

The Sound Structure of English (McCully)

CHAPTER 9: Website

CHAPTER 9: VOWELS (2): LONG VOWELS AND DIPHTHONGS

NOTE TO READERS, AND PARTICULARLY TO TUTORS AND TEACHERS.

THIS CHAPTER CONTAINS MORE IN-TEXT AND END-OF-CHAPTER EXERCISES THAN ANY OTHER. MY EXPERIENCE NOT ONLY OF TEACHING SUCH MATERIAL, BUT ALSO OF CONSTRUCTING THIS WEBSITE TO ACCOMPANY THE HARD TEXT, SUGGESTS THAT EVERYONE WOULD BE WELL ADVISED TO SEE THE WORK CONTAINED IN THIS CHAPTER AS SPANNING TWO WEEKS. (MY HUNCH IS THAT THE WORK CONTAINED IN OTHER CHAPTERS COULD PROBABLY BE ACCOMPLISHED IN ONE WEEK.)

COMMENT ON IN-CHAPTER EXERCISES

9.1, PAGE 130. Do your intuitions about the long vowels in your own phonemic inventory suggest that these vowels are ‘pure’?

9.1, PAGE 130. What theoretical advantages might there be if long vowels were to be analysed as consisting of two non-identical short phonemes? (Clue: think back to syllable structure, and to the notion of a strength-hierarchy correlated with the phonetic openness of segments.)

These questions can with advantage be taken together. First, if your intuitions tell you that ‘there are no such things as “pure” vowels’ then you’d be in good company: Gimson, for instance, writes that ‘The so-called pure vowels of *bee* and *do* frequently contain a glide between the two distinct elements, especially in a final position’ (1994: 89) – a quote which, although noting that any glide occurs *between* the elements of the vowel, at least expresses some unease about the notion of ‘pure vowel’.

Second, in terms of the theoretical advantages there might be if long, ‘pure’ vowels were to be analysed as comprising two non-identical segments then we might want to claim that where such long, ‘pure’ vowels occur then their first element is maximally vocalic, whereas their second element would be some kind of approximant: this what we have symbolised as /i:/ might be symbolised as /ij/, and what we have symbolised as /u:/ might with advantage be symbolised as /uw/. If so, then these transcriptions would be in accord with what, on the grounds of sonority or strength, we might expect to find in the nucleus of an English syllable: the first segment in the nucleus is ‘greater than (or equal to)’ the second in terms of sonority/ strength.

Because this matter opens up such complicated (and largely phonetic) matters I am simply going to duck the problem here, and return to the somewhat traditional

transcription of the ‘pure’ vowels whereby the transcription of *heed* is /hi:d/ and the transcription of *moon*, /mu:n/.

9.2, PAGE 132. Now try to construct two lists, the first containing examples of monosyllables containing /i:/, the second a list of monosyllables containing /u:/. Try to find at least six examples (a total of twelve, 6 front, 6 back), and if you can, make each pair of examples a *minimal pair* (such as *beat* and *boot*). Note: if your variety of English doesn’t have these long vowels (eg. in words such as *peat* or *moon*), don’t worry. The main purpose of the exercise is simply to reassure you that many (in fact, almost all) varieties of English *do* have these vowels, and even if your variety doesn’t have them, it’s a sure bet that you’ll be exposed daily to a variety which does. A secondary purpose of the exercise is to provide us with two reference points – the highest possible long vowels, front and back – by which we can establish the existence of contrastively lower long vowels.

Examples are found for you in-text. Your answer, arranged in minimal pairs, might look something like this (though speakers of some varieties of Scottish English might note that the vowel found in Scots in words such as *food* may not be /u:/, but /ʊ/):

	/i:/		/u:/
beat	/bi:t/	boot	/bu:t/
mean		moon	
bead		bood	
heat		hoot	
feed		food	
leap		loop	

9.2, PAGES 132-33. A helpful two-part exercise at this stage, and one that will help us to establish the existence of *almost all* the other long vowels in Cardinal positions 1 through 8, is to do the following:

i. produce a long, held /i:/ vowel (you might want to sing it). Still holding that vowel, ie. trying to keep the tongue height constant, slowly start to lower your bottom jaw. Note how the quality of /i:/ begins to change as the jaw lowers. Why might that be so?

ii. produce a long, held /u:/ vowel (you might want to sing it). Still holding that vowel, ie. trying to keep the tongue height constant, slowly start to lower your bottom jaw. Note how the quality of /u:/ begins to change as the jaw lowers. Why might that be so?

