Answers to Exercises 9.3

Here are some words said by Amahl, the subject in the classic work by Neil Smith. For each word we see a progression through time – each number represents a roughly two week interval, with 1 being 2 years 60 days. Note that there is a typo in the text, for the transcription of the adult pronunciation. The correct symbol is a theta [θ].

‘bath’ [bθ] ɑːt (1)
   bart (11)
   bart (20)
   bars (22)

The ring under the [b] is the IPA diacritic for voiceless, and is intended to represent the fact that the sound is voiceless, unaspirated and perhaps lax.

‘cat’ ɡæt (2)
   kʰæt (14)
‘cheese’ ɗi: (4)
   tʃːd (15)
   tʃːd (20)
   sɪz (22)
   sɪz/ʦɪz (26)
   tsɪz (27)

While the data are somewhat limited, what generalizations can you draw about how Amahl produces obstruents?

While this is, of course, quite speculative we can see that in the very earliest stages Amahl produces only voiceless unaspirated stops, regardless of target, but shortly thereafter is able to produce a contrast. Without additional data we can’t tell whether he had them stored contrastingly from the beginning (but if you read Smith’s book it is clear that he did indeed not need to rehear words to produce the correct output several months later). Affricates are more difficult than stops (as Natural Phonology, markedness theory and common sense would predict). At the beginning they apparently can only be pronounced as voiceless, unaspirated coronal stops, thus merging them with /t/ and /d/. Later it is clear that Amahl is working on getting some kind of frication going, but can’t reliably control simultaneously the retracted [-ant] feature and the affrication. Dental fricatives, as is well known, are acquired very late—they do not show up in this data. Final fricatives also appear after final stops.

9.3.2 Second language phonology (Data from Selinker & Gass 1984)

Native speaker of Spanish
English Spanish
Bob    [bɒp]
Bobby [bobɪ]
red    [rɛt]
What general changes appear to be going on? Note that not all changes are regular.

The speaker has an active process of final devoicing, as illustrated by the alternation [bɔp ~ bɔbi] and many others. Notably, Spanish does not have final devoicing—final /d/ is normally pronounced [ð], but, as mentioned earlier, Spanish has no other final voiced obstruents. Voiced stops generally spirantize after vowels, which is pure interference from Spanish, but this speaker sometimes overcomes this process. There is no /z/ in Spanish, other than as an allophone of /s/ after voiced consonants: /mismo/ [mizmo], so this speaker uses [s] everywhere.