Of all the areas of linguistics that are of particular relevance to speech therapy, the subject of intonation in my opinion deserves greatest extra attention. Both in training and research, this subject has always been the Cinderella of work on speech. And yet it is one of the most important topics that we need to face when considering both the development of language patterns in the child and, in cases of disability, their treatment. There are many reasons for this neglect, and this is not the place to go into a historical count of why intonation has been so ignored. It is sufficient to point to difficulties inherent in its study. It has been called by one socio-linguist the 'greasy' part of speech. And it is true that it is difficult to in point, transcribe and analyse. This contrasts ironically with the wealth which we react to it. Intonation usually strikes us as one of the most prominent features of anybody's utterance. Analysing what we have heard is however more problematic. Indeed it is only in the last twenty years or so that techniques of analysing and transcribing intonation have come to be all widespread, and it is very recent indeed that one sees routine transcriptions of a patient's speech where intonation is systematically marked. Traditionally, one gets a transcription of a piece of aphasic speech, for example, which may only the words and a vague punctuation, such as '...'. Such 'transcriptions' are impossible to read back accurately. The dots are supposed to indicate the pauses of the aphasic and presumably something of the melody and rhythm of the speech. But if the purpose of a phonetic transcription is to enable you to reconstruct in the absence of the tape what has happened, then such a system is obviously terrible. One needs, somehow or other, to be able to introduce the main features of the dynamic movement of speech into transcription if one hopes
to have a precise record of what went on in a particular interchange. It is likely, therefore, that more and more attention will come to be paid to intonation, and in this lecture I shall accordingly look at some of the main points about the study of intonation which have come up in recent years, and suggest points of contact between that field and yours.

First, to put intonation in its proper linguistic context. The linguistic study of the pronunciation system of a language is termed **phonology**. Phonology is usually divided into two main fields. On the one hand there is the study of the vowels and consonants, and the ways in which these work together to produce syllables: this is generally called **segmental phonology**, the study of the segments of speech. Opposed to this there is the study of **supra-segmental** or **non-segmental phonology**: those variations in pronunciation that change the meaning of an utterance, without altering its vowels or consonants (its 'verbal' identity), and which are not capable of analysis into units like vowel/consonant segments. This is obviously a very big field. How many different ways can one say words like "really" or "well" or "did lack yawn" without changing their segmental character? The point to be made initially is that there are many different variables. As we know from acoustics, we can vary the pitch, the loudness, the speed, the rhythm and many other things besides. Not all of these are intonation, of course. The term for the main variables - pitch, loudness, speed and rhythm (which is, of course, a combination of pitch and loudness and speed) - is usually the **prosodic** features of language. Intonation, then, is a more restricted term, referring to the linguistic use of pitch; it is one field within the study of a language's prosody.
Loudness, speed, and rhythm are thus viewed as separate areas of
enquiry. This is not to deny the importance of relating pitch to those
other variables, of course, but it suggests where the focus of attention
should be.

All of this is not as obvious as it sounds. It is in fact a
largely novel emphasis, as regards the speech therapy literature, as
can be seen by looking up the word "intonation" in the index of the main
text books on speech pathology, as I did in preparing this lecture. In
many, the term is not indexed at all. In those where it did appear it
is not defined as the linguistic use of pitch. It is defined as pitch.
intonation is said to be the study of melody, or pitch movement, or tunes;
not linguistic melody, linguistic pitch movement, linguistic tunes.
There is an important difference. It can be seen again in the placement
of the topic of intonation in pathology textbooks. Where does one
normally find a discussion of intonation or pitch disorders? Usually in
the chapters on Voice or Hearing Impairment. Examples of pitch disability
are given referring to people whose pitch is too high or too low,
excessively monotone, harsh or wide. In other words, this is a discussion
of people who, for whatever reason, are unable to control the basic pitch
level of their voice and manipulate pitch contrast in conventionally
accepted ways. This is a more fundamental, pervasive disability than that
implied by my definition above. The overall impression is that intonation
disorders are fundamentally the by-product of a physical disability of
hearing or voice, and nothing to do with the linguistic system at all.

