Children's understanding of interpretation and the autonomy of written texts[1]

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Abstract

In this paper I examine the development of children's understanding of interpretation, of the objects that can be interpreted, of the possibility of ambiguity and of the relations between what utterances mean and what speakers or writers mean by them. The arguments relating to the relations between textual or utterance meaning and the speaker's intended meaning are reviewed and the existing evidence bearing on this question along with some new evidence is presented to show that children come to understand that a text can be read in only way, that ambiguous expressions could refer to more than one object and thereby limit a listener's knowledge, and that a distinction may be made between the speaker's intentions and the meaning of his or her utterance in the late pre-school years. It is argued that these understandings may be dependent upon participation in a textual tradition.

The orality/literacy hypothesis as developed by Havelock (1982), Goody and Watt (1963), McLuhan (1962) and others (for a summary of recent research under that theme see Olson, 1987) has encouraged a new and promising approach to the problem of the meaning and interpretation of language and text. The argument, in part, is that written discourse invites a new attitude to the production and interpretation of language because it, unlike oral discourse, is typically separated from its author in time and space and in that sense is 'autonomous'. A book, a paper or a memo written in Toronto on March 15 may be read by someone in Missoula on April 15. Indexicals like 'today' and 'here' used by the writer will not be shared by the reader. Interpretation on the reader's part will require a reconstruction of the reference of such indexical expressions. We may think of this problem in terms of 'decontextualization' and 'recontextualization' of written texts.

But writers, realizing the autonomy of their texts, will either explicate or minimize the unsharable aspects of context in such a way that the

appropriate interpretation is more readily reconstructed by the reader. Thus, instead of simply writing 'today', the writer may add a clause or phrase such as 'September 15, 1989'. Indeed, Chafe (this issue) and Halliday (1987) have shown that written texts frequently exploit nominalization as an important means for fixing reference and for turning complex relations into subjects of sentences. Such devices help to create a kind of text which is quite different from more interactive and contextualized forms of oral discourse. It is this set of properties of written texts that I have characterized as autonomous. In this paper I shall discuss how written texts develop these properties and how these properties in turn, call for distinctive processes of interpretation.

Recent writers have pointed out that such autonomous texts are not unique to literate traditions. Narasimhan (i.p.) points to the fixity of traditional Indian Vedic poetry. Since 600 BC a single standard version of the Rgveda has been preserved and transmitted from generation to generation. The fixity of form is guaranteed by ingenious mnemotechnics which involve various transformations on the text, treating separate words, separate consonants and vowels and the like. Consequently, oral performances of these Vedas in different parts of India are all identical. This is achieved without the use of writing as a device to fix text and to serve as a standard for reproduction. Goody (1987: 122), however, has argued that the Vedas 'bear all the hallmarks of a literate culture', in that the mnemonics invented appear to be based on a written transcript rather than on a memorized text. Nonetheless, some oral texts such as chants, incantations, prayers and proverbial statements appear to involve the preservation of linguistic form.

Feldman (i.p.), too, has pointed out that ordinary oral discourse has devices for fixing text in such a way that it can be referred to in subsequent discourse, direct quotation being a clear and simple example. She cites numerous cases of discourse in traditional societies in which the speech of one person becomes the object of a second person's speech. Turning speech into an object of discourse is one means of 'freezing' a text. Just what is frozen, the wording or the semantic content or some combination, remains to be seen. On the other hand, Cazden (1989) has pointed out that language always requires a non-linguistic context for interpretation and consequently written language cannot be any more autonomous than speech.

Hence, it can no longer be simply argued that the fact that the language is oral rather than written in itself determines that it will have a different form. Rather, the differences are to be found in texts in which writers attempt to accommodate to the needs of readers through adopting particular linguistic devices such as those for dealing with indexicals as mentioned earlier or through the evolution of more specialized forms of discourse.

Thus the properties of preserved 'autonomous' texts may be expected to differ in important ways depending on whether they are created under 'oral' conditions or under 'literate' conditions. Havelock (1967), building on the original work of Parry (1971), showed how the constraints of human memory shaped oral texts for memorability by taking for content the deeds of gods and heroes, and employing rhyme and meter to form formulaic phrases and poetized speech. Havelock was careful to point out that such oral tradition is anything but simple. The Homeric Greek tradition involved a complex literature and a complex social order. But it was framed, as he said, on the memorized word. Goody and Watt (1963) made a similar argument based on their study of contemporary oral myth.

