On Communication, 3
Selected papers from a seminar arranged by the Department of Communication Studies, on 24-25 May 1984
Lennart Gustavsson (ed)
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ABSTRACT

Gustavsson, L. (ed) On Communication, 3. Selected papers from a seminar arranged by the Department of Communication Studies, on 24-25 May, 1984

This report contains nine papers presented at the interdisciplinary seminar arranged by the Department of Communicaton Studies, University of Linköping, on 24-25 May, 1984.

The guiding concept for the seminar was that of 'understanding'. The contributors to this report discuss various aspects of the understanding of hidden meanings and implicit messages, the acquisition of tacit knowledge in specific contexts as well as the role played in understanding by background knowledge and fundamental assumptions. One of the papers deals specifically with pictorial communication. Three papers are related to the acquisition, learning and teaching of second or foreign languages.

Linköping, 1985
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INTRODUCTION

On 24 and 25 May 1984, the third seminar On Communication was arranged by the Department of Communication Studies in Linköping. The guiding concept for the seminar was that of 'understanding'. Some 80 participants were offered a rich variety of papers on human communication, all concerned with aspects of understanding, yet representing a wide range of topics, approaches and research experience within the field. The researchers at the Department of Communication Studies have selected for publication in this volume nine out of more than twenty papers presented during the two days. The selection hopefully will reflect the richness and diversity of the programme but also show that the different contributions did have rather a few points in common.

One recurring theme is that not everything which is intended to be understood or is actually understood by a recipient is overtly present in the message; not everything which is needed to make understanding possible or is actually used by someone to reach his/her understanding, is explicitly expressed. Various consequences of these facts are considered from different angles by the nine authors.

Tacit knowledge, rules of behaviour that everyone must grasp and follow in order to be a fully competent member of a society, community or group, is the topic of Tomas Gerholm's contribution. The community he looks upon is the academic setting: What kind of knowledge does a research student need to acquire before making the grade? Is there a peer group culture formed as the students try to cope with their specific experiences? How does this affect the intellectual work to be done?

Søren Kjørup shows us a picture of a... well, a what? The question is perhaps more complicated than it may seem. Several conditions have to be fulfilled before we can answer it. What are those conditions and how are they interrelated? What are the dimensions of a "pictorial speech act"? Why are some of
them often overlooked in theoretical work? These are questions raised by Kjørup in his paper.

In literary works perhaps more than elsewhere one has to read between the lines. School may be a place where the importance of implicitness in literature is explicitly taught. Gunnar Hansson returns to material from the IEA-investigation, the huge comparative study of school outcome in nine countries, and finds that 'hidden meaning' is given greater or lesser importance in different countries and in different age-groups. This is shown and commented upon in his paper.

The confrontation of two different systems of tacit values, frames of reference and fundamental assumptions is a problem of particular and great general interest. Ulrich Nitsch is concerned with the divergent concepts of rationality that are confronted when farmers and the agricultural advisory service meet. Nitsch stresses the enriching potential of such a cultural confrontation as well as its potential risks - risks that are increased when power is unevenly distributed between the two parties.

Another way of phrasing the common theme is found in Yvonne Waern's paper: "Linguistic expressions alone cannot give a text its meaning". Hereby old texts can give rise to new understandings in new recipients in new contexts; hereby we are able to construct new meanings out of restricted resources, e.g. by the use of metaphors. These kinds of creative processes are treated by Waern. She puts forward the concept of 'creative comprehension' and tries to identify the processes involved.

Another facet of understanding as a process not merely involving overt, explicit meanings, is taken up by Nils Dahlbäck. How come that some texts are more easily understood than others with the same syntactical and lexical complexity? Dahlbäck extends the experimental techniques used by Johnson-Laird and co-workers to deal also with background knowledge. He shows that the naturalness of the message - the degree to which it seems non-arbitrary to the listener - is an important factor in understanding.
The last three papers - still concerned with aspects of understanding - all relate to the acquisition, learning and teaching of languages. Barry McLaughlin gives an account of research done on second-language learning in children. Before presenting results from a research project in progress at Berkeley on the assessment of oral language proficiency, he shows how the views have developed on some controversial issues: Is second-language learning the same or different from first-language learning? To what extent do interference and transfer affect second-language learning. Is there an optimal age for second-language learning?

In his contribution Norman F Davies advocates a method for foreign language teaching - the receptive way - where the focus is on developing the pupils' capacity to understand the target language, not on premature production in a language they do not yet master. Results presented suggest that this way of teaching may be beneficial also to the development of productive skills. Moreover, the receptive way should not be regarded only as a method of teaching - it also has bearings on language planning issues!

Esther Glahn studies conversations between Danish school-children and native English speakers of the same age. In her paper she reports on strategies that the learners use to get their message across when their linguistic resources fail and, also, how misunderstandings and lack of understanding are repaired in order to establish grounds for mutual understanding.

* * *

Finally, I would like to express my gratitude to all those who contributed to the success of our third seminar On Communication. All members of the staff at the Department of Communication Studies were involved. I would like, though, to mention especially Christine Aranda, Marianne Axelson and Bengt-Göran Martinsson for valuable help and support.

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The next interdisciplinary seminar

ON COMMUNICATION

is to take place

in May, 1986
ON TACIT KNOWLEDGE IN ACADEMIA

Tomas Gerholm
University of Stockholm

The following observations are anthropological in a double sense. I am an anthropologist, and I suspect that I have been sufficiently formed or deformed by my profession to find it difficult to do anything but look at things from that perspective. They are also anthropological in the additional sense of being based mainly on observations made in an anthropological department. I hope, however, that the reader will feel that the anthropologists are not such a strange tribe after all. Perhaps even most of the things described here are quite familiar also to members of other disciplines?

The Concept of Tacit Knowledge

A research student who has just been admitted to a program of graduate studies which will extend over a number of years and involve regular contact with a more or less stable group of people—supervisors, colleagues, administrative personnel etc—is faced with a double task. He or she is expected to acquire the theoretical and practical knowledge that will eventually be rewarded by a doctoral degree. This knowledge can be more or less clearly specified in terms of theories and methods one has to master. This is the task of course descriptions and reading lists. But in most cases this will not be enough.

Any person entering a new group with the ambition of becoming a fullfledged, competent member has to learn to comply with its fundamental cultural rules. This applies also to academic departments. To function smoothly within the group of teachers, fellow students and secretaries, the student needs a considerable amount of know-how. Most of it will be acquired slowly through the interaction with others and without anyone ever making a deliberate effort to teach the newcomer the rules of the game. Nonetheless, failure to comply with these implicit rules will undoubtedly affect the student's
standing within the group. In some disciplines and some departments, such a student will forever remain an outsider. If so, this may considerably increase his difficulties of making the grade. In other cases the consequences may be less serious but they are bound to be felt.

In other words, I am claiming that failure to acquire this implicit knowledge is often taken for a sign of failure to have acquired the explicit knowledge itself. Competence in the cultural life of the discipline and the department functions as an informal sorting device, often without the sorters and the sorted being aware of the fact. It is this implicit knowledge that I refer to as tacit knowledge. It can be divided into two main categories. One is the tacit knowledge that is stored in the daily life of a department and that is being used to order its routines. I am not thinking of secrets, i.e., information that should be handled with care and not disseminated freely. But the ability to classify some information about the department and its personnel as "secret" and handle it accordingly belongs to this type of tacit knowledge. The other category of tacit knowledge is the similarly implicit knowledge generated among the students themselves as a consequence of their encounter with the department: semi-automatic barely conscious interpretations of what teachers say and do, the students' own conclusions and recipes for action etc.

Two views of Science: Merton and Mitroff

In an early contribution to the sociology of science, Robert K. Merton reminded us that the word "science" is commonly used to refer to various distinct but interrelated items:

(1) a set of characteristic methods by means of which knowledge is certified;

(2) a stock of accumulated knowledge stemming from the application of these methods;
(3) a set of cultural values and mores governing the activities termed scientific; or

(4) any combination of the foregoing (Merton 1942/1973:268).

Merton, in this particular paper, went on to single out the third item, the normative structure of science, for attention.

The ethos of science is that affectively toned complex of values and norms which is held to be binding on the man of science. /.../ These imperatives, transmitted by precept and example and reenforced by sanctions, are in varying degrees internalized by the scientist, thus fashioning his scientific conscience or, if one prefers the latter-day phrase, his superego (Merton 1973:268-269).

Four sets of institutional imperatives were found to comprise the scientific ethos: universalism, communism, disinterestedness and organized skepticism. By "universalism" Merton meant the canon that "truth-claims, whatever their source, are to be subjected to pre-established impersonal criteria" (270); by "communism" he referred to the common ownership of scientific findings: "The scientist's claim to 'his' intellectual 'property' is limited to that of recognition and esteem which /.../ is roughly commensurate with the significance of the increments brought to the common fund of knowledge" (273). In other words, scientific findings are part of the public domain. "Secrecy is the antithesis of this norm; full and open communication its enactment" (274). In using the word "disinterestedness" Merton was at pains to point out that he was not claiming that scientists are more altruistic and less self-seeking than other men and women, but that the institutions of science function so as to produce this behavior. By "organized skepticism", finally, Merton meant the "temporary suspension of judgement and the detached scrutiny of beliefs in terms of empirical and logical criteria /.../" (277).

Universalism, communism, disinterestedness and organized skepticism - yes, they all conform to our received idea of what constitutes the attitude fostered by scientific institutions. At the same time, those of us who spend our days in scientific establishments could probably produce evidence that these norms are often being paid only lip service by the men and women of science. Ian Mitroff (1974) has,
in fact, written a whole book to show that for every institutional norm identified by Merton one can find at least one counternorm prescribing a diametrically opposed line of action. Scientific findings, for example, should be part of the public domain and thus rapidly communicated to whomever may be interested. But we all know that many findings are being kept secret for some time in order not to give other scientists a clue which they might use to get ahead. Thus, secrecy may be the antithesis of "communism", but to understand the everyday life of science the antithesis is just as important as the thesis.

If both Merton's established norms and Mitroff's underground rules for action are relevant to the understanding of science, one may ask for the specific contexts in which the former or the latter are most likely to be invoked or put into practice. This has been done by Michael Mulkay (1976) who describes norms à la Merton as belonging to the presentation of self that scientists use in official contacts with the outside world, even if it be only an application for funds to a research council largely manned by their colleagues. These are the official rules of conduct adopted by the scientific community, a scientific version of the Ten Commandments.

Just like in life outside of the scientific enclave, these norms may not be the ones one should follow in order to get ahead. A career-minded researcher had better familiarize himself with the more Machiavellian rules of conduct that both Mitroff (1974) and Pierre Bourdieu (1975) have found to be de facto obtaining among scientists. In some quarters, for instance, it is a cherished notion that science should be and is a kind of team work and that cooperation consequently is a key to success. In fact, it can easily be shown that cooperation and helpfulness are virtues that must be cultivated rather selectively in such a competitive society as that of scientists. The proverbial German professor saying to his gifted student: "Das müssen wir zusammen publizieren!" is only the most blatant example of how scientific credit may sometimes fall in the wrong places.

Let us now see how Merton's and Mitroff's views can be accommodated within an understanding of science that pays equal attention to both
implicit and explicit knowledge, to counternorms as well as institutional norms.

**Types of Tacit Knowledge**

The institutional norms are part of the official ethos of science and a future scientist is obviously expected to make them his or her norms. There are, however, two types of tacit knowledge concerning these norms. One is the awareness that it is impossible (and certainly not advantageous) to practice them at all costs and in all circumstances, and that Mitroff's counternorms are often the real norms prevailing within the scientific community. The other type of tacit knowledge is the savoir-faire which consists in knowing how to handle these conflicting rules, when to invoke one and perhaps practice the other.

A third and less sinister type of tacit knowledge is the special folklore thriving in most departments and contributing to their specific mentality. Stereotyped images of various kinds of life as a scientist (those to be imitated and those to be avoided, for example); notions of typical careers open to graduate students, of dangers and pitfalls; a portrait gallery of unacknowledged geniuses and servile simpletons; all this, and much more, belongs to the department lore. Its importance lies in the recipes for action - key scenarios, in Ortner's (1973) terms - that it contains and the kind of excuses and rationalizations - accounts, to use the concept suggested by Scott and Lyman (1968) - that it offers.

There is a fourth kind of tacit knowledge that consists in a very rarely defined, almost intuitive, notion of the essence or identity of one's own discipline and of its relations to neighboring, often highly stereotyped and caricatured, disciplines. Linked to this model of how, for example, anthropology fits in among the other sciences is a model for how to act when being the only anthropologist in an interdisciplinary gathering or when confronting a lay audience. The demands put by the department superego are likely to vary considerably with the degree to which one's discipline is firmly established within the scientific community, as well as
within the wider society. How one is expected to perform at the "front" also depends on the substance of the discipline one is representing. Some of the social sciences - such as sociology, psychology, ethnology and anthropology - claim to have something important to say about the everyday life of other people. Therefore they are almost always and everywhere relevant and possible to challenge. From their representatives, a tactical disposition is required; sometimes defensive, sometimes offensive. Other disciplines cultivating more esoteric and less controversial fields are likely to have fewer institutional demands to take into consideration in their contacts across the border.

