4 Discourse analysis and phonology

Alice felt even more indignant at this suggestion. 'I mean,' she said, 'that one can't help growing older.'

'One can't, perhaps,' said Humpty Dumpty, 'but two can.'

Lewis Carroll: *Through the Looking Glass*

4.1 Introduction

Under the heading of phonology in this chapter we shall take a brief look at what has traditionally been thought of as 'pronunciation', but devote most of our attention to intonation. This is partly because the most exciting developments in the analysis of discourse have been in intonation studies rather than at the segmental level (the study of phonemes and their articulation) and partly because intonation teaching, where it has taken place, has proceeded on the basis of assumptions that are open to challenge from a discourse analyst's viewpoint.

4.2 Pronunciation

Traditional pronunciation teaching has found its strength in the ability of linguists to segment the sounds of language into discrete items called *phonemes* which, when used in the construction of words, produce meaningful contrasts with other words (e.g. the phonemes /p/ and /b/ in English give us contrasts such as *pump* and *bump*, *pat* and *bat*, etc.). The position and manner of articulation of phonemes in a language like English are well described and can be presented and practised in language classes either as isolated sounds, in words, in contrasting pairs of words or in minimal contexts. Such features will probably long remain the stock-in-trade of pronunciation teaching and, if well done, can undoubtedly help learners with difficulties.

Seen from the viewpoint of connected stretches of naturally occurring discourse, the problem becomes more complex. When words follow one another in speech, phonemes may undergo considerable changes. A simple example is the difference between the normal spoken rendition of 'good evening' [gʊdiːvnɪŋ], and that of 'good morning' [gʊbmɔːnɪŋ]. The /d/ of the *citation form of good* (the way the word is said when isolated, out of context) becomes more like a /b/ when it precedes the bilabial /m/ of *morning*. As G. Brown (1977:57) puts it: 'every consonant and every vowel will be affected by its neighbouring consonants and vowels and by the rhythmic structure in which it occurs.' Brown lists many examples of such *assimilations*, and of *elisions* (where sounds from the citation form are 'missed out' in connected speech: 'most men' will be said without a /t/ in natural, conversational speech).

Reader activity 1 ☞

Assimilations and elisions

Consider how the following would be articulated in informal conversation in Standard British English (or, if you speak another variety, in that variety). What changes would take place to the way the pronunciation of the individual words in isolation are represented in dictionaries?

1. ten or eleven months ago
2. I asked him what went on
3. not her! not Mary!
4. considering my age, I ran miles

Good advanced learners of English use assimilations and elisions naturally, but a surprising number of quite advanced learners continue to articulate the citation-form phonemes of English words in casual, connected speech. This will not usually cause problems of communication but is undoubtedly a contributing factor in 'foreign accent', and there may be a case for explicit intervention by the teacher to train students in the use of the most commonly occurring assimilations and elisions by practising pronunciation in (at least minimal) contexts. Alternatively, the answer may be to tackle the problem simultaneously from a 'top-down' and 'bottom-up' approach, on the premise that articulation, rhythmicity (see below) and intonation are inextricably linked, and that good intonation will have a washback effect on articulation in terms of reduced and altered articulations of individual phonemes, alongside the specific teaching of phonemes and the most common altered and reduced forms.

In some respects the most neglected aspect of the teaching of pronunciation has been the relationship between phoneme articulation and other, broader features of connected speech. Pennington and Richards (1986) argue that pronunciation *is* important as an aspect of discourse-oriented language teaching and that three areas, or components, should be addressed: segmental features, voice-setting features, and prosodic (intonational) features. The segmental, or phoneme-based, view of teaching, they argue, needs to be supplemented by concern with 'general articulatory characteristics of stretches of speech'. These include voice-setting features, such as, for example, the general tendency towards retroflex articulation in Indian speakers of English, which can cause persistent difficulties for the non-Indian listener. The prosodic component consists of stress and intonation. Pennington and Richards see pronunciation as a *constellation* of features manifested not just in the articulation of particular phonemes but in the stream of connected speech that is natural discourse.

Things such as voice-setting features are difficult to tackle, and are largely ignored in present-day teaching materials, but advice to learners on the typical settings of the speech organs that give each language its unique character when heard can help to improve the overall sound of the learner's performance. In fact, Honikman (1964) advocates establishing the voice-setting first, and *then* the details of articulation, thus taking a top–down approach.

4.3 Rhythm

When we listen to a stretch of spoken English discourse, we often feel that there is a rhythm or regularity to it, which gives it a characteristic sound, different from other languages and not always well-imitated by foreign learners. The impression of rhythm may arise out of a feeling of alternation between strong and weak 'beats' in various patterned recurrences:

(4.1)
/ – – / – / – / –
Most of the people were visitors.

(4.2)
– / – – / – / –
A friend of mine has bought a boat.

(4.3)
– / – – / – – / – / – / –
A week at the seaside is just what I need.

(4.4)
– – / – – / – / – / – /
and the speed limit was five miles an hour

Brown (1977) found such recurring patterns in her recordings of broadcast talk. But other natural speech is often not as regular as this, nor will the patterns necessarily recur in the same way at different times. If we dip at random into natural data, we find stretches such as:

(4.5)
– – – / / – – / – / – – – / –
there was a sharp turn at the end of this village

(Author's data 1989)

Sometimes, in order to capture a felt rhythmicality, we can mark *silent beats* to maintain the rhythm:

(4.6)
– – / – – / (–) / – / –
there's a house over there, (–) isn't there

Another way of looking at this is to say that utterances can be divided up into groups of syllables that have more or less the same duration, called *feet* (a *foot* as a unit must contain one stressed syllable). Within each foot, syllables will be 'stretched out' or 'squeezed together', depending on how many there are, to maintain the rhythmic time span, as in:

(4.7)
/ – – / – / / /
This is the one that Frank bought

where the first foot has two weak beats, the second has one, and the third and fourth have none, but where all the feet are perceived to be of more or less the same duration.

Reader activity 2

Imagine contexts for these utterances and then mark them with / for stressed beats and – for unstressed beats:

1. What's the matter with Mary?
2. I knew she would come in the end.
3. Put salt on those chips if you want to.
4. He works on a farm, doesn't he?

In fact, instrumental analysis may reveal that the 'beats' are anything but precisely regular in real time and as we shall see, there are problems with such an account of rhythm. Nonetheless, the overall experience of rhythm is often still present. This general feeling we shall refer to as *rhythmicality* (see Couper-Kuhlen 1986: 55).