Story telling as opposed to story reading is part of an oral tradition even in an otherwise literate society. Hence, it does not involve the construction of 'autonomous' texts. Stories have a fixed content but not a fixed verbal form. To be a text in the sense I am using the term requires a fixed verbal formula; the text is fixed, if you like, at the level of surface structure. Ritual speech and poetized speech tend to fit the definition although both Finnegan (1978) and Goody (1987) have pointed out that even ritualized speech in the oral societies they studied retains a certain degree of variability in performance; the same ritual is rarely performed using 'the same words'. Indeed, the very concept of 'word' differs from oral to literate contexts. Consider for example the formation of an oral agreement in which one party 'gives his word'. Here, 'word' refers to one's intended claim not to a segmentable lexical item.

Thus, while there are both oral and written texts, the structure of such texts differs importantly, the one being based on the properties of oral, verbal memory, the other on recoverability and readability. Indeed, Luria (1976) suggested that with the rise of literacy the organization of memory shifts from associative systems to the categorical systems implicated in definitions, lists and other literate artifacts.

A second contrast between oral and written texts is the particular conception of meaning that each exploits. In my first attempt at this question (Olson, 1977) I suggested that in oral discourse, the meaning is to be found in the intentions of the speaker, whereas in our Western literate tradition, meaning is to be found in the autonomous text quite independently of the intentions of the speaker. The distinction was that between what a sentence means and what a speaker means by it. This has raised a good deal of controversy and called for some revision. Two basic problems were raised. One is that the distinction is not simply an

oral/written one because there are literate cultures which do not treat texts as autonomous, the Moslem culture apparently being one (Scribner and Cole, 1981; Street, 1984). Rather, the claim has to be that in Western literate culture, texts have been exploited in such a way as to institutionalize the idea of the autonomy of texts. In a word, in the dominant Western tradition, texts have come to be treated as objective and autonomous embodiments of meaning. Indeed, a part of the history of the Western tradition could be described as the systematic development of a form of discourse and a species of symbols that could be autonomous, essayist prose, mathematical expressions and computer programs being extreme cases. Perhaps the most renowned exposition of this view is Sir Karl Popper's theory of 'objective knowledge' (Popper, 1972). Such knowledge is tied to or exploits literacy but, of course, literacy did not cause it to happen.

The second problem with the claim that writing involves a different orientation to meaning than speech is that the view of meaning fostered by literacy, namely, that writing relies primarily on 'textual meaning', is simply wrong. Rommetveit (1988), Nystrand (1986) and others hold the view expressed most directly by Volosinov who says 'The fiction of a word's realia promotes ... the reification of its meaning' (cited by Rommetveit, 1988: 23). That is, the fact that a written or printed word appears to be substantial — it is permanent in time and space, can be put in one's pocket and so on — has led us to a misplaced concreteness about its meaning. We must remember, they point out, that a written word is just a mark on a paper. It has no intrinsic meaning — it is a convention we have agreed to use 'to express a shared meaning'. Meaning is, Rommetveit argues, 'intertextual', not storable in an object but existing as an agreement between persons. Nystrand argues in a similar way that meaning is between speakers and listeners; language has meaning only because it specifies a relation between speakers and listeners or readers and writers.

These writers have argued that the tendency prevalent among most literate people to think that a printed mark actually 'contains' meaning is simply an error. We are duped, they say, by the concreteness and permanence of the mark. In one sense, I agree we are often seduced by the experience of suddenly grasping the meaning of a text into believing that the meaning was simply there to be grasped all along. Consequently, we as teachers, especially as teachers of beginning readers, may mistakenly believe that if a student fails to recover that meaning, the problem could be remedied by a closer look at the text. Meaning, we sometimes believe, can be recovered by excavation. Indeed, Luther thought so, claiming that the meaning of Scripture required not the dogmas of the church but 'a deeper reading of the text' (Gadamar, 1975: 154ff.).

It now seems clear that Luther was only telling half of the story. One can look at a text forever without seeing its 'preferred' meaning. Reading, like observation in science, requires a prepared mind. Boring (1950) pointed out what biologists 'saw' when they looked through a microscope at a cell before and after the discovery of the chromosome; before, they saw granulated matter, after, they saw chromosomes. Seeing meaning in a text requires the availability of the appropriate set of concepts just as much as observation in science does. Recent reading theory has done much to drive this point home (Smith, 1971; Anderson, 1977). Reading is not so much excavation as it is recognition.

But Luther was right, I would argue, in his claim that reading is recognition of *structures which are actually there* in the text. Contrary to much of modern reading theory, reading is not guesswork nor is it invention or fabrication or assimilation or hypothesis testing or problem solving; it is recognition. For an analogy consider the famous Gestalt drawings with hidden figures. On the one hand seeing the hidden figure requires perceptual restructuring; on the other hand the hidden figure is there to be seen. Similarly, discovery in science is not sheer invention; it is seeing nature through or in terms of complex theory. Hansen's (1958) claim that observation is theory-laden means that one needs the theory to see what is there but also that the observation is the detection of genuine structure.