This "intuitive" feeling - which is actually informally learned - for the essence of one's discipline also plays a role, of course, for the direction taken by the graduate student's research. Although this is not often made explicit, all research proposals within a department are ranked according to their disciplinary "relevance", "interest" or "originality". Some graduate students are able to internalize these established values so that they are turned into a true feeling for what "is" or "is not anthropology" and for what is "more anthropological" as well as "less anthropological". Other graduate students are less successful or choose, at their own peril, to disregard them.

A fifth type of tacit knowledge consists in knowing how an individual research project ought to relate to other research also being carried out at the same department. There are many disciplines in which large projects are always under way. The natural sciences come to mind, but even in the humanities and the social sciences large-scale research projects are not uncommon. In such disciplines the individual is expected to adjust smoothly to the requirements of an already existing position within the research project. In other disciplines it is the lone scholar who has the greatest possibilities of fulfilling the expectations of the department. Such expectations are seldomly expressed in so many words, but the person with the right antennae can feel them in the air.

We have now considered some examples of the sort of knowledge which could be called informal, implicit or tacit. They are all of some
importance, but they tend to shrink to insignificance beside the last major type of tacit knowledge, namely the one concerning scientific discourses, their characteristics and their uses. It should be stressed that there are different sorts of discourses, different genres or styles. There is, for example, an official style which is called for in research proposals, research reports and other circumstances in which one is addressing an external audience and acting "on the front stage", to use Erving Goffman's (1959) terms. In addition, there is a slightly less official style which belongs in internal settings, such as local seminars with one or two senior scholars present. Finally, there is a type of discourse engaged in by the graduate students when among themselves, i.e. when the peer group has returned to Goffman's "backstage". As already indicated, this type of tacit knowledge comprises not only competence within each one of these major genres but also another competence: the ability to define the situation correctly and use the type of discourse required by that very situation. Inability to do so is often interpreted as a sign of general incompetence. To use an informal discourse where the situation calls for a formal one is not only socially but also "scientifically" discrediting. To commit the opposite blunder - to use a formal discourse when an informal one would be appropriate - may not have any direct consequences for one's scientific reputation but may instead entail certain social costs which, in turn, may affect one's possibilities of becoming a fully accepted member of a group of cooperating research students.

For each of these types of discourse, there is a tacit knowledge which is manifest in the ability to recognize "valid arguments", "telling objections", "insightful questions", and so on. It comprises, in Richard Rorty's (1979:320) words, the tacit conventions deciding "what counts as a relevant contribution, what counts as answering a question, what counts as having a good argument for that answer or a good criticism of it". As an example of this type of tacit knowledge I would like to quote (from memory) an anecdote told by the Swedish author Lars Gustafsson:

When I was studying philosophy I learned through participating in seminar discussions that there was a deadly blow that one could inflict upon an opponent. It consisted simply in uttering the phrase: "That I don't understand!" This magic formula forced the other to retreat in order to scrutinize his own
arguments and while doing so he would frequently get tangled in a maze of contradictions. Later on I moved across the hall to the Department of Comparative Literature. Soon I was tempted to try my luck with the same deadly words: "That I don't understand". In this case, however, nobody paid any attention to this fundamental objection of mine. In fact, my admission of incomprehension was tactfully disregarded and the discussion continued as if nothing had happened.

Another example of similar conventions are those which, in the form of acquired abilities, make it possible to recognize the signs of an "authoritative" or "unauthoritative" text. This is an ability that is difficult to understand as simply an application of a few clear-cut principles. What is it that gives this impression of authority? How do these signs differ between a written and an oral presentation? I am not prepared to answer, but that they do differ is obvious to anyone who has been deeply impressed by a speaker - only to conceive of him as an impostor once the presentation is in print.

Now that we have looked at some of the types of tacit knowledge that a graduate student may be exposed to, let us ask ourselves how this implicit knowledge is being transmitted.

The Acquisition of Tacit Knowledge

A graduate student who never gets access to the inner circles of his department will have small chances of acquiring the tacit knowledge which he will need in his research career or which will at least facilitate it considerably. Outside of those inner circles he will face difficulties learning the conventions, the mastery of which is often taken as a sign of one's scientific competence. Furthermore, if one has access only to the contexts in which a more or less official discourse prevails, one cannot easily form a realistic notion of how research actually gets done. As an illustration of this point, let us listen to how the British anthropologist E.E. Evans-Pritchard describes, in an official context, what is required for anthropological fieldwork:

Anthropological fieldwork therefore requires in addition to theoretical knowledge and technical training a certain kind of character and temperament /.../ The native society has to be
in the anthropologist himself and not merely in his notebooks if he is to understand it. To succeed in this feat a man must be able to abandon himself without reserve, and he must also have intuitive powers which not all possess. If the right kind of temperament is not always found with ability, special training, and love of scholarship, it is rarely combined also with the imaginative insight of the artist which is required in interpretation of what is observed, and the literary skill necessary to translate a foreign culture into the language of one's own. For this he must have, in addition to a wide knowledge of anthropology, a feeling for form and pattern, and a touch of genius (Evans-Pritchard 1951:81-82).

This is Evans-Pritchard on the frontstage, addressing the cultured audience of BBC's Third Programme. However, The Renaissance hero here described is cut down to ordinary 20th century size when the famous professor, on the backstage, is giving a student some last words of wisdom before his imminent fieldwork: "Take quinine, play it by ear, and stay away from the women!" This is another version of what it takes to do fieldwork.

In the official context, Evans-Pritchard stresses the qualities of the field researcher, not his techniques. The latter can be learned, but the former one either has or has not. Thus, it is the anthropologist as aristocrat, as inimitable genius, that appears in the formal discourse. It is quite in keeping with this image that Evans-Pritchard, in another official context, approvingly quotes the American anthropologist Paul Radin (1933:ix) making the following claim: "Most good investigators are hardly aware of the precise manner in which they gather their data". In the informal context, on the other hand, it is quite alright to limit the advice to some simple rules of thumb. But a fieldworker-to-be, who had heard only the first version of the qualities required to do a good job in anthropology, would need a good bit of self-confidence and/or foolhardiness in order to take on this almost superhuman challenge.

The more frequent the contact between experienced researchers and their students, the greater the likelihood that the tacit knowledge of the discipline is being passed on. The English tutorial system, as it used to function before the sheer number of students made it impracticable, assured that each graduate student had regular and
frequent contacts with a supervisor throughout his or her entire student career. It is tempting to speculate that this system has played a major role in communicating the tacit knowledge of anthropology. That would explain, for instance, the strong traditionalism among British anthropologists as well as their very clear notion of what British anthropology is (or rather was).

Looking at the Swedish case, one would expect the transmission of tacit knowledge to be more efficient in departments where there are relatively few doctoral candidates per supervisor. Another important factor would be the existence of research teams. One would expect the communication of tacit knowledge to be more efficient in disciplines in which research is normally conducted in teams containing one or more experienced researchers, than in disciplines in which the student is left more or less to his own devices. Examples of the former are the natural sciences and medicine; examples of the latter are mathematics, philosophy and comparative literature. At the same time, it may be the case that the natural sciences require less tacit knowledge than the humanities and the social sciences, since the learning of specific techniques plays a greater role in the former. The humanities and the social sciences, on the other hand, carry a heavy burden of tradition. They have refused to forget their founders, not being concerned - to simplify the picture greatly - so much with extending the territory of the known as with going over it again and again, viewing it from various angles, in different lights etc. The humanities, especially, are also descendants of an old elite culture in which the various signs of Bildung were quite important. The combination of disciplines with much tacit knowledge and few possibilities in graduate education to acquire it would seem to favor students endowed with large amounts of what Bourdieu (1979) has called "cultural capital", i.e., a stock of knowledge, a frame of reference and a capacity to make the proper judgements which are called "taste".

So far I have dealt with the aspects of tacit knowledge that could be said to be passed on from seniors to juniors, i.e., knowledge available in the social system that a department constitutes. Now I want to move on to another kind of tacit knowledge, a subculture within the total culture of the department, generated by the
graduate students in response to the conditions they are experiencing. We should remember an often quoted passage from Everett Hughes (1961:28).

Wherever a group of people have a bit of common life with a modicum of isolation from other people, a common corner in society, common problems and perhaps a couple of common enemies, there culture grows.

The phenomenon I am thinking of is often dealt with in studies of elementary schooling, but it has not, as far as I know, received much attention in studies of higher education. Research on elementary education, however, has made us familiar with the notion of "the hidden curriculum", a term coined, I think, by Philip Jackson in his book *Life in Classrooms* (1968). It refers to fundamental lessons being taught the students indirectly, through the teaching of something else. Jackson argued that American schoolchildren actually were being taught much more fundamental things while conforming to classroom routines than the official curriculum would make one believe. Through and beneath everything else being explicitly taught, the children were being taught the art of waiting, of being patient and even submissive. In fact, waiting seemed to be one of the most important activities in school: the children waited outside the classroom for the teacher to arrive, they waited for other children being late for the lesson, they waited while others were finishing an assignment, and so on. The hidden curriculum contained other lessons, too. The children were being trained in the art of tolerating constant interruptions in their work and in doing things they were not interested in and/or could see no point in. They were trained not to pay any attention to the problems their classmates were having (for mutual help was labeled cheating); and they were also trained to submit to power. Jackson saw the larger significance of this educational work: "Without this ability /to be patient/ life would be miserable for those who have to spend their time in our prisons, our factories, our offices and our schools" (1968:18).

The same idea - that one may learn one thing while officially being taught another - crops up in many other studies of educational systems. Claude Grignon (1971), in a study of French vocational
training, has shown how it is not only a vocation that is being taught but also a fundamental view of society and of the students' own place in it.

However, both Jackson's and Grignon's studies tend to over-emphasize the power of the educational institutions to achieve ends which are consonant with the needs of inegalitarian societies by shaping totally malleable individuals for the tasks awaiting them. Paul Willis (1977), in his celebrated book *Learning to Labour*, is showing much the same but in his account the rebellious "lads" are not being taught their place in society as much as teaching themselves. It is through their own interpretation of the school and the society it represents — their own seeing through its ideological mystifications — that they themselves draw the conclusion that, for instance, equal opportunity is not for them. They learn to labor instead of going on to some white-collar job. In one sense, Paul Willis comes up with the same result as Grignon. But it is achieved in a way showing that the "victims" are not passive material for cultural imprinting. Rather, they are very active participants who through a complex dialectic of repression and revolt end up in the same positions they would have done, if there had been a completely automatic assignment of working-class kids to working-class jobs. The difference lies in the different images of the actors that the two accounts present. It is the active and rebellious aspect of the adjustment that is so important to remember if we are to avoid falling into the ever open trap of the oversocialized conception of man (Wrong 1961).

Applying this insight to graduate studies, we should ask ourselves to what extent research students tend to develop a peer group culture formed, among other things, by their common exposure to department routines, explicit and implicit demands from their supervisors etc, a culture based on their own interpretations and reactions to a situation that has been defined by others. This is exactly the situation in which, according to Everett Hughes, we would expect a subculture to grow.

A recent study by Sherryl Kleinman (1983) provides us with some examples. She shows how graduate students in sociology, using various clues in the subculture of the department, drew the con-
clusion that they were expected to differentiate themselves as much as possible from each other so as to become highly individual and original researchers.

These students felt that there was an implicit requirement from the faculty that every new graduate student should have or rapidly find his or her specialty. At wine and cheese parties, where they were being introduced to the department, faculty and older students would immediately put questions like "What is your specialty?", "What is your field of interest?" and "What are you doing in sociology?" Most of them had difficulties answering such questions. It was too early for them. The questions were meant to be friendly, but the students walked away with the impression that they had failed some important test. Moreover, none of them had heard their colleagues "failing" in the same way. Everyone of them, therefore, went home with the conviction, not only that he or she had failed the test, but also that he or she was the only one to have done so.

Other cues reinforced the idea that a "real" graduate student should have a special area of interest and that this should be intensively cultivated in order to make him into a mature and original researcher. On the basis of this interpretation of the institutional expectations, students formed a peer-group culture, but it was not centered on their identities as future sociologists. Predictably, they did not make any efforts to launch joint research projects, because, as one of them said: "I think it is pretty much assumed that at this level you work by yourself" (Kleinman 1983:214). The time they spent together was spent doing other things than discussing sociology, almost to the point where one would have said that if there was one tabooed subject, it was certainly not sex, but sociology.