What must be emphasised is that there are two quite distinct issues
here. On the one hand there is the study of pitch and its disturbances;
on the other hand there is the study of the linguistic function of pitch -
intonation and its disturbances. These two issues have got to be kept apart: the non-linguistic study of pitch is one thing, the linguistic study of pitch is another. After all, if this distinction was not made in segmental phonology, where would one be? It would be tantamount to saying that any sound you produce is as important as any other sound. A sound which was not part of the English sound system is just as important as a sound which was. Presumably no-one would argue this. But it is exactly the same problem for intonation: is the disordered pitch pattern a product of a deviant English sound system or not? One has to decide whether a disorder of pitch is a universal feature which would have affected the patient regardless of the language he happens to speak, or whether it is a feature of the English intonation system that has gone wrong. In the first case, presumably, one would look immediately for evidence of auditory or physiological deficit in the second case, one would expect to find such factors normal.

To clarify this area, reference needs to be made to the findings of two types of literature: linguistics, and language acquisition. The main conclusion of the linguistics literature is predictable - that intonation is a rather more complex phenomenon than at first appears! As a first example, let me pick on the normal popular way for talking about intonation: one usually says such things as "the child's intonation", "his intonation isn't right". The problem is that in using the phrase "the intonation", people seem to be assuming that intonation is a single thing. "The intonation is wrong". "The light has gone out". There is a single deficiency - and consequently a single therapeutic focus will get things right again. But intonation is not like that. Intonation is not a single coherent pattern; nor is any other area of pronunciation. The analogy would be to say "his
consensants are wrong", "his vowels are wrong". Intonation is rather a multiple thing – a system of patterns. And one has to ask: Which aspect of intonation has gone wrong? What sort of intonation pattern? This is the main thing that linguistics has done. It has shown that there are variables within the study of intonation each of which has to be independently assessed.

The first and the main point is to distinguish between the formal study of intonation and its functional study. One can study intonation from the point of view of the actual patterns of pitch that are used to communicate meanings, and then, secondly, one can study the various meanings that are communicated – the functions of intonation. Let me begin with the main distinctions that I have found it necessary to use in order to classify the observed formal range of intonation disorders. The main thing is to make a distinction between pitch direction and pitch range. This should be familiar because it is one-standing in the literature on voice, but it applies also to the linguistic contrasts as well. The direction of a pitch is one thing to establish; its range is another. In English, for example, the direction of pitch may fall, rise or stay level and each pattern correlates with a distinct range of meaning. Further possibilities, such as the falling-rising pitch and the rising-falling pitch also occur, and their meanings are illustrated in any standard introductory account of intonation. Variations in range are separate from these. Over and above the different directions in which the pitch can go, there is the possibility of stretching or narrowing a movement: for example, a mid-low falling pitch can be widened to produce a high-low fall, and this widened further – the greater the width the more emotional involvement there being in the interpretation of the utterance. The pitch can then also be narrowed: taking the normal pitch
movement for an individual it can be flattened, to produce the various
degrees of non-tone in the language - the flatter the pitch, the more
sarcastic or bored being the interpretation. This distinction between
pitch direction and pitch range is very important because it applies to a
number of types of disability that relate to intonation (see below). Notice
that while the above examples are of only single pitches and words, the
same point applies in principle to whole stretches of speech. For instance
major pitch range contrasts can be heard when a stretch of speech gradually
falls, phrase by phrase, as one moves towards the end of an utterance, and
the pitch then rises for the beginning of a new intonation 'paragraph'.
Good data for analysing intonation paragraphs can come from the BBC news,
where each item of information has its own pitch pattern. One of the most
common ways of producing a parenthesis, for example, is through this part-
icular technique. How do you communicate a parenthesis in speech? In
writing it is easy because you put brackets or dashes on either side of the
parenthetic stretch. But in speech there are no brackets, so what do
you do? You use intonation. For example in the utterance "my brother-
you know my brother don't you - he's been abroad for a few months." At
the point of parenthetic opening, the pitch usually drops and returns to
the norm at the second dash. The secondary, or less important information,
is thereby marked off. I shall return to the implications of this for
disability, below.