You have already completed this exercise in 8.1, pages 114-15, so it should be familiar to you. The purpose of the exercise is to make you particularly aware of the (long) vowels which are associated with Cardinal positions 2-4 (the possible set of front vowels, excluding /i:/) and 5- 7 (the possible set of back vowels, excluding /u:/).

9.3, PAGES 139-140. That last sentence contains an implicit invitation which this exercise makes explicit. Analyse your own long vowel phonology. First state your ethnicity, then your gender, then the year in which you were born. Second, and in those terms I've just sketched for my own long vowel phonology, detail your own, paying particular attention to any apparent inconsistencies or gaps in that system. What does such an exercise tell you about your own phonology, and its assumed prestige (or lack of it)? Why do the inconsistencies arise? Where do they come from?

As a supplementary exercise it's useful to compare your findings with that of at least two colleagues, one born in the same year and raised in the same geographical area, and one born earlier or later, and raised elsewhere.

If you find that many of your long vowels aren't in fact 'pure' long vowels at all, read the next two sections of text and then revisit this exercise.

I have already analysed my own long vowel phonology for you in-text. In the box below I repeat my own findings, but add some further notes:

Subject: 50-year-old white male, born Bradford, Yorkshire (1958)

Long front vowel phonology:

/i:/ heed etc.

/e:/ doesn't occur.

[In words such as *mate*, *late*, subject has the diphthong /eɪ/, sporadically /ɛɪ/.]

/ɛ:/ doesn't occur (in words such as *square*, subject has /ɛə/)

/a:/ doesn't occur [a systematic gap]

Long back vowel phonology:

/u:/ moon etc.

/o:/ doesn't occur (in words such as *goat*, subject has /əʊ/)

/ɔ:/ bought, taught, court etc.

/ɑ:/ start, calm etc.

Long mid vowel phonology

/ɜ:/ bird, heard, word etc. [subject has no post-vocalic 'r' in such words, and therefore may be taken to use a non-rhotic variety of English – BUT see below, and see also chapter 11, section 11.4]

9.4, PAGE 140. It's a fact that theoretically-possible diphthongs such as */e:i/ or */a:i/ never occur in any variety of contemporary English. Can you work out why not? Clue: think syllable structure.

Such possible vowels would contain THREE X-slots (morae), whereas the work we've done to date on the structure of the nucleus strongly suggests that there simply cannot be three vocalic segments lying within that constituent of the syllable.

9.5, PAGE 143. For speakers of *non-rhotic* accents, a seemingly plausible transcription of the monosyllable *fear* would be /fɪə/, with a non-centring diphthong. However, consider the following words and phrases, and make a phonemic transcription of them, noting particularly carefully what may (or may not) happen with /r/ in each case:

Word	Transcription	Phrase	Transcription (RP)
<i>fear</i>	/fɪə/	<i>fear is</i>	/fɪər ɪz/
<i>near</i>	/nɪə/	<i>near enough</i>	/nɪər ɪnʌf/
<i>air</i>	/eə/	<i>air is</i>	/eər ɪz/

9.5, PAGE 144. For speakers of *non-rhotic* accents, what arguments might you find for suggesting that the *underlying* structure of eg. *fear* could very well be /fɪər/, that for *near* /nɪər/, and that for *air* /eər/?

This matter will occupy us extensively in chapters 10 and 11, where we'll explore the idea that there may be *phonological rules* available to us which can (for example) *delete* underlying segments. The exercise above, however, asks you to think of *arguments*. Two such simple arguments occur to me:

- (i) it seems very much as if three or four hundred years ago, ALL speakers of English had post-vocalic 'r'
- (ii) (i) can be inferred from the written records: before the evolution of standard written English, literate English people *spelled as they thought they spoke*, and therefore words such as <near> etc. were spelled with a final <r> (reflecting phonological /r/)

If the foregoing is true, then at some point in the history of English, in some varieties post-vocalic 'r' – once historically present - must have been *deleted*, or (possibly better) *must still undergo deletion*. It may be that the synchronic position today is that post-vocalic 'r' is *underlyingly* present *even in apparently non-rhotic varieties of English*, but in those varieties is subject to a phonological deletion rule. The form and working of such a rule is explored in chapter 11, section 11.4.