Kleinman has not done a longitudinal study, so we do not know how this impoverished intellectual milieu affected the individual work being done. But it would seem highly likely that it had a very negative effect, perhaps so negative that the student's initial definition of himself or herself as an immature student was actually borne out in the end.
Let me sum up all of this very briefly. I have argued that a graduate student, as part of his or her socialization into an academic discipline, will come into contact with two main categories of tacit knowledge. One of them is the knowledge that has grown out of long experience in the discipline. It is a practical, almost subconscious, knowledge or competence that the department elite fully masters. The most important ingredient is the knowledge and command of the repertoire of scientific discourses. The other category of tacit knowledge is generated by the students themselves as they try to make sense of what they are experiencing in the graduate studies program. Like the former type, it is likely to be used as a guide for action. For an understanding of what goes on in Academia they are both of great importance.
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1. We Read a Picture

What are the conditions for understanding a picture one comes across in a newspaper or a book, or that is shown during a conversation or a lecture with slides? Let us look at an example.

I am sure you can all understand or "read" a picture like the one that is reproduced here. What do we see?

The picture is obviously a black-and-white reproduction of an "old" painting - and most of you will probably feel sure that the painting belongs to the 18th century. We see a very young girl in a very fine robe, a dog sitting on a chair, and a drum, some flowers, etc.

How do we see that this is a young girl? The face might perhaps just as well be a grown-up lady's face, but the chubby hands seem a sure sign of a very young child. And the small person's size, too - as compared to the panel in the background and the chair. This might be an oversize chair, but that would be strangely misleading - and we do not expect the painter to play tricks with us.

The girl is wearing a robe of astonishing distinction, and is adorned with a ribbon and a star. Perhaps we should just take a minute to consider whether this is a small actress of some kind, dressed up to play a queen in a children's comedy. The drum might give a hint in this direction, yet the whole "feel" of the reproduced painting does not agree with this interpretation. It seems more probable that we see a member of a noble or even a royal family, maybe even an heiress apparent who is going to grow up to sit comfortably in the chair (or throne?), wearing the hermine-bordered cloak that hangs on the back of the chair.

A royal princess, then? But what about the drum? Princesses
normally do not play drums. Maybe the drum is there to give us a hint that this little girl is not a girl at all. And, as a matter of fact, "she" happens to be a boy!

The painting that is reproduced here is by the French-Prussian court painter Antoine Pesne (1683-1757). It was painted in 1716. And it actually does represent a boy, namely the Prussian crown prince Frederic, later to become Frederic (II) the Great.

2. Conditions for Reading the Picture

Let us pause here for a moment, to look at the conditions for getting this far in our understanding of the picture. A rather simple or "naive" theory about understanding pictures would have it that looking at and understanding pictures is just like looking at and "understanding" visual reality, because pictures represent whatever they represent by resemblance. Yet the discussion so far suggests that the whole matter is not just that simple.

One necessary and easily neglected condition for understanding a picture is - recognizing that it is a picture at all! What we have before our eyes is not a young boy or girl, but a page covered with greyish areas and blots. Yet on the other hand, these areas and blots on the page are not just a discoloring or evidence of trouble in the printing press - but a picture.

Recognizing that the picture is a picture is not enough, however. We also have to recognize (and therefore know) the specific pictorial "language" or "dialect" that is used in each case. A child looks very different in a photograph and in a cartoon, and to grasp what we are used to calling the resemblance between the blots or lines on the paper and a real child presupposes an ability to "read" the pictorial language in question. And the other way around: an ability to "read" the blots and lines according to the language as a representation of a child, say, is no more and no less than what we usually call "seeing the resemblance" between the picture and reality.

In our case, this only brings us to the point where we have recognized the pictorial representations of the young child, the chair, the dog, the drum, etc. But a picture like the one we have here, does not only depict persons and things. Pictures
(or rather their "authors": the painters, photographers, cartoonists, etc.) make character sketches, describe situations, tell stories, and so on. The painting of young Frederic does not just show us his looks in a certain robe, but tells us symbolically about his prospects.

How did we get to understand this part of the "message" of the picture? We had not only to notice some of the details, like the hermine-bordered cloak, but also to see its symbolic value. And we had to grasp the idea that the child will grow up to sit in the as yet too high chair and put on the cloak, thereby "putting on" the dignity and rank that goes with it. It is, of course, always difficult to explain how one gets such ideas, sees such connections, and understands such symbolic hints, but in this case at least one may point to the help we get from the formal structure of the painting: the child is represented as leaning slightly on the chair (wanting to jump onto it - or is this going too far?); and we see a diagonal from the lover right corner of the picture to the upper left, or even a cone-shaped figure, an "arrow", pointing from a base (the lover edge of the robe) to the cloak.

To be able to see such things in a picture, we have to know what kinds of things to look for, which means that we have to know certain specific pictorial conventions, the ways painters and other "authors" of pictures have used in various periods to tell their stories. And generally we have to sharpen our eyes to details, and to train our phantasy or "wit" (in the olden sense of the mental faculty of seeing connections and grasping their meaning).

Yet this is still not enough. There is still a fourth kind of knowledge that is a conditions for understanding pictures, namely knowledge about the world outside pictures, the world that is depicted in them! If you do not know what an hermine-bordered cloak looks like, you will not be able to recognize it in the picture, even if you can "read" the language in question. And if you do not know that kings wear that kind of garb, you will not be able to grasp its symbolic meaning.

So far we have seen four conditions for understanding a picture:
- knowing a picture when you see one;
- knowing its representational language;
- knowing its specific conventions for telling stories, etc.
- knowing the world it depicts.

3. Meaning and Reference

Anyone cognizant of the modern discussion about pictorial theory will recognize my main point so far, namely that understanding pictures is a question of being able to read a certain kind of language, pictorial language - and not just to see the visual world in the picture. Some version of this view is now accepted by practically everybody who theorizes about pictures. But many theoreticians seem to disregard another type of conditions for the understanding of pictures than the four conditions I have mentioned here. One might say that these conditions are only conditions for understanding the meaning of the picture, but this is only half of the game. We still miss the conditions for understanding the reference.

Looking at our picture, we are able to get as far as to grasping that this is a picture of a crown princess - or even a prince (remember the symbolic value of the drum!). But we were not able to see in the picture that the person of the real world who is here depicted as a crown prince, happens to be the little Frederic the Great. This was a piece of information that I introduced; and it was not something that I was able to read in the picture, but something I happen to know from the catalogue in which I came across a reproduction of the painting in the first place.

How can we handle this kind of condition theoretically? Let us take a look at the way the corresponding problem is handled in linguistics - or rather in the philosophy of (verbal) language:

A phrase like "The King of France" has a certain meaning, which we are able to understand if we understand English (and know about kings and countries); this meaning may be rendered in other languages, e.g. German: "Der König von Frankreich".

So far the phrase is just a phrase, and as such not really "about" anything or anybody; as a phrase and nothing more, it has a meaning, but no reference. Only if somebody uses the phrase as part of an utterance about somebody, does the reference turn
up. The meaning is part of the phrase, the reference not. The reference is an intentional act, performed by the person who utters the phrase in making a statement about something or somebody in the "real" world, and this something or somebody thereby becomes the referent.

The meaning of the phrase "the King of France" is decided by the semantic and syntactic rules of the English language. But what the referent is - which King of France is mentioned here? - is decided by the person who utters the phrase; the speaker refers to, say, Louis XIV, and to nobody else. But that does not prevent any other speaker (or the same) to use the phrase (and its very same meaning) at some other occasion to refer to François I, say. And if it is not obvious in advance which reference the speaker is making - what or whom is being talked about - the speaker has to find some way to make this clear.

Exactly the same is true about pictures, but many theoreticians overlook this fact. One reason for this neglect is probably that most theoreticians of pictures have a background in the history of art or in aesthetics. Studying artistic paintings, say, we are not first of all interested in what they tell us about persons and things, but rather in their aesthetic qualities and their rendering of general characteristics and concepts; in these cases the questions about language and meaning seem relevant, but not necessarily the problem of reference.

One group of art historians, namely iconographers, are however more often than not concerned with a type of question that must be construed as concerning the referential aspect of pictures - but it is usually not recognized as such. "Which saint is represented here?" is obviously a question about which saint is being referred to, but the conventions of representing saints are so clear that the question may be answered through the symbols in the picture only (just as the meaning is read in the picture). The iconographic symbols function the way proper names function in verbal language, so building a theory about the understanding of pictures on the way saints are recognized, is like building a theory about the understanding of verbal utterances on phrases like "Louis XIV is dead"; obviously, this does not direct your attention to the distinction between meaning
and reference and between reading the pictorial or verbal "text" and finding out what is being "talked about".

As you will realize if you reconsider the first part of this essay, I, too, started the traditional, and fundamentally misleading way. I presented a picture to you as an example bereft of its original context (and, to be exact, given the new, "artificial" context of "giving an example" and "theorizing"). The picture was not used as a means of telling you anything about its subject matter, but just as an example of a picture - not unlike the way in which paintings and prints are shown in a museum of art. But this offers an inadequate basis for grasping what "understanding pictures" means.

Now I shall try to demonstrate a more realistic basis. Let us imagine that the following "quotation" (actually made for this occasion) has been taken from an essay on some "real" theme, the history of childhood, not the "meta-theme" of understanding. The author has just explained the now broadly accepted view that the concept of childhood is a fairly recent one, and since clothes are often used to distinguish between various periods of life, the author has used various old and new pictures of people as part of his evidence. Then this passage follows:

But did the concept of childhood grow forth and assume its modern form all at once?

It did not. And again we may approach our subject by way of the conventions of clothing. Look at the illustration, a reproduction of a painting (by Antoine Pesne) from 1716, representing the Crown Prince of Prussia, the later Frederic the Great. 200 years before, a crown prince would have been dressed exactly like his father; after infancy, a prince was a prince, not a child. In our own time, 250 years later, even a crown prince is dressed in the cute attire of a small boy.

At the beginning of the 18th century, however, people seem to feel that a boy of four (Frederic was born in 1712) is not really a person who can take part in adult life, but one you have to leave with his playthings and pets, even though he is certainly not an infant anymore. And at this intermediate stage, the adult dress indicates that this person has left infancy, whereas the feminine dress indicates that he is not a responsible, adult human being yet - indeed a convention that also gives food for thought on the history of women.

I have made this digression fairly long to be able to demonstrate as clearly as possible how pictures are used in actual communicat-
ion. They do not just appear out of the blue. They are used by a speaker or an author as part of what might be called a composite verbal-pictorial utterance. And the speaker or author takes care to make it clear what the picture represents in the reference sense, either by simply saying so (as in my "quotation"), or through some specific convention like the use of captions.

4. Pictorial Speech Acts

But we still miss a point. We have seen that reading the "meaning" of a picture presupposes knowledge and wit, and that grasping what the picture is "about" presupposes attention to the way in which he or she who shows the picture has made the reference clear. But why is the picture shown to us at all? Understanding pictures must also cover an answer to that question.

Again a comparison with verbal language and its use may make both my question and its answer a little more comprehensible. A speaker does not just utter a sentence with a certain meaning and make a reference to something in the world. A speaker states something about the referent, explains how it functions, describes it, warns us against it, claims his right to possess it, promises to give it back, or ... Short: in uttering his or her sentence, the speaker performs a speech act, and more specifically an illocutionary act. And understanding an utterance does not only consist in being able to rephrase or translate its meaning and grasp what is being talked about, but also in grasping which illocutionary act is performed, i.e. why something is uttered at all.

The same is true about pictures. The author of our essay on the history of childhood does not only expect you to be able to read the reproduction of the painting from the 18th century, and to be able to pick up that it represents little Frederic. The author of our essay also expects you to grasp that the picture is shown as a vehicle of the illocutionary act of telling you about the conventions and concepts of the 18th century, explaining to you how boys might be dressed up, showing what they might look like, and thereby illustrating the verbal text.

People who hang paintings and prints on the walls of art museums do not perform illocutionary acts through those pictures (even though one might say that the act of exhibiting the pict-
ures does amount to performing a mute, and only ostentatious or circumstantial illocutionary act about the pictures, namely the act of inviting visitors to appreciate them). And people who have pictures reproduced as examples in their essays on iconography, art history, or pictorial theory do not perform illocutionary acts through these pictures (even though they perform verbal illocutionary acts about them, for instance in interpreting them). And this is probably the reason why people concerned with pictorial theory seem to overlook the fact that pictures used as part of actual communication are used as vehicles for pictorial illocutionary acts.

How do we get to know the intentions of a speaker or an author in showing a picture? How do we recognize the pictorial illocutionary acts? And what are the conditions for recognizing them?