Three other important distinctions must be made in order to carry
cut an intonation analysis (i) Pitch is organized primarily into
sequences of tones and tunes which are normally called tone units, or
tone groups (primary contours, in the American tradition). Tone units
are very important as they are one of the main ways in which we organise
the grammar of our speech. Simple short sentences are no problem, e.g. /The man's coming to see me/ is a single tone unit, a single continuous pitch pattern followed by a pause. But with more complex sentences, e.g. a main clause and a subordinate clause, there are normally two tone units, as in /Then I got in/I was tired/. It is possible to analyse all the different types of tone units in English where they occur and where the boundaries are; it emerges that there are about 30 main grammatical structures which are marked by intonation in this kind of way. Putting this another way, it is possible to predict the intonation from the grammar, e.g. if there is going to be a vocative inc sentence, then if this occurs at the beginning of the sentence it will have a separate tone unit. So the normal way of saying or calling somebody and addressing him would be to say /John/ can I speak to you a minute/. The vocative is on its own. One would not normally say /John can I speak to you a minute/ without a break. In contrast, at the end of a sentence, if the vocative is used, one would not normally give it a separate tone unit in English, viz. /Can I speak to you a moment John/. The "John" 'tails away' at the end. A common mistake of foreign learners of English is in fact to give it separate prominence, viz. /can I speak to you a moment John/. Having where the tone unit boundaries come is therefore an important aspect of getting the grammar smooth and organised. Correspondingly, errors in boundary placement are one type of intonational disorder (see below).

(ii) Given a tone unit, the second decision that has to be made is which word is to have the main emphasis placed upon it. A tone unit usually has a single point of greatest prominence, and this is referred to as the nuclear tone or tonic syllable, e.g. /It's going to
to rain again tonight/, /It is going to rain again tonight/, /It's going to rain again tonight/, and so on. Deciding where the emphasis, or tonicity, in a tone unit is the second main aspect of intonation organisation that operates in English, and which (to anticipate) can go wrong. (iii) Once one has chosen which word has the emphasis, then a decision has to be made as to whether the tone used is falling, rising or level - or any of the other possible variations in tune in the language e.g. /It's 'going to rain again tonight/, /It's 'going to rain again tonight/, /It's 'going to rain again tonight/, etc. These variations in tune - the different types of nuclear tone - constitute the third most important feature of intonation, and, accordingly, a third area of potential disorder.

In summary, there are three main formal features of intonation analysis worth paying attention to (i) The division of an utterance into tone unit; (ii) within a tone unit, determining the tonicity; and (iii) for each tonic syllable, determining the tone. The importance of these three variables is that it is under these headings that the vast majority of intonation disturbances can be classified.

Moving on now to the question of the functional analysis of intonation. Here, the traditional view is that intonation signals emotional meaning, e.g. surprise, anger, sarcasm, etc. This is certainly an important function, but it is by no means the only one. It is in fact uncommon to find a disturbance of intonation which affects solely the expression of attitude. On the contrary: if there is any use made of intonation at all by a patient, it is usually the emotional side of meaning that comes over, if anything does. It is the other functions of intonation that tend to be more fundamentally affected. In particular,
there is the function already referred to above: the use of intonation to express the grammar of the language. Intonation communicates far more than the attitude of the speaker; it communicates fundamental features of the message, e.g. was someone trying to communicate a question or a statement, a command or an exclamation; was he trying to say something in the singular or the plural, in the positive or negative? Intonation can be as specific as this, even in English - although there are not many cases of this type. For example, intonation can affect our interpretation of singular and plural, as in the two types of relative clause: "My brother who's abroad is coming back next week", compared with "My brother who's abroad is coming back next week". In the first case, the implication is that I have one brother; in the second case, I have more than one. In writing this is shown with commas; in speech it is signalled by intonation: /my brother/ who's abroad/ is coming ... vs /my brother who's abroad/ is coming....