My suggestion, then, is that structure in a word or a text is in the text but it is detectable only by one who looks at the text with the appropriate background knowledge. By emphasizing that structure, my earlier claims of autonomy of text may misleadingly imply that meaning of text may be constructed by careful inspection of the text. But on the other hand, theories emphasizing the meaning 'brought' by the reader are misleading in underestimating the structure of the text. The resolution lies, rather, as suggested above in granting that there is meaning structure in a text but it is detectable only by someone with a prepared mind.

This claim is not to be confused with what are called 'interactive' theories of reading which postulate an interaction between data driven or bottom-up processes and concept driven or top-down processes. The lowest level structures such as the letter 'c' can be recognized only by someone with the requisite knowledge. Similarly, the highest level structures, say metaphor, can be recognized only by someone with the requisite knowledge. Both are equally dependent upon the prepared mind and both are equally given in the text. It is misleading to draw too fine a distinction between those things which are in the world or the text and those which are in the mind. The mind, as Gibson (1966) repeatedly argued, is best thought of as attunement to the invariants in the world.

Reading may be best thought of as attunement to the invariants in the text. The differences between spoken and written texts, then, comes down to differences in the structures there to be discovered by listeners or readers and in the beliefs held by readers and writers regarding how such texts are to be interpreted and used.

But what are these beliefs that influence the ways texts are written and read? They include beliefs regarding the issues that a text can adjudicate — birth certificates and land titles for example — assumptions regarding who has the authority to interpret a text — priest, judge or oneself, for example. Vernacular literacy, it may be noted, is important for the access it gives people to the documents and texts that control them. But, histori- cally, it also affected writers' beliefs regarding what had to be stated and what could safely be taken for granted. But it also, and this may be more controversial, includes the belief that the meanings of words and sentences may be determined independently of the uses to which those words are put by the speaker or writer. The former, as mentioned, are 'word meaning' and 'sentence meaning' and the latter are 'speaker's meaning' or 'intended meaning'. It is to implications of this belief that we now turn.

First it may be worth acknowledging that the belief that the meaning of a word may be distinguished from what a speaker means by that word may not be strictly tied to literacy. Some linguists have argued that understanding any language requires such a distinction even if the distinc- tion remains implicit, that is, unavailable as an object of thought or discourse. My suggestion is that literacy, at least Western literacy, has placed a high premium on this distinction and has made much of it. We have dictionaries, schools, cross-word puzzles, spelling lists, thesauruses and SATs (Scholastic Aptitude Tests), all of which assume that much can be done with words as objects. Further, available evidence (Harriman, 1986; Francis, 1987; Morais et al., 1987) suggests that children begin to treat words as objects of thought and analysis when they are five or six years of age and that this change is dependent upon children's exposure to print. Finally, it appears that the ability to consider words and their meanings independently of their intended uses has important cognitive implications. To hint at just one, it is awareness of 'word meaning' and 'sentence meaning' which permits writers to revise their texts to bring the sentence meaning into congruity with their intended meaning; conversely, it is this awareness which permits readers to re-read a text with altered understanding.

Let us now consider children's developing understanding of the rela- tions between what sentences (or words) mean and what they, as speakers, mean by them. Note that the claim is not simply that one is in the text

and the other in the world. They are both represented by/in the text in a way analogous to that in which both the letters and the words are in the text. The questions are, what distinctions, if any, do children make between texts and their interpretations, and what role does literacy play in this development?

Texts as autonomous representations of form

When they are very young children begin to treat written texts as fixed verbal formulas. Parents frequently report that children will 'correct' their reading of a text if it deviates in any way from the child's memory of the text. One study (Torrance et al., i.p.b) examined the possibility by system- atically inserting 'misreadings' into the reading of a well known story. Sixteen children, two–six to three–nine years of age, heard a story six times and on the seventh reading the reader introduced a change in the text: 'policeman' became 'fireman', 'brothers and sisters' became 'cousins', and a 'clang' became a 'crash'.

Six of the children showed no sign of awareness of any of these changes. However, ten of them interrupted the reading, insisting on the correct version. Indeed, another child, not one of the sixteen, insisted that the mother had incorrectly read the text when, in fact, she had read precisely what it said. Presumably it deviated from the child's memory of the text. Such findings indicate that stories read to children play into their 'oral memory' to create notions of fixity of texts. Such written texts then are somewhat analogous to remembered songs, nursery rhymes, jingles with this one difference. The remembered story has its external representation, the marks on the paper in the printed text.

In another study (Keenan et al., 1989) simple cartoon drawings were designed with a line of text under each of the drawings. One picture showed Big Bird, a Sesame Street puppet, well known to Canadian children, looking into an open book. The caption underneath stated 'Big Bird is reading a book'. A second picture was a drawing of Snoopy with the caption 'Snoopy'. Both the picture and the caption were identified for the children. They were then asked a series of questions about the drawing and about the caption. All of the children, including the three- year-olds correctly answered the questions about the picture. When asked if this was a picture of Snoopy, they said 'Yes' and when asked if this was a picture of Charlie Brown's dog, they again said 'Yes'.