Speech and writing have at their disposal three or four different types of (more or less efficient) means of expressing the illocutionary force of utterances. Only one of them can be used to express all kinds of illocutionary force, namely the obvious means of mentioning it explicitly (like "I warn you that ..." or "This is just a suggestion"). In some cases syntactic means - word order - may be used (inversion for questions, as the most obvious example). Intonation in speech and punctuation in writing may give some hints, too. But more often than not, the illocutionary force is not spelled out by any one of these more or less explicit means; the whole meaningful rhythm of a conversation or an essay will make it implicitly clear (as when a question is followed by an answer, as an obvious example).

Strictly speaking, pictorial communication only has the last of these means to its disposal. No pictorial language contains means of explicitly making a self-referential statement about the illocutionary force of a pictorial speech act. And no pictorial language contains any means that might correspond to the syntactic, intonational, or punctuational possibilities of verbal language.

The reason for this shortcoming of pictorial languages is not that explicitly expressing illocutionary force demands such a degree of sophistication and abstraction that only verbal
language can do the trick. On the contrary, we have quite "primitive" visual (but not pictorial) languages that do have illocutionary force indicators at their disposal. The pictogrammatic "language" of traffic signs is a case in point. The shape and color of a traffic sign is an illocutionary force indicator, not unlike a question mark, say. The symbol in the centre of a traffic sign will often tell you which kind of road users it is about (children, pedestrians, cyclists), and the shape and color will tell you whether this is a warning against them or rather a prohibition or order directed to them about using or not using a certain road or lane, etc.

But traffic signs are obviously not pictures, even though the symbols used for making clear what their referents are or to whom they are directed are parasitic on pictorial languages (and this is why they are properly called pictograms). And when a real picture is shown to you, you have no way of reading from the design of the picture which illocutionary force it is intended to carry. You have to rely on the context, the "dramatic" situation in which it is shown.

Yet pictures are not shown as the only vehicles of meaning under circumstances of mute, purely pictorial communication. As we saw in the last paragraph, pictures are used as specific features within composite verbal-pictorial communication, so to speak, more often than not as illustrations of points in the verbal message, for elaboration of a point, for stressing a point, or for making a fairly self-contained point that is more directly and adequately made through a pictorial representation than through a description, say. And if necessary, the illocutionary intention in showing a picture can be made explicit, not through the picture, but through the verbal utterances in which it is embedded.

5. The Conditions for Understanding Pictorial Communication

In a way, the title of my essay is misleadingly short. "Understanding pictures" is not a self-contained topic or problem, and I actually tried to be a little more precise when I phrased the initial question the way I did. Understanding pictures is only part of the understanding of whole communicational situations. And let me now, by way of conclusion, try to sum up what
the conditions are for understanding communicational situations in which a picture plays a decisive role as vehicle for a message of some kind (and not just as an example or as an object for interpretation or comment).

Understanding a communicational situation presupposes two different, yet interrelated kinds of knowledge and skill. On the one hand, one has to be able to "read" the picture, to grasp its meaning. On the other, one has to be able to understand the speech acts that whoever shows the picture performs in showing it. It is tempting to talk about two "dimensions" of the communicational situation, a systematic and a dramatic one.

From the systematic point of view we raise questions about meaning and try to answer them through considerations of rules and conventions of (pictorial) language and its use in building up meaningful structures. From the dramatic point of view we raise questions about the illocutionary intentions of the "shower" of the picture; to be able to answer those questions we have to consider, e.g., whether the illocutionary force of the pictorial "utterance" is made explicit in the verbal context, or whether it is only indicated implicitly in the situation.

In a way, the question of reference is situated at the crossing point of the two dimensions. The meaning of the picture (something in the "ideal" world of the systematic dimension) is applied to something in the real world (the nearer or more remote context, and thereby part of the dramatic dimension). To grasp what the referent is, one normally has to both understand the meaning of the picture and see this as a clue, and pick up clues from the dramatic dimension.

Yet neither questions of meaning, nor questions of illocutionary force are answered exclusively within their proper dimension, but rather in a dialectical play between considerations of the two kinds, systematic and dramatic. Grasping the meaning presupposes a correct judgment of the pictorial language that is used - and here clues may be taken from the dramatic situation. And the picture and its meaning are part of the whole situation, the object of the dramatic dimension, and thereby among the clues to the illocutionary intentions.
Instead of Notes, References, and Bibliography


My distinction between meaning and reference in connection with pictures is inspired by Nelson Goodman's distinction between two senses of the dangerously ambiguous phrase "this picture represents X": "this picture is an X-representation" (i.e. a picture of a certain kind - or, as I would say, the picture has a certain meaning, according to the semantic rules in question) and "this picture represents X" (X is the referent, as I would say); see his Languages of Art: An Approach to a Theory of Symbols (Bobbs-Merrill: Indianapolis 1968). Nelson Goodman does not agree with my use of speech act theory in this connection, however; see his "reply" to me in Erkenntnis (Vol. 12, 1978).

The standard presentation of the distinction between meaning and reference in connection with verbal language is P.F. Strawson, "On Referring" (Mind, Vol. 59, 1950). The distinction between a sentence and the illocutionary force with which it is used in an utterance was worked out by J.L. Austin and presented in his William James Lectures How To Do Things With Words, which were published by J.O. Urmson (Clarendon Press: Oxford 1962). Speech act theory was further developed by John Searle in his Speech Acts: An Essay in the Philosophy of Language (Cambridge University Press: Cambridge 1969).

My distinction between the "systematic" and the "dramatic" dimensions of a communicational situation is inspired by Arne Thing Mortensen, Perception og sprog: Et filosofisk essay (Akademisk Forlag: København 1972).


As I suggest in the essay, only few theoreticians have tried to use speech act theory in connection with pictures. I only know three or four: David Novitz in "Picturing" (Journal of Aesthetics and Art Criticism, Vol. 34, 1975) and again in his book on Pictures and Their Use in Communication: A Philosophical Essay (Martinus Nijhoff: The Hague 1977); Trevor Pateman in "How to Do Things with Images: An Essay on the Pragmatics of Advertising" (Theory and Society, 9, 1980); and myself. I introduced this point of view in my "George Inness and the Battle at Hastings, or Doing Things with Pictures" (The Monist, Vol. 58, 1974), and I tried to formulate some of the rules for performing the pictorial speech acts of depiction and illustration in my "Pictorial Speech Acts" (Erkenntnis, Vol. 12, 1978; this was the essay to which Goodman "replied"). Marcia Eaton used some of my ideas in her "Truth in Pictures" (Journal of Aesthetics and Art Criticism, Vol. 39, 1980). And I have, by the way, published an essay on the difference between pictures and pictograms: "Langages de l'image et d'autres langages" (Degrés, 21, 1980).

The painting of young Frederic belongs to the collection in Drottningholm Castle outside Stockholm. I happened to find it in the catalogue from the exhibition on Die gesellschaftliche Wirklichkeit der Kinder in der bildenden Kunst (Elephanten Press: Berlin West 1980).
Everybody who has wandered - more or less laboriously - through literary texts has personal experiences of "hidden meanings" in literature: frustrating and even despairing experiences sometimes, enriching and perhaps exhilarating at other occasions. Reading poetry by Norse scalds, Dante's allegories, or T.S. Eliot's *The Waste Land* may be trying to anyone, while the subtle though ambiguous signals in novels by Virginia Woolf, Franz Kafka or Hjalmar Bergman may be more manageable and therefore stimulating.

The process of seeking, finding and understanding hidden meanings in literary texts to a great extent can be compared to moving about in a city or in a densely populated area with an abundance of traffic signals and other devices to regulate the traffic. A person who regularly walks on his feet is well acquainted with that part of the system which is relevant to him and has no problems in using the system to find his way in the area. A person who uses a bicycle has learnt to master other parts of the same system, while those who drive a car are familiar with still other parts but may have forgotten most of the regulations and conventions that apply to pedestrians and cyclists. Drivers of taxi cabs and other professional drivers quickly learn to utilize the system for their own special needs and fancies, to overinterpret it and even to design their own complementary systems above or beside the intentional level. Then there are of course children, retarded, and people from the countryside who know very little about the system of rules and conventions and therefore are apt to behave unexpectedly in traffic.

This comparison could be expanded with details, but for the purpose of the present paper it is sufficient to point to some basic similarities: the ability to understand and interpret literature is an acquired ability; the process of reading is governed by a system of rules and conventions; most people are familiar with only parts of the rule system and behave accordingly even when they enter areas
where other rules prevail; some people have had very limited possibilities to learn the system at all and yet have to make the best of what they know when they get a piece of literature in their hands and are expected to read and interpret it.

The process of acquiring more or less knowledge of different parts of the system of rules and conventions can be illustrated by some of the data from what has become known as the IEA-investigations. IEA is short for International Association for the Evaluation of Educational Achievement. This Association has carried out and is still carrying out a series of international investigations into the effects of teaching in various countries all over the world. One of these investigations dealt with the effects of teaching Mother Tongue (Purves, 1973; Thorndike, 1973; Hansson, 1975). In the Literature part of this project a great number of students from nine countries (or ten, since Belgium was represented by both Flemish and French speaking students) read and answered questions to four short stories, and they also answered questionnaires about their studies, their reading habits, their attitudes to school and to literature etc. The students were 14 and 18 years of age. One of their tasks was to choose among 20 questions (Purves, 1973 p. 200; Hansson, 1975 p. 138) the five that they considered most important in their own reading and study of literature. They first chose the five that they thought were most important to literature in general, and then the five that were most important when reading and talking about each of the four short stories. The stories and the questions were the same in all countries and in both age groups.

Figure 1 shows the number of students (%) in Sweden who chose each of the 20 questions as one of the five most important to ask about literature in general. The shaded areas show the results for two of the questions related to the problem of "hidden meanings" in literature: "Is there anything in the story that has a hidden meaning?" (A), and "What kinds of metaphors (or comparisons), images (or references to things outside the story) or other writers' devices are used in the story?" (B). The latter question is mixed in the sense that it asks for both technical observations about stylistic and other devices and observations about "hidden" meanings in
images, metaphors, and symbols. The four dots in or above the shaded areas indicate the number of students who chose these two questions as one of the five most important to discuss in relation to each of the four short stories.

Figures 1-7. Number of students (%) in Sweden, Belgium (Flemish) Belgium (French), England, USA, New Zealand, and Finland, respectively, who chose questions A and B among the five most important to consider when reading literature.

Figure 1.

As can be seen in the figure, the question about "hidden meaning" was the second most important for the 14-year old students in Sweden, and for the 18-year olds it was by far the most important - it was chosen by 70% of the age group still in school. Furthermore, it was just as important or even more important to ask when reading three of the four short stories.

The question about metaphors and symbols was not important for the 14-year olds, while it was fairly important for the 18-year olds. Here it is evident that the question was considered to be more important when asked in the questionnaire about literature in general than when asked in relation to the four short stories which the students had just finished reading. The difference between the questionnaire and the stories can be interpreted to indicate that
the meaning of metaphors and symbols has been overstressed in the literary milieu surrounding the students: in the teaching of literature in the schools, in the writing about literature in reviews and articles, in talking about literature at home, among friends, etc. In such ways the students have been brought to think about symbols and metaphors as more important than they consider them to be when reading actual pieces of literature.

In the Swedish literary climate there is clearly a heavy stress on "hidden meanings", signalled by symbols and metaphors or by other and perhaps even more subtle devices. It would be relevant to ask whether this stress is merely good for the development of sound reading habits and techniques for interpreting and evaluating literature among young people. The question cannot be answered here, but we can look at the results from some other countries to see what effects they are achieving in their literary climate and with their teaching of literature.

Figure 2.
In Belgium there is evidently very little stress on the question of hidden meanings among the 14-year olds, while it is just one among several other rather important questions for the 18-year olds. This applies both to the Flemish-speaking (Figure 2) and to the French-speaking population (Figure 3). On the other hand, there seems to be a severe drill on images, metaphors and symbols, particularly among the younger students. In French-speaking Belgium this drill seems to be softened down somewhat in the upper grades while it goes on and is even increased in the Flemish parts. This overemphasis is in no way born out by a corresponding interest among the students when they come to their own reading of the four stories.
In England (Figure 4) there is a fair amount of interest in the question of hidden meanings, both generally and in relation to the stories. As in Belgium, there is evidently some drilling on symbols and metaphors, though mostly with the 18-year olds - and with the same lack of success, since the students find these devices less important when they read the stories.

Figure 5.

In the United States (Figure 5) there is a heavy stress on hidden meanings among the younger students, more so than in Sweden or any other country. The stress is somewhat lighter among the older students, but they too have selected it as the most important of the 20 questions. The question of symbols and metaphors is just one among several other questions - here as elsewhere less important after reading the stories than generally.
In New Zealand (Figure 6) the question of hidden meanings is not particularly important, while the question of symbols and metaphors decidedly is. It is already very important among the 14-year olds, and the older students are brought to think that it is by far the most important question to ask, although they do not live up to it in their own readings.

