

## **Exercises**

Note: If you are familiar with the standard notation for writing phonological rules, you may find it convenient in attempting these exercises to write out rules for the phonological changes you identify. Some of these exercises introduce topics that will be discussed in the next chapter.

### **Exercise 3.1**

This exercise is designed merely to let you test your command of the technical terms introduced in the chapter. How would you label each of the following changes?

- (a) pre-Icelandic \**bro[θ]er* > Old Icelandic *bro[ð]er* ‘brother’
- (b) pre-Greek \**g<sup>w</sup>ous* > Greek *bous* ‘cow’
- (c) Basque *bake* ‘peace’ > western Basque *pake*
- (d) pre-Latin \**flo:ses* > Latin *flo:res* ‘flowers’
- (e) English *Deborah* (three syllables) > *Debra* (two syllables)
- (f) pre-Finnish \**käti* > Finnish *käsi* ‘hand’
- (g) English *furor* (three syllables) > American English *furor* (two syllables)
- (h) Latin *lege* ‘law’ [lege] > Italian *legge* [leddʒe]
- (i) This is thought to be the history of the French word *cent* [sã] ‘hundred’ over the past 6,000 years or so; if you don’t find a suitable label for a particular step, try to coin one from your knowledge of phonetics:

[kmtom] > [kemtom] > [kentom] > [kentum] > [kentũ] > [kentu] > [kento] > [k'ento] > [tsento] > [tsent] > [sent] > [sen] > [sẽ] > [sã].

### **Exercise 3.2**

Certain English words which were formerly pronounced with a /t/ have lost that /t/, although we retain a <t> in the spelling. Among these are *soften*, *listen*, *fasten*, *hasten*, *castle*, *bustle*, *bristle* and *mistletoe*. On the other hand, the /t/ has not been lost in words such as *muster*, *blister*, *foster* and *custom*, nor has it been lost in cases like *astound* and *extend*. Describe as accurately as you can the circumstances in which the /t/ was lost. Now note the peculiar case of *often*. Some people pronounce a /t/ in this word while others do not. What do you suppose might have happened in this case?

### **Exercise 3.3**

Old English had both long and short vowels, and the long vowels have changed in systematic ways during the development of modern English. [Table 3.2](#) shows some typical examples; the Old English vowel letters have approximately their IPA values. Explain what has happened to the long vowels.

Table 3.2 OE long vowels and their history

	Old English	Modern English
1.	<i>bru:n</i>	<i>brown</i>
2.	<i>de:man</i>	<i>deem</i>
3.	<i>do:m</i>	<i>doom</i>
4.	<i>du:n</i>	<i>down</i>
5.	<i>æ:l</i>	<i>eel</i>
6.	<i>æ:fen</i>	<i>even(ing)</i>
7.	<i>fi:f</i>	<i>five</i>
8.	<i>he:</i>	<i>he</i>
9.	<i>hæ:p</i>	<i>heath</i>
10.	<i>ha:m</i>	<i>home</i>
11.	<i>hu:s</i>	<i>house</i>
12.	<i>i:s</i>	<i>ice</i>
13.	<i>læ:ce</i>	<i>leech</i>
14.	<i>me:d</i>	<i>meed</i>
15.	<i>mu:p</i>	<i>mouth</i>
16.	<i>mi:n</i>	<i>my, mine</i>
17.	<i>a:c</i>	<i>oak</i>
18.	<i>ra:d</i>	<i>rode</i>
19.	<i>ro:st</i>	<i>roost</i>
20.	<i>ro:t</i>	<i>root</i>
21.	<i>so:p</i>	<i>sooth</i>
22.	<i>sta:n</i>	<i>stone</i>
23.	<i>te:p</i>	<i>teeth</i>
24.	<i>ti:d</i> 'time'	<i>tide</i>
25.	<i>to:p</i>	<i>tooth</i>
26.	<i>hwi:t</i>	<i>white</i>

### Exercise 3.4

Historically, intervocalic /n/ was categorically lost in medieval Basque, so that, for example, *\*ardano* 'wine' became *ardao*, *\*ini* 'reed' became *ihi* and *\*katena* 'chain' became *katea* (the [h] in the second serves only to prevent hiatus). In some cases, however, the result was different:

- |   |  |
|---|--|
| (a) <i>*zani</i> > <i>zain</i> 'watchful'   | (g) <i>*initz</i> > <i>ihintz</i> 'dew'            |
| (b) <i>*garanu</i> > <i>garaun</i> 'grain'  | (h) <i>*bedenikatu</i> > <i>bedeinkatu</i> 'bless' |
| (c) <i>*seni</i> > <i>sein</i> 'boy'        | (i) <i>*zizani</i> > <i>zizain</i> 'worm'          |
| (d) <i>*zunai</i> > <i>zuhain</i> 'hay'     | (j) <i>*arrani</i> > <i>arrain</i> 'fish'          |
| (e) <i>*usani</i> > <i>usain</i> 'odour'    | (k) <i>*lehone</i> > <i>lehoin</i> 'lion'          |
| (f) <i>*azkone</i> > <i>azkoin</i> 'badger' | (l) <i>*arrazone</i> > <i>arrazoin</i> 'reason'    |

Explain as clearly as you can what has happened in these cases. Note that this is not a metathesis: the development involved more than one step, and each step was a process discussed in the chapter.