Traditionally, rhythm has been considered an important element in the teaching of spoken English. This is probably due to two main factors. Firstly, there does seem to be rhythmicality in varying degrees in long stretches of speech, especially carefully considered deliveries such as broadcast talks, fluent reading aloud, speeches and monologues, as well as some ordinary conversation. Secondly, the concept of English as a *stress-timed*

language, deeply rooted in theoretical and applied linguistics, has dominated approaches to the teaching of rhythm.

To take the second factor first, the notion that the languages of the world can be classified according to rhythmic criteria has persisted throughout this century. The principal distinction is made between *stress-timing* and *syllable-timing*. Broadly speaking, languages such as English and Arabic are said to have more or less equal time spans (or *interstresses*) between stressed syllables, so that any intervening syllables, the number of which may vary, are made to fit into the available space between stresses. Stressed syllables are longer in duration than unstressed ones. Languages such as French and Spanish, on the other hand, have regular syllable length for both stressed and unstressed syllables, and are thus timed according to their syllables, or *syllable-timed*. While this distinction may correspond to some strongly felt perception of the different characteristic rhythms of languages, there is little hard instrumental evidence for it. In fact, in recent years, quite a lot of convincing *counter-evidence* has been presented. Dauer (1983) examined data in English, Thai, Spanish, Italian and Greek, and concluded that interstress intervals were no more regular in English than in Spanish, a so-called syllable-timed language, and several other investigations similarly challenge the stress-timed/syllable-timed distinction (e.g. Borzone de Manrique and Signorini 1983). We are forced to conclude, therefore, that the notion that English is stress-timed is unproven, and that perceptions of rhythmicality may have their origins in other phenomena of connected speech. The lack of evidence anyway undermines those teaching approaches that advocate training in reproducing utterances according to carefully timed beats on stressed syllables, using metronomes, table-tapping or hand-clapping (e.g. Greenwood 1981).

Bolinger (1986: 37–45) attempts to simplify the timing of interstresses and to account for rhythmicality with a few basic rules, and his account has been advocated as a basis for the teaching of rhythm by Faber (1986). Bolinger's description is based on the idea that English has two kinds of vowels, *full* and *reduced*. The reduced vowels are schwa /ə/, /ɪ/ as in 'silliness', /ʊ/ as in 'soloist', and 'syllabic' consonants (e.g. 'rabble'). Other vowels are full vowels. Full (F) and reduced (R) correspond to syllable types which can be called *long* (L) and *short* (S). For example:

(4.8)   an unforgettable person
           R   F   F   R   F   R
           S   L   S   L   S   L   (syllables)

Bolinger's rule is simple: if an F is followed by another F or by a pause, then the first F becomes 'extra'-long (LL); compare the syllable rhythms of *seller* and *sell-by*:

(4.9)   the seller's advice
           F R
           L S

(4.10)   the sell-by advice
           F   F
           LL L

It must be noted that Bolinger is talking about the *timing* of the whole syllable, not the extending or drawling of the vowel. Another way of articulating the rule is that LL is the norm for full-vowelled syllables, but when followed by any S, the S 'borrows' time from LL, making it only L, as in *hat-box* and *hatter*:

(4.11)   hat-box   hatter
           LL L   L   S

Reader activity 3 🔑

Analyse the following utterances according to Bolinger's principles, labelling them with F and R for vowel-types and LL, L and S for syllable-types. Then try a loud reading of the phrases. Does Bolinger's system produce a natural rendition?

1.   Which hat shall Jo wear to the drinks party?
2.   I met Bill Smith in town at lunchtime.
3.   A bottle of mineral water.

'Borrowing', as illustrated in (4.11), means that rhythmic groups of approximately the same duration are produced in connected speech. The theory is appealing in its relative simplicity, but it suffers from a worrying circularity in that reduced vowels are only reduced because they are unstressed, whereas Bolinger's rule tends to take the question of stress out of the equation. The traditional stress-timing view, despite its shortcomings, recognises that vowel length and quality are dependent on stress. It is also difficult to see how such rules could be transferred into the language class except in the form of practice in repeating small chunks of ready-made language of phrase- or clause-length in the hope that some underlying competence will develop that can be transferred to the situation of natural speech production. Faber's optimism on the classroom applicability of Bolinger's theory may be somewhat misplaced.

It seems then that there is some basis in the notion of rhythmicality, if only as an as yet ill-described characteristic of English, but it is difficult to

see how the stress-timing notion can be of much direct use in the language class where the emphasis is on natural discourse.

Not enough is yet known about rhythmicality in talk, or what its functions, if any, might be, and speculation abounds. Some phonologists feel that, in spoken interaction, the rhythm a speaker establishes and conforms to represents an underlying *tempo* (basically the pace or speed of speech, just like the relationship between rhythm and tempo in music), which governs interaction and which gives important clues to participants concerning things such as turn-taking (Scollon 1982). Others see a different organising function in rhythm, in the dividing of information into coherent chunks for the listener (Taylor 1981), and yet others have argued for the importance of the role of rhythm in the overall perception of stresses on the part of the listener (Gumperz 1982: 109). But none of these accounts is entirely convincing.

The idea of stress-timing has been reinforced by a phonological tradition concerned with analysing literary texts, careful readings, broadcast talks and the like. Natural conversation certainly does not lend itself to regular rhythm-tapping, even though the flow of talk is punctuated (often regularly) with perceived stresses, and the business of spontaneous speech production hardly gives time for careful rhythmic pre-planning and 'keeping the beat' (even more so for the non-native speaker struggling with all the other encoding difficulties). Rhythm training in the classroom can only work with textual *products* rather than the process of creating rhythmic talk, and, indeed, forcing learners to indulge in artificially 'cramming' stressed and unstressed syllables into a regular rhythm may take their attention away from the genuinely interactive aspects of stress, not least the *speaker's choice* as to what is to be stressed and what not. It is to the interactive arena of where and when stress is placed that we next turn.

4.4   Word stress and prominence

At this point, it is useful to change our terminology slightly and introduce the term *prominence*. Syllables which stand out in the flow of talk, because the speaker has uttered them with relatively greater intensity, or duration, or pitch variation compared with surrounding syllables (and our perception of this phenomenon will usually be due to a variety of such features), will be referred to as *prominent* syllables (see Brazil 1985a and b). It is helpful to have this special term, *prominence*, so as not to confuse *word stress*, which words bear in their citation forms (sometimes called their *isolate* pronunciations), with what concerns us most here: the *choice* of the speaker to make certain words salient by giving prominence to syllables. This is therefore a more precise use of the term *prominence* than is found in some sources (e.g. Cruttenden 1986: 7).