Finland (Figure 7) is an interesting exception from the somewhat general picture that has appeared so far. There is a limited interest in metaphors and symbols, and the question of hidden meanings leads an almost hidden existence in the minds of the students. When they come to the four stories, however, they see the
importance of the question and put due emphasis on it. Finland is the only case where the results seem to indicate that the question of hidden meanings is understressed in the teaching of literature and in the literary climate generally.

The conclusions from this review of results from some of the countries participating in the IEA-investigations can be summarized in three points.

1. The awareness of "hidden meanings" in literature, as well as the importance attributed to them, differ very clearly between students of different age and in different countries.

2. The effects of learning are evident, although it is hard to distinguish between what is learnt in the formal study of literature at school and what is acquired informally at home and in the cultural environment.

3. Sweden is a special case in the sense that the awareness of "hidden meanings" is quite obvious already among the 14-year olds and yet is strongly increased among the 18-year olds. The importance attributed to such meanings in Sweden can only be compared to what is the case in the United States, where there is a reduced interest from 14 to 18 years.

Against this background a number of questions can be asked: about the development of the ability to apprehend signals saying that here is something more than the surface meaning; about the development of the ability to collect and combine different sorts of signals; about the development of the ability to describe and interpret what has been apprehended and understood; about the effects of teaching literature at school, of talking about literature at home, of reading much literature in leisure hours, and of reading reviews and articles about literature; etc.

Such questions point to important tasks for research on response to literature and the teaching of literature. They cannot be answered here, of course, but I shall give a few illustrative examples from a developmental study, where Swedish students on three different
levels of the educational system have read and interpreted poems. (Hansson, 1974). The three levels were the last grade in the compulsory school (age 15-16), the gymnasium (age 18-19), and the university (round about 25 years of age).

With material of this kind, where students of different ages write down their interpretations and evaluations, it is obvious that the older students as a rule will write more and in a general sense also write better about their understandings. They have more words at their disposal, they have more adequate words to describe their interpretations, they have acquired more of the established terminology, they can discuss their interpretations in different contexts, they can give more varied reasons for their evaluations, etc. There will also be a few examples showing that some of the younger readers have interpreted a text as a flat description of reality, while the older students have read it on a metaphorical or symbolic level. However, at the age of 15 or 16 the feeling for linguistic overtones, for hidden or symbolic meanings, seems to be extremely well developed. If this capacity does not show up in the classroom - and many teachers are willing to testify that it does not - the reason may be that the teacher has been looking for the capacity to verbalize an interpretation, not for the capacity to apprehend the signals and combine them into meanings.

One of the poems in the developmental study was "En ghasel" by Gustaf Fröding. The poem describes a man standing behind iron bars looking at the fine and happy life outside on a nice summer day. He enjoys looking at what happens on the other side of the bars, he wants to get out among the others but at the same time realizes that he cannot. "I will, I will, I shall, I must get out and drink of life, if only for a minute; I will not slowly suffocate behind the bars!" But his struggle with the bars would be in vain: "for in myself the bars are forged and riveted, and only when I am crushed, the bars will crush."

In the investigation the students were asked directly about the meaning of the bars in the context of the whole poem, and there is not a single case where the bars were not given a symbolic meaning. Then it should be added, perhaps, that the youngest students gave
the bars a symbolic interpretation but without knowing that that was what they were doing: only very few of them used words like 'symbol' or 'symbolize'. They mastered the process of symbolization and symbolic interpretation, although they did not know the established term for this process. On this point there was a marked difference between ages: the students in the gymnasium used these terms abundantly; and the university students (all of them studying Literature) mastered them with elegance and confidence.

Another difference between levels of age is due to variations in biographical knowledge about Gustaf Fröding: his loneliness, his problems with alcohol and "bad" women, his periods of mental illness. Such knowledge is fairly widespread among grown-up people in Sweden, and one could perhaps have expected a rather straight development towards more and more knowledge of that kind. That was not the case, however. In the compulsory school the all-important factor was the class the student had been going to. In some classes the students knew nothing or very little of the private life of Gustaf Fröding, in others they knew very much. In the latter case they used the knowledge in their interpretations and saw the private person Gustaf Fröding behind the bars.

The older students were quite familiar with the author's life, and in both these groups there was an equal number of students who did not go beyond Fröding's life in their interpretations. Among the university students there were a few who could combine a biographical and a generalized symbolic interpretation, putting the emphasis on the generalized meaning and keeping Fröding and his life in the background. Some of the students on the university level let their biographical interpretations grow up to a symbolic level beyond the private life of Gustaf Fröding:

I do not know if the bars refer to Fröding's timidity and shyness or his mental illness. Since "En ghasei" was published in his first book of poems, it is probably his great timidity that is meant. It is possible, of course, that Fröding knew about his mental illness, though it had not "broken out" as early as in the beginning of the 1890ies. / - - - / I feel sorry for Fröding, not in such a way that I would pat him on the cheek to
comfort him, but in such a way that I would pity him seriously. I feel depressed. Maybe it all originates in self-pity and identification, but in that case I believe that such an identification is the lasting experience of every person's reading of this poem.

This is clearly a symbolic reading, but a reading where the person's knowledge of Gustaf Fröding has made him grow into a symbolic figure. Most of the students on all three levels interpret the bars not as representing something in the mind of the person Gustaf Fröding, but as a generalized symbol. There are two variant interpretations, however: one sees the bars as placed there by outside forces to prevent the person from reaching out, and the person himself is passive because of the obstacle; the other sees the bars as something created by the person to protect himself, his uncertainty, his vulnerability, and the person does not want to get rid of the bars. The first interpretation is more frequent, about twice as common as the second one.

In material of this kind there are always a few deviant and often surprising interpretations. They can be put aside as being merely divergent, of course, but they can also be given a second look and then perhaps be put to more constructive use. They can make new signals, new possibilities visible to other readers, they can arouse interest in the human being that brought forward such insights, and they may cause wonder, perhaps consternation at what was concealed in the mind of a young boy or girl. Such a case is the following interpretation by a 15-year old girl:

My life is encircled by my own fear and loneliness. I am sitting in the middle of a shell. A shell that is inexorably fastened as long as life lasts. / - - - / The shell is a protection. Here I can hide, defend myself, console myself, I can be in peace with my thoughts; but - I cannot bear it, cannot bear being just one. / - - - / The bars are each person's wall of prejudices, loneliness, shyness and uncertainty. Sometimes the bars are an insurmountable hindrance, even to the strongest. / - - - / When it has come that far, the person is dead, physically, of all oppressions.

Another such case is the following student, who somehow turns over the bars and then interprets them in a new psychological context:
The poem renders Fröding's own life situation, his needs of compensation that drove him out in periods of intoxication and moral decay; the bars are his controllable inhibitions; he knows that if the bars break, nothing can save him from a life in excesses that would end in remorse and repentance; so the bars he is shaking have been forged inwardly by himself.

These few examples give just glimpses from long and complicated learning processes where many factors are at work and where what is found and understood is not always what teacher and student started looking for. Finding symbolic and other hidden meanings in literature is to a large extent a question of creating them out of very subtle signals.

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THE CULTURAL CONFRONTATION BETWEEN
FARMERS AND THE AGRICULTURAL ADVISORY SERVICE

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1. Goals and Assumptions Implied in Agricultural Advisory Work

In Sweden as in other industrialized western countries we have an agricultural advisory service with the function of transmitting technical and economic information to farmers in order to improve their farming practices. In most countries these services are supported by governmental funds or organized as governmental agencies.

The Swedish governmental agricultural advisory service (landbruksnämndernas rådgivning) is defined as a tool for the implementation of the agricultural policy. Its main goal is to promote "structural rationalization" which is equal to the improvement of economic efficiency of the agricultural sector and of the farm enterprises (Nitsch, 1977).

A basic assumption in agricultural advisory work is, that farmers' adoption of the technology transmitted by the advisory service is a rational and desired behavior. The dominating research tradition in the study of advisory work, i.e. the diffusion research, is also based on this assumption with its strong pro-change and pro-technology bias (Nitsch, 1979).

In our research at the Department of Agricultural Extension Education at the Swedish University of Agricultural Sciences we try to look at farmers' adoption behavior as a process reflecting their own aspirations and experiences as well as their situations the way they themselves perceive them. This research strongly indicates that farmers' decision-making reflects a rationality of
a different kind than that assumed by the governmental agricultural advisory service and implied in traditional diffusion research. In this paper I will present a tentative analysis of some basic elements of the rationality pursued by the advisory service, on one side, and the rationality pursued by the farmers, on the other side. My analysis is based on my own experience as an agricultural advisory officer and on empirical research at our department. The framework of my analysis is strongly inspired by a Norwegian study of small manufacturing firms conducted by Sørlie (1982).

2. The Linear Rationality of the Agricultural Advisory Service

The model of decision-making applied by the agricultural advisory service is the common linear model which originates from the traditional model of "The Scientific Method". Its main components are:

1. Analysis of the problem and identification of needs and goals
2. Collection of data and development of alternatives
3. Setting up choice criteria and making an optimizing choice
4. Implementation
5. Feedback

In the application of this model in research and advisory work, problems are narrowed down to researchable or manageable questions. Needs are defined as gaps between a present ("what is") and a desired ("what should be") technology or condition. Alternatives are most commonly selected according to technical and economic criteria to optimize the efficiency of the farm enterprise. Great interest is devoted to the development of computerized information systems for the collection and analysis of data and transmission of information.
3. The Adaptive Rationality of Farmers

Empirical studies on the decision-making among managers of small manufacturing firms as well as among farmers, show that the linear model of decision-making is very seldom applied by these two groups. Instead they mostly make their decisions according to an adaptive strategy consisting of an on-going interaction between vision, experimentation and experience (Sørlie, 1982) (Figure 1).

![Figure 1. Farmers' Adaptive Rationality](VISION
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EXPERIMENTATION
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EXPERIENCES)

This means that they manage their farms with a complex overall vision in mind, a vision of what they would like their work and enterprise to be like. They give more importance to their own experiences than to external information. These experiences are extended and renewed basically through a continuous experimentation.

In an interview study among Swedish farmers in the southern part of Sweden, Landquist and Lundkvist (1983) concluded, that farmers usually do not make any economic calculations as a basis for their decisions about investments on their farms. But this does not mean that farmers' decisions are made haphazard. I think the authors give an accurate illustration of farmers' adaptive decision-making strategy with the following words:

"Our impression is that farmers usually have clear goals in their management. Their goal is to make it possible to continue to work as a farmer, with the traditional chores included
in that work and to preserve the farm for future generations of the family. They do not plan by sitting at their desks doing calculations. Planning is something, 'that goes on in my mind continuously in my daily work'... Decisions are made according to routines originating from own experiences in farming" (Landquist and Lundkvist, 1983:40).

It should be noted that this conclusion is based on interviews of a sample of farmers, that are much younger, have considerably larger farms and more formal education than the average of Swedish farmers.

4. Farming is Stewardship and a Way of Life

The conclusion we draw from our empirical research on farmers' decision-making, is that the way of reducing problems to well specified researchable or manageable questions, which is implied in the linear model of decision-making, is strange to most farmers. Of course, farmers often have to tackle one question at a time in their management of the farm. But in their routines of decision-making they take into consideration a complexity of needs and values, including social needs, environmental concerns and various aspects of job satisfaction. They strive for a qualitative satisfaction of their own personal and family needs, rather than for optimizing the economic outcome of the farm enterprise. Their aspirations have an organic rather than instrumental orientation, whereby I mean that for most farmers, farming means stewardship and a way of life very different from running a business.

The results from a comprehensive interview study among dairy farmers in the province of Värmland, illustrate what I call the organic orientation of farmers (Nitsch, 1979). Two thirds of the dairy farmers in this province responded that carrying on a family tradition was a strong motivational force for them. Half of the farmers expected children or close relatives to take over the farm and still more hoped this would be the case. These results confirm an observation I often did when working as an advisory
officer: for most farmers working for the family is the basis for their motivation in farming. Single farmers often expressed that they did not see any meaning in improving the farm as they had no family support and no family member would appreciate and take over what they did.

Farmers' reluctance to new technology and their concerns for their animals and the environment come to expression in their responses to a set of attitudional statements. As shown in table 1, a large majority of the farmers expressed a strong organic orientation in farming.

Tabel 1. Dairy Farmers' Orientations towards Impact of Technology on Dairy Cows and Environment (Nitsch, 1982)

<table>
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<tr>
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<th>Organic Orientation</th>
<th>Intermediate</th>
<th>Instrumental Orientation</th>
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<tr>
<td>Wellbeing of Dairy Cows¹)</td>
<td>82%</td>
<td>4%</td>
<td>14%</td>
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<tr>
<td>Environmental Effects of Technology²)</td>
<td>83%</td>
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<td>Environmental Effects of Pesticides³)</td>
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The statements to which farmers responded were:

1) We ought to discontinue our attempts to increase dairy cows' milk yield and consider their well-being

2) We now have to reconsider our present farm practices to adjust them better to the environment

3) The present use of pesticides in agriculture may result in serious damages to the environment in the long run

Farmers' agreement to these statements are interpreted as organic orientation, their disagreement as instrumental orientation.
Several observations in this interview study indicate that the farmers perceived farming basically as a way of life. For instance even though most of them almost did not have any leisure time at all (half of them had only a single day or less time free per year), very few were interested in changing to another job. They especially valued their freedom as farmers and appreciated working out-doors and working with animals. When asked which improvements they would appreciate most they gave priority to more leisure time and easier working conditions over an increase in net income.