A third function of intonation is to provide information about whether one is talking as a member of a certain social group, e.g. a particular class or profession. The intonation of lecturing is very different indeed from other styles and we have already had cause to mention that of the BBC newscaster. This is closely related to the use of intonation to mediate between people - to keep the conversation going. This is sometimes referred to as an 'interactional' or 'dialogue' function of intonation. A use of a certain intonation can stimulate a response (e.g. the prompt statement in therapy - It's a - '), whereas other intonation patterns would be unsuccessful. All of this would be part of a sociolinguistic analysis of intonation.
One further point needs to be made about function, and that is to beware of looking at the functions of intonation in a simplistic kind of way. It is very easy to assume that when the intonation changes, the meaning changes - just like that. A common example is to say that statements have falling tones, questions have rising tones. /He's 'caring' vs /He's cóming/. It is often said that you can change a statement into a question by changing the tone from falling to rising. But this is not so. There are many examples where you can change in pitch like that and the result is not a question at all. After all if a question is basically a request for information, then in a context like "John's Smith's caring this evening", if I respond with /cómoing/, it can hardly be a question. I am not asking you, as you have just told me, so obviously the rising intonation is now an expression of surprise, astonishment, etc., and not a question primarily at all. It would be wrong, therefore, to assume that a rising pitch always means 'question'. Sometimes it simply expresses an attitude. And the same applies for the rest of intonation also.

Turning now from the results of linguistic discussion of intonation to the findings from language acquisition: here again there is opportunity to illustrate only some of the main points. A chronological perspective may be helpful. Traditionally we all know that intonation comes to be responded to in young children from around 2-3 months. There is an excellent summary of the traditional literature in M.M. Lewis's book "Infant Speech", which shows how children will respond to differences in tones of voice, primarily intonational, from about that age. Recently, and more systematically, a number of people have tried to test exactly which aspects of intonation have been responded to, e.g. the habituation test routines used by Kaplan and others in the United States shows that
from about four months, children respond to and differentiate between rising and falling pitches. In terms of production there is increasing evidence to suggest that intonation is the first aspect of a language to be systematically acquired. (Intonation also seems to be one of the last features to be acquired, from the point of view of comprehension see below - a point which should not be paradoxical, if you remember that there is no such thing as the intonation, as mentioned above. Some aspects of intonation come early, other aspects of intonation are not learnt until very late.) From about six months most children begin to use language - specific intonation patterns: it is possible to differentiate such languages as Chinese, French and English. From around this age, it is possible to hear emerging, against the background of general babble that has not been language specific previously, certain melodic nuances which anticipate the intonation structure of the language. These rapidly become more definite, and they have a clear function. Their primary role is to segment the utterance into what Ruth Weir once called "sentence-like chunks". More recently, in a paper in Vol. 2 of the "Journal of Child language", John Dore referred to this as a 'prosodic frame'. The point is that the pitch patterns that we associate with the babbling period are characteristically random. On the whole it is not possible to be predictive or generative. The pitch pattern of one sample of babbling differs in many ways from another, and it is only at around 6 months that it is possible to see substantial similarities across samples emerge, through the development of these prosodic frames, or primitive tone units. Most samples of well-developed jargon illustrate this. The pitch patterns which characterise these tone units are very similar to those discussed above: there are pauses at regular intervals, there are centres of emphasis within then,
and there are characteristic melodic patterns. And the point is that these patterns are very similar indeed to the intonation patterns of the adult language. One gets the impression of a conversation, or dialogue being built up - even though of course the segmental or 'verbal' aspects of the phonology are on the whole unintelligible. In any sample of jargon, there will tend to be a few prosodic effects that are alien to the English system (a remnant of prosodic 'babbling'), but most of the features heard are reflexes of the most salient features of the adult intonation system, e.g. the point of greatest prominence on the final syllable of a string (corresponding to the adult tendency to place the tonic syllable on the last lexical item of the tone-unit). This kind of stabilisation of what was previously random babble, is the first sign of any language organisation in the vocal output of children, in my opinion. It occurs long before the development of a determinate segmental phonemic system, which at this stage, is till characteristically random. (For a fuller discussion of these issues, see the paper on language acquisition in my "The English Tone of Voice", 1975.)