A word such as *Japanese* in citation form would have a word-stress profile of:

(4.12) $\overset{2}{\text{JA}}$pa$\overset{1}{\text{NESE}}$

where 1 represents so-called *primary* stress, and 2 *secondary* stress. But it is clear that prominence can occur differently on these two syllables, or indeed not at all, depending on the speaker's choice as to where the main stress (the 'sentence stress', or 'tonic') is placed in the utterance; the main stresses are underlined.

(4.13)   ACtually, she's japaNESE

(4.14)   a JApanese SHIP-owner's been KIDnapped

(4.15)   i thought SHE was japanese, NOT HIM

So word stress, as it is traditionally understood, and prominence, as we shall use it here, are two distinct levels. Where they overlap, of course, is in the fact that prominences may not be distributed just anywhere in the word, but may only fall on certain syllables. Where two prominences can occur in the same word, as is often the case with a whole class of words such as *JApanESE, UNiVERsal, conGRAtuLAtions*, etc., the second will always be the stronger. Thus *Japanese* may commonly receive prominence on *JA* or *NESE* or both, but will rarely if ever be realised as *jaPAnese*. Many other polysyllabic words may only have one *prominence* but may still have primary and secondary word stress (e.g. $\overset{1}{\text{CA}}$talyst, $\overset{2}{\text{CON}}$$\overset{1}{\text{fiscate}}$, $\overset{1}{\text{WHERE}}$$\overset{2}{\text{abouts}}$). So, when describing a word in a dictionary entry we can state which syllables are prone to prominence and which are not:

(4.16)   UNemPLOYED   she's UNemPLOYED
                      an UNemployed WORker
              not: * she's unEMployed

         CONfiDENtial   this is VEry confiDENtial
                        a CONfidential MEmo
              not: * a conFIdential memo

For the learner of English, information about which syllables may be prominent is useful; it is a natural part of the lexical competence of native speakers. In this regard, the traditional distinction between primary stress and secondary stress (see above) may be misleading, and it may be more helpful simply to indicate to the learner which syllables are prominence-prone (as Brazil's system of annotation in the Collins COBUILD (1987) dictionary does, for example). Otherwise, the learner may be misled into thinking that primary and secondary stress must be maintained at all costs. Thus Swan and Walter's (1984: 9) citation-form stress patterns for nationality words such as *japaNESE* are all right when the word is spoken in isolation, or in a context such as (4.13), but not for (4.14) (see above).

For the following list of words, do as in the example: first mark primary and secondary word stress, and then indicate, by underlining, which syllable or syllables may be 'made prominent in discourse. For example:

confrontational   CON̲fron̲T̲A̲tional

Reader activity 4 🎧

1.   disused
2.   complicated
3.   application
4.   dinosaur

4.5   The placing of prominence

When and why do speakers attach prominence to syllables and, thereby, to the words that contain those syllables in their utterances? Consider the following:

(4.17)   a CUP of T̲E̲A

(4.18)   the THIRD of A̲P̲ril

(4.19)   WHERE'S the B̲R̲E̲A̲Dknife?

The non-prominent words (*a*, *of*, *the*) are, as it were, taken for granted; they do not represent any choice from a list of alternatives: 'a cup of tea' is not an alternative to 'a cup by/from tea' in most conceivable circumstances. But, equally, 'the breadknife' is not in any real sense a selection from *my/your/a/Mrs Jones's breadknife* in most situations, since the speaker assumes, or *projects the assumption* that the missing knife is the one in normal use in the household and that it does not need to be specially identified more than by *the*. There will, of course, be circumstances in which speakers deem it necessary to make prominent items which in most other circumstances can be taken as understood, as in (4.20) and (4.21):

4.20   N̲O̲, it's part O̲F̲ the course, NOT just an optional EXtra

(4.21)   i can TAKE you right T̲O̲ the door if you W̲I̲S̲H̲

In these two examples, words that are otherwise usually taken for granted are signalled as significant selections by the speaker. (4.21) could equally well have been rendered as 'RIGHT to the D̲O̲O̲R̲', but the speaker has chosen to highlight the preposition *to*. It is this that is meant by interactive

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choice as realised in prominence, as opposed to the relatively stable patterns of word stress. So when we consider prominence in discourse we are considering the extent to which speakers' and listeners' worlds converge, and what is signalled as prominent (i.e. selected by the speaker from a list of possible alternatives and projected as a significant element of the message), as against that which can be assumed as part of the taken-for-granted elements of the message.

Reader activity 5 🎧

Try and picture the contexts of the following utterances and decide which syllables the speakers will be most likely to make prominent. Here is an example:

(passenger to bus-driver)
Does this bus go to Parkside?
DOES this bus go to P̲A̲R̲Kside?
or: does THIS bus go to P̲A̲R̲Kside?

1.   (customer to waiter in restaurant)
     Does the soup contain meat?

2.   (you telephone a friend at 11.30 p.m.)
     Sorry to ring you so late.

3.   (at a car-hire office)
     Will you accept a cheque?

In doing the reader activity, you may have noticed that it was not only small, function-words that were being made non-prominent. The traditional statement that lexical words are stressed and grammar/function words are not is only a general statistical tendency, not a rule, even though some consider it a useful fact to impart to learners (e.g. Currie and Yule 1982). It is quite likely that *contain* (1), *ring* (2) and *accept* (3) will receive no prominence, as they are part of the taken-for-granted elements of the discourse. By the same token, grammar/function words may well be made prominent for a variety of reasons:

(4.22)   we WERE hoping to get there beF̲O̲R̲E̲ tea

(4.23)   she SAID to leave it H̲E̲R̲E̲, but there's NOwhere T̲O̲ leave it

(4.24)   Pupil: i aRRIVED to the A̲I̲Rport at S̲I̲X̲
             Teacher: aRRIVED A̲T̲
             Pupil: AH, i aRRIVED A̲T̲ the airport at six

This last example is a very typical one in the language classroom. For the purposes of the interaction (to signal to the pupil that a mistake has been made), the teacher makes prominent a word that would normally be a non-selected, taken-for-granted item. The teacher is reacting naturally to the situation, but there is a danger that, in correcting with prominence on *at*, the pupil might judge the teacher's rendition to be the normal one.

