PHONETICS AND PHONOLOGY

Phonemic (Broad) Transcription of Australian English

Robert Mannell and Felicity Cox

Note: You should also examine the "Transcription Exercises" pages for examples of transcribed speech.

Phonemic (Broad) Transcription

Phonemic transcription of speech does not attempt to record the extremely large number of idiosyncratic or contextual variations in pronunciation that occur in normal speech nor does it attempt to describe the individual variations that occur between speakers of a language or dialect. Such a detailed transcription is a phonetic transcription and is partially dealt with in the topic on phonetic transcription.

The goal of a phonemic transcription is to record the phonemes that a speaker uses rather than the actual spoken variants of those phonemes that are produced when a speaker utters a word. A phoneme is an abstract linguistic entity that exists entirely in the brain of a speech producer or a speech perceiver. Each phoneme is not a sound, but it is realised in the outside world as a class (or group) of sounds that are actually uttered. Such spoken variants of each phoneme are known as its allophones. See the topic on Phoneme and Allophone for further information.

Strictly speaking a phonetic (narrow) transcription classifies speech sounds in terms of the actually spoken sounds whilst a phonemic transcription classifies speech sounds in terms of the phonemes that a speaker was intending to communicate.

What symbols should we use for a phonemic transcription of Australian English?

Since phonemes are not sounds but rather exist as abstract linguistic entities in the brain, they could be represented by any arbitrary system of symbols. It is convenient, however, to use a standard system of symbols so that other people can understand what we are writing. The most widely accepted system of symbols is the International Phonetic Alphabet (IPA). This alphabet is used to represent both phonemes and allophones in normal practice even though it is defined in terms of actual speech sounds.
When linguists are developing a phonemic description of a language or dialect they most often select the most common or widely distributed allophone of each phoneme as the typical allophone of that phoneme and use its phonetic symbol to represent the phoneme as a whole.

When a symbol is used to represent an actual sound (allophone) it has an entirely different meaning to the same symbol when used to represent a phoneme. For this reason we always enclose transcriptions in /.../ when we are indicating phonemes and in [...] when we are indicating the actually produced sounds.

For example, /k/ might represent a particular English phoneme, which in this case can be realised in actual speech as an aspirated, unaspirated or unreleased velar stop, as a more fronted palatal stop, as a more retracted uvular stop, as a stop produced in some intermediate position between these extremes and also as fricative variants of these stop sounds. The true identity of /k/ is possibly better described by a system of phonological features (see the topic on Distinctive features). [K] on the other hand represents a sound that is an unaspirated velar oral stop.

What symbols should we use for a phonemic transcription of Australian English?

A. CONSONANTS

The symbols for the consonants are not problematic as the phoneme inventories of the consonants of most English dialects are identical and the consonant symbols used below are the same consonant symbols used for the consonant phonemes of British, American, New Zealand, Canadian, South African and other English dialects. There are some differences in the pronunciation of a small number of phonemes but this has not affected the choice of phonetic symbol to be used for each consonant phoneme across these dialects.

B. VOWELS

There is much greater difficulty in determining the symbols for the vowel phonemes. Firstly, there is a significant variation between English dialects in the number of vowel phonemes. Secondly there is considerable variation in vowel phoneme pronunciation between dialects (even those that share the same vowel phonemes). There are different systems applied to British and American English and even different systems applied to different dialects within the United Kingdom and the United States of America.

For many years the system that has most often been applied to Australian English vowels is known as the Mitchell-Delbridge system. This system evolved from the work of Mitchell and Delbridge (between the 1940s and the 1960s) but which was mostly based on the system applied to south eastern British English. The Mitchell-Delbridge system is the one used in the Macquarie Dictionary and traditionally in speech pathology clinics in Australia. However, it is
now progressively being replaced by the HCE system. Whilst still quite widespread, the Mitchell-Delbridge system is not a good reflection of actual Australian pronunciation.

