3.4 Answers to phoneme problems.

(23) Daga

In Daga the two phones [s] and [t] are in complementary distribution. The [s] occurs before front vowels /i, e/, while the [t] occurs in front of back vowels /u, o, a/ and also finally (i.e. before nothing).

[t] and [s] are both alveolar and voiceless, making them phonetically similar. [t] has the more widespread distribution (both back vowels and finally), making it a good candidate for ‘elsewhere’.

Thus, we can conclude that [t] and [s] are allophones of a single phoneme, best symbolized /t/.

Formal description:

The phoneme /t/ has two allophones as follows:
- [s] before front vowels
- [t] elsewhere

(24) Russian

Here we see that things are a little more complex. [I] and [i] are, however in complementary distribution also. First, [i] occurs after palatalized consonants (but not, interestingly enough) the palatal consonants [ʃ] and [ʒ]. [i] also occurs initially (and thus, after nothing). Within a view of phonology expressed within this chapter (but not within a feature-based system) this is easy to state, but if we use features (as will be done in Chapter 5) it becomes rather more difficult to state the ‘elsewhere’ version.

Formal statement

/i/ has two allophones:
- [I] after non-palatalized consonants
- [i] elsewhere.

(25) Papago

The affricates [tʃ] and [ʒ] occur before high vowels [i, u, u], while the stops [t, d] occur elsewhere (be careful to note that a different stop, [d] occurs before [u], but it is presumably a different phoneme). Also note that [t] and [d] occur in similar environments, as do [tʃ] and [ʒ], so they are likely to contrast.

The voiceless vowels and nasals all occur at the end of words, and nowhere else—again, complementary distribution.

So, two formal descriptions:

The phonemes /t/ and /d/ have similar distributions:
- [tʃ] and [ʒ] occur before high vowels
- [t] and [d] occur elsewhere.

All vowels have two allophones, a voiceless one in final position and a voiced one elsewhere.

(26) Zulu

Important: There are typos. One is in the word ‘in the path’. In place of a high back rounded vowel /u/ there should be a voiced lateral fricative /l/. That is, the word is ēndlį́lɛ́né

I ́ndlį́lɛ́ńi
Secondly, the word ‘mouth’ should have a final lax vowel: ùmlòmò

The higher (tense) vowels occur when there is a high vowel as the next vowel in the word (i.e. in the next syllable). Despite the slight oddness, the ‘elsewhere’ fact would cause us to choose the lax vowels as the basic ones. The formal description:
/ɛ, o/ each have two allophones with similar distributions:
[ɛ, o] occur when a high vowel follows (i.e. when followed by a single consonant and a high vowel)
[ɛ, ɔ] occur elsewhere.