9.6, PAGE 144. What evidence could you find to support the view that the underlying representation of eg. *fire* in a *non-rhotic* accent could better be analysed as /faiɹ/ than /faɪə/?

The last transcription would be in principle unlikely (if not impossible) since it would suggest that the nucleus of the syllable contained **THREE** vowel segments. That provides a further reason for thinking that even in apparently non-rhotic accents, words such as *fire* might best be analysed as containing a diphthong + final /r/.

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CHAPTER 9: SUGGESTED SOLUTIONS TO END-OF-CHAPTER EXERCISES

Exercise 9.A. This exercise is designed to help you recognise and transcribe diphthongs. Many students have particular difficulty with recognising and transcribing the diphthong /əʊ/, which in some varieties occurs in words such as *lone*, *boat* etc. The difficulty seems to be that having learned that the symbol for schwa is very often associated with unstressed vowels there seems to be a reluctance to use the same symbol as the starting point for a diphthongal glide that may be found centrally in a stressed syllable.

The exercise is simple. Make a phonemic transcription of the following words as they occur in your own phonology. (Note: even if some of these words don't contain diphthongs in your variety, some will – and transcribe all of them anyway.)

boat	bite	bait	owl	airless
/bəʊt/	/baɪt/	/beɪt/	/aʊl/	/eələs/
lonely	biting	baling	housing	hours
/ləʊnlɪ/	/baɪtɪŋ/	/beɪlɪŋ/	/haʊzɪŋ/	/aʊwəz/
hopeless	boating	boiling	airing	royalty
/həʊpləs/	/bəʊtɪŋ/	/bɔɪlɪŋ/	/eəɪŋ/	/rɔɪjəltɪ/

(Here transcribed in my own variety. McC)

Exercise 9.B. During the course of your progress through this book you've studied consonants and their distribution; syllable structure; and have just completed two Chapters' worth of work on vowels. It's time, therefore, to attempt some lengthier pieces of transcription. The following passage, which you should try to transcribe phonemically (in a transcription which captures the phonology of your own variety of English), is the beginning of a famous test-passage given in four varieties of transcription in the pamphlet *The Principles of the International Phonetic Association*.

The north wind and the sun were disputing which was the stronger, when a traveller came along wrapped in a warm cloak. They agreed that the one who first succeeded in making the traveller take his cloak off should be considered stronger than the other.

Make a note of any problems you encounter as you construct your phonemic transcription.

In what follows I shall underline problematic (or simply noteworthy) aspects of my own transcription, and comment on them below the transcription:

/ðə nɔ:θ wɪnd ənd ðə sʌn wə dɪspju:tɪŋ ˌmɪtʃ wəz ðə strɒŋgə mən ə ˌtrʌvlə keɪm ələŋ ˌrʌpt ɪn ə
wɔ:m kləʊk ðeɪ əɡri:d ðət ðə wɒn hu: fɜ:st səkʃi:dɪd ɪn meɪkɪŋ ðə ˌtrʌvlə teɪk hɪz kləʊk ɒf
ʃʊd bɪ kənsɪdəd strɒŋgə ðən ðɪ ˌlðə/

Notes:

- i. *north*: Here transcribed showing no post-vocalic ‘r’
- ii. in rapid and/or casual speech the ‘d’ of *and* may be deleted
- iii. *were*: Here taken to occur in unstressed position
- iv. *-ing*: Would there be a case for thinking that in the suffix <-ing> the <g> was once pronounced (rather as we’ve begun to hint might be the case for post-vocalic ‘r’)? If so, would a plausible underlying transcription of *disputing* be /dɪspju:tɪŋ/ or even /dɪspju:tɪŋ/? (On final <-ng> please see also the ‘further note’ below.)
- v. *which*: /ɹ/ is only present in my own speech sporadically – usually when I’m feeling either nervous, self-conscious (as in voice recordings), or imagine I’m being ultra-polite. Normally, *which* would be transcribed as /wɪtʃ/.
- vi. *stronger*: See note iv. Note also that the word is here transcribed without final ‘r’.
- vii. *traveller*: Here transcribed as bisyllabic. In very slow, careful speech the word might well be transcribed as trisyllabic. Note also the absence of word-final ‘r’ in the present transcription.
- viii. *warm*: Transcription shows no post-vocalic ‘r’.
- ix. *one*: The transcription /wɒn/ is diagnostic of Northern British English, cf. RP/SSE /wʌn/
- x. *first*: No post-vocalic ‘r’
- xi. *his*: Subject apparently speaks a variety that does not show *systematic* dropping of /h/ even where this occurs initially in unstressed syllables. (Compare, however, how the same subject pronounces ‘he’ in the next exercise!)
- xii. *the other*: In slow, emphatic speech the unstressed vowel of <the> might be lengthened (since it apparently precedes a word beginning with a vowel), and/or a glide might well intervene between the two words: /ði:jlðə/.
However, we might also regard glide-insertion of this kind as something that happens *after* underlying structure has been determined....or might we?
- xiii. *other*: Transcribed with no word-final ‘r’

