COMPREHENDING (AND UNCOMPREHENDING) COMPREHENSION: FROM TOP TO BOTTOM AND BACK AGAIN

David Crystal

The problem with comprehension is that people have difficulty in understanding it. The term is interpreted in many different ways. In particular, there is a major difference between the way many teachers look at it (e.g. working out the sense of a piece of reading) and the way speech therapists look at it (e.g. in relation to the notion of listening comprehension). An overview of what is involved may therefore be helpful.

Obviously, comprehension is to do with meaning - so where is meaning to be found? In one sense, it is to be found everywhere in language. Very early in the history of linguistics, it was appreciated that meaning was part of the identification of units at all levels of language structure.

- When we look at pronunciation, we aim to work with the significant sounds, or phonemes; but phonemes are identified because they cause a difference in meaning. Minimal pair tests, rhyming identify tests, and all the things that currently go under the heading of phonological awareness are all based on meaning. We could talk, if we wanted, about the comprehension (as opposed to the production) of sound - though we more usually use such notions as "auditory discrimination". Indeed, we have to talk about comprehension when dealing with such matters as intonation and stress, where there is a more direct relationship with meaning.

- When we look at grammar, we note the existence of morphology and syntax. Under the former heading, we identify word-endings, such as plural and past tense, whose role is to express a contrast of meaning. Under the latter, we examine changes in word order, the sequencing of constructions, and also on, whose role, once again, is to express contrasts of meaning. The best way of explaining how a grammatical construction is used is to contrast it with what it is not - in other words, one meaning is distinguished from another. Here too, then we could talk about the comprehension (as opposed to the production) of grammar. And we often do.

- When we look at pragmatics, we are studying the choices people make when using language to each other. Again, the concept of comprehension arises. "I just don't understand you", Mr C might say in exasperation to Mrs C. What Mr C has not understood is why Mrs C has said what she has said. At one level, Mr C has understood the sounds, sentence structure and words well enough. But he cannot interpret the whole into an acceptable interaction. When people are at cross-purposes, accidentally or deliberately mistaking what is said, then there is a problem of what we might call pragmatic comprehension (as opposed to production).

- Lastly, but most importantly, we arrive at semantics, which is where most people think comprehension lies. Here, there are two sides to the topic. First, there is the study of vocabulary. As this is the main meaning-carrying element within semantics, it is understandable that comprehension should have traditionally been viewed as belonging here. For many, comprehension means "how many words does someone understand?", and that is all. It is a subject on which I have written before (1987), so I will not go further into it in this paper. What I want to deal with today is the other aspect of semantics - what might be called text comprehension, or discourse comprehension - the understanding of meaning as it is gradually unfolded while we speak or write. (The term "text" means any contextually defined piece of speech or writing. It includes posters, warning notices, essays, and newspaper headlines, on the one hand, and sermons, jokes, racing commentaries, and conversational activities, on the other. Texts can be of any length. A novel is a text. So is the sign DANGER - just one word).

We operate with the concept of text comprehension all the time, often without realising it. When we read and listen, it tends to be "top down" - that is, we see a text as a whole, and try to make sense of it, bit by bit. When we speak and write, it tends to be "bottom up" - that is, we produce and understand a bit at a time, and try to build up a coherent text from the pieces. One of the problems in making the jump from reading to writing and from listening to speaking, incidentally, arises from the different orientations of these modes. A child who can produce a written text of some sequential complexity, or who can tell a long story, is not necessarily going to be able to read or listen to a text of corresponding complexity. The kind or orientation to the task (building up vs breaking down) is totally different. Teachers are well aware of this, for example when they advise children to "read through their essay before handing it in" - in other words, to check that the bottom-up approach hasn't led to incoherence when it is viewed as a whole (top-down). That people find this difficult to do, for whatever reason, is illustrated by the fact that, as a university teacher, I find myself dispensing the same advice to my students as my junior school teacher colleagues do to theirs.

