

Many of the previous chapters have been concerned with the description of phonemes, and in Section 5.2 it was pointed out that the subject of phonology includes not just this aspect (which is usually called **segmental phonology**) but also several others. In Chapters 10 and 11, for example, we studied stress. Clearly, stress has linguistic importance and is therefore an aspect of the phonology of English that must be described, but it is not usually regarded as something that is related to individual segmental phonemes; normally, stress is said to be something that is applied to (or is a property of) syllables, and is therefore part of the **suprasegmental phonology** of English. (Another name for suprasegmental phonology is **prosodic phonology** or **prosody**.) An important part of suprasegmental phonology is **intonation**, and the next five chapters are devoted to this subject.

What is intonation? No definition is completely satisfactory, but any attempt at a definition must recognise that the **pitch** of the voice plays the most important part. Only in very unusual situations do we speak with fixed, unvarying pitch, and when we speak normally the pitch of our voice is constantly changing. One of the most important tasks in analysing intonation is to listen to the speaker's pitch and recognise what it is doing; this is not an easy thing to do, and it seems to be a quite different skill from that acquired in studying segmental phonetics. We describe pitch in terms of **high** and **low**, and some people find it difficult to relate what they hear in someone's voice to a scale ranging from low to high. We should remember that "high" and "low" are arbitrary choices for end-points of the pitch scale. It would be perfectly reasonable to think of pitch as ranging instead from "light" to "heavy", for example, or from "left" to "right", and people who have difficulty in "hearing" intonation patterns are generally only having difficulty in relating what they hear (which is the same as what everyone else hears) to this "pseudo-spatial" representation.

It is very important to make the point that we are not interested in all aspects of a speaker's pitch; the only things that should interest us are those which carry some linguistic information. If a speaker tries to talk while riding fast on a horse, his or her pitch will make a lot of sudden rises and falls as a result of the irregular movement; this is something which is outside the speaker's control and therefore cannot be linguistically significant. Similarly, if we take two speakers at random we will almost certainly find that one speaker typically speaks with lower pitch than the other; the difference between the two speakers is not linguistically significant because their habitual pitch level is determined by their physical structure. But an individual speaker does have control over his or her own pitch,

and may choose to speak with a higher than normal pitch; this is something which *is* potentially of linguistic significance.

A word of caution is needed in connection with the word **pitch**. Strictly speaking, this should be used to refer to an auditory sensation experienced by the hearer. The rate of vibration of the vocal folds – something which is physically measurable, and which is related to activity on the part of the speaker – is the **fundamental frequency** of voiced sounds, and should not be called “pitch”. However, as long as this distinction is understood, it is generally agreed that the term “pitch” is a convenient one to use informally to refer both to the subjective sensation and to the objectively measurable fundamental frequency.

We have established that for pitch differences to be linguistically significant, it is a necessary condition that they should be under the speaker’s control. There is another necessary condition and that is that a pitch difference must be **perceptible**; it is possible to detect differences in the **frequency** of the vibration of a speaker’s voice by means of laboratory instruments, but these differences may not be great enough to be heard by a listener as differences in pitch. Finally, it should be remembered that in looking for linguistically significant aspects of speech we must always be looking for *contrasts*; one of the most important things about any unit of phonology or grammar is the set of items it contrasts with. We know how to establish which phonemes are in contrast with *b* in the context *-in*; we can substitute other phonemes (e.g. *p*, *s*) to change the identity of the word from ‘*bin*’ to ‘*pin*’ to ‘*sin*’. Can we establish such units and contrasts in intonation?

15.1 Form and function in intonation

To summarise what was said above, we want to know the answers to two questions about English speech:

- i) What can we observe when we study pitch variations?
- ii) What is the linguistic importance of the phenomena we observe?

These questions might be rephrased more briefly as:

- i) What is the **form** of intonation?
- ii) What is the **function** of intonation?

We will begin by looking at intonation in the shortest piece of speech we can find – the single syllable. At this point a new term will be introduced: we need a name for a continuous piece of speech beginning and ending with a clear pause, and we will call this an **utterance**. In this chapter, then, we are going to look at the intonation of one-syllable utterances. These are quite common, and give us a comparatively easy introduction to the subject.

Two common one-syllable utterances are ‘yes’ and ‘no’. The first thing to notice is that we have a choice of saying these with the pitch remaining at a constant level, or with the pitch changing from one level to another. The word we use for the overall behaviour

of the pitch in these examples is **tone**; a one-syllable word can be said with either a **level tone** or a **moving tone**. If you try saying 'yes' or 'no' with a level tone (rather as though you were trying to sing them on a steady note) you may find the result does not sound natural, and indeed English speakers do not use level tones on one-syllable utterances very frequently. Moving tones are more common. If English speakers want to say 'yes' or 'no' in a definite, final manner they will probably use a **falling** tone – one which descends from a higher to a lower pitch. If they want to say 'yes?' or 'no?' in a questioning manner they may say it with a **rising** tone – a movement from a lower pitch to a higher one.