Words like *surprised, accept* and *contain*, when they are non-prominent, may still be heard to retain traces of word stress (so that even non-prominent *surprised* may be heard as *surPRISED* rather than *SURprised*), or they may lose their word-stress pattern altogether; phonologists call this 'the intermediate accent rule' (Knowles 1987: 124–6).

If a speaker makes a word prominent which would not normally be made prominent, listeners seek motivation for the prominence as part of the general desire of participants to find coherence in discourse. The listener may decide, for instance, that some contrast is being suggested; if someone says:

(4.25)   i STUdied IN London FIVE YEARS ago

they may be heard as suggesting some significance for the word *in* (chosen as opposed to *near*, or *outside of*, for example), which may be unintentional. Sometimes it is even more difficult to make a coherent interpretation of prominence, as in these attested non-native speaker examples:

(4.26)   my SISter HATES flying JUST as much as i DO

(4.27)   can i PAY by credit CARD?

Reader activity 6 🎧

Listen carefully to any non-native speaker that you know when he/she is speaking English naturally. Are any words made prominent at inappropriate or incomprehensible places? Is there any pattern in the misplacing of prominence?

Speakers of some languages have a tendency, when speaking English to make the last element of an utterance prominent, regardless of whether it would normally be prominent in English. Other problems with prominence can sometimes be traced back to misunderstandings about word stress, especially in compound words, so that a 'marked' version of the item is produced in contexts where there is no reason to do so:

(4.28)   i've BROken a coffee CUP

(4.29)   i HAVE to REgister at the police STAtion to STAY in ENGland

Teachers have first and foremost to train themselves to observe learners, listening carefully for any problems that might be consistently related to misplaced prominence. Many available language teaching materials give learners practice in deciding which words to make prominent in sentences and dialogues, though such exercises are generally conflated under the heading of *stress* with exercises aimed at practising the word stress of citation forms. Bradford's *Intonation in Context* (1988) specifically addresses prominence in the sense we are using it here (see the Teacher's Book: 3–4), though in the Student's Book the term *highlighting* is used instead.

4.6 Intonational units

Many phonologists believe that it is possible to divide speech up into small units in which each unit has at least one main, or *nuclear* prominence. This prominence will be marked by some variation in pitch, either predominantly rising or falling (see 4.7). The unit thus defined may then have other, non-nuclear, prominences (usually just one), and other, non-prominent syllables. The nuclear prominence is the last prominence in the unit, and such units are usually called *tone units* or *tone groups*. Typical tone groups would be (from now on we shall show the nuclear syllable in bold to distinguish it from prominent, non-nuclear syllables):

(4.30)   / she WORKS for the GOvernment /

(4.31)   / i KNOW the FACE / but i CAN't put a NAME to it /

(4.32)   / WHERE's that FRIEND of yours /

Tone groups often have a slight pause after them, and are claimed to correspond most frequently in natural data with grammatical *clauses* (Halliday 1967), as do our examples above. In actual fact, it is not at all easy to isolate tone groups in natural data, especially in rapid, casual speech, and some linguists have abandoned the attempt altogether, as we shall see below. But the tone group is central to the school of linguists who see intonation as being concerned with the *information structure* of utterances. Halliday (1985) is principal among these. For Halliday, tone groups are informational units; the speaker decides how to segment the information to be transmitted and encodes each segment as a separate tone group. The nuclear prominence, or *tonic* as we shall now call it, projects what the speaker decides is *new* (in the sense of 'newsworthy') in the tone group. So in example (4.30), the newsworthy focus was on *government*, in (4.31), on *face* and *name*, and in (4.32) on *friend*. The rest of the tone group may be said to be *given*, but only in the sense of 'the background or

framework in which the newsworthy items operate' rather than 'given' meaning, 'already mentioned or understood'; the terms used by linguists can often be confusing because of their non-specialist meanings.

In the Hallidayan system, the unmarked or neutral unit of information is the clause, with the tonic on the last lexical item. This is reminiscent of the grammatical idea of *theme* and *rheme* in the clause (see Chapter 2), where the *theme* (the portion of the clause from the verb onwards) characteristically contains the newsworthy information:

(4.33)

	theme	theme
i		've PUT it in the FRIDGE

(4.34) you PUSH that little BUtton

Many utterances will not follow this neutral, unmarked pattern, and the nucleus may be located in a number of different places; for example, the theme may occupy its own tone group for purposes of foregrounding or contrast:

(4.35) / the WINE / was AWful / but the FISH / was suPERB /

And the many cases of marked themes discussed in Chapter 2 will bring the nucleus on to those themes:

(4.36) / the CARrots / we GROW ourSELVES / but the poTAtoes / we BUY in the MARket /

(4.37) / in the afterNOON / we went SWImming /

Reader activity 7

Imagine contexts for these utterances and decide on the division into tone groups. Then mark the tonic syllables and any other prominent syllables. If possible, compare your results with someone else's, but remember that there may be more than one possible contextualisation.

1. I've lost my car keys.
2. Suddenly a cat jumped out.
3. It's Mondays I hate most.
4. David I know quite well; his sister I don't know at all.

It is the speaker who decides how the information is to be distributed in tone groups and where the tonic is placed, and the decisions rest on an assessment of what needs to be highlighted for the listener. *New* and *given*, as stated above, are not simply a matter of what has already been mentioned and what has not; an entity already mentioned may be highlighted to

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reassert it as a topic in the conversation or to contrast it with another entity; on the other hand, an entity may be treated as *given* because it is obvious in the context, even though it has not been mentioned at all. Because all such decisions are in the hands of the speaker, it may be argued that the notion of an unmarked or neutral information structure (i.e. one that uses the single tone-unit clause in which the information is distributed as given + new and the tonic is on the last lexical item) is irrelevant, and that, in language teaching, to teach such a structure as if it were an automatic reflex upon which 'special' or marked decisions are overlaid is misleading, since the decision-making and assessment of the state of the interaction on the part of the speaker are constant.

The tone group is a powerful, basic structure for the analysis of talk. After all, we do not speak in sentences, and often not even in regular clause-length chunks, and so if we can isolate a unit whose basis is the tonic prominence and relate this to informativeness in talk, we can begin to formulate rules for a grammar of speech, in which the tone group is the minimal useful contribution to any discourse. Research on such grammars of speech, operating in tandem with, but not subordinate in any way to, the traditional grammar of clauses and sentences, is in its infancy.