The bottom-up vs top-down distinction is critical, because it identifies radically different approaches to the meaning of a spoken or written text. The tradition within speech therapy, for all levels of language, has been one of bottom-up - individual contrasts are established, and gradually one builds up larger and larger patterns. The tradition in teaching, in so far as (until recently) the focus was on literacy rather than oracy, is one of top-down. Read the whole text, and then you answer questions about it. In the teaching of reading, of course, there has been a long-standing controversy as to whether a bottom-up approach (phonics) is better than a top-down one (look and say, or whole word). But once the basic process of learning to read is over, top-down is the norm.

The way forward, it seems to me, is to recognise that both approaches are essential - that they complement each other. They are not alternatives. So the question now becomes: how do we incorporate elements of top-down into our bottom-up work, and vice versa? Her is a perfect example of the way in which the co-operation between speech therapists and teachers (an issue to which the whole of the next number of Child Language Teaching and Therapy is devoted) can work very well. Is it too much of a generalisation to say that, traditionally, the teacher is trained to adopt the broad, top-down view, whereas the speech therapist is trained to focus on the detailed, bottom-up view? If this is a valid perspective, it is an excellent basis for collaboration.

Top-down or bottom-up in writing and speaking

Let us begin with writing, where it is easier to see what is going on. One of the long-standing pieces of advice to a child engaged in a piece of written work is: make a plan. This is top-down thinking, as are such processes as drafting and revision, all highly recommended in current curriculum documents. But when it comes to implementing the plan, to actually writing out a text, sentence by sentence, one needs to think bottom-up. For example, if one wants to make a contrast between point A and point B, what vocabulary or grammatical constructions are available to express the contrast between A and B? Grammatically: is the best construction to use a co-ordinate clause (but, or) or a subordinate one (although, despite, etc.) Lexically: what kind of contrast can you make? Expressing an alternative (rather, alternatively, on the other hand), expressing an antithesis (instead, conversely), expressing a concession (however, still in spite of that), expressing an attitude (unfortunately, sadly)? Some of these items demand knowledge of grammatical rules, such as the locale of the word/phrase in an sentence or the choice of an appropriate tense form. Elementary errors include the use of only one of a pair of items (writing on the one hand and not on the other hand, or breaking the order-of-mention principle, referred to below). Working on the use of these items helps to provide the tools which enable a young writer to make a more sophisticated choice, rather than simply putting and... and... and.

A well recognised problem with early written expression (as illustrated by the and ... and style) is that it naturally relies on speech strategies from an earlier period of language acquisition. The teaching task is to introduce the child to the more subtle and tightly controlled expression which is part of acceptable and impressive writing. The contrast is most marked between formal writing and informal conversational speech. The whole point of a casual conversation is that it is topically random and unstructured. You never know where this kind of conversation is going to end up. Someone interposes with a "That reminds me ...", and suddenly everyone is talking about a different topic. People dart about. Topics which were left behind may reappear. New participants arrive (sorry, I missed that ...) or go (gosh, is that the time...?). There are of course certain strategies which the language provides to enable this exercise to proceed smoothly (even randomness has to be grammatical and pragmatically appropriate, hence the rules governing the use of you know, you see, mind you...), but in the mother tongue context these would not normally be thought of as a specific teaching goal.

It is when we turn to formal conversation, and the whole range of spoken uses which constitute oracy (such as public speaking, interviews, narrative skills generally) that we find ourselves in a situation which is not so far removed from the written language situation just described. The real-time nature of speech (in which memory and attention play critical roles), and its context-dependence, makes it a very different language game from that of writing, but it is in principle possible to approach the speaking situation along similar lines. It is possible to "write a plan" about what one wants to say. These plans are called "notes", and what you are reading now is an expansion of the notes I used at the NAPLIC conference. It is also possible to do without notes, to be more spontaneous, and think ahead, working out in advance how we are going to put something. How often do we want to make a point at a meeting, and spend a few moments thinking out how to put it (often thereby paying no attention to the next part of the meeting - which is why our interpolation, made a few moments later, may be regarded curiously, for the conversation has moved on since we first started thinking about it - or maybe someone else made the same point while we weren't listening!).