Notice that already, in talking about different tones, some idea of function has been introduced; speakers are said to select from a choice of tones according to how they want the utterance to be heard, and it is implied that the listener will hear one-syllable utterances said with different tones as sounding different in some way. During the development of modern phonetics in the twentieth century it was for a long time hoped that scientific study of intonation would make it possible to state what the function of each different aspect of intonation was, and that foreign learners could then be taught rules to enable them to use intonation in the way that native speakers use it. Few people now believe this to be possible. It is certainly possible to produce a few general rules, and some will be given in this course, just as a few general rules for word stress were given in Chapters 10 and 11. However, these rules are certainly not adequate as a complete practical guide to how to use English intonation. My treatment of intonation is based on the belief that foreign learners of English at advanced levels who may use this course should be given training to make them better able to recognise and copy English intonation. The only really efficient way to learn to *use* the intonation of a language is the way a child acquires the intonation of its first language, and the training referred to above should help the adult learner of English to acquire English intonation in a similar (though much slower) way – through listening to and talking to English speakers. It is perhaps a discouraging thing to say, but learners of English who are not able to talk regularly with native speakers of English, or who are not able at least to listen regularly to colloquial English, are not likely to learn English intonation, although they may learn very good pronunciation of the segments and use stress correctly.

15.2. Tone and tone languages

Ⓞ AU15 (CD 2), Exs 1–4

In the preceding section we mentioned three simple possibilities for the intonation used in pronouncing the one-word utterances 'yes' and 'no'. These were: level, fall and rise. It will often be necessary to use symbols to represent tones, and for this we will use marks placed before the syllable in the following way (phonemic transcription will not be used in these examples – words are given in spelling):

Level _yes _no
 Falling \yes \no
 Rising /yes /no

This simple system for tone transcription could be extended, if we wished, to cover a greater number of possibilities. For example, if it were important to distinguish between a high level and low level tone for English we could do it in this way:

High level	ˉyes	ˉno
Low level	˘yes	˘no

Although in English we do on occasions say ˉyes or ˉno and on other occasions ˘yes or ˘no, a speaker of English would be unlikely to say that the meaning of the words 'yes' and 'no' was different with the different tones; as will be seen below, we will not use the symbols for high and low versions of tones in the description of English intonation. But there are many languages in which the tone can determine the meaning of a word, and changing from one tone to another can completely change the meaning. For example, in Kono, a language of West Africa, we find the following (meanings given in brackets):

High level	ˉbɛŋ ('uncle')	ˉbuu ('horn')
Low level	˘bɛŋ ('greedy')	˘buu ('to be cross')

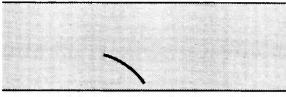
Similarly, while we can hear a difference between English ˘yes, /yes and \yes, and between ˘no, /no and \no, there is not a difference in meaning in such a clear-cut way as in Mandarin Chinese, where, for example, ˉma means 'mother', /ma means 'hemp' and \ma means 'scold'. Languages such as the above are called **tone languages**; although to most speakers of European languages they may seem strange and exotic, such languages are in fact spoken by a very large proportion of the world's population. In addition to the many dialects of Chinese, many other languages of South-East Asia (e.g. Thai, Vietnamese) are tone languages; so are very many African languages, particularly those of the South and West, and a considerable number of Native American languages. English, however, is not a tone language, and the function of tone is much more difficult to define than in a tone language.

15.3 Complex tones and pitch height

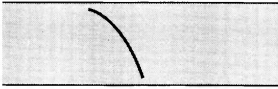
We have introduced three simple tones that can be used on one-syllable English utterances: level, fall and rise. However, other more complex tones are also used. One that is quite frequently found is the **fall-rise** tone, where the pitch descends and then rises again. Another complex tone, much less frequently used, is the **rise-fall** in which the pitch follows the opposite movement. We will not consider any more complex tones, since these are not often encountered and are of little importance.

One further complication should be mentioned here. Each speaker has his or her own normal **pitch range**: a top level which is the highest pitch normally used by the speaker, and a bottom level that the speaker's pitch normally does not go below. In ordinary speech, the intonation tends to take place within the lower part of the speaker's pitch range, but in situations where strong feelings are to be expressed it is usual to make use of extra pitch height. For example, if we represent the pitch range by drawing two parallel

lines representing the highest and lowest limits of the range, then a normal unemphatic 'yes' could be diagrammed like this:



but a strong, emphatic 'yes' like this:



We will use a new symbol \uparrow (a vertical upward arrow) to indicate extra pitch height, so that we can distinguish between:

\searrow yes and $\uparrow\searrow$ yes

Any of the tones presented in this chapter may be given extra pitch height, but since this course is based on normal, unemotional speech, the symbol will be used only occasionally.