However, not all linguists are agreed that it *is* a straightforward matter to isolate tone groups. Evidence shows that even trained native speakers find it very difficult to break talk up into such units and to identify tonics in speech (Brown and Yule 1983: 158). Brown and her colleagues have abandoned the tone group and instead prefer to work with longer 'pause-defined' units. Long and extended pauses may be seen as 'constituting boundaries of phonological units which may be related to information units' (*ibid.*: 164). They also abandon the tonic as the single focus of information and instead mark all prominences equally, thus doing away with the complexities of deciding exactly what is meant by *given* and *new*. Prominence then simply acquires a 'watch this!' function, and may be used to draw the listener's attention to a wide variety of phenomena in the discourse, including marking the beginning of a speaker's turn, a new topic, special emphasis or contrast, or new information.

Brown and her associates are concerned with how speakers manage large stretches of interaction, in terms of turn-taking and topic-signalling and how speakers use pitch level to interact. For instance, there seems to be a direct correlation in English between the beginning of a new *topic* in speech and a shift to a higher pitch (see also Menn and Boyce 1982; Cruttenden 1986: 129). Correspondingly, there is a tendency for the speaker to drop low in his or her pitch range at the end of a topic or sub-topic. These phenomena are particularly noticeable where one speaker has a long turn or series of long turns, and is likely to be less noticeable where there is multi-party talk where no speaker dominates, and where there are sequences of short turns (see Schaffer 1984). The evidence certainly seems

convincing that this is a basic function of raised pitch in English, and one that can be directly taught if it is seen to be lacking in the learner's spoken production.

Brown and her associates work with a unit they call the *paratone*, defined as 'a short sequence of units beginning with a stressed peak high in the speaker's voice range'; the unit then shows a descending order of pitch height on subsequent prominent syllables till the final prominence, which is a fall from high to low pitch. Paratones are related to topic, rather than to information structure. A typical transcription of speech using this approach is reproduced here; Brown and her colleagues use three lines, rather like a simplified musical stave, on which changes in the speaker's pitch level and the direction of pitch movements can be plotted. The three lines represent the low, mid and high average bands of the speaker's pitch range. It should be noted that this is a transcript of Scottish (Edinburgh) English, which does not have the large pitch movements associated with Received Pronunciation.

(4.38)

I found my drink was a great problem with them because

at that time I drank whisky and lemonade + and I would

go and ask for whisky and lemonade and I would get

whisky and lemon + because you have to ask for whisky

or scotch and seven up + you know + I eventually

cottoned on to it + but + and they couldn't get over

the fact that I didn't like ice in whisky and of course

they either gave me ice whether I wanted it or not or

they stacked the glass up + right up to the level that

you would normally have if you had ice in your drink

    ˘

   —   ˘

—   —   —

   —   —   —

(from Brown and Yule *Discourse Analysis* 1983, pp. 102–3)

Reader activity 8

Consider the advantages and disadvantages of Brown's system of transcription compared with the Hallidayan one of tone units and tonic syllables, not so much in terms of which one accounts best for all the details of intonational features, but in terms of their pedagogical usefulness. Which system would learners be most likely to find usable and helpful? Are there other, more user-friendly ways of transcribing intonation?

Turn-taking is another important aspect of pitch level in this view of intonation. The speaker can signal a desire to continue a speaking turn by using non-low pitch, even at a point where there is a pause, or at the end of a syntactic unit, such as a clause. Equally, a down-step in pitch is often a good turn-yielding cue. The intonational cues interact with other factors such as syntax, lexis, non-verbal communication and the context itself, and are typical of how the different levels of encoding have to be seen as operating in harmony in a discourse-oriented view of language (see Schaffer 1983).

The approach to intonation characterised by the work of Brown and her associates need not necessarily contradict the Hallidayan, informational view. In terms of pedagogical usefulness, a Hallidayan approach using tone groups could be a useful framework for practising prominence at lower levels of language proficiency, and for practising different tones (see 4.7), both alone and in combination. The Brown approach to intonation undoubtedly has advantages from our point of view in its concern with the management of longer stretches of discourse and with turn-taking and topic-framing, and doing away with tone groups certainly avoids an analytical difficulty. The system of transcription, though, is not particularly user-friendly, and language teachers may want to adopt their own ways of indicating pitch level and prominences, using other types of visual representation. What is more, the interactive approach outlined in 4.7.4 below could be taken as a global set of principles which subsume local phenomena such as yielding the turn or changing the topic.

4.7   Tones and their meanings

4.7.1   Types of tones

The prominent syllables in an utterance are the carriers of any significant variation in pitch that the speaker might use. At recognisable points in the utterance, the pitch level may rise, fall, or be carefully kept level. Phonologists disagree as to the number of discrete types of significant falling, rising and level tones that are used in English; some distinguish between as many as eight, others work with four or five. For our practical purposes five will be a useful number to consider. These are:

1. Fall
2. Rise-fall
3. Fall-rise
4. Rise
5. Level

It is worth noting that the tone contour can often spread itself out over more than one syllable or word (especially tones 2 and 3). Indeed, it will often be difficult to separate consecutive occurrences of a fall and a rise from a single fall–rise that spreads over several words, though speakers sometimes clearly indicate by running words together (often into the same tone group) in a broad 'sweep' of the voice that the tone is a complex one spread over word boundaries. In the following piece of natural data, speaker A utters the last part of his question in one sweep, and speaker B says the words *seen one* in a single sweep in her reply. But then B clearly and deliberately separates *seen* and *one* in her next utterance by making *one* the tonic (to emphasise that it was only *one*) and by placing the rise–fall on *one* only, making *seen* a non-tonic, level-toned prominence:

(4.39)

  A: / are there MANY good REcord shops in town? /

  B: / i DON'T know about MANY / but i've SEEN one /

  A: / MM /

  B: / WELL / i've SEEN ONE /

  (Author's data 1989)

In our example utterances, it will be sufficient to mark the tone on our bold-face tonic syllable, with the understanding that other features of the delivery may extend the domain of the tone over more than that syllable.

Though opinions vary widely as to the functions of the different tones, most phonologists are agreed on a broad distinction between tones that end with a falling contour (fall and rise–fall), and tones which end with a rising contour (fall–rise and rise). What is more, the distinction seems to be a

linguistic universal and to have some universally common functional contrasts attached to it (see Cruttenden 1986: 168–9). But such is the confusion amongst descriptive and applied phonologists as to just what particular tones mean that it is worth taking a close look at different views to see where they seem to be pointing, if indeed there is sufficient common ground to merit any general conclusions.