In this course we use instead the system devised by Harrington, Cox and Evans (1997). We use this system because it better represents the average pronunciation of these vowels by speakers of Australian English. It also fulfils the requirement that the symbols used for the phonemic transcription of each phoneme is the most common or widely distributed allophone of that phoneme. For a rationale, see Cox (2012).

For a comparison of several phonemic transcription systems used for the transcription of Australian English vowels, see the topic entitled Vowel Symbols for Australian English Phonemes.

For an overview of the Mitchell-Delbridge system for the phonemic transcription of Australian English, click here.

Phonemes of General Australian English

CONSONANTS

The voiceless (or unvoiced) consonants are on the left and the voiced consonants are on the right in each of the tables, below.

1. Oral stops (or plosives)

<table>
<thead>
<tr>
<th>Voiceless</th>
<th>Voiced</th>
</tr>
</thead>
<tbody>
<tr>
<td>/p/</td>
<td>/b/</td>
</tr>
<tr>
<td>/t/</td>
<td>/d/</td>
</tr>
<tr>
<td>/k/</td>
<td>/g/</td>
</tr>
</tbody>
</table>

2. Affricates

<table>
<thead>
<tr>
<th>Affricate</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>/ʧ/ or /ʤ/</td>
<td>choose</td>
</tr>
<tr>
<td>/ʤ/ or /ʤ/</td>
<td>judge</td>
</tr>
</tbody>
</table>

3. Fricatives

<table>
<thead>
<tr>
<th>Fricative</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>/f/</td>
<td>/v/</td>
</tr>
<tr>
<td>/v/</td>
<td>/v/</td>
</tr>
</tbody>
</table>
4. Nasals (or nasal stops)

- /m/  my
- /n/  no
- /ŋ/  sing

5. Approximants

- /w/  we
- /j/  you
- /ʃ/  leaf
- /ɻ/  run

Note: /w/ and /j/ are also called semi-vowels, because they are very similar acoustically to vowels.

VOWELS

This material should be read in conjunction with the lecture materials on Australian English Vowels.

1. Monophthongs

Long vowels

- /iː/  heed

Short vowels

- /ɪ/  hid
2. Diphthongs

- /æi/  say
- /æi/  high
- /ɔi/  toy
- /ʊə/  cure

**Note:** These vowel symbols differ significantly from the vowel phoneme symbols used for Australian English in the Macquarie Dictionary, but more closely represent the way average speakers of General Australian English actually pronounce these vowels. They also differ from the symbols used for the same vowel phonemes in British and American English. Note the difference between these symbols and the ones used by Ladefoged for American English in the textbook. These differences reflect differences in pronunciation.

**DIAGNOSTIC CHART OF GENERAL AUSTRALIAN ENGLISH VOWELS**

- /I/  *Is a little lipstick permissible for women in Egyptian villages?*
- /iː/  *The trees seem a very deep green this season.*
- /e/  *Fred was sent to bed at twenty to seven.*
- /æ/  *That man had a bad habit of cramming his hats and jackets into a bag.*
- /e/  *It's rather hard to laugh when your fast car can't pass a large fam cart.*
- /æ/  *My brother jumped but stumbled into a muddy puddle.*
Frogs squat on rotten logs in foggy bogs.
The author's small daughter was born on August the fourth.
Look at the cook putting sugar in the pudding.
Who'd choose the juice of stewed fruit such as prunes?
It's absurd for a worker to bum his dirty work shirt.
One of the policemen told them there was a photographer at the corner.
The waiter gave the lady the eight stale cakes.
A bright white light is shining high in the sky.
I'm annoyed that the poisonous oysters have spoilt my enjoyment.
This town has a thousand houses with a mouse in every house.
I hope Joan won't go home alone.
The engineer's gear is near here on the pier.
Sarah has fairer hair than Mary.