15.4 Some functions of English tones

⌚ AU15 (CD 2), Ex 5

In this chapter only a very small part of English intonation has been introduced. We will now see if it is possible to state in what circumstances the different tones are used within the very limited context of the words 'yes' and 'no' said in isolation. We will look at some typical occurrences; no examples of extra pitch height will be considered here, so the examples should be thought of as being said relatively low in the speaker's pitch range.

Fall \searrow yes \searrow no

This is the tone about which least needs to be said, and which is usually regarded as more or less "neutral". If someone is asked a question and replies \searrow yes or \searrow no it will be understood that the question is now answered and that there is nothing more to be said. The fall could be said to give an impression of "finality".

Rise \nearrow yes \nearrow no

In a variety of ways, this tone conveys an impression that something more is to follow. A typical occurrence in a dialogue between two speakers whom we shall call A and B might be the following:

A (*wishing to attract B's attention*): Excuse me.

B: \nearrow yes

(B's reply is, perhaps, equivalent to 'what do you want?') Another quite common occurrence would be:

A: Do you know John Smith?

One possible reply from B would be /yes, inviting A to continue with what she intends to say about John Smith after establishing that B knows him. To reply instead \yes would give a feeling of "finality", of "end of the conversation"; if A did have something to say about John Smith, the response with a fall would make it difficult for A to continue.

We can see similar "invitations to continue" in someone's response to a series of instructions or directions. For example:

A: You start off on the ring road ...

B: /yes

A: turn left at the first roundabout ...

B: /yes

A: and ours is the third house on the left.

Whatever B replies to this last utterance of A, it would be most unlikely to be /yes again, since A has clearly finished her instructions and it would be pointless to "prompt" her to continue.

With 'no', a similar function can be seen. For example:

A: Have you seen Ann?

If B replies \no (without using high pitch at the start) he implies that he has no interest in continuing with that topic of conversation. But a reply of /no would be an invitation to A to explain why she is looking for Ann, or why she does not know where she is.

Similarly, someone may ask a question that implies readiness to present some new information. For example:

A: Do you know what the longest balloon flight was?

If B replies /no he is inviting A to tell him, while a response of \no would be more likely to mean that he does not know and is not expecting to be told. Such "do you know?" questions are, in fact, a common cause of misunderstanding in English conversation, when a question such as A's above might be a request for information or an offer to provide some.

Fall-rise vyes vno

The fall-rise is used a lot in English and has some rather special functions. In the present context we will only consider one fairly simple one, which could perhaps be described as "limited agreement" or "response with reservations". Examples may make this clearer:

A: I've heard that it's a good school.

B: vyes

B's reply would be taken to mean that he would not completely agree with what A said, and A would probably expect B to go on to explain why he was reluctant to agree. Similarly:

A: It's not really an expensive book, is it?

B: vno

The fall-rise in B's reply again indicates that he would not completely agree with A. Fall-rise in such contexts almost always indicates both something "given" or "conceded" and at the same time some reservation or hesitation. This use of intonation will be returned to in Chapter 19.

Rise-fall \wedge yes \wedge no

This is used to convey rather strong feelings of approval, disapproval or surprise. It is not usually considered to be an important tone for foreign learners to acquire, although it is still useful practice to learn to distinguish it from other tones. Here are some examples:

A: You wouldn't do an awful thing like that, would you?

B: \wedge no

A: Isn't the view lovely!

B: \wedge yes

A: I think you said it was the best so far.

B: \wedge yes

Level _yes _no

This tone is certainly used in English, but in a rather restricted context: it almost always conveys (on single-syllable utterances) a feeling of saying something routine, uninteresting or boring. A teacher calling the names of students from a register will often do so using a level tone on each name, and the students are likely to respond with _yes when their name is called. Similarly, if one is being asked a series of routine questions for some purpose – such as applying for an insurance policy – one might reply to each question of a series (like 'Have you ever been in prison?', 'Do you suffer from any serious illness?', 'Is your eyesight defective?', etc.) with _no.

A few meanings have been suggested for the five tones that have been introduced, but each tone may have many more such meanings. Moreover, it would be quite wrong to conclude that in the above examples only the tones given would be appropriate; it is, in fact, almost impossible to find a context where one could not substitute a different tone. This is not the same thing as saying that any tone can be used in any context: the point is that no particular tone has a unique "privilege of occurrence" in a particular context. When we come to look at more complex intonation patterns, we will see that defining intonational "meanings" does not become any easier.