4.7.2 Grammatical approaches

One widely held view is that intonation has a grammatical function, that is to say, that there are 'correct' intonations for things such as questions, sentence-tags, subordinate clauses, and so on. Most common among these views is that 'yes–no' type interrogatives end in a rising tone, as in:

(4.40)   / IS it INTeresting? /

(4.41)   / d'you feel ANGry? /

Conversely, *wh-* interrogatives are held to be uttered with a fall:

(4.42)   / WHAT's the PROBlem? /

In fact, there seems to be little hard evidence that this *is* so, and much evidence to suggest that there is no one-to-one relationship between sentence-type and tone. C. C. Fries's (1964) data had 61 per cent of questions with a falling tone, and he concluded that 'there seem to be no intonation sequences on questions that are not also found on other types of utterances, and no intonation sequences on other types of utterances that are not found on questions'. Other researchers have come to just the same conclusion. Our opening example of the comedy sketch in Chapter 1 also underlined this lack of correspondence between grammatical form and discourse function, and it would seem open to question whether any direct intonational and grammatical correlates exist, whether for interrogatives or other grammatical structures. Tags, for instance, display that speaker-controlled variability that is the hallmark of interaction:

(4.43)   / it was BOB SMITH / WASN'T it? / WASN'T it? /

Both are interrogative *structures* (i.e. inverted verb and subject), but the choice of fall or rise seems to depend entirely on the speaker's assessment of the mutual state of knowledge between speaker and listener.

The more we look at intonation and grammar, the more we are forced to conclude that they are separate systems which work independently, but in harmony, to contribute to discourse meaning.

4.7.3 Attitudinal approaches

By far the most common view of intonation is that it is related to attitude and/or emotion, that some intonations express 'surprise', or 'detachment', and so on. This seems particularly so when we look at utterances such as:

(4.44)   / JOHN! / HOW nice to SEE you! / (high fall: surprise)

(4.45)   / he's COming on FRIday / ISn't that GOOD! / (rise–fall: excitement)

Very often, though, it is simply the lexis that misleads us: the selfsame intonation patterns can be used without any emotive implications, or else with completely different ones:

(4.46)   A: / CAN i invite my SISter? /

          B: / YES! / BRING her aLONG! / (high fall: enthusiasm? friendly acceptance?)

(4.47)   / the CHILD is BRILLiant / BEST in the CLASS / (rise–fall: purely informative? enthusiastic? sarcastic?)

We can see what a mess can be got into if we try to attach attitudinal or emotive labels to tones out of context, for it seems almost any emotion can be accompanied by any tone, and that without lexical or contextual information or other vocal clues we cannot reliably label a tone contour as displaying a particular attitude or emotion. The most we can say is that emotional intensification tends to be accompanied by wider pitch contrasts, but that is far from attributing particular emotions and attitudes to particular tone contours.

Reader activity 9 🎧

Try saying the utterances on the following page as they are labelled, and then try to change the words to any other words that fit the same pattern, but retaining the same tone contours, as in the example. How does your interpretation of the attitudinal or emotive aspect of the utterances change?

Example: / MARK / WHAT's the MATTer? /
/ YES / MAYbe FRIday /
/ POSsibly / i DON'T KNOW /

1. / he's a STUpid FOOL! /

2. / if you Opened your EYES / you'd SEE it! /

3. / JUMP? / i DON'T beLIEVE it! /

The attitudinal/emotive approach to intonation is deeply entrenched in English language teaching. Boyle (1987) says that 'stress and intonation are employed in that area of language which deals with attitudes, moods, emotions'. Roberts (1983) suggests step-by-step intonational analysis of dialogues with students and considers the attitudinal analysis to be crucial, as seen in the instructions to teachers:

(4.48)   Step 3: This step must not be omitted. Pick a line or lines in which the attitude is very clear and where stress and intonation patterns are easily recognised; e.g. "what a beautiful day!".

(Roberts 1983)

The teacher then utters this with level pitch which the students must 'correct' to a high falling pitch, because the speaker is 'happy', not 'sad'. The assumption is that level pitch would convey an attitude of sadness, and yet it is clear that level tone can be used by someone who is perfectly polite, happy and interested, as in this attested example of a telephone switchboard operator speaking to a caller:

(4.49)   / and YOU ARE MR . . . ? /

It is context, rather than the tone itself, which denotes whether someone is happy, sad, or whatever.

The point about attitude can be further underlined with two examples from teaching material by Thompson (1981): identical tone patterns in the two responses realise quite different attitudinal contexts:

(4.50)
(a) Alan: Sorry about the noise last night, Jo

Jo: I should think so too

(b) David: . . . Sorry to ring so late

Jo: Not at all

We must conclude that it is probably a fruitless enterprise to teach intonation as 'attitude' or 'emotion'. How people express attitudes and emotions is a complex combination of vocal cues, intonation, lexis, non-verbal behaviour and contextual factors. Such matters may well be cultural

universals; there is certainly not enough evidence to suggest major differences that warrant direct pedagogical intervention. When attitudinal cues are *misunderstood*, as in judgements such as 'speakers of language X always sound arrogant in English', the reason is likely to be traceable to misleading signals concerning what assumptions the speaker has encoded by tone choice with regard to such things as the state of the hearer's knowledge, what is recoverable from context and what is 'newsworthy' or the centre of focus, that is to say, the interactive level of signalling that intonation can be shown to convey. L1 interference may also play a part: if a speaker has as L1 a language with a narrower pitch range than English (e.g. Danish), then he/she may well sound 'flat' and monotonous in English, or if L1 is a language with a tendency to 'jump' regularly in pitch (e.g. French), then the speaker may sound 'excitable'. But the remedies here would seem to be training in typical English pitch range and tone contours rather than anything to do with teaching learners how to express emotions.