/ʊə/ note: There is a great deal of inter-personal variability for this centring diphthong. Some people use it for some words, other people for other words. Some speakers don't use it at all (or only rarely) substituting either /ʊə:/ (a sequence of 2 phonemes) or /Oː/ (a long monophthong). For this reason no examples are given here.

EXERCISES

1) Find the errors in the consonant phonemes in the following transcription. In each word there is one error, indicating an impossible variety of English.

1. slang /slæŋ/
2. crime /craɪm/
3. lamb /læmb/
4. wishing /wɪʃɪŋ/
5. knives /næɪvz/
6. these /θiːz/
7. hijack  /hæjæk/
8. swimming /swɪmminŋ/
9. sixty /sɪstiː/
10. myths /mɪths/
11. exclusion /əkskljuːʃən/
12. human /hjuːmən/

2) A pair of words which differs in only one phoneme is said to be a minimal pair. Find minimal pairs for the following. It is acceptable to write the orthographic form for each word. Phonemic transcription is not required.

<table>
<thead>
<tr>
<th>initial position</th>
<th>final position</th>
</tr>
</thead>
<tbody>
<tr>
<td>/p b/</td>
<td></td>
</tr>
<tr>
<td>/t d/</td>
<td></td>
</tr>
<tr>
<td>/k g/</td>
<td></td>
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<tr>
<td>/f v/</td>
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<td>/s z/</td>
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<tr>
<td>/m n/</td>
<td></td>
</tr>
<tr>
<td>/n ŋ/</td>
<td>---</td>
</tr>
<tr>
<td>/l l/</td>
<td>---</td>
</tr>
<tr>
<td>/tʃ ʃ/</td>
<td></td>
</tr>
<tr>
<td>/p f/</td>
<td></td>
</tr>
<tr>
<td>/d z/</td>
<td></td>
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<tr>
<td>/t θ/</td>
<td></td>
</tr>
<tr>
<td>/h w/</td>
<td>---</td>
</tr>
<tr>
<td>/s θ/</td>
<td></td>
</tr>
</tbody>
</table>

**Word Stress**
PRIMARY STRESS

In English, the syllables of words differ in prominence. In polysyllabic words (words of more than one syllable), one of the syllables always has a greater degree of prominence than any other syllable. The syllable of greatest prominence is known as the primary stressed syllable, or the syllable that carries primary stress. The primary stressed syllable can be marked by placing a ' mark in the following way:

- a'part
- de'fine
- 'pattern
- 'metal
- 'pamela
- 'impudent
- 'miserable
- pho'netics

In monosyllabic words (words of one syllable), the outcome is unambiguous: the syllable, i.e. word, has primary stress (e.g. heat, look, greet) and does not need to be marked.

SECONDARY STRESS

Many words have two stresses, one primary and one secondary. The secondary stress can be marked by placing a diacritic before the syllable which has secondary stress:

- ,aca'demic
- a,polo'getic
- ,eco'nomic
- ,expla'nation
- de,libe'ration
- en,viron'mental
FURTHER COMMENTS

(i) words that have secondary stress are very often morphologically related to simpler forms

eg. /əˈpolədʒɪk/ /əˈpɒlədʒɪ/;

′gene′rosity / ′generoʊs/. (ii) secondary stress (mostly) precedes the primary stress

(iii) at least one syllable (usually) intervenes between the secondary and primary stress

Exceptions to (ii) and (iii): Compounds

A compound is a word which is composed of two separate words. Examples would be roadblock, sunglasses and loudspeaker. These have two stresses, one of them primary, the other secondary. The secondary stress can precede or follow the primary stress, and there need not be an intervening syllable:

′sur′charge
′black′board
′super′market
′sun′glasses
′loud′speaker
′up′stairs or ′up′ˈstairs
′out′stare

Exceptions to (ii) and (iii): Unreduced syllables

There are some words in which the secondary stress can follow the primary stress. In such cases, it is conventional to refer to the secondary stressed syllable as an unreduced syllable.
The same diacritic can be used to indicate an unreduced syllable.