In this first stage, then, intonation patterns develop which act as frames within which sentence patterns gradually emerge. This begins to happen when individual words - which over the 9-18 month period are largely used in isolation as single-element sentences - gradually come to be put together. For example, how does one know when two adjacent words are being used as a single sentence? Two-word sequences are not sentences if they lack intonational coherence. A child who says, for instance, /kla-/ /ton/ with separate tone units and a pause, is presumably uttering two one-word sentences. But even when there is no pause, it would be premature to say there was a single sentence here, unless there was a
single tone unit, /dada gone/. Then there are formal linguistic grounds for interpreting that as a sentence, one could then proceed to give it a grammatical analysis such as subject + verb. As a second example of intonational development in this period, there are the very complex substitution games of around 18 months. This was pointed out very early on by Ruth Weir, in her tape recordings of cot monologue, and more recently it has been stressed by Elinor Koonan in an article on conversation in her twins in Vol 2 of the Journal of Child Language. Here she shows how one twin will produce an utterance, which will be 'played with' by the other, and then taken back by the first - a procedure which may continue indefinitely. The intonation is often played with in this way, e.g. a rising pitch replacing a falling pitch, or the tonic syllable put earlier in the utterance. Judging by the giggling which usually accompanies such activities, the labelling of these substitution patterns as 'games' seems quite appropriate! At this stage also, the emergence of intonation for dialogue purposes has been noted, e.g. by Halliday in his recent book "Learning how to moan". For his son, Nigel, one of the first contrastive uses of intonation appeared around 15 months: the child first learnt the difference between enquiring about the whereabouts of something and identifying its whereabouts, and used the contrast between rising and falling pitch to explain this - one of the most predictable features of early intonation.

These are examples of early development of intonation. What happens in later years? One type of learning is well illustrated by Alan Cruttenden, in The Journal of Child Language, Vol. 2, in an
article on the intonation of football results. He took children from 7-10 years and tried to find out to what extent they were able to predict the various scores in football results (win, lose, draw) on the basis of the intonation of the utterance, e.g. /Liverpool one/ Everton 'one/, /Liverpool two/ Everton/thrée/, and so on. Adults can do this, and this is not surprising, because the contrasts involved (semantic reinforcement, diminution and equivalence) are commonly expressed by intonation throughout the language. When do children learn to do it? The experiment showed that 7-year-olds were unable to complete the score in the confident way that most adults do, but by 10 they were able to do it. And as a further example, another use of intonation that is learned relatively late by children is to identify a particular type of contrast e.g. /John gave a book to Jim/ and he gave one to Mary/ (= "John gave a book to Jim and John gave a book to Mary") compared with /John gave a book to Jim/ and he gave one to Mary/ (="John gave a book to Jim and Jim gave one to Mary"). The contrast changes the entire meaning of the utterance. When do children learn that? It emerges that 8-9 year-olds will still be having difficulty in distinguishing the senses involved.

So far I have talked about developments in the grammatical function of intonation. As a final example under the heading of language acquisition, there are also the developments that relate to strategies of interaction. If one looks particularly at the early period, it would be most misleading to assume that it is possible or desirable to study intonation in a vacuum, independently of the other aspects of behaviour which accompany it. One of the people who has emphasised this point is
Jerome Bruner. In Vol. 2 of the Journal of Child Language, he has a paper called "The Ontogenesis of Speech Acts", where he reports on research that has shown how vocalisation in the first year of life does not make sense unless it is seen very clearly in the context of the behaviour pattern of the child and the adult as a whole. His example of the peep-bo game is a case in point. A tape-recording of 'peep-bo' utterances makes little sense. A video of the activity, without sound, makes little sense either. The only way in which 'peep-bo' appears a meaningful activity is by showing how there is a correlation, a kind of 'complementary distribution' between the action patterns of the mother and her utterance (hiding and emerging in repeated sequence), and the response behaviour of the child.