4.7.4 Interactive approaches

The interpretation of tone choice that seems most reliable and which seems to make most sense, given what we have said about the fundamentally interactive nature of the other parts of the intonation system (prominence, tonic placement) is to see tones as fulfilling an interactive role in the signalling of the 'state of play' in discourse. The speaker has to judge how to deliver the tone group. Should it be delivered as open-ended, as incomplete in some way, as non-conducive with regard to a possible response (i.e. not restricting the possible field of response), as background to what is the main message, as referring to common ground? Or on the other hand, should it be delivered as possessing a finality or completeness, as 'telling' rather than simply referring to background, as conducive towards the response of the hearer, or as the main core of the message? Tone choice in English seems to fulfil these opposing functions, and Cruttenden (1981) has referred to a major distinction between *open* and *closed* meanings, while Brazil (1985a and b) talks of *referring* and *proclaiming* functions. In British Received Pronunciation, the open or referring functions are carried by tones ending in rises; the closed or proclaiming functions by those ending in falls. When there is no orientation on the part of the speaker to either of these functions, the tone is neutral or oblique, and is realised by a level pitch. Let us consider some examples:

(4.51)   / IF you LIKE / we can GO via MANchester /

(4.52)
A: / are YOU mr BLAKE? /

B: / YES /

(4.53)
A: / NOW / YOU must be mr BLAKE? /
B: / YES /
A: / RIGHT / room TWENty-SIX /

In (4.51), 'if you like' is treated as background or subordinate information to the main message. But *subordinate* here is not intended in the grammatical sense; the speaker might have considered the (grammatically) subordinate clause to be the main message and the (grammatically) main clause to be the background or 'common ground' information:

(4.54)
A: / are YOU mr BLAKE? /
B: / YES /
A: / AH / the SECretary / would like a WORD with you /
B: / OH /

In (4.52), 'Are you Mr Blake?' is an open-ended utterance: it calls for some completion or closing, in this case an answer that establishes the unknown polarity (a 'yes–no' question). Mr Blake's answer provides the finality that was missing. Speaker A in (4.53) is sure that this is Mr Blake, and so uses a closed and conducive tone. But in (4.54), Mr Blake is not satisfied that things *are* final and closed, and his rising-tone answer has an implicit 'why?' or 'who wants to know?' in it, and an incompleteness that is only closed by A's utterance, followed by a confirmation of the closure by Mr Blake's 'oh'.

(4.55)   / we COULD go via MANchester / but ONLY if you WANT to /

Reader activity 10

Label the tonics (the main prominences in bold) in these utterances with either fall–rise (⌄) or falling (⌄) tones, according to whether you judge them to be 'open/referring' meanings or 'closed/proclaiming' meanings:

1. / IF you see TIM / CAN you ask him to RING me? /

2. A: / i met JOsie COLEman / in TOWN /
    B: / JOsie COLEman? /
    A: / YES /

3. A: / IS it five o'CLOCK? /
    B: / FIVE TO /
    A: / AH! / GOOD! / JUST in TIME! /

In this interactive view of tone choice, the speaker is constantly making assumptions as to what should be treated as background or common ground, what may be uttered with a conducive tone, what is open-ended, and what should be delivered as world-changing in the perception of the hearer.

Brazil (1985a and b) attaches a further interactive significance to the internal choice represented by rise–fall as opposed to fall, and rise as opposed to fall–rise. Rise–fall and rise are seen to be *dominant-speaker* choices; at any given point in a conversation, one speaker will typically exercise dominance, though dominance may change frequently in casual conversation among equals. Dominant speakers have the option of using the dominant tones or the non-dominant ones; non-dominant speakers will only use non-dominant tones. In a situation such as a classroom, it is most likely that the teacher will exercise the dominant-speaker option; pupils who do so may be misheard as insolent. The following is most likely to be a teacher giving the class information rather than a pupil answering a teacher question:

(4.56)   / it's TOOK / TOOK / is the past tense of TAKE /

The interactive approach to tone choice seems to be the most convincing of the explanations we have looked at in 4.7.2–4. Nonetheless, there are unresolved difficulties for pedagogical application. For instance, it is difficult to conceptualise why *wh*-questions are very often uttered with a falling tone, when they seem every bit as 'incomplete' and 'open-ended' as yes–no questions. One has to remind oneself that the choice of tone is independent of the choice of grammatical form, and that it is the speaker's assessment of the conducive (and therefore non-open) character of the question that is important. 'WHAT'S the TIME?', uttered with falling tone, invites the hearer to choose from a catalogue of possible alternatives, and can be seen to be conducive, but such explanations often seem to be pushing the interactive terminology to its limits, and may not sound convincing in class or in teaching materials. However, until we have more satisfactory terms for interactive functions, the interactive approach as a whole can be adapted and simplified for teaching purposes and used productively. Bradford (1988) offers just such an adaptation.

4.8 Key

The *relative* level of pitch between one part of an utterance and another can often be heard to change, to jump upwards, or to drop and trail off. We are all familiar with utterances where the speaker's pitch level suddenly rises, as in B's reply in (4.57), where we can show the jump by moving to the line above in our transcription:

(4.57)
A: / IS that COUsin of yours still here? /

B: / she's my / SISter / NOT my / COUsin! /

B seems to be expressing something contrary to A's expectations; there is a contrast between *cousin* and *sister*. Sometimes, though, the pitch level drops:

(4.58)
/ WELL / THAT'S IT then / THAT'S Finished

Here the speaker is indicating that 'that's finished' does not add anything new to the discourse, but rather that it is to be heard as functionally equivalent to 'that's it then', as saying more or less the same thing. These two choices Brazil (1985a and b) refers to as *high key* and *low key*, respectively. When speakers are speaking in the middle of their average pitch range, they are speaking in *mid-key*, and the utterance simply *adds* more to the ongoing discourse. These three functions, high for contrastiveness, mid for addition, and low for reiteration are the *key system* of English; they represent a further layer of speaker choice in intonation.

The jump to high key and the drop to low have also been seen as important cues in topic management, with high key marking the initiation of a topical segment, and low key its ending (see the remarks on paratones in 4.6). Bradford (1988) again provides useful pedagogical applications of Brazil's account of key choices.

Reader activity 11

Consider points where the speakers would be likely to jump to high key or to drop to low key in these utterances:

1. A: / i'll ASK CARlos / HE'S brazilian /
   B: / CARlos? / he's CHIllean / DIDn't you KNOW? /

2. A: / WELL / THANKS / you've been VERY HELPful /
   B: / WHO? / ME? / NOT at ALL! / it's my JOB! /

4.9 Pitch across speakers

A final observation needs to be made concerning how pitch-level choices operate across speaker turns. Matching or concord in pitch between speakers is a phenomenon noted by Brown, Currie and Kenworthy (1980: 23–4), and dealt with by Brazil (1985a and b) under the heading of *termination*. Brown's team show with their data how speakers sometimes begin a new topic by asking a question which begins high in the speaker's pitch range, and how this high pitch is echoed by the hearer with high pitch at the beginning of the answer. A typical topic-opening sequence might be:

(4.59)
A: / HAVE you ever been to TURkey? /

B: / NO / NEver /

A: / it's a GREAT COUNtry / REAlly /

This kind of 'termination' choice exercises constraints on the listener as to what sort of key will be used in the answer. In example (4.59), the speaker expects the hearer to produce a high-key, contrastive answer (a true yes–no polarity).