<table>
<thead>
<tr>
<th>Primary</th>
<th>Unreduced</th>
</tr>
</thead>
<tbody>
<tr>
<td>'alter,nate</td>
<td>al       nate</td>
</tr>
<tr>
<td>'rea,lise</td>
<td>re       lise</td>
</tr>
<tr>
<td>'systema,tise</td>
<td>sys    tise</td>
</tr>
<tr>
<td>'anec,dote</td>
<td>an      dote</td>
</tr>
<tr>
<td>'sylla,bub</td>
<td>syll    bub</td>
</tr>
<tr>
<td>'rhu,barb</td>
<td>rhu     barb</td>
</tr>
<tr>
<td>'diph,thong</td>
<td>diph    thong</td>
</tr>
<tr>
<td>'po,tash</td>
<td>po      tash</td>
</tr>
</tbody>
</table>

In some cases, the occurrence of an unreduced syllable is predictable (e.g., words ending in -ate or -ise), in others it is not. Note that there is also not necessarily a requirement that an unstressed syllable intervene between the primary stressed and unreduced syllable.

**UNSTRESSED SYLLABLES**

In almost all cases, syllables other than primary stressed, secondary stressed or unreduced syllables are *unstressed*. In General Australian English, the large majority of the vowels of unstressed syllables can be transcribed as /ə/:

| /əb'dɛkt/ | abduct |
| /əd'mit/  | admit  |
| /kəm'bæŋ/ | combine |
| /ˌkɑnfə'mæriən/ | confirmation |
| /kən'dɪʃən/ | condition |
| /ə'laebəˌræət/ | elaborate |
| /pə'tɛŋl/  | patrol |

There are also some cases when unstressed vowels have a quality other than /ə/. It is not possible to list them all, but some of these include:
Some words that end in unstressed -ish, -ic, -ism and -ing

☞ /ˈrædɪʃ/   radish
☞ /ˈmjʊərɪk/   music
☞ /ˈkəmjənɪzəm/   communism
☞ /ˈrʌnɪŋ/   running

/iə/ and /ʊə/ in unstressed syllables (nb. not /Iə/ and /ʊə/)

Unstressed /iː/ and /ʊː/ occur in a number of words before /ə/, some of which are given below:

☞ /ˈænjʊəl/   annual
☞ /ˈækʃʊəl/   actual
☞ /kənˈtʃɪnjuəs/   continuous
☞ /ˈɡædʃən/   guardian
☞ /ˈdʒuːnɪə/   junior (nb. can also be pronounced /ˈdʒuːnɪə/)  
☞ /ˈvərɪəs/   various

Word-final unstressed /iː/ and /əu/

/iː/ in words like ☞ very, ☞ city, ☞ every

/əu/ in words like ☞ potato, ☞ barrow

Unstressed vowels preceding stressed vowels
SOME FURTHER COMMENTS ON SCHWA /ə/

Schwa is also known as the "indeterminate vowel" because its exact pronunciation varies with context. Sometimes schwa has a quality reminiscent of /e/, sometimes /æ/ and sometimes of other vowels. In other words it is not always a central vowel with a quality similar to that of /ɜː/. Its main distinguishing feature is that it is a very short, unstressed vowel with a tendency to be more centred than the majority of the vowels. Very often you will hear speakers pronounce a vowel such as the final vowel in "mother" in a way that makes it sound like /e/ rather than what you might expect /ə/ to sound like. Such a sound is still considered to be a schwa, however. In a word final position the only vowels that can occur are the long monophthongs, the diphthongs and schwa. There is a rule in English which only permits long vowels (ie. long monophthongs and diphthongs) in open syllables (syllables that end in a vowel rather than a consonant). The only exception to this rule is schwa, which occurs because it is a reduction of a long vowel. So, if you hear /e/ at the end of a word such as "mother" treat it as /ə/.