These observations are confirmed in two other interview studies. Landquist and Lundkvist noted that two thirds of the farmers in their study did not perceive themselves as managers of an economic enterprise. They saw themselves as FARMERS. Lotta Johanson, in an interview study among dairy farmers in two other provinces, estimated that three fourths of the farmers in her study perceived farming as a way of life (Bernes and Johanson, 1984). These farmers, she reports,

"talked a lot about the advantage of working out-doors and being part of nature. They liked to talk about how much they loved their dairy cows. They could not think of another job, even if they wished they had more time free. I think that for many of them their desire to live close to nature is stronger than their need for leisure time" (Bernes and Johanson, 1984:59).

5. Different Understandings of Farming

What do studies of farmers' decision-making and orientations in farming have to do with studies in communication? I think we can learn much from such studies about a general and increasingly crucial problem in our information society. Such studies illustrate the cultural confrontation that is ongoing in many different areas of to-day's society, a confrontation between governmental agencies and citizens, between administrators and those who are administrated, between planners and those planned for and between communicators and their target groups.
Studies of farmers' decisionmaking and their orientations in farming show that advisory work cannot be seen as just a transmission of information to improve farming. It is an activity aimed at adjusting farming to one perspective or understanding of what farming is. Farmers' adoption of the information transmitted by the advisory service cannot simply be defined as The Rational Behavior. It is the adoption of one kind of rationality.

Two Cultures

Farmers and advisers live and work in different realities. They have different job responsibilities and get different rewards from their environments. An adviser works in and is rewarded by an organizational environment, a farmer works on a farm, mostly close to a family, and gets his satisfaction from this environment. Based on these experiences they develop different values and understandings of farming. As groups they thereby come to develop separate cultures with different orientations in their assumptions of what farming is.

In the cultural context of an advisory service farming is understood primarily as an economic activity aimed at the efficient production of food. In the cultural context of farmers, however, farming is mostly understood as caring about family, animals and nature or, with other words, stewardship and a way of life. These two orientations were described above as an instrumental and an organic orientation in farming. In figure 2, I have tried to summarize some important aspects of them.

My intention is not to claim that one culture is superior to the other. My intention is to show that they exist and that we need to explore them in respect to their values and assumptions. This is getting increasingly important as the combination of new communication and computer technology gives an enormous power to transmit information, and thereby to pursue a perspective on farming, for those who control this information tech-
nology. To keep the control over the decision-making on the farm, a farmer must be able to use information critically, i.e. to know how to evaluate the information in relation to own goals and resources. This means farmers must know what assumptions and values are implied in the information. Therefore, knowledge about the content of the culture pursued by the advisory service is urgently needed to assure a proper use of its information.

INSTRUMENTAL ORIENTATION

- linear rationality
- specified problems
- normative needs
- optimizing economy and technology
- focus on farm enterprise
- preference for mass media and computerized information systems

ORGANIC ORIENTATION

- adaptive rationality
- complex problems
- farmers' aspirations
- farmers' satisfaction
- focus on farmer and family
- preference for dialogue with human and credible adviser

Figure 2. Some Aspects of the Instrumental Orientation of Agricultural Advisory Services and of Farmers' Organic Orientation
Cultural Differences Enriching

There is nothing wrong in a cultural confrontation, as I see it. Instead, if made explicit cultural differences can complement and enrich each other. If disguised or denied, however, communication easily turns to manipulation and cultural invasion.

Even if most farmers see farming as stewardship and a way of life, they have to run an economic enterprise to survive and pursue their aspirations in farming. The institutional environment in which they run their farms is largely characterized by demands on economic efficiency. The advisory service is needed to help farmers cope with this environment. However, although this is the main task of the advisory service, I see it very important that it recognizes, respects and even appreciates that most farmers do not perceive farming as running an economic enterprise. In other case the advisory service and its computerized information systems, programmed to improve efficiency in farming, run a risk to turn to tools for manipulation and oppression rather than tools for farmers' conscious decision-making.

In the interview study among dairy farmers in the province of Värmland, referred to above, farmers were also asked what adviser characteristics determined their confidence in an adviser. In their responses to this question farmers strongly emphasized that advisers in the first hand had to be human, respect them and should be well-acquainted with their farming situations. If advisers recognize their work involves a cultural confrontation, I am convinced that they are better prepared to meet farmers' demands and become better communicators.
Finally, I want to remind the reader that my paper is based on my own unsystematic observations as an adviser, on some systematic but limited and mainly quantitative empirical research and on literature studies in related fields. I think the cultural confrontation between farmers and their institutional environment deserves much more of empirical research. In fact, I see such research as the most urgent research on advisory work today.

We must be aware that in our information society, advisory services, whether governmental or private, commercial or non-commercial, get an increasing impact on economic and other conditions of farming. As mentioned above, they get increasingly powerful computerized information systems for their collection, analysis and dissemination of information. Thereby advisory services become increasingly influential parts of farmers' environment. Farmers have to adjust to this environment to survive. This means they have to develop an understanding of the instrumental orientation perpetuated by the advisory services.

The advisory services do not depend on the organic orientation of farmers for their survival. But maybe our society does, for cultural as well as environmental reasons.

Bibliography


CREATIVE COMPREHENSION

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1. Defining Creative Comprehension
Ever since the student revolution of the late sixties I have been fascinated by the way in which new ideas capture peoples' thinking. At the time it was the ideas put forward by Marx that caught on in a way which for us "outsiders" was quite incomprehensible. How could such old-fashioned ideas from another time and another culture relate to our modern world? The answer could be that the ideas were transformed in some way to fit the thinking of the time. I struggled for a long time to understand the plethora of what I considered to be my students' misinterpretations when they tried to apply Marxist ideas to psychology. Related to these struggles, I performed some small experiments in text comprehension. Here I found that readers assimilated ideas presented in texts to their prior beliefs (Waern, 1977). The ideas were thus "reinterpreted", sometimes to such a degree that an outside observer would call the event a "misinterpretation". The assimilation could perhaps be explained by suggesting that the students were unable to distinguish adequately between the different aspects of two theoretical ideas (Waern, 1980).

With a little distance to the phenomenon, I could see that it applied not only to students, who were unable to distinguish between new ideas, but also to researchers when they try to apply a certain model to a certain field of application. The same phenomenon can be found in the field of "metaphor interpretation". Let me call this phenomenon "creative comprehension" and distinguish it from other phenomena in the field of comprehension and interpretation, i.e. simple comprehension, interpretation, creative comprehension and creative interpretation.
The various phenomena may be distinguished by the processes which lie behind them, the criteria which are used for evaluating the results and the evaluations themselves.

The processes involved in simple, straightforward comprehension consist mainly of recognizing the phenomena represented by the text and if necessary filling in any missing data. A direct model of reality is the criterion used for judging comprehension and the evaluation is made according to whether the judgement is "correct" (understood) or "incorrect" (not understood). In the simple case, evaluation can take place both within the individual who understands (subjective comprehension) and by an individual outside the situation (objective comprehension).

There seems to be some disagreement about the designation "interpretation". In this paper, I am following Furberg's (1982) definition. Thus, by interpretation I mean understanding on a high level, hermeneutic interpretation. The same processes are carried out during the initial stages of the interpretation process as are executed in simple comprehension. But a person both understands and becomes confused (Furberg, 1982). As a result of this, new processes, such as the conscious drawing of inferences and the combining of concepts, must be executed. The criteria can no longer merely consist of direct models of reality. Further knowledge is needed for a model of reality to be derived (e.g. when interpreting historical texts one must have some knowledge the historical context). The evaluation of interpretation is also founded on a conception of what is "correct". However, it can hardly be said that we have attained "objective" understanding. Instead, the criterion is founded on conceived comprehension or on common understanding.

In addition to the processes which apply to interpretation, for creative comprehension there is also a process of construction. According to the criterion for creative comprehension, a model of reality is created. The construction of this model is not only based on information about reality, but also on possibility. Creative comprehension is not evaluated as "correct" or
"incorrect", but rather as being more or less reasonable, and the evaluation is primarily subjective. Common understanding is not necessary.

Finally, I want to distinguish creative comprehension from the type of understanding we reach when considering literary texts. I will call the last-mentioned type of understanding "creative interpretation". Here, the processes may be radically different. It may be enough to recognize certain things, after which it becomes important to instigate the associative and creative processes. The criterion used for judging creative interpretation will consist primarily of possibilities, and the evaluation will occur on esthetical grounds. In the case of creative interpretation, there is no evaluation of what is correct or incorrect.

2. Explaining Creative Comprehension.

In this section, I will discuss the various ways of explaining the processes involved in creative comprehension. The main question concerns the generation of the type of understanding that expands beyond the confines of the text.

Let me first consider comprehension in general and then turn to the particular problems of creative comprehension.

Nowadays, the majority of researchers seem to agree that linguistic expressions alone cannot give a text its meaning. Instead, whatever the expression represents plays a large part in comprehension. Naturally, this does not mean that the understanding of verbal expressions is the same thing as the reality represented by the verbal expressions. Instead, we must imagine that when the verbal expressions are placed in context they "evoke" ideas about reality, and that these ideas, or representations, are then used to interpret the verbal expressions. Together, both these sources of information are used to create a "mental model" of whatever the expressions stand for. It is precisely this movement between the expressions and the actualized representations that can explain both "normal" and "creative" comprehension.
What do we need now in order to describe the development of comprehension?

We must deal with at least four different concepts:
1. Representation of text.
2. Representation of prior knowledge.
3. Representation of text comprehension.
4. Representation of procedures for handling 1. to 3. above.

We can picture these four different concepts working together as in Figure 1.

Figure 1. Processes and Representations Which Are Necessary for Generating Comprehension
The representation of the text (as far as the reader/listener has progressed) causes certain representations of prior knowledge to be evoked. The arrow between these boxes thus stands for the procedure "evoke", or even "search" if no information is spontaneously aroused. Together, these representations are used for creating a "model" of what the text stands for. Thus, these arrows represent the procedure "create model". The model is now used for predicting forthcoming text, and for comparing it with the newly-aroused representation of prior knowledge. For these uses, procedures are needed which draw conclusions and evaluate results. Procedures can also evaluate the internal consistency of the model. If the evaluations yield a positive result (according to the criteria which apply at the time) the result is obtained in the form of understanding, interpretation or creative comprehension (I am omitting creative interpretation which probably requires a different analysis). If the evaluations yield negative results, other procedures are called into force to deal with the lack of understanding. This may lead to representations of the text being changed so that new parts of prior knowledge are aroused and represented, or to changes being made in the model of the content of the text.

So far the majority of researchers are in agreement. However, when developing explanations and studying comprehension, stress may be concentrated on different parts of the overall process.

For a good many researchers, the main issue is the representation of prior knowledge. Some have suggested that comprehension could be explained by the fact that the text arouses specific situational memories (scripts). It is easy to explain simple, straightforward comprehension with the aid of these "scripts". If a computer system is equipped with relevant "scripts", it can be made to "understand" simple messages (Schank & Riesbeck, 1981). Others believe that, in fact, comprehension is attained when a "schema" is found that suits the given text (Rumelhart & Ortony, 1977).
The trouble with focusing on representation is that the procedures which are needed to describe the co-operation between text, prior knowledge and the created model, are overshadowed. Models which try to generate comprehension (as in Schank's model), force us to create these procedures. In other models (such as Rumelhart's), we run the risk of forgetting the importance of the procedures. If we only pay attention to the importance of prior knowledge, we will be tempted to say that understanding improves with the increase of prior knowledge. It is easy to forget the problem of finding something in the store of prior knowledge and deciding when a part of the stored knowledge that seems relevant, cannot be used. If we ignore the problems associated with searching through the store of prior knowledge and simply add prior knowledge (scripts, schemata or the like), the system will be too powerful. It will be able to derive many more interpretation possibilities than a person would in the same situation. At the same time, the system would be too weak. It may be ineffective - i.e. it may use unnecessarily many operations - because it would test possibilities which are not particularly relevant. People are both limited in their interpretations and effective in their understanding.