What makes the really impressive public speaker is the way he/she controls this planning element with apparently unselfconscious ease, making elegant contrasts of meaning, developing a point climactically, introducing relevant asides, sticking to the point, and so on. The Greeks had a word for it; they called it rhetoric. And courses on rhetoric are now a routine part of many university programmes. What we need to do is think out ways in which rhetorical strategies can be implemented at a basic level. How does one express agreement? or disagreement? There are developmental possibilities here which have been little studied. At one extreme we can say, I find what you are saying somewhat difficult to accept. At the other extreme we can simply say Sod off! Or we can use no language at all, and kick or bite instead. All over the world, people use language to avoid a fight. It is called verbal duelling.

If you think of spoken language like this, then it is not difficult to see how the bottom-up approach, which characterizes the teaching of conversational skills, can be developed into the top-down one which is needed if a successful formal conversation is to emerge. Conversational inadequacy is these days generally discussed under the heading of pragmatics. One of the chief symptoms of children with pragmatic disability is the inability to maintain appropriate conversational skills: they may speak in parallel, or go off the point. The traditional speech therapy approach is to attack these difficulties bottom-up, and this is certainly a wise place to start. But it will never, by itself, solve the problem of pragmatic disability. At some point there needs to be a switch to top-down work on the nature of conversational strategies - that is, on conversational comprehension. We need to teach the child how to handle a conversational plan - a simple one to start with, such as role-playing a two-part disagreement. Later we can build up the handling of sequences (I want to make two points ...), contrasts, and the like. The writing model shouldn't be forgotten. I would be interested to hear from those who have experimented with using notes to help a pragmatically handicapped child get by in a conversation? Or whether anyone has worked with the spoken equivalent of drafting? "Let's try that dialogue again."

Top-down vs bottom-up in listening and reading

Writing and speaking - the so-called active skills. Yet we all know that reading and listening are also highly active processes. Paying attention, processing the incoming data, remembering aspects for future use, maybe accompanying it with writing (as in note-taking). We all know how easy it is to lose track. In clinic or classroom, we know how important it is to maintain active listening comprehension, and we devise techniques to ensure that it is taking place. That is why so much of our interaction with children is question-based. We probably spend more time checking that what we have said has gone in than saying what we have to say in the first place.

Of the two modes, listening is the more active, because it is real-time and not under our control. The pace is dictated by the person who is talking (though hopefully, the speaker is paying attention to the listener, and is prepared to modulate his/her speech if there is evidence of poor comprehension). With reading, the activity is more under our own control. We can re-read while assimilating what a writer has to say (but we cannot re-listen while someone is speaking). We can even fall asleep in the middle of a page, and when we wake up miss not a word. We can also select what we want to read - it is called skimming - rushing ahead to see whether we need to look more closely at a piece of writing. We do this every time we read a newspaper. I also know people who look at the last page of a novel before they decide whether they want to read it. We can't select what we want to listen to in this way. We can't check ahead to the end of a conversation before deciding that we want to take part of it.

At the level of therapy, however, this last idea isn't as absurd as it sounds. Our role in teaching listening comprehension is one of continuing to stretch the child's ability to process, to attend, to remember. Why should we not, therefore, structure our teaching so that we present the child with one-point conversations (a simple T-P exchange, with no further consequences), then move on to two-point conversations, (each point consisting of one T-P exchange), then move on to two-point conversations, (each point including more than one T-P exchange), and so on. Graded comprehension checks can be incorporated in various ways, such as by introducing incongruity or illogical consequences. X happens and Y follows, as expected (e.g. I wanted to go to the match. Fortunately, the bus was on time). X happens, then Y follows, not as expected (I wanted to go to the match. Fortunately, the bus was late). Children who cannot attend to one-point conversations involving a single point of contrast will obviously make little sense of more advanced dialogues. What happens is that they tend to treat them randomly - selecting points from various heard sentences, and responding to them incoherently.