EXERCISE

Primary and secondary stress

Mark primary stress using ' and any secondary stressed or unreduced syllables using . You do not need to give a phonemic transcription. Mark stress as it occurs in the recording.

Example: economic Answer: 'ecoˌnomiκ

(i) ˌəkˌɑməˈdeɪʃən accommodation
(ii) ˌsɜːrˈtənси certainty
(iii) ˌɔrθəˈdɔks orthodoxy
(iv) ˌfænəˈtikal fanatical
(v) ˌɡriːnˈhoʊs greenhouse
(vi) ˌmɛθəˈdɪkl methodical
(vii) ˌʌŋˈbɛləˈvər unbelievable
(viii) ˌədəˈleɪdə Adelaide
**Syllabic consonants**

A syllabic consonant occurs when there is no vowel in a syllable. Certain sonorant consonants (nasals and approximants) can replace a vowel as the nucleus of a syllable. We call such consonants "syllabic". In English, syllabic consonants occur frequently in some contexts and less frequently in others. Whilst in certain contexts syllabic consonants occur with very high frequency, it is not obligatory for this to happen. The frequency of use of syllabic consonants is speaker-dependent.

Syllabic /n/ and /l/ occur, with very high frequency, after alveolar consonants at the end of words. Additionally, syllabic /m/ sometimes occurs when there is a preceding /b/ or /ð/. In phonemic transcriptions we include the preceding (weakened or deleted) schwa (/ə/). In words subject to this process there is a continuous range of degrees of vowel weakening, from partial weakening to complete vowel deletion but the syllable still exists, so we indicate this in phonemic transcription by indicating the vowel. This is speaker dependent and also depends upon rate of speech. For this course, you will include the schwa in your phonemic transcriptions. Only in phonetic transcriptions will we delete the schwa (when appropriate) and only in phonetic transcriptions will we indicate, using a diacritic, that a consonant is syllabic (when appropriate).

In the following examples the vowel has been greatly reduced or deleted and the final consonant has been judged to be syllabic BUT for phonemic transcriptions of such words you must indicate the schwa. In other words, for your phonemic transcriptions you don't need to determine whether or not the vowel has been fully deleted, partially deleted, reduced in duration and strength or fully maintained. If you hear two syllables, whether or not you can hear the vowel, treat the vowel as phonologically present and include it in your phonemic transcription.

- /bɛtən/ button
- /sædən/ sadden
- /dezən/ dozen
- /kætəl/ cattle
- /mɪdəl/ middle
- /kɛːsəl/ castle
- /mezəl/ muzzle
- /fænəl/ final
- /ælbəm/ album
The word in connected speech

When words occur in connected speech, there can be many modifications to their phonemic form compared with their production in isolation. It is not possible to cover all the different kinds of modifications that can arise. Some of the more important changes are listed below.

(I) FUNCTION WORDS

The label function word is often used to describe a class of words which serves a purely grammatical role. Since their presence is usually predictable from context, their vowels can reduce to \[ \text{[ə]} \] and some of their consonants may also be deleted. Some function words are given below. The left column shows the forms that might occur when the words are produced in isolation (the citation form), the right columns include forms which are more typical of continuous speech.

<table>
<thead>
<tr>
<th>Word</th>
<th>Citation</th>
<th>Continuous speech forms</th>
<th>Rapid speech forms</th>
</tr>
</thead>
<tbody>
<tr>
<td>am</td>
<td>/æm/</td>
<td>/əm/</td>
<td>/m/</td>
</tr>
<tr>
<td>an</td>
<td>/æn/</td>
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<td>/n/</td>
</tr>
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<td>and</td>
<td>/ænd/</td>
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<td>/æz/</td>
<td>/əz/</td>
<td>/z/</td>
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<td>been</td>
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<td>/bət/</td>
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<td>/d/</td>
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<td>from</td>
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<td>Word</td>
<td>Pronunciation</td>
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<td>/jʊː/, /jə/</td>
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</tbody>
</table>