They had more difficulty understanding that the captions could be read in only one way. They readily accepted the sentence they had heard read to them, that is the 'target' sentence as being what the caption said and

they could easily reject a simple False reading, such as claiming that 'Snoopy' said 'Fish' for example. Coping with sentences with similar meaning posed a much more serious difficulty. Four-fifths of the three- and four-year-olds and one-half of the five-year-olds accepted 'Big Bird likes to read books' as a proper reading of the caption which actually said 'Big Bird is reading a book'. More telling were readings which were semantically distinct but which were true of the picture. For example, when the caption 'Snoopy' was read as 'Charlie Brown's dog', only one-quarter of the three-year-olds, half of the four-year-olds and almost all of the five-year-olds rejected the misreading (see Figures 1 and 2).

We conclude that even if children cannot read, they have developed the notion that texts can be read only one way and that texts have a fixed meaning by the age of five or six years. Indeed, Hedelin and Hjelmquist (1988) in Sweden have recently reported that the pre-school children who could report the exact wording of a heard message and reject paraphrases as what had been 'said' turned out to be the better readers when tested a year later. It appears that it is important that children learn to think about not just what a speaker means but what, precisely, was said as well.

Autonomy of meaning

For a number of years my colleagues and I have been attempting to understand what children take to be the meaning of an utterance or a text. Do they think the meaning is the thing the text refers to? Do they think the meaning is what the speaker or writer intended by the text? Do they grant a certain autonomy to the meaning of a text distinguishing what a text means from what a speaker means by it?

This, of course, is not a straightforward question as it is the very question with which philosophers have grappled for centuries. We may distinguish three views of meaning which we may call the 'Intentionalist theory', the view that an utterance means what the speaker means by it, a view made famous in *Alice in Wonderland*. The second is the 'Literalist theory', the view sometimes associated with the Protestant Reformation, namely, that a text means what it says. The third view is the 'Reader response theory', the view that the text means what the reader takes it to mean. My interest here is not in critiquing these theories in the light of my claim that reading is a matter of detecting structure in a text. Rather it is in attempting to understand just what children's theories of interpretation are and how those theories change with the development of literate competence.

Our beginning hypothesis was that younger children conflate saying with meaning and that experience with written texts contributed to their differentiation. Indeed, such conflation should be expected in view of the fact that in our vernacular (I could say 'oral') speech, the verb *say* has two senses. What one said could be reported by direct quotation or indirect quotation. *Ask* and *tell* are similar in this regard: If someone asked for a glass of water we may report this either directly by saying: 'He said "Could I have a glass of water" ' or indirectly as his asking for a drink. If someone told us 'Get out' we could report this as having been told where to go, and so on. Vendler (1972) has discussed the factive properties of these verbs.

But it is also important to notice that when we are speaking more 'precisely' (I could say 'literately'), we would hedge the reports, saying 'He didn't actually say' or add 'in so many words' and the like to show that we do often distinguish what a speaker actually said, the very words, from what the speaker *intended* to communicate. Furthermore, we do have lexical items for distinguishing what was said, from what was meant, from what was intended, from how it was interpreted and the like. Control of such distinctions provides a great deal of latitude for talking and thinking about what people mean when they say something (see Olson and Astington, 1990 for a discussion of this issue).

There is an equally significant technical (I could say 'literate') lexicon that bears directly on the wording of the text, the locution as Austin (1965) and Feldman (i.p.) refer to it, that we use to distinguish the meaning of a word or sentence from its use on a particular occasion. When we refer to the meaning of the word 'apple' we are discoursing on the word as an autonomous object, quite independently from the particular apples in the fruit bowl in front of us. Some have argued that meaning never comes to be free of reference as did I several years ago (Olson, 1970) but that view now seems to me to be limited. Some distinction has to be made between the 'sense' of the term and what that term 'refers' to on a particular occasion (Frege, 1952). Words have analyzable meanings which are just as objective as anything else we have in our socially conventionalized world, comparable, for example, to human rights. Whether these objective properties extend to larger units of discourse remains to be seen. The meaning of a poem does seem to be less objective than the meaning of a term. But perhaps that is the reason for the invention of logic and mathematics.