Other researchers now focus on procedures rather than the representation of prior knowledge. Procedures which need to be postulated are, for example: procedures for the construction of a new model and for relating the statements in the text to the model, procedures which evaluate properties in the model, and procedures which can bring about changes in the model (Johnson-Laird, 1983). In order to be able to judge the strengths and weaknesses of such a model, we must know how specific the postulated procedures are. If the procedures are specific to a particular situation, we will be faced with the problem of finding the situations for which the procedures are relevant. If the number of possible situations is great, we will run into search problems. If the procedures are general, no search problems arise. But there is still a risk that we will end up with a model that is either too powerful or too weak: If the procedures lead to "correct" understanding in one situation, they will lead to correct understanding in all other situations. The same is
true of "incorrect" understanding. It will be difficult to explain variations in comprehension between situations. This is an objection which has been directed toward the use of a set of general procedures as a model for human thinking.

In summary, we can say that the following problems are associated with our attempts to describe comprehension:
- we must assume that people have a certain amount of prior knowledge which they use for understanding new material;
- people normally do not seem to have any difficulty in evoking the relevant knowledge;
- at the same time, it seems as though people's ability to "transgress the boundaries" between different types of prior knowledge is limited.

So far we have looked at the processes that have to do with finding representations of prior knowledge, using them for filling in gaps in a current text and gradually evaluating the mental model which is created. But how can we describe the creative side of comprehension? By this I mean the kind of understanding that not only fills in gaps with familiar material, but also evokes a feeling that new contributions are being added to earlier ideas. In the following, I want to discuss just such a creative activity, i.e. the process involved in the interpretation of metaphors. What happens when we interpret such expressions as "Man is like a wolf?"

The observant reader will notice that I now use the verb "interpret" rather than understand. I am using this verb in its everyday sense without thereby placing the interpretation of metaphors in the category "interpretation" or "creative interpretation". According to the limitations I have put on these categories, many but not all metaphor interpretations would fit into the category "creative comprehension".

In a metaphor we have a tenor which is interpreted in terms of a vehicle. (In the example, "Man is like a wolf", "wolf" is the vehicle and "Man" is the tenor.) We can comprehend both the
tenor and the vehicle. But we are confused by the connection between them. The tension between the tenor and vehicle can be likened with the tension involved in solving a problem: we have a goal and a point of departure, but we do not know how we will get from the starting point to the goal. The paths leading from start to goal may be many (and long). We must decide how to choose a route, i.e. we will have to create a strategy. If the interpretation process is seen as a problem solving situation, it will be important to try to understand the interpreter's strategy.

An interpreter's strategy is not arbitrary. Just like a problem solver's strategy, it is based upon on the interpreter's judgement of his prospects of solving the problem. Every person knows that he has certain limitations and certain assets. He therefore tries to solve his problem by making use of his assets in such a way that he compensates for his limitations. He cannot possibly choose the most optimal combination of assets for compensating a particular set of limitations for every situation. Instead, he makes an assessment, based on prior experience, of how he might make use of his assets in any given situation.

What does this mean for the interpretation of metaphors? We know that every idea can, in principle, be regarded as consisting of an infinite number of properties. It is therefore impossible to begin by enumerating all the properties of the vehicle in order to determine which of them is also found in the tenor. We must find a strategy that allows only certain properties to be chosen. One strategy, which is often successful, is to choose the most distinct properties of the vehicle. If we say that "Man is like a wolf", the properties "mammal" or "omnivorous animal" are not the most distinctive properties of the vehicle as they are common to the wolf and many other animals. Instead, we are interested in the properties which distinguish wolves from other animals: that it is a predator, that it lives and hunts in a pack, and that it obeys a strong leader.
But the selection of certain properties from the vehicle is only the first step in the interpretation strategy. The next step involves using these properties in the tenor. It is here that new understanding can be created: the tenor may be given a new, as yet undiscovered but nevertheless feasible content. In order to use the property "predator" for people, we must give it a new meaning. The predatory instincts of the wolf correspond to the human's desire to compete (analysis by Black, 1962). We thus change the property which we had taken from the vehicle so that it fits our tenor. At the same time as we make this change, our conceptions of both the vehicle and the tenor will also change. This explains why we think we gain new insights when we interpret a metaphor. Our picture of the wolf may, for example, become more shaded and our conception of Man's social relationships may lose its rose-colored glow.

But the metaphor interpretation is still not entirely accounted for. We see that the actual transition from "predator" to "desire to compete" is in itself metaphorical. Metaphor interpretation is explained in terms of a metaphor interpretation...

How can we avoid infinite regression? Should we assume that there exist certain fixed knowledge structures (schemas, primitive concepts)? If we do make such an assumption, we could limit the number of metaphor interpretations. However, we also need freedom of movement if we are to achieve something new. Let us therefore assume that the range of possible interpretations is broadened by the introduction of certain general procedures.

What general procedures would be needed? At the risk of being vague, I would like to suggest the following:
1. Procedures which add properties (these achieve discriminations between different concepts).
2. Procedures which subtract properties (these achieve abstractions of different concepts).
3. Procedures which "transgress the boundaries" between concepts (these achieve the vagueness which is necessary for transferring ideas from one context to another).
We can of course ask ourselves whether it is really necessary to assume the existence of procedures which "transgress boundaries". We may consider these to be more "mystical" than necessary. Our knowledge at this point is wanting. We are, for example, not conversant with the different variations that exist in metaphor interpretation. Moreover, we know of no model which could generate metaphor interpretations; nor have different combinations of procedures been tested with any such model. My suggestion regarding procedures is based on a desire not to "restrict" myself to discrimination and abstraction. The concept "transgress boundaries" is sufficiently vague to allow for the eventual specification of other procedures.

Creative comprehension is thus characterized as follows:
- the thing to be understood is related to something else (either given or generated by the interpreter);
- common attributes are sought in the original material and the new material;
- attributes change meaning when they are transferred from one context to another;
- new ideas are added in order to build a bridge between the original material and the new material.

But this description of the processes involved in creative comprehension is still insufficient. If we construct a system with such processes, the system may be either too strong or too weak. People see only certain relationships, exploit only certain attributes and use only certain ideas for building bridges. By the same token, the relationships, attributes and ideas which are used, may be very sophisticated and completely unpredictable. In order to provide a satisfactory description of Man's creative comprehension, which takes into consideration both his capabilities and limitations, we need to understand why his limitations sometimes do not limit and why he does not always take advantage of the possibilities available to him.

I want to suggest that we must take into consideration the fact that Man has a certain memory architecture which he is more or less aware of. It is a well-known fact that people cannot pay
attention to more than a certain amount of information at any one time. Even if the interpreter has a good deal of prior knowledge at his disposal, he cannot use all of it at every particular instant.

I will give an example and analyze it in order to explain what I mean.

Let me begin with an observation from an experiment in which people were asked to find words which were missing from a given text. The subjects were asked to think aloud while they interpreted the text (Waern, 1983). A "protocol" from such an experiment is given in Table 2.

Table 2. Think Aloud Protocol for the Generation of Words Missing from a Text.

Text: Mrs. Anderson wanted to xxx her family.

1. Well, Mrs. Anderson wanted to... love
2. - but that sounds odd.
3. Mrs. Anderson wanted to... visit
4. but then she has to be away, no...
5. Mrs. Anderson wanted to leave her family...
6. She thought perhaps she had too much trouble with it...
7. Yes, that seems like the best one, it fits into the sentence at least...
8. Wanted to leave...
9. Yes, you might want to do that sometimes, but not as a rule.

Here we see that the subject first evokes some different types of knowledge, which may be relevant to the context, in order to make some suggestions: love, visit. We also see how she evaluates these suggestions. It is interesting to note that the suggestion "love" which is presumably derived directly from a "family-schema" is immediately discarded in this particular context. It is perhaps too obvious to be mentioned (cf. Grice, 1975). It is difficult to understand why the suggestion "visit"
was given, particularly considering the fact that it was discarded for explicit reasons. In the last suggestion and the reasoning associated with it, it is fairly clear that the subject abandoned the idea of producing the "correct" word. Instead the suggestion is judged as being "the best so far" or "reasonable". In the end, the suggestion is accepted with the modification that the statement cannot apply to all cases in which wives and families are involved.

We can thus see that several different types of previous "schemas" were evoked and that they gave rise to interpretation suggestions that were evaluated. A universally valid procedure can be discerned in the protocol: one which limits the validity of the statement (i.e. a discrimination). Finally, we can regard the protocol as an example of how people adjust to their own limitations. When the subject discovered that none of the spontaneous suggestions were completely satisfactory, she chose the strategy of accepting a "reasonable" alternative. I find it difficult to imagine that the subject had a schema which states: leave the family because it is trying. Instead, it would be more reasonable to assume that her comment no. 6 reflects a model of the text's content that had been created in part from the incomplete text and in part from her own suggestion (wherever it came from).

I now want to complement the description of creative comprehension with the following:

People use a method to create strategies for dealing with interpretation problems. This method can be summarized as follows:
- Assess the problem
- Assess one's own capabilities
- Set a goal which suits the problem and available resources
- Test a process (representation-procedures)
- Evaluate the results
- Readjust the goal or the process if the results prove unsatisfactory.
In summary, I have suggested that the following procedures need to be engaged in order to generate creative comprehension:

- Procedures for constructing a model of the referent of the text: evoking prior knowledge, drawing inferences and evaluating outcomes, etc.
- Procedures for handling creation: discrimination, generalization, transgressing boundaries.
- Procedures for handling limitations and assets: strategies.
- Procedures for creating strategies: assessment of limitations and accomplishments, changing of goals, etc.

Much more work is needed to specify the details of these procedures.

References


What is it that makes some texts easier to understand and remember than others? Compare these two examples:

1. The roof is below the chimney.
The door is below the roof.
The window is to the left of the door.

2. The apple is below the banana.
The pear is above the grapes.
The apple is to the left of the grapes.

These small texts are of the same length, the syntax of their sentences are the same, the vocabulary could not be expected to make any of the texts more difficult. They both describe the location of four things relative to each other. And yet, in spite of these similarities, if you read them to a number of subjects, and then ask them to draw a sketch of the described layout, about 80% will succeed with the former, but only about 40% with the latter. Why?

To answer questions such as this, we need a theory of text understanding. Within the field of text linguistics, there have been many attempts to formulate such a theory. One of them is the theory of mental models, as formulated by Johnson-Laird and co-workers. (See e.g. Johnson-Laird, 1983). This theory has one important advantage over other theories of text understanding: it is not specific for text understanding, it is part of a general theory of cognitive processes. This means that the same basic mechanisms are used, not only to explain text understanding, but also other inferential processes, such as for instance syllogistic reasoning (Steedman & Johnson-Laird, 1977).

SIC 10, 67-78
A central assumption in this approach is that there is no need for a psychological theory to assume that there exists a mental representation of the structural regularities observed in the domain being investigated. Instead, these regularities can be explained as a consequence of the processes used to perform the task. Syllogistic reasoning can be explained without having to postulate a mental logic, and text structure can be explained without having to postulate the existence of a mentally represented text grammar. Another central assumption, which was put forward as early as 1970, is that "connected discourse is encoded, not primarily in a linguistic form, but in a representation similar to a model based on perceiving or imagining events, instead of merely reading or hearing about them" (Johnson-Laird, 1970).

Text understanding is, in the theory of mental models, seen as a two step process. Initially the linguistic input is encoded in a propositional representation similar to the surface structure of the sentence. This representation is then used to build a so called mental model of the text's content. Mental models are analogue representations of the world (or text-world), i.e. they are similar in structure to the events or states of affairs that are described in the discourse. From this it follows that the more smooth the translation from the propositional to the analogue representation is, the easier the text is understood and the better the content is remembered.

Coherence

Coherence in a text is seen as a function of this process, i.e. the easier it is for a listener to build a mental model from the text, the more coherent the text is.

Johnson-Laird argues that the coherence of prose depends primarily on its pattern of co-reference. It is this pattern that gives the text its structure. It is also claimed that co-reference is based on the existence or non-existence of two factors, namely determinacy and referential continuity, both of which have been studied experimentally.
Determinacy was studied by Mani & Johnson-Laird (1982). They showed that if a spatial description is determinate, i.e. if it is possible to create one and only one (plausible) mental model of it, people remember its content better than if it is indeterminate, i.e. if more than one mental model can be constructed that is consistent with the propositionally given information. In the latter case, however, the subjects were better at remembering the verbatim description. These results are taken as support of the two-stage model of discourse comprehension. If the description is determinate, a mental model can easily be constructed, and the propositional representation can be abandoned. However, if the description is indeterminate, the subjects must keep the propositional representation in an active state and await further information before the model can be constructed. As this increases the memory load, such a text is more difficult to understand and remember.