Note in the above table that there are occasions where it is common to produce the citation
form in connected speech. Such common cases are repeated in the continuous speech column and marked with a *. In some cases that form is only normally reduced in rapid speech, whilst in some cases there is both a reduced and an unreduced connected speech form, which may be selected between at the whim of the speaker or for semantic reasons. Further, occasionally even the most commonly reduced words, such as "the" may be pronounced as the citation form in connected speech when there is a strong semantic need to stress that word:

eg. "This isn't just A book, this is THE book." (referring to a book of particular importance to the speaker)

You might also note that for some of the pronouns there are some forms surrounded by round brackets. These forms are the "dropped h" forms which some speakers use in normal connected speech. Other speakers choose forms with the "h" intact in normal connected speech, but may "drop the h" in rapid speech.

(II) POST-VOCALIC /ɹ/ (WORDS SPELT WITH A FINAL "R" OR "RE")

In Australian English /ɹ/ is only pronounced after vowels in certain circumstances. This is because Australian English is a non-rhotic dialect.

/ɹ/ may be pronounced at the end of words if the following word begins with a vowel or diphthong. The following transcriptions would therefore be appropriate:

At the end of sentences, when produced in isolation, or preceding a pause, no /ɹ/ is pronounced:

♪ /ðə keː:/

the car

Before words that begin with consonants, no /ɹ/ is pronounced:

♪ /ðə keː siːt/

the car seat

Before words that begin with vowels, /ɹ/ may be pronounced:

♪ /ðə keː iz in ðə dræv/  the car is in the drive

This is an example of linking /ɹ/.

/ɹ/ can also be present in the absence of orthographic "r". This is called "intrusive /ɹ/" and
can occur when the vowels /eː/, /ə/ or /oː/ are followed by a vowel in the next syllable within or across words.

drawing

Tina Arena

(III) ASSIMILATION

In continuous speech, alveolar consonants can assimilate to the place of articulation of a following consonant in certain contexts. This process is certainly not obligatory, but it is nevertheless sufficiently common that the rules should be known.

a) alveolar consonants can assimilate to a bilabial place of articulation before labials

might put
might buy
might make
might win
should put
should buy
should make
should win
seen Peter
seen Bill
seen Mike
seen Walter

b) alveolar consonants can assimilate to a velar place of articulation before velar consonants

might come
might go
should come
c) alveolar fricatives can assimilate to a palato-alveolar place of articulation before /ʃ/ and /j/:

- /ʃɪʃɪp/ this shop
- /ʃɪʒɪp/ these sheep
- /ʃɪʃɪə/ this year
- /telʒɪə:/ tells you

When the following word is a function word, the /j/ may also be elided:

- /ɪŋkærɪʃəni:dæt/ in case you need it
- /hæʒəletəkəm/ has your letter come?

d) alveolar stops and a following /j/ may merge to form an affricate:

- /ʃetʃərez/ shut your eyes
- /dɪdʒə:/ did you?

e) word-internal assimilation

The same processes of assimilation can also take place word-internally. Often this will be in compounds or words that are formed from a root+affix eg.:

- /ɡʊbbae/ good-bye
- /tæbpəul/ tadpole
- /ɛmnu:vəd/ unmoved
- /hoːʃʃuː:/ horse-shoe

(IV) CONSONANT DELETION
/t/ and /d/ are particularly prone to delete when they occur between two consonants. Some examples are given below:

<table>
<thead>
<tr>
<th>Full Form</th>
<th>Deleted Stop</th>
<th>Deleted Stop Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>/əmendz/</td>
<td>/əmenz/</td>
<td>amends</td>
</tr>
<tr>
<td>/hændfʊl/</td>
<td>/hænfʊl/</td>
<td>handful</td>
</tr>
<tr>
<td>/dərekli:/</td>
<td>/dərekli:/</td>
<td>directly</td>
</tr>
<tr>
<td>/ɪnvestmənt/</td>
<td>/ɪnvesmənt/</td>
<td>investment</td>
</tr>
</tbody>
</table>

