and [ç] are phonemes because they have overlapping distribution, in which case you would have been misled to this conclusion because you have looked at their distribution by position only, without paying attention to the surrounding sounds. So, while it is true that both occur between two vowels, between a vowel and a consonant, and in final position, if you look closely, you should be able to notice that each sound occurs after a particular kind of vowels: [x] occurs only after back vowels, whereas [ç] occurs only after front vowels. This changes the whole picture and makes the apparent ‘overlapping’ distribution an illusion. [x] and [ç] are indeed in complementary distribution.

It is not possible, however, from this set of data, to determine which sound is the underlying form, since neither one occurs in more environments than the other. There are thus two possible rules:

/x/ → [ç] / V

/ç/ → [x] / V
To determine which rule is the right one, we need more data. Can you think of a phonological environment that would help us decide? Should be obvious.

c) Exercise 8 on an English dialect (p. 312). (15 points)

You should have probably faced little trouble distinguishing between the words in Columns A and B, except perhaps if you looked at the orthographic forms, not the phonetic transcriptions. Remember that spelling is totally irrelevant to understanding human language phonology and you should not think in terms of spelling at all when solving phonology problems.

In any case, column A has words that end with a voiceless consonant, whereas column B has words that end with voiced consonants. Column C has words that end with vowels (all diphthongs).

It is easy then to see that [ai] and [ʌɪ] are allophones of the same phoneme. The underlying form should be [ai], because it occurs in more environments (before voiced consonants and word-finally), whereas [ʌɪ] occurs only before voiceless consonants. The phonological rule would look like this:

\[ /\text{ai}/ \rightarrow /\text{ʌɪ} / \text{[voiceless]} \]

The transcription of the six words should be straightforward, so I won’t give them here.

Part B. More transcription fun (this time with a Scottish flavor)*

a) Use the IPA to write a narrow phonetic transcription of the first three lines of this passage, as pronounced by the speaker on the audio clip. (5 points)

There is no clear right answer here, but this is how I heard it.

My sister had asked me to take my nephew Peter
[maɪ sistə hæd æst mi tə tʰərk məɹ neɪʃu pʰiʔə]

to go and see the headmaster at school
[tʰə go ɻɪn si ə hɪdməstəɹ ə skul]

cause he’s been getting in a bit [=“bit”] of trouble.
[kʰæz hɪz bɪn ɡeʔɪn ə baɪ tʰə rəbl]

b) Comment on the pronunciation of the ‘t’ in this speaker’s English dialect. Is this a case of allophonic variation? If so, state in plain English what the rule is. (That is, do not write a formal phonological rule here.) (5 points)

* This exercise is borrowed from Mark Lieberman’s class website for Intro to Linguistics.
You should have noticed that /t/ is pronounced as a glottal stop [ʔ] in this speaker’s dialect when it occurs between two vowels (e.g., in ‘Peter’ and ‘getting’) or word-finally (e.g., in ‘bat’). This is obviously a case of allophonic variation. In plain English, the rule would be: “Change the phoneme /t/ to the allophone [ʔ] between two vowels and word-finally.”

Otherwise, ‘t’ is pronounced as in American English, aspirated in syllable-initial position, as in ‘to’ and ‘trouble,’ and unaspirated, otherwise, as in ‘sister’ and ‘headmaster.’

c) Comment on the pronunciation of the ‘r’ in this speaker’s English dialect. Is it similar or different from the North American English [ɹ] that we talked about in class? Explain your answer. (5 points)

The ‘r’ is not pronounced in this speaker’s dialect unless it is followed by a vowel, but when pronounced, it is actually a trill [r], not the North American English retroflex [ɹ].

Part C. This is how we say it back home!

Answers vary, but I hope you enjoyed doing the exercise and got some experience eliciting data on dialectal variation in American English.