Further note: one thing my students often ask me is ‘What sort of speech should my transcription capture? Formal or informal? Fast or slow? Casual or careful?’ My usual answer is to say that a simple phonemic transcription should capture *relatively*

slow and careful speech. But formality/informality are not the only problems. Making phonemic transcriptions also depends on how *abstract* you wish that transcription to be. We can illustrate that by thinking about how we might transcribe a word such as .

For many speakers it would be at least plausible to transcribe the word as /strɒŋ/. For others – those who pronounce the final ‘g’ – a plausible transcription might be something like /strɒŋg/. However, a great deal depends on just how we analyse the final two phonemes. Here are some pertinent observations:

- (a) /ŋ/ doesn’t occur syllable-initially
- (b) /ŋ/ does occur syllable-finally, BUT ALMOST ALWAYS
- (c) in words spelled with a final <g> (*strong*) or <k> (*ink*)

These data suggest that at some rather abstract level the word *strong* might be represented as underlying (phonemic) /strɒŋg/. If so, such an underlying representation would subsequently undergo two operations: (i) the underlying /n/ would be velarised since it occurs before /g/, and (ii) then (and only then) the final /g/ of the word would be deleted.

To make life even more interestingly complicated, Giegerich (1992: 297-99) postulates the existence of an *archiphoneme*, symbolised /N/, which is then realised as the phoneme /ŋ/ where it occurs before velar consonants. Discussion of the relevant operations and rules is beyond the scope of this book (though I discuss it again very briefly in the web pages relevant to chapter 11) but this note is included if only to persuade you that the issue of *abstraction* must also be taken account of when phonemic transcriptions are being made.

EXERCISE 9.C. Here is a continuation of the same passage as found in Q8.B. I have transcribed the beginning of the next sentence of the passage in my own English. Your task is two-fold: (i) read the transcription, and re-write it in ‘normal’ English; (ii) state what features of the transcription would allow you to identify the speaker as using a variety of Northern British English:

/ðɛn ðə nɔ:θ wɪnd blu: əz hɑ:d əz ɪ kʊd bət ðə mɔ: hi: blu: ðə mɔ: kləʊslɪ dɪd ðə trævlə fəʊld hɪz kləʊk əraʊnd hɪm/

<Then the north wind blew as hard as he could, but the more he blew, the more closely did the traveller fold his cloak around him.>

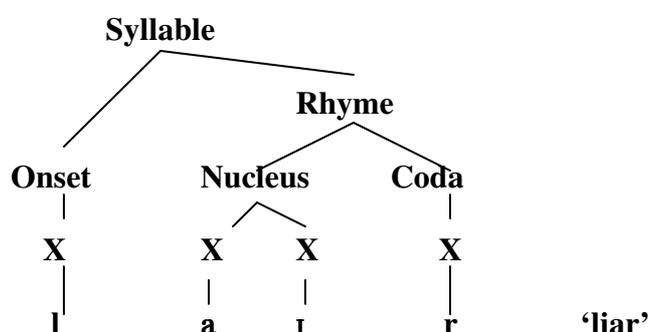
Noteworthy/diagnostic features of Northern British English:

- /ɛ/ in *then*
- /ɪ/ in *he* (here in unstressed position); but elsewhere, /h/ is present: no systematic h-dropping (such systematic h-dropping would be a feature of other varieties, eg. Cockney)
- absence of post-vocalic ‘r’ in *more* (also in eg. *north*)
- no lengthening of final /ɪ/ in eg. *closely*