/t/ and /d/ can also delete in many cases when the following consonant belongs to a different word:

<table>
<thead>
<tr>
<th>Full Form</th>
<th>Deleted Stop</th>
<th>Deleted Stop Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>/nekst dæɪ/</td>
<td>/neks dæɪ/</td>
<td>next day</td>
</tr>
<tr>
<td>/əuld mæn/</td>
<td>/əul mæn/</td>
<td>old man</td>
</tr>
</tbody>
</table>

Some final notes on problems related to the phonemic transcription of Australian English

As you attempt the transcription practice exercises you will notice some discrepancies between what you might expect and what we have supplied as a correct transcription. These discrepancies may be due to one of the following reasons:-

1. The principles or "rules" outlined above are what would be expected to occur most of the time, not all of the time. These rules are probabilistic. That is, they predict what is likely to occur, not what must always occur. Even the very common alveolar assimilations don't always occur and a couple of exceptions can be found in the practice exercises. You must listen and decide for yourself if a predicted rule has been applied by a speaker. Use the rules as your starting point, but then listen and determine if they have actually been applied.

2. Sometimes schwa is confused for another vowel. Read "some further comments on schwa", in the text above.

3. Sometimes we have indicated a voiced oral stop or fricative, but you hear its voiceless counterpart. This is because of a process known as "devoicing" which occurs for these sounds when they precede a pause or a voiceless consonant. This is dealt with in the section on phonetic transcription. For now, and only when the circumstances outlined in the next sentence are true, indicate the voiced stop or fricative when the orthography indicates the voiced sound and the voiceless stop or fricative when the orthography indicates the voiceless sound. Only do this, however, for a stop or fricative:-

- at the end of a word uttered alone
- at the end of an utterance
• at the end of a word immediately preceding a pause (eg. before a comma or a full
stop)
• at the end of a word when the next word starts with a voiceless consonant.

BUT, be very careful of how you transcribe the {-s} and the {-ed} morphemes as these are
allocated "allomorphs" (alternative pronunciations of a morpheme) on the basis of the
following rules:

{-s} morpheme (verb 3rd person singular present tense, or noun plural)

{-s} $\rightarrow$ /əz/ following a /s/, /z/, /ʃ/, /ʒ/, /tʃ/ or /dʒ/ (e.g. "glasses", "mazes", "lashes", "catches")

/gleːsəz/  glasses
/mæizəz/  mazes
/læʃəz/  lashes
/kætʃəz/  catches

$\rightarrow$ /z/ following a vowel or a voiced consonant (other than /z/, /ʒ/, or /dʒ/) (e.g. "dogs", "pads", "bins")

/dogz/  dogs
/pædz/  pads
/binz/  bins

$\rightarrow$ /s/ following a voiceless consonant (other than /s/, /ʃ/, or /tʃ/) (e.g.
"cats", "tips", "packs")

/kæts/  cats
/tips/  tips
/pæks/  packs

For example in

{-ed} morpheme (verb past tense)

{-ed} $\rightarrow$ /əd/ following /t/ or /d/ (e.g. "wanted", "guided")
/wontəd/ wanted
/gaʊdəd/ guided

/d/ following a vowel or a voiced consonant (other than /d/) (e.g. "rowed", "dodged")

/rəʊd/ rowed
/dɒdʒd/ dodged

/t/ following a voiceless consonant (other than /t/) (e.g. "tossed", "walked")

/tɔst/ tossed
/wɔːkt/ walked

4. Occasionally we make mistakes in our transcriptions. If you think that we have made a mistake, let us know and we will double check to see if an error has occurred.

REFERENCES