### Exercise 3.5

The Latin consonant /k/ was spelled <q> before <u>, and <c> in all other cases. In the development of Latin into Spanish, this [k] has developed in an interesting way. In some cases, it remains [k] today. In other cases, it has changed into a voiceless fricative. That fricative is [θ] in standard European Spanish (Castilian) but [s] in most other varieties of Spanish, including all types of American Spanish. In still other cases, [k] has developed into a voiced velar fricative or approximant [ɣ]. Table 3.3 lists some Spanish words illustrating these developments. Identify the circumstances in which each development occurs, and try to propose plausible phonetic reasons for the changes, in terms of what you have learned in the chapter. Is it possible to decide the order in which the various changes must have occurred? How satisfactory do you find your account?

Table 3.3 Latin /k/ in varieties of Spanish

	<i>Latin</i>	<i>Castilian</i>	<i>American</i>	<i>Orthography</i>	<i>Gloss</i>
1.	<i>saccu</i>	[sako]	[sako]	<i>saco</i>	'bag'
2.	<i>caecu</i>	[θjeɣo]	[sjeɣo]	<i>ciego</i>	'blind'
3.	<i>caule</i>	[kol]	[kol]	<i>col</i>	'cabbage'
4.	<i>certu</i>	[θjerto]	[sjerto]	<i>cierto</i>	'certain'
5.	<i>cuna</i>	[kuna]	[kuna]	<i>cuna</i>	'cradle'
6.	<i>corona</i>	[korona]	[korona]	<i>corona</i>	'crown'
7.	<i>aquila</i>	[aɣila]	[aɣila]	<i>águila</i>	'eagle'
8.	<i>facile</i>	[faθil]	[fasil]	<i>fácil</i>	'easy'
9.	<i>pisce</i>	[peθ]	[pes]	<i>pez</i>	'fish'
10.	<i>iocu</i>	[xweɣo]	[hweɣo]	<i>juego</i>	'game'
11.	<i>capra</i>	[kaβra]	[kaβra]	<i>cabra</i>	'goat'
12.	<i>centu</i>	[θjento]	[sjento]	<i>ciento</i>	'hundred'
13.	<i>lacu</i>	[layo]	[layo]	<i>lago</i>	'lake'
14.	<i>facere</i>	[aθer]	[aser]	<i>hacer</i>	'make'
15.	<i>circa</i>	[θerka]	[serka]	<i>cerca</i>	'near'
16.	<i>vicinu</i>	[beθino]	[besino]	<i>vecino</i>	'neighbour'
17.	<i>dicit</i>	[diθe]	[dise]	<i>dice</i>	'says'
18.	<i>caelu</i>	[θjelo]	[sjelo]	<i>cielo</i>	'sky'
19.	<i>calcea</i>	[kalθa]	[kalsa]	<i>calza</i> [obs.]	'stocking'

### Exercise 3.6

Like some other Australian languages, Yinwum has historically undergone some highly unusual phonological changes that are neither easy to classify nor easy to understand in phonetic terms. However, the changes were extremely regular, and all words were apparently affected in the same way. Table 3.4 shows some typical data. The first column gives the (asterisked) form each word is thought to have had in the ancestor of Yinwum, and the second the modern form. Describe the changes in as much detail as you can. If you are writing phonological rules, you may find the formalism somewhat stretched by these data (data from Hale 1976 and Dixon 1980).

Table 3.4 Sound change in Yinwum

	Ancestral	Modern	Gloss
1.	*kalma-	ima-	'arrive'
2.	*wuna-	nwa-	'be lying down'
3.	*t'ungku	ŋke	'black'
4.	*ŋula	lwa	'by-and-by'
5.	*ruŋka-	ŋkwa-	'cry'
6.	*wari-	te-	'dig'
7.	*kuta	twa	'dog'
8.	*kuna	nwa	'excrement'
9.	*kaalka-	aki-	'fall, die'
10.	*puula	ulwa-	'father's father'
11.	*piin'a	in'a-	'father's older sibling'
12.	*piimu	imu-	'father's sister'
13.	*t'aru	tju	'foot'
14.	*t'ampa-	mpi-	'give'
15.	*jana-	ni-	'go'
16.	*n'ilu	lju-	'he'
17.	*n'ungu-	ŋju-	'(to) him/her'
18.	*ŋaju	aju-	'I'
19.	*t'ipa	ɸja	'liver'
20.	*ŋan'i	n'i	'me'
21.	*min'a	n'a	'meat, animal'
22.	*papi	pe	'mother's father'
23.	*ŋat'i	"t'i-	'mother's father'
24.	*kami	me	'mother's mother'
25.	*mukur	"kur	'mother's older brother'
26.	*t'alan	lin	'mouth'
27.	*kuŋka	ŋkwa	'north'
28.	*n'ipi	"pi	'one'
29.	*pama	ma	'person'
30.	*n'at'i-	"t'i-	'see'
31.	*n'iina-	ina-	'sit'
32.	*n'uungka-	i'kwe-	'smell'
33.	*jiipa	ipja-	'south'
34.	*kalka	ika	'spear'
35.	*jinta-	nti-	'spear' (verb)
36.	*t'uku	ke	'tree'
37.	*kuut'i-	ut'i-	'two'
38.	*kumpu	mpu	'urine'
39.	*maji	aji	'vegetable food'
40.	*ŋan'i	n'i	'we'
41.	*ŋana	na	'we all'
42.	*ŋali	le	'we two'
43.	*ŋaani	ani	'what'
44.	*waari	ate-	'who'
45.	*n'ipul	"ɸjul	'you' (pl.)
46.	*n'untu	"ti	'you' (sing.)
47.	*ŋali	li	'you and I'
48.	*japu	ɸju	'younger brother'