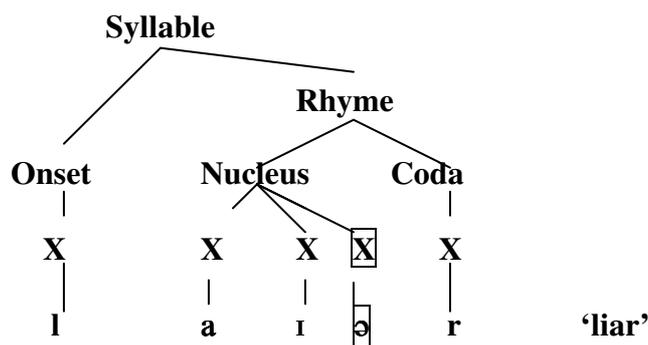
- /a/ (cf. RP /æ/) in the first syllable of *traveller*

EXERCISE 8.D. We noted that some analysts propose that there are triphthongs in some varieties of English. One of Roach's examples is the word *liar*, for which he proposes the transcription /laɪə/ (for speakers of non-rhotic accents). The question I'd like to pose is twofold: (i) is *liar* a monosyllable? And (ii) if it is a monosyllable, what would its syllabic representation be?

Another tricky one – and what follows here is distinctly tentative. For me, *liar* is indeed a monosyllable. The nucleus of the syllable is filled with the two elements of the diphthong. The real problem comes with schwa. Here I'm going to anticipate some of the work we're going to do in chapter 11 – and in so doing, further anticipate the account of /r/-Deletion given in Giegerich (1992: 302) – and suppose that the underlying representation of the word *liar* contains a final 'r':

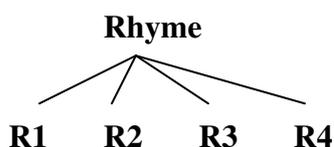


To get our triphthong, then at some point (a) schwa must be *inserted* and (b) final 'r' must be *deleted*. In Giegerich's account, schwa can be inserted into the nucleus only when it is preceded by a non-low, [+tense] vowel (as in eg. words such as *fear*, whose underlying representation might well be /fi:r/), but let's suppose for a moment that schwa can be inserted *after* /ɪ/ (or /ʊ/: *hour, power*) and *before* 'r'. If so, the only constituent into which schwa can be inserted appears to be the nucleus:



If this is along the right lines – and I’m not sure it is – then ‘r’ would be subsequently deleted, and the surface form [laɪə] would result. This would be achieved, however, only at the cost of having a radically il-formed nucleus – one containing three segments!

An alternative? Let’s suppose for a moment that the rhyme doesn’t contain the internal constituents nucleus + coda, but simply a set of slots numbered as follows:



If it’s filled at all, the R4 position *must* be filled by a consonant which is [+coronal] (in effect, dental or alveolar, see here chapter 11, particularly 11.2). Elsewhere, R1 must be stronger than/equally strong as (‘more sonorous than/ equal in sonority to’) R2, whereas R3 must be weaker than R2.

If we were now to insert schwa into such a rhyme then then only slot it could occupy would be R3; meanwhile, underlying ‘r’ would move into R4 – BUT since that slot can only be filled by a [+coronal] consonant, /r/ would therefore be a candidate for deletion.

Significantly, Gimson records that for some speakers, ‘triphthongs’ simply don’t occur: they are long vowels plus schwa. Some BrE speakers, for instance, pronounce *fire* as /ɑ:ə/, whereas for some speakers of GA the same word might well be pronounced /faɪr/.

EXERCISE 9.E. In my own variety of English I have the following ‘pure’ long vowels: /i:/, /u:/, /ɔ:/, /ɑ:/ and /ɜ:/. Sporadically, too (and particularly in rapid speech), I have /ɛ:/ (in words such as *air*).

Try to establish the inventory of your own system of long vowels. (You will know exactly how to do this if you follow the diagnostic procedures we’ve used throughout this book.) It may look very similar to the one I’ve just outlined (which would be a commonplace inventory of long vowels for many speakers of British English) – but it might also be interestingly different.