Even the meaning of a term may not be completely independent of context. Rommetveit (1988) has criticized my view of the 'autonomy of meaning' of terms by reexamining one task we have used with children, a story that was first studied by Newman (1982). In this story, Ernie, a

Sesame Street character, tells his credulous friend Bert 'I'm going to divide this banana up so both of us can have some' whereupon he eats the whole banana and gives the skin to Bert. Pre-school children claim that Ernie lied but in the early school years, children come to realize that 'part' has a literal meaning and that, therefore, they would acknowledge that Ernie had not merely lied. His action, literally (I could say 'literately') followed from his words. Children had come to understand, I claimed, the autonomy of texts.

Rommetveit argued, on the other hand, that the meaning of 'part' is context dependent. *Part* in the discourse on sharing food literally means an edible part; *part* in biology class means any discernable part. The banana skin is a part in the second discourse but not the first discourse. There is no absolute or objectively given 'part of a banana'. Ernie, regardless of our sympathies as businessmen and advertisers, lied. Rommetveit concluded that we must 'concede that we do not (yet) know the ultimate, objective world and have hence to abandon the notion of any literal, basic, invariant and most-down-to-earth meaning of *banana*' (1988: 30). Cazden (1989) has raised somewhat similar objections to the notion of the autonomy of texts.

I am, of course, reluctant to abandon the notion of the autonomy of meaning of sentences, let alone words. So let us see if there is some way to meet Rommetveit's criticism. First, I believe we may save the idea of the fixity of meaning of the word *banana* or of *part* by noticing that meanings are conventionalized symbols and are not explained by appeal to the referent. Meaning and reference, as I said earlier, are distinguished in literate discourse. Admittedly, the meaning of a term is based on one's knowledge of the referent but also on one's knowledge of the other meanings in the language. The word *part*, for example, has meaning relative to the meaning of the word *whole*, and so on. So one may think of the meaning of the word *part* without thinking about any particular part or part of any particular object.

But I concede to Rommetveit that the meaning of *part* is not independent of discourse. The meaning of *part* in biological discourse is different from its meaning in a sharing discourse. Knowing the meaning depends upon knowing what form of discourse it occurs in. Yet within that discourse, say biological discourse, 'part' of an object again has an autonomous meaning. Another example would be the meaning of *proof* in mathematical as opposed to legal discourse.

Here we arrive at the critical point. My suggestion is that as literate adults we believe that the meaning of a word or of a piece of discourse depends in part upon the properties of the discourse and not on the intentions of the speaker. It does not help to appeal to what Ernie meant

when he said 'I'll give you part of the banana'. We know exactly what Ernie meant. Ernie meant the skin. But the word *part* in the discourse of sharing means edible part if Rommetveit is right and I believe he is. It is that distinction between intention and meaning that makes interpretation an interesting problem. Consequently, the central claim stands, the meaning of a word or sentence is autonomous at least in the sense that it is independent of the intentions of the speaker.

It is this point that we have sought to elucidate in our research. The question we have asked is when do children come to distinguish speaker intention from sentence meaning or as we sometimes put it, between speaker's meaning and sentence meaning. And does their coming to make the distinction have any conceptual significance?

From the work of Newman and others we know that when they are around eight years old, they begin to note that, 'technically' (I could say 'literally'), Ernie did not lie. They notice some gap between what is actually said and what is intended. In our own work we have been concerned with the beginnings of this understanding and its relation, if any, to becoming literate.

In a typical study, Olson and Torrance's (1987) five- to eight-year-old children are told a story about Lucy, Linus and Charlie Brown in which Lucy, wanting her *new* red shoes, asks Linus to bring down her 'red' shoes. The problem is that there are two pairs of red shoes in the closet. Linus, forced to guess, brings the wrong red shoes and Lucy, knowing Lucy, is not grateful. The children are asked a series of questions that pit their understanding of Lucy's intention against the ambiguity of the utterance. The hypothesis is that young children will not distinguish the intention from the meaning and will claim that Lucy not only wanted the new red shoes but also had asked for the new red shoes. Children under six years of age, by and large, make this conflation claiming that Lucy had said 'new red shoes'.

Notice that their difficulty is not that they are literalists. Rather, the opposite. They appear to believe that the sentence is an adequate representation of Lucy's intention; they believe that what Lucy's sentence means is the same thing as what Lucy means by it.

In the last two years, we have attempted to sort out more precisely what is involved here. There were several problems with the tasks we used. Perhaps children did not remember exactly what was said. Indeed, we had frequent cases in which children claimed that Lucy had said 'new red shoes' when in fact she said just 'red shoes'. And whereas we had interpreted this to mean that children conflated sentence and intention, others argued that they had simply forgotten the former.

Secondly, Robinson and Whittaker (1987) have argued that children's

handling of ambiguity may be explained without appealing to the speaker's intention. It may be that children simply agree to any utterance or accept any alternative description as long as it is true of the object. Thus 'red shoes' and 'new red shoes' are both acceptable as they are both true of the referent. If there is no relevant discrepancy between the real world object to which a message refers and the speaker's internal representation of it, there is no reason to appeal to the latter: 'Young children ... ignore the ... speaker having an intention to communicate a particular meaning' (1987: 84).