Likewise, Bruner points out the way in which language is used to complete an action sequence. For example, in playing one of those games where the baby is first lying down, and then picked up for some kind of 'nuzzling', the sequence of actions is normally accompanied by a vocalisation on the part of the holder which increases in loudness and pitch as the baby comes closer. This might well be seen as an early use of intonation, forming a primitive sociolinguistic bond between parent and child. To give another example from a different field, Jean Berko Gleason, in a paper in T. Moore (ed.), "Language and Cognitive Development" (1973), talked about the importance of what she called rather loosely the "Hail-Baby-Well-Met" intonation pattern of the first few years. For instance, the child toddles up with a sticky box, a watch stick and a piece of string, and says "Mine house". What is the normal adult response? It is to provide such reactions as: "Gosh, what
a marvellous house! What a lovely house! Did you do that all by
yourself?" and so on! What is the function of this? Why do we act
so inanely!! According to one view, what we are doing here in such
cases, apart from any psychological reinforcement we may be providing,
is teaching the child how to react, linguistically. The child has to
learn how to say things about things. By reacting in an exaggerated
and redundant kind of way, the adult provides him with models of
possible questions and responses. It is, in effect, a kind of training
in basic conversation. It can be seen also in role play situations,
where, for example, the speech of children talking to baby dolls, adults
and others shows distinct intonational variation, reflecting the features
used in adult utterances (see the paper by Sachs and Devin in Vol. 3, No. 1
of the Journal of Child Language). By about 3 years of age, children
distinguish in their intonation between play with dolls, other children
and adults, and so on.

What, then, can be said about disability? In a sense, I have been
talking about disability all the time. The easiest answer to the question
"How do you classify intonation disability? is to say 'More or less
anything that can go wrong will, in one patient or another" The important
thing to know is the range of possibilities that can go wrong - which is
why I have spent most of this paper outlining what they are. Any of the
four main formal patterns can be disturbed. Any of the three main
functional correlations can be disturbed. Here are some examples. First
of all, a person's ability to sequence intonation patterns might be
impaired. Earlier, I gave an example of parenthesis in normal speech.
Parenthesis is, in the intonational sense, a common type of problem
in language disturbance also, which may give an impression of speech being totally unintelligible or disorganised. A parenthesis, after all, is where the meaning of what you want to say is not as important as the meaning of the surrounding utterance. The pitch drop, quieter voice, etc reinforces this. Now what happens in parenthetical disturbance, in either children or adults? is the person dropping the voice for the important information, and not for unimportant information. So for example a patient might say: "The important thing about all this is ....... and the next thing he'll do then is .......". One hears the transitions between the important pieces of information but the main items are themselves intonationally obscure. This is particularly noticeable in adult aphasics, but it seems common too as a feature of children who are slowly regaining some control over syntax after brain damage or accident. It is as if the intonation cannot keep up with the grammar. As a second example, one could cite errors in the use of tone units. There may be too many of them for an utterance, or too few (though the latter is not common, in my experience, in children). The effect of too few units is of 'ignoring the punctuation' - omission of expected pauses, junctures, tones, producing a continuous stream of speech. Much more common are cases where too many tone units are used. In an extreme form, this produces 'word at a time' speech, each syntactic unit being given its own intonation pattern e.g. /the mbr/-/is/-/in the garden/. In normal speech this sentence would be given a single tone unit, but it is broken down here into sub-tone units. There are two noticeable types of disturbance. Either the breakdown will follow the grammar, e.g. there may be a tone unit for the subject, a tone unit for the verb, a tone unit for the object,
and so on; or the tone unit breakdown does not follow the grammar, and there is 'chunking' in the wrong place, e.g. /iʃ/-'daddy is/-going to-/town/. Here a bit of the object is attached to the verb, a bit of the verb is attached to the subject and so on. This is much more difficult to eradicate. (An example is discussed in detail in chapter 8 of "The grammatical analysis of language disability" Crystal et al, 1976).