Of course, it is difficult to draw a line between work on listening and work on speaking, in a teaching situation - nor should one try. We already do a great deal of work on one-point conversations, in the simple question-answer dialogues which comprise vocabulary comprehension work. What's that called? It's an apple. Good boy. Nothing follows from this. The story is over. One can continue the topic, of course (And what can you do with an apple?), but there is no inevitability. It is an optional extra. A two-point conversation tells a story in two moves: this happens, and then, as an inevitable consequence, that happens. Someone can't find something, and then he/she finds it. Someone does X and as a result has to do Y. In a 3-point conversation, someone does X, encounters a problem with Y, and solves the problem in Z. It is possible to think of a happy ending (or a disastrous one), and the child's job is to work out in two moves how to achieve it? This is what I mean, when I say that the idea of scanning ahead isn't as absurd as it sounds.

When dealing with such notions as one-point conversations, and just two sentences, the distinction between top-down and bottom-up, in effect, disappears. But the strategy of thinking in these terms does not. With listening, the aim is to provide a bottom-up approach which can be used in the top-down situations that are the normal linguistic milieu for the child. Drop the linguistically-disabled child into a full-blown conversation, and it will get lost. Drop the same child into a conversation with the linguistic equivalent of signposts, and it may learn to find its way. What are these signposts? They are the connecting words (such as subordinating conjunctions), the linking adverbs (fortunately, sadly), the connecting phrases (ranging from the colloquial 'I mean' to the formal 'but nevertheless'). If you hear fortunately, at least you know that the outcome is good. If you hear you see, at least you know that the person is trying to explain something more clearly. If you hear on the other hand, at least you know you need to prepare yourself for an alternative point of view.

These are change-points, controlling the flow of the discourse. They are part of every conversion, every monologue. They are signposts to the listener that something important is happening to the conversation, and thus major factors in promoting comprehension. (They are also important to speakers, in helping them control the direction of connected speech). We therefore need to spend some time thinking out how we can introduce children to these signposts, so that they can be repeatedly used as a dialogue becomes more advanced. The signposts, to change the metaphor, become a scaffolding on which the child can construct increasingly complex sentence sequences.

These signposts turn up in reading also, and it is important that children be on the alert for them. A good example for what can happen when a signpost is missed is the phrase which reverses expected order-of-mention. Normally, the order in which clauses appear reflects the order in which events take place in the real world. X happens and then Y happens,. But some connecting words and phrases reverse this sequence, so that although Y is spoken after X, the event it refers to takes place before that of X. "X happened. The year before, Y happened." This kind of sequence, very common in textbooks, as authors struggle to avoid narrative monotony is a regular source of comprehension difficulty. The child who was told "There was a great fire in London in 1666. The year before there had been a great plague. The fire helped to get rid of the plague." could not understand how this could be. By missing the significance of the phrase the previous year, with its reverse time ordering, the child assumed normal order-of-mention was operating - that the fire happened first, and then the plague.

These observations are not intended as a systematic account of all the factors which affect the comprehension of speaking, listening, reading and writing. For example, I have not addressed the important question of the way line-breaks in reading can interfere with the ready comprehension of a text. The aim of today's paper is to draw attention to the need for broader perspectives in working with comprehension, and to suggest ways in which different approaches can be reconciled. As always, the next stage is the really interesting one, as people try to implement these new perspectives in teaching and therapy practice.

Reference

Crystal, D. 1987 Teaching Vocabulary: the case for a semantic curriculum.
Child LanguageTeaching and Therapy.