The problem is that an ambiguous expression like 'red shoes' when there are two pairs of red shoes is that the child may think the utterance is about a particular pair of red shoes and base its judgment on that or the child may think the utterance is about the speaker's internal representation of those particular shoes and base its judgment on that. What is needed is some method for pulling those alternatives apart.

Perner et al. (unpublished) developed an ingenious task to do just that. They did it by distinguishing the belief of the speaker from the object of the utterance by instilling a false belief in the speaker. Children were told an enacted story in which a speaker who was mistaken in his belief about the location of an object, told a second person about the location by means of an ambiguous utterance. If the children take the ambiguous utterance to be a representation of the speaker's intention, they should expect that the listener will come to share the speaker's false belief. If they believe that the ambiguous message is about the intended object, then they should expect the listener to think the utterance refers to the object's true location. Those authors found that four- and six-year-old children assumed that the listener would interpret the utterance to mean the location believed by the speaker rather than the true location. They concluded that young children identify the meaning of a message not with its correct interpretation in context but with the intention of the speaker.

This result, however, has been criticized on the basis of the claim that perhaps young subjects do not even notice the message and simply base their judgment on an assumption that the listener will come to share the speaker's false belief but not by virtue of the ambiguous sentence. The relation between the speaker's intention and the meaning of the utterance may never arise. For this reason Ruffman, Torrance and I (Ruffman et al., i.p.) have recently conducted a series of studies on children's understanding of ambiguous utterances using Perner's false belief scenario. But first, consider the general form of these experiments on ambiguity.

Children are introduced to sets of objects, typically two red boxes and one green box and an object to be placed in one of the boxes by a puppet

who plays the role of the speaker. A second puppet plays the role of a listener. It is about the listener's belief that the child subject is asked. In a typical case, the first puppet places a candy in one of the red boxes in the absence of the listener. The listener then enters the room and asks the speaker where the candy is. The speaker replies with either an ambiguous utterance 'It's in the red box', there being two red boxes, or an unambiguous utterance, 'It's in the green box'. The child is then asked: 'Does the listener puppet know where the candy is?' and 'Where does the listener think the candy is? Does he think it is in here (pointing), in here (pointing) or does he think it could be in either?' The order of these questions was counterbalanced.

First consider children's responses to the 'know' questions when the speaker holds a correct belief. Children under four years of age thought that the listener *would* know where it was and that the listener would think it was where it really was even when the utterance was ambiguous. This finding, although remarkable, may reflect the fact that children under this age fail to acknowledge that one could hold a false belief, a finding first reported by Wimmer and Perner (1983). But children as young as four and one-half years correctly claimed that the listener would know the object's location when the message was unambiguous and would not know when the message was ambiguous. This understanding of ambiguity at age four and one-half, some two years earlier than other studies had indicated, was achieved by frequently repeating the critical information, namely that the speaker said 'red box' and 'there are two red boxes'.

But the results to the 'think' question are unexpected. Even after insisting that the listener will not know where the candy is, when asked where he will think it is, none of the children say that he thinks it could be in either red box. About half of the children point to the correct red box, the other half to the incorrect red box. There is little indication that they believe that either the speaker's belief or the true location would 'get through' to the listener. Moreover, even if a child were to go for the true location it would be unclear whether that child was picking the true location because it was the true location or because the speaker believed it to be.

Our most recent studies, therefore, adopted Perner et al.'s (unpublished) procedure of establishing a false belief in the speaker before the speaker attempts to communicate that belief to the listener by means of an ambiguous message. In this way the truth of the message and the intention of the speaker can be distinguished. The question, now, is will the child think that the listener will come to acquire the speaker's false belief even

if the message is ambiguous? If they do we may conclude that they conflate intended meaning with sentence or textual meaning.

To this end, a scenario was constructed in which the speaker hides a candy in one of the red boxes and then leaves the scene. Children are reminded that the listener did not see him put the candy in a box. Next, with neither the speaker nor the prospective listener present, the child and the experimenter move the candy to the other red box. Again children are reminded that the speaker and the listener do not know that. Now the speaker and the listener dolls appear and the speaker tells the listener doll that the candy is in the 'red box', an ambiguous message. The child is again reminded of exactly what happened and who knows what. Then the child is asked a series of control questions to determine that they remember the details, and then is asked the following critical questions:

— Does the listener know where it is?
— Where does the listener think it is, in here (pointing to one red box), in here (pointing to the other red box) or does he think it could be in either?

First, the know question. As in the preceding study, almost all of the children over four years of age correctly say that the listener will not know when all the listener has heard is the ambiguous message. Why are they claiming that the listener will not know? They may, as in the preceding study, say the listener does not know because they recognize that the speaker's message was ambiguous. Or they may be saying he does not know because he now shares the false belief with the speaker. Responses to the 'think' question help to sort this out.