What about tonicity? Tonicity is probably the most commonly occurring type of intonational disability. The child puts the intonation emphasis on the wrong word, i.e. the word selected is not the important item in the tone unit, and the result is a mismatch between the form of the sentence and its meaning. The sentence sounds odd or unintelligible. This happens especially in dialogue where a point is made to the child, who responds accurately in terms of the meaning of the question, but intonationally not in terms of the meaning e.g. "Who's got the ball?" produces "That man's got the ball". This is wrong, because one would expect "That man got the ball" only if the question had been e.g. "What's that that man got?". Conversely, to the first question, one would have expected the child to provide some new information such as "The man's got the ball", or "That big man's got the ball". In other words, the information the adult presupposes seems to be ignored by the child. This is probably the most common kind of tonicity error; but there are others. There are a few structures in English where a tonic syllable is not permitted on certain words. For example, if a sentence contains an example of the "empty" it, as in "I think it's raining", then there would be no tonic syllable on that word. One cannot say "It's raining". But sometimes in disordered intonation this is found. Likewise, with the empty word "there" as in
"There were lots of people in the garden, weren't there?". One cannot have "There were lots of people in the garden, weren't there?". This is another example of putting the tone in the wrong place.

Lastly, there are disorders of tone, as such, i.e. changes of rising and falling pitch where they are not expected. This is probably the most familiar kind of disturbance. It is also one of the most irritating, because of the emotional connotations some of the tones may convey, e.g. a persistent 'doubting' fall-rise tone. Tonal differences may also be used in a quite unexpected way e.g. one child, when asked "Have you got a ball?", said "Me got one". What did he mean? He meant he hadn't got one. He was simultaneously shaking his head; but before this was noticed, his meaning was already evident from the falling/rising tone. A falling/rising pattern in English usually conveys a degree of doubt or hesitation - a negative implication, e.g. in response to "Are you going to come out tomorrow night?", the answer /yes/really means 'no'! The contrast this child was using was therefore "Me got one" (= yes) vs. "He got one" (= no) - quite a logical use of the English system, in a way, but not one that one would normally expect to happen.

Once identified, the problems for therapy are many and various. They do however need to be attacked systematically, and one needs to avoid doing certain things which could complicate issues for a child who displays intonational disturbance. For example, one tries to avoid varying one's intonation when operating in a drill context with a patient. Again, it is particularly easy to become too demanding from the child, and to end up unconsciously producing precisely the
Intonation patterns that it was the purpose of the session to eradicate! It is also important to try to avoid constraining the patient's choice of intonation too much. For instance, if one is trying to establish a rising pitch pattern in a patient who does not have it, one will want to avoid giving him sentences which do not a falling pitch pattern.

For example, 'prompt' sentences generally go up in pitch at the end, and thus motivate a fall in the response. One says: /What is it/- it's a green one/-/it's a/. The patient is unlikely to respond with /green one/-; he is going to say /green one/. If the therapist is after a rising pattern, then this is obviously not the sort of intonational stimulus to use. This raises perhaps the most important point of all - to preserve intonation patterns in drills. After all, if intonation is one of the earliest features to be learnt as regards comprehension, then changes in the intonation pattern could be tantamount to presenting the child with two quite different utterances - the different intonational profiles being seen as primary. For example, if one is training a child to say something like /There's a cat/, /There's a dog/, with the emphasis on the final lexical item, then it would be very disturbing to suddenly switch the intonation and put it earlier in the sentence, away from the prominent word one is aiming for. But this very often happens, not so much in the early stages of drilling, but when one moves on to something slightly more complicated, e.g. a therapist had been for a while doing things like "There's the cat, there's the dog" and then moved on to /That's a little cat/. She then said "What is it?" and the child replied with /That's a little/. A quite expected response, under the circumstances, because he had learnt to respond on the basis of the
emphasis of his stimulus sentence.

There are, then, many things to remember about the formal patterns of intonation we face children with, and about the function that the intonation patterns have. I do not for one moment think that the suggestions I have been making amount to a comprehensive classification. These are all examples that have cropped up in our routine analysis of patient performance, and they seen to correlate with some of the main distinctions that have emerged from the literature in linguistics and language acquisition. I am quite sure that there remains a great deal to be done before a respectable and detailed classification can be made, and appropriate therapeutic strategies evolved. It is my hope, therefore, that my outline discussion and few examples will be sufficient to awaken fresh interest in what has been one of the most neglected facets of Speech disability.