High-key concord is used not only at the beginning of topics; in (4.60), speaker A responds in high key to agree with B's assessment of a situation which is contrary to normal expectations:

(4.60)
(A and B have been discussing a photocopier which is always breaking down)

A: / SHOCKing things / AREN'T they /

B: / they ARE / and THAT'S / a NEW one /

A: / YES /

(Author's data 1989)

If a speaker uses low termination, as B does in (4.61), the constraints on the hearer to continue are minimal:

(4.61)
A: / so THAT'S IT then /

B: / YEAH / THAT'S IT /

A: / RIGHT /

4.10 Summary

The picture we have painted of intonation may suggest a complexity that will never lend itself to straightforward pedagogy. However, the distinct advantage of an interactive description such as Brazil's, with discrete layers of choice, or, for that matter, any description that adequately separates the functions of prominence, tone and pitch level, is that separate parts of the system can be dealt with individually, while not losing sight of either the overall discourse significance of the different levels of choice or the unified sense of the importance of speaker choice and adjustment to the constantly changing state of play between participants in the talk. Interactive approaches to intonation, as well as being intuitively more satisfying, do away with much of the confusing labelling of attitudinal approaches and offer a more systematic framework for innovative pedagogy. Decisions will still have to be made about presentation and how to make a complex set of concepts appealing to learners, but good language teachers have never lacked the ability to translate new types of description into useful practice.

4.11 Conclusion

Should intonation be left to develop for itself, or should we *teach* it? There do seem to be some good arguments for the latter view. For one thing, while all languages seem to use intonation in some form or another, it is by no means certain that realisations are the same. Even within dialects and varieties of English, particular tones seem to have different functions. Some researchers claim to have found significant differences from English in the distribution of tones in other languages and how learners use English tones (e.g. for German, see Scuffil 1982; A. Fox 1984, and Rees 1986; for Dutch, see Willems 1982). But learners' problems may not all be explained away by contrastive analysis. Lower-level learners often have to encode utterances in L2 word-by-word, and under such conditions, appropriate tone-grouping, prominence, tone and key may simply not be realised. This fact might argue for giving learners the opportunity to practise intonation using words and phrases they are already familiar with and do not have to struggle too much with on the level of lexico-grammatical encoding. Or else other modes of spoken language such as scripted drama might be used; Johns-Lewis (1986) shows how quite wide pitch variation is found in acting situations (in comparison with conversation and reading aloud), and drama could offer a context for spotlighting intonation features.

There are certainly practical conclusions to be drawn from the inter-active descriptions we have examined. For one thing, the simple fall and the fall–rise are definitely the most useful tones to present and practise first, since they fulfil such basic, everyday functions, and they can be presented in

contrast with each other in the same utterance or exchange, as in examples (4.51–55). The key system is also relatively straightforward and easily graspable, and contextualised dialogues and situations can be devised to elicit different keys. Pitch rise and drops at topic and sub-topic boundaries can be practised in prepared talks and anecdote-telling. Such discrete-level practice is probably more manageable than trying to elicit the whole complex system of choices in one go.

Reader activity 12

To finish this chapter, we might look at what a short piece of natural discourse looks like when transcribed for all its relevant features (prominence, tone and key) in the kind of transcription we have been using in this chapter. Do you think the transcription is pedagogically usable as it stands? Is it too complicated? Ought it to be changed in some ways, or might other types of transcription more effectively convey the same amount of information?

(The extract is taken from a recording of a senior prison officer in a British gaol talking about his job in an informal interview.)

(4.62)

Interviewer: / COULD you TELL us a bit / about
your EVeryday you TINE? /

Officer: / WELL / i've BEEN / in the / SERvice / for about
/ FIFteen YEARS / but UNlike my PREvious occupation /
we're DEALing / NOW / with PEOPLE who are
FAILures / of OTHer agencies / they've NORmally /
FAILed the / proBAtion service / and superVision orders
/ and SO . . . / that IS / a MARKED DIFFerence / from
my
PREvious occupation

Interviewer: / YEAH I SEE / SO /
WHEREas beFORE /
were DEALing with . . . / AS it WERE . . . / both the
/ you
GOOD AND the bad / NOW / WOULD it be TRUE to

say
        / you're ONLY dealing with the BAD now / in
soCIETy? /
        / in the maJOrity of cases / YES /
                                    that's RIGHT /
there are OBviously / PEOPLE who SAY / they
SHOULDn't be WITH us / because they DIDn't DO /
WHAT was aLLEGED they've done / BUT the
maJOrity of people / acCEPT / that they've DONE
WRONG / and THEREfore / acCEPT the
CONsequences / . . .

(Author's data 1985)

This chapter ends the investigation of the contribution of discourse analysis to the three main levels of linguistic description which are already the basis of language teaching: grammar, lexis and phonology. The rest of the book will consider descriptions of speech and writing based on discourse models and will address the questions of how natural speech and writing can best be described and how such descriptions can be related to the concerns of language teachers, especially in the areas of speaking/listening and reading/writing skills.

Further reading

The most accessible works that deal with intonation in discourse in general are Brown and Yule (1983), Brazil (1985a and b) and Cruttenden (1986), but there are many other sources dealing with particular features.

On the importance of relating articulatory and other broader features of speech see Wong (1986), and for more on teaching voice quality settings, see Esling and Wong (1983).

On the notion of feet see Abercrombie (1964).

The concept of stress-timing is explained in Pike (1945); also useful for the arguments concerning rhythm and stress is Ladd (1980: 34–46).

Brazil, Coulthard and Johns (1980) and Coulthard and Brazil (1982) provide further explanations of prominence, and a very interesting study of how teachers use prominence in language classes is Hewings (1987).

For more on the relationship between tone groups and clauses, see Schubiger (1964) and Lindstrom (1978), and for further examples of the Brown approach, see Yule (1980a and b) and Brown (1983).

For intonation and turn-taking, see Brown, Currie and Kenworthy (1980: 24) and Cutler and Pearson (1986).

On the lack of correlation between grammatical categories and tones, Stenström (1984) and Geluykens (1988) are worth reading.

An example of a different distribution of tones in a non-RP variety of English is Guy et al.'s (1986) study of Australian intonation.

Finally, for another discourse-oriented approach to teaching intonation, see the very practical functional categories in V. J. Cook (1979).