Results for the 'think' question are presented in Table 1 for three separate replications of this experiment (with small variations which need not concern us here). These data for experiments 1 to 3 make clear that there is an overwhelming tendency for the children to claim that the listener will think the candy is in the box that the speaker believed it to be in *even if his utterance was ambiguous*. This suggests that the reason they answer the 'know' question the way that they do is that they genuinely believe that the listener has come to share the speaker's false belief. They appear to have ignored the ambiguity altogether when the speaker holds a false belief. Yet when the listener holds a true belief they recognize the consequences of ambiguity, namely, they were as likely to choose the box intended by the speaker as the one, of the same color, which was not intended by the speaker (see the bottom half of Table 1).

Experiment 4 (also shown in Table 1) shows that we may be too quick to ascribe the recognition of intention in interpreting ambiguous expressions. In experiment 4, the speaker again is induced into holding a false

Table 1. Children's ascriptions of beliefs to the listener doll: number of subjects claiming the listener would think the chocolate was in the intended, non-intended, or either cupboard

Condition	Exp 1 Age				Exp 2 Age				Exp 3 Age				Exp 4 Age			
	4	5	6	Total	4	5	6	Total	5	6	9	Total	4	5	6	Total
False Belief — Ambiguous:																
Intended	4	10	14	28**	8	12***	13*	33****	8	10*	11*	29****	4	5	6	15
Non-Intended	2	3	6	11	2	0	2	4	2	1	2	5	4	2	5	11
Either	0	2	1	3	0	1	1	2	1	1	10	12	4	8	5	17
Correct Belief — Ambiguous:																
Intended	5	5	7	17	8	6	10	24	4	7	9	20	—	—	—	—
Non-Intended	1	8	12	21	2	5	5	12	6	4	5	15	—	—	—	—
Either	0	2	2	4	0	2	1	3	1	1	9	11	—	—	—	—

Note. *p<.05, **p<.01, ***p<.001, ****p<.0001 (binomial test). Tests of significance based on subjects' choice of intended vs. non-intended cupboard.

belief by the experimenter moving the object to a second cupboard in the absence of the speaker. But this time the object is moved not to the other 'red' cupboard but to the green cupboard. Again the speaker tells the listener that the object is in a red cupboard (which is what the speaker believes), again using an ambiguous utterance. If subjects believe that the speaker's beliefs and intentions 'get through' to the listener even in an ambiguous utterance (which is what we would predict if children believe that sentences mean what people mean by them), the children should claim that the listener will come to believe that the object is in the particular cupboard believed by the speaker; otherwise, they may simply recognise the ambiguity and claim that the listener could think it was in either red cupboard. The results of experiment 4 show clearly that there is no tendency to ascribe the speaker's belief to the listener. They consult the possible ambiguity of the utterance and not the intention of the speaker in deciding what a listener will think.

Why then did they not do so in experiments 1 to 3? Moving the object to the other red cupboard may have put the children into a double bind. They knew where the candy was, let's say the bottom red cupboard. But they also knew that the listener did not know where the candy was because they recognized the ambiguity of the expression 'red cupboard'. Consequently they were forced to choose the top red cupboard which just incidentally was the one intended by the speaker.

What do we infer from such studies? Contrary to our initial view that children conflated what a sentence means with the intentions of the speaker, we must reverse ourselves and claim, rather, that children think a sentence means what the sentence refers to. This is, in fact, the conclusion reached by Robinson and Whittaker (1987) mentioned earlier. Children recognize ambiguity in the sense that one sentence could refer to more than one object or event when they are about four years of age. Consequently they acknowledge that an ambiguous expression could result in a listener's not knowing or in holding a false belief. Before that, they fail to note the possibility of an ambiguous reference. But even when they do come to recognize the consequences of ambiguity, they do so by appealing to possible referents of the expression, not to the possible intentions of the speaker.

But the more important question as to children's understanding of the relation between speaker's intended meaning and utterance meaning remains unclear. At a minimum, it seems clear that children do not identify the meaning of an utterance with the intentions of the speaker. Meaning is determined by reference and possible reference and not by intention. Just what they understand of such intentions, either in the speaker or the listener, remains somewhat unclear. It may be, as we

originally suggested, that children's understanding of the relations between meanings, beliefs and intentions is acquired only in the school years under the impact of literacy and schooling, a development which may depend upon the acquisition of the notion of a fixed text and its relation to the possibility of interpretation and misinterpretation. Winner et al. (1987) suggest that the subtleties of interpretation will be mastered by children only when they sort out the relations between truth, sincerity and literalness, a suggestion which is compatible with that suggested here.