15.5 Tones on other words

We can now move on from examples of ‘yes’ and ‘no’ and see how some of these tones can be applied to other words, either single-syllable words or words of more than one syllable. In the case of polysyllabic words, it is always the most strongly stressed syllable that receives the tone; the tone mark is equivalent to a stress mark. We will underline syllables that carry a tone from this point onwards.

Examples:

Fall (usually suggests a “final” or “definite” feeling)

\ stop \ eighty a \ gain

Rise (often suggesting a question)

/ sure / really to / night

When a speaker is giving a list of items, they often use a rise on each item until the last, which has a fall, for example:

You can have it in / red, / blue, / green or \ black

Fall–rise (often suggesting uncertainty or hesitation)

v some v nearly p e r v haps

Fall–rise is sometimes used instead of rise in giving lists.

Rise–fall (often sounds surprised or impressed)

^ oh ^ lovely i ^ mmense

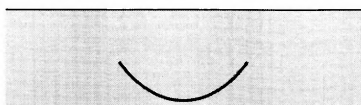
Notes on problems and further reading

15.1 The study of intonation went through many changes in the twentieth century, and different theoretical approaches emerged. In the United States the theory that evolved was based on ‘pitch phonemes’ (Pike, 1945; Trager and Smith, 1951): four contrastive pitch levels were established and intonation was described basically in terms of a series of movements from one of these levels to another. You can read a summary of this approach in Cruttenden (1997: 38–40). In Britain the ‘tone-unit’ or ‘tonetic’ approach was developed by (among others) O’Connor and Arnold (1973) and Halliday (1967). These two different theoretical approaches became gradually more elaborate and difficult to use. I have tried in this course to stay within the conventions of the British tradition, but to present an analysis that is simpler than most. A good introduction to the theoretical issues is Cruttenden (1997). Wells (2006) is also in the tradition of British analyses, but goes into much more detail than the present course, including a lot of recorded practice material.

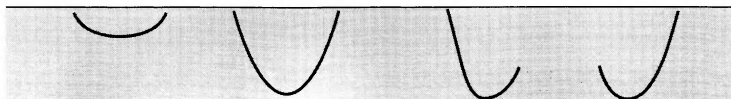
15.2 The amount of time to be spent on learning about tone languages should depend to some extent on your background. Those whose native language is a tone language should be aware of the considerable linguistic importance of tone in such languages; often it is extremely difficult for people who have spoken a tone language all their life to learn to

observe their own use of tone objectively. The study of tone languages when learning English is less important for native speakers of non-tone languages, but most students seem to find it an interesting subject. A good introduction is Ladefoged (2006: 247–253). The classic work on the subject is Pike (1948) while more modern treatments are Hyman (1975: 212–29), Fromkin (1978) and Katamba (1989: Chapter 10).

Many analyses within the British approach to intonation include among tones both “high” and “low” varieties. For example, O’Connor and Arnold (1973) distinguished between “high fall” and “low fall” (the former starting from a high pitch, the latter from mid), and also between “low rise” and “high rise” (the latter rising to a higher point than the former). Some writers had high and low versions of all tones. Compared with our separate feature of *extra pitch height* (which is explained more fully in Section 18.1), this is unnecessary duplication. However, if one adds extra pitch height to a tone, one has not given all possible detail about it. If we take as an example a fall–rise without extra pitch height:



then something symbolised as $\uparrow\nu$ could be any of the following:



It would be possible to extend our framework to distinguish between these possibilities, but I do not believe it would be profitable to do so. Several writers have included in their set of tones **fall–rise–fall** and **rise–fall–rise**; I have seldom felt the need to recognise these as distinct from rise–fall and fall–rise respectively.

Note for teachers

To devote five chapters to intonation may seem excessive, but I feel that this is necessary since the subject is difficult and complex, and needs to be explained at considerable length if the explanation is to be intelligible. On the positive side, working on intonation helps to improve learners’ fluency and helps native speakers to understand how spoken communication works.

As explained above, some students may be perfectly well able to discriminate between tones, but have difficulty in labelling them as “fall”, “rise”, etc. I find that a small number of the students I teach are never able to overcome this difficulty (even though they may have perfect hearing and in some cases a high level of linguistic and musical ability). Of the remainder, a few are especially gifted and cannot understand how anyone could find the task difficult, and most others eventually learn after a few hours of practical classes. Many

students find it very helpful to work with a computer showing a real-time display of their pitch movements as they speak.

Written exercise

In the following sentences and bits of dialogue, each underlined syllable must be given an appropriate tone mark. Write a tone mark just in front of the syllable.

- 1 This train is for Leeds, York and Hull.
- 2 Can you give me a lift?
Possibly. Where to?
- 3 No! Certainly not! Go away!
- 4 Did you know he'd been convicted of drunken driving?
No!
- 5 If I give him money he goes and spends it.
If I lend him the bike he loses it.
He's completely unreliable.