Referential continuity, the other factor affecting the process, was studied by Ehrlich & Johnson-Laird (1982). The task of their subjects was to listen to three sentences describing the spatial layout of four objects, and when the description was completed draw a diagram depicting the scene. For example, after having heard the following description:

The sugar is on the left of the mustard.
The mustard is in front of the knife.
The knife is on the left of the spoon.

they were expected to draw the following diagram:

```
      knife    spoon
  sugar     mustard
```

It was shown that a description in which each sentence referred to entities that were mentioned in the previous sentence was better remembered than a description in which the first and the second sentence described two separate spatial relations, because in the latter it was not possible to construct a mental model until the
third sentence was presented. This means that for the array in the example above, the given description was easier than the following:

The sugar is on the left of the mustard
The knife is on the left of the spoon
The mustard is in front of the knife

The fact that referentially continuous descriptions should be better remembered than discontinuous is perhaps not all that surprising. What is more interesting is that this effect could also be predicted (in contradistinction to purely propositional theories (Kintsch, 1974; Kintsch & Van Dijk, 1978)) and obtained when not all sentences were continuous in this sense, i.e. not all sentences referred back to something in the previous sentence. If, on the basis of the first two sentences, the subjects were able to create an integrated representation of the scene, it made no difference whether the third sentence referred back to an item in the first or the second of those previously heard.

It is therefore not the possibility of establishing referential links between adjacent sentences that makes a text coherent, rather it is the possibility of continuously constructing an integrated mental model of its content. If the listener has been able to create such a model on the basis of what has previously been heard, then it makes no difference if a sentence does not refer back to the previous one, as long as it refers back to something in the mental model of the preceding text's content.

Co-referential complexity is, so to speak, not solely a reflection of the continuity relations between elements in the text, but, more important, it is a reflection of the relation between the part of the text being processed, and the mental model of the previous content of the text.

Background knowledge

There are also other factors known to influence the ease with which a text is understood, notably the reader's or listener's background
knowledge. This has been stressed by numerous scholars from Bartlett (1932) to Schank & Abelson (1977) in their work on schemas, scripts and frames. There are many differences between these theories, but this need not concern us here. The common denominator, and what is of interest to us here, is that the listener uses ready-made "packages" of knowledge to guide inferences, fill in gaps in stories etc. There are many problems associated with this approach, which has also been noted by its proponents, for instance how the listener knows which frame to use at a particular moment. The important point, however, is that the listener uses information that is not explicitly given in the text to create some sort of gestalt, which then is used to support the process of text understanding.

If this is the case, it could be argued that the listener in the process of understanding a scene description such as those used by Ehrlich & Johnson-Laird, could use some sort of background knowledge to overcome the difficulties created by the referential discontinuity, given that there was something in the text that made the use of background knowledge possible. Complexity would then be a function not only of the referential continuity in the text, but also a function of the listeners' background knowledge of the topic of the text.

How can the possibility of using background knowledge be introduced into the experimental design used by Ehrlich and Johnson-Laird? One way to do so, and the method chosen here, would be to create a parallel version in which the relations of the items in the array were not arbitrary. There is for instance nothing in our everyday experience which makes it more plausible for us to believe that the rose should be to the left of the tulip, rather than to the right, but a fork is usually placed on the left side of the plate and not on the right.

If listeners can make use of this sort of information in creating a mental model, we could then hypothesize not only that the descriptions in which the relations were non-arbitrary would be easier to understand and remember than the arbitrary ones, but also that in the former case, the effects of the discontinuity factor would be more or less obliterated. The following experiment was conducted to test this possibility.
METHOD

Subjects

16 students from Linköping Institute of Technology took part in the experiment as unpaid volunteers. 12 male and 4 female.

Materials

The descriptions were constructed by first selecting eight spatial displays that met the following criteria: They included four items; the relations between the items were more or less natural; there were no central items around which the other items were grouped. (This was necessary to make it possible to construct discontinuous descriptions of the scenes.) The naturalness varied in the different displays from "necessary", e.g. "the chimney is over the roof", to "plausible", e.g. "the tree is to the left of the flower". No relations were counterintuitive. All eight possible ways of ordering the items in the descriptions were used. A parallel set of displays, in content resembling the Ehrlich & Johnson-Laird materials, but in the spatial relations equivalent to the first set, was obtained by exchanging the nouns in the descriptions for ones that did not imply any structuring background. For all displays there was one continuous and one discontinuous description, in accordance with the Ehrlich & Johnson-Laird materials.

The non-natural set differed from the Ehrlich & Johnson-Laird materials in one respect: They used two standard sets of spatial relations which they then rotated in order to obtain eight different sets. This was not possible to do in the current experiment, as the non-natural set were to be parallel to the natural set. (The complete test materials are presented in the appendix.)

The validity of the naturalness - non-naturalness distinction in the materials was tested by letting four subjects other than those that took part in the experiment sort pictures of the displays in one natural and one non-natural set. No subject put more than one picture in the "wrong" group, and no picture was sorted in the "wrong" group more than once.
THE RECEPTIVE WAY TO COMMUNICATIVE COMPETENCE IN A FOREIGN LANGUAGE

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Against an Early Concentration on Speech

Since the 1940s, the perceived priorities of language instruction have undergone a number of shifts in emphasis. The valuable work of the structuralists in such areas as morphology, syntax and phonology reinforced the long-held view of language as a system to be mastered, while concentrating attention on the spoken language rather than the written. The demand for foreign language competence in practical situations which was created by the Second World War led in the USA to the famous Army Method which, in the 50s and 60s, spawned the audiolingual approach in the schools, where the spoken word was central. The current emphasis on communicative competence has stressed the social function of language rather than the system, use rather than usage, to employ Widdowson's well-known distinction. (see e.g. Widdowson 1978)

Whatever the dominant pedagogical theory, the goal of foreign language learning has throughout been seen as accurate speech, and courses have from the outset concentrated on developing this skill in particular. Now, while I do not wish to challenge this goal as a reasonable ultimate objective for the advanced pupil in many learning situations, I regard it as potentially dangerous or counterproductive in initial and even (in particular if the emphasis on accuracy is too stultifying) in intermediate instruction. In the present paper, my concern is largely with the initial stages and I shall concentrate on speech versus comprehension rather than on accuracy versus fluency in speech production, which is more a dilemma of intermediate levels (my views on the latter question will be found summarized in e.g. Davies 1982).

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Too early a concentration on speech training involves a number of undoubted risks:

1. It is likely to lead to an imbalance between skills. In our native language, we develop a much larger receptive competence much earlier than our productive competence, and this is in accord with normal patterns of language use. If, however, the training of speech production is allowed to determine the design and content of the course, the receptive abilities are likely to remain underdeveloped and undernourished.

2. One reason for this undernourishment is the textual poverty which is a notable feature of far too many courses. When talking to practising teachers, I frequently recommend them to take the textbook used for a year's teaching, and read aloud the textual material. It may take them an hour, perhaps. Yet that, at worst, is the language sample with which their pupils are faced, and which they have to pick over at often tedious length and in painful detail. Could anything be further from the richness of material to which the native learner is exposed, which he is expected to comprehend and react to? Does learning need to be so artificial?

3. The traditional course, still attempting above all to inculcate an active command of the system of the target language, will tend to stress form and structure rather than content and vocabulary (as was pointed out some years ago by Postovsky, 1975.) Yet the latter are what we most need to master in the early stages, not only to allow comprehension, but also to establish a broad base for later production. I would be the last to decry the ultimate value of grammatical knowledge, but it is undeniable that while we may go far in both comprehension and production having only a rudimentary command of structure but an extensive vocabulary, we will scarcely get anywhere with the reverse.

4. It is surely sufficient for the beginning student to learn to decode the new language, itself a highly complicated and active process involving for example sound/symbol recognition, recall, matching, chunking into meaningful units, and storage in the short-term memory until the salient information can
be extracted and linked together. To demand in addition to this complicated process that the beginner should also encode, with all that entails, is to risk task overload (Nord 1976). This not merely inhibits learning by creating anxiety and raising the affective filter, in Krashen's terminology (e.g. Krashen 1981), but it is also likely to encourage interference from the student's native language. In a trying situation, he will have recourse to strategies and structures familiar to him from his Ll.

5. In the audiolingual classroom, it is an often observed fact that the most active talker by far is the teacher. This teacher dominance is not, perhaps, an essential part of the method, but we do frequently find the pedagogue labouring hard to extract minimal responses from one pupil at a time. This type of teacher talk whose purpose is to elicit target language phrases is not necessarily the best input for learning or modelled on natural so-called 'caretaker speech'. It may, indeed, be an inefficient use of restricted classroom time.

6. Finally, from a strictly practical point of view, there is little doubt that after a short or low intensity course, few but the most gifted of pupils have reached 'threshold' competence in any of the four skills of reading, listening, speaking or writing, and quickly lose what little ability they have gained once the course is over. It has been estimated, for instance, that only some 3% of American pupils study a language for more than three years. I myself first began work on the present topic prompted by general discontent with the results of courses in the third foreign language in Swedish schools, which were then only one or two years long for 80% of the intake (since amended to three years). Clearly, if the number of hours available is so restricted, it is fruitless to cling to the goal of accurate speech production, which will be beyond all possibility of attainment for the majority. It is surely far better to aim for good comprehension of the target language, which I would anyway maintain is the central and most useful skill.
This is not the place to examine the extensive but far from unambiguous evidence on the parallels between first and second language acquisition. (Some of this is summarised in Dulay, Burt and Krashen, 1982, Chapter 8.) While it is clear that comprehension precedes production in a natural acquisition environment, it can justifiably be maintained that the language classroom is far from being a 'natural' place to learn. Nonetheless, apart from the arguments adduced above, it would seem reasonable to assume that to begin with a period of concentration on understanding and delay the systematic training of speech until the student feels ready to produce speech spontaneously is not only more in harmony with natural language acquisition but also offers decided practical and psychological advantages.

The Receptive Way
Support for what I have elsewhere called the Receptive Way (Davies 1984) has been growing steadily over the years, and may represent a paradigm shift, as claimed by Nord (1980). It does still meet with theoretical opposition, however, especially if people see the receptive skills as 'passive', a dangerous misnomer which makes such a course sound like a soft option for the lazy or less linguistically able. There is no 'French without tears', or at least without hard work, and a receptively oriented course demands as much concentration, if not more, as any conventional programme of study.

One of its advantages is that within a relatively short space of time, it gives the student an overview of the target language; he becomes aware of its structure, of the feel of the language, and of where its difficulties and its interesting novelties lie. The usual carefully structured course, which may go a year without meeting a past tense, and require mastery of the possessive pronouns before introducing relatives (or vice versa), seems to stretch ahead for years before the student has a sense of the 'dimensions' of the language.

Because the receptively oriented course is concerned to grapple with authentic materials as soon as possible, it must as a main priority seek to build up a large vocabulary.
This will, of course, be a vocabulary of recognition, but the continual exposure to common words will, experience shows us, establish an active vocabulary that can quickly be widened if and as the course moves into a productive phase.

Considerable attention will also be paid to grammar, but it will be a syntax of recognition, which is infinitely less demanding than a requirement to produce accurately all the inflectional complications of natural languages. Attention will in particular be concentrated on those aspects of the grammatical system which are the bearers of essential information. Again, all natural languages carry a large amount of redundancy, which can quickly be recognized for what it is and put aside for more advanced stages of learning, by which time much will have sunk in by virtue of familiarity.

This is not the place, either, to examine the question of left-brain/right-brain styles of learning (see e.g. Seliger 1982, Scovel 1982), but the approach sketched above will offer both a wealth of models as well as a hard core of useful rules, lending itself both to holistic as well as analytic learning styles.

Another supposed criticism I have often met with is that 'pupils want to speak the target language'. Well, of course they do - we all want to run before we can walk. But the receptive method in no way stops pupils from talking; indeed, speech is welcomed when it is spontaneous. The essential point is that the course does not have speech production as its central aim, it does not progress at the speed of the slowest skill. On the other hand, it expects speech to arise spontaneously, it expects transfer to occur, and it probably intends gradually to phase in speech training when comprehension is well established and the students are ready to progress to the next stage.

Such a course will, in other words, see as its first goal fluency of comprehension. Because it will advance much faster than the conventional course, it will sooner be able to operate at the student's intellectual level, using authentic materials of genuine interest, and giving the students a sense of achievement. They should be encouraged to see the language materials
they use, not as mere vehicles for language learning, but as sources of information or enjoyment of intrinsic value. In the short course, the receptive way will lead to a useful (terminal) skill beyond the threshold level. In the longer course, it will establish the best basis for speech training.

A Trial Course

After an initial investigation commissioned by the Swedish Schools Council (Skolöverstyrelsen) (see Davies 1978) a small-scale one-year pilot course was mounted in a gymnasium (a school for the age group 16-19) in Linköping with the present author as project leader and lektor Ulla Kardell, one of the two teachers involved, as main materials developer. The language chosen was beginner's French, the third foreign language of the student subjects. The trial commenced in 1979 with four beginners' classes, and was repeated the following year with three. After the first year, an investigation was made of the students' attitudes to the course (Davies 1980) and after the second, an attempt was made at a comparative evaluation of student achievements (Davies and Kardell 1981). The following is a brief outline of the main features of the course and