Other studies (Bonitatibus and Flavell, 1985; Torrance et al., unpublished) suggest that if the speaker's message is in the form of a written text, children are much more likely to notice the ambiguity of the utterance and acknowledge that the listener will have no grounds for any particular belief. Such findings suggest that literacy plays some role in sorting out these distinctions.

Some tentative conclusions

Children's discovery of the autonomy of sentence meaning, an autonomy which is required to distinguish it from the speaker's beliefs and intentions, is critical for a variety of education tasks. Revision in writing is a matter of bringing the two 'meanings' into congruity. When reading shifts from mere assimilation to critical reading, it is because of the same factor. Children, in this case, come to revise their estimate of the intended meaning on the basis of the linguistic or sentence meaning. They begin to treat that textual meaning as autonomous and to be the object of interpretation and reinterpretation.

Now, finally, is textual meaning really autonomous? I would acknowledge that it is not. Texts are always open to re-interpretation as Nystrand (1986) has argued in his discussion of legal texts (see also this issue). Not only do their meanings change as contexts change but also the textual or sentence meanings change as cultural conventions change. So there is no absolute meaning of a text. Nor is there one true intention of which a text is a fragmentary expression. But that is the limit of my concession to critics of 'autonomy' of text. What continues to seem to me to be the case is that the basic distinctions required for literate interpretation continue to be useful for distinguishing between the properties of the text which are 'taken as given' for any particular purpose and the set of construals or interpretations that can be made of that text. The distinction is exactly that between facts and theories. Most of us agree that there is no absolute distinction between facts and theories; today's fact turns out to hide a host of theoretical assumptions. Nonetheless, theoretical science
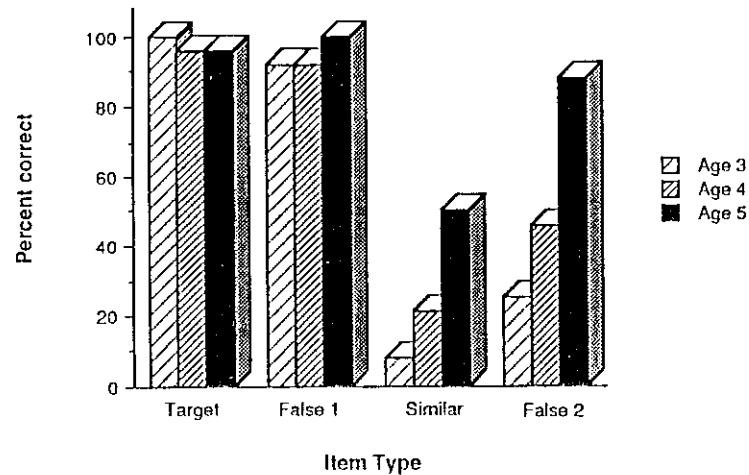
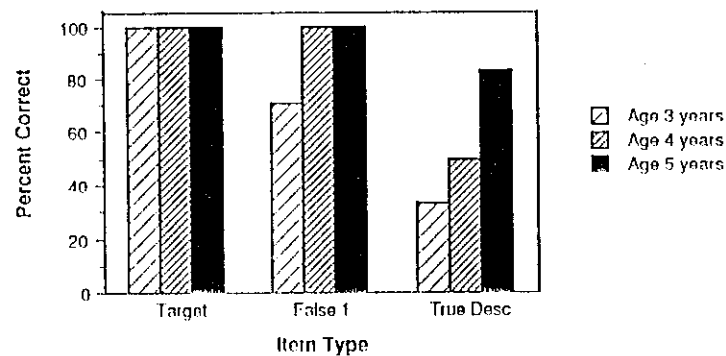Figure 1.   *Performance in sentence condition (Item type X age)*

Figure 2.   *Performance in word condition (Item X age)*

proceeds by 'taking as given' a set of facts which can be organized relative to some theoretical scheme. In learning to distinguish meanings from intentions, and thoughts from expressions, children are taking the first giant step in understanding the relations between texts and interpretations.

Note

1.   Prepared for the Symposium 'Studies of Orality and Literacy: Critical issues for the practice of schooling' held at the American Educational Research Association Confer-

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Since the publication of the article *From utterance to text: The bias of language in speech and writing* (Harvard Educational Review, 1977, 47, 257–281), Olson has been conducting experiments on children's comprehension strategies and concepts to see if there are changes in strategy which mirror the changes in strategy that were historically tied to literacy. The general thesis has been that interpreting written texts as opposed to oral speech results in the tendency to treat language and texts as objects in their own right. He continues to elaborate the argument that writing is essentially a metalinguistic activity and that the consciousness of language and mental life that we usually associate with speech are more correctly described as by-products of literacy. This is the theme of his forthcoming book *The world on paper*.