One relatively easy way of checking your own long vowel inventory would be to use the table included in the text chapter 9. Suppose, for example, you were a speaker of

Irish English. By checking back through the tables found in chapter 9 you'd find that you had

/i:/ *heed*
 /e:(r)/ *square*
 /a:(r)/ *heart*
 /u:/ *goose*
 /o:/ *coat*
 /ɔ:/ *bought*

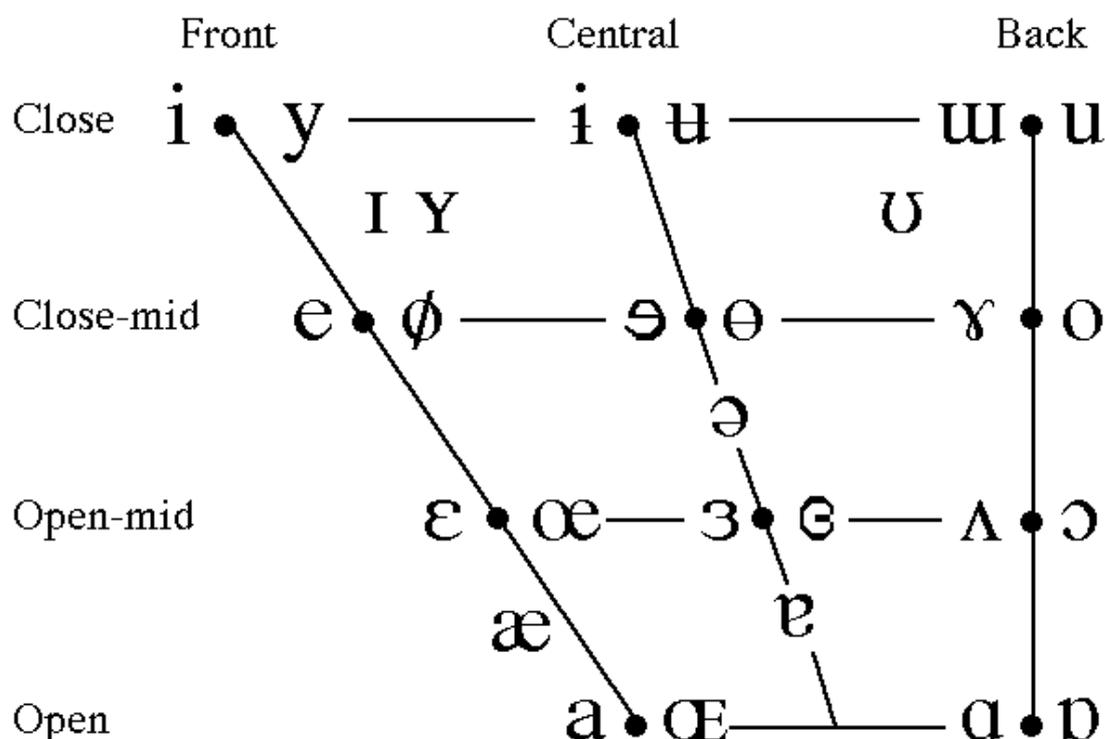
EXERCISE 9.F. This exercise is designed to reveal not so much the long vowel phonemes of your own variety of English, but a *range* of possible long vowels as these *might* occur in the phonology of other varieties of English, and indeed of other languages.

(i) pronounce and hold the vowel /i:/. Keeping your tongue-height constant, begin to round your lips. What quality of vowel is produced?

(ii) do the same as in (i), but this time begin with the vowel /e:/

(iii) do the same as in (i), but this time begin with the vowel /ɛ:/

You might like to consult the chart of vowels found on page 212 and reproduced here:



Where symbols appear in pairs, the one to the right represents a rounded vowel.

In exercise (i) above you should produce /y/ (cf. a short version of French *tu*)

In exercise (ii) above you should produce /ø/ (cf. French *peu*; lengthened version, cf. German *schön*)

In exercise (ii) above you should produce /œ/ (French *oeuf* (short), *veuve* (long))

(Examples in that last exercise from the *Principles of the IPA*.)

EXERCISE 9G. This is commented on above, and you are also directed to the chart (page 212 of the main text) reproduced above.
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Further reading

Appropriate further reading is detailed in the main text

Web references

There's quite a good page in wikipedia about rhotic accents and intrusive/linking 'r':
http://en.wikipedia.org/wiki/Rhotic_and_non-rhotic_accents

At this stage I don't want to recommend you browse more than that, since my own search under 'rhotic accents' in Google turned up a great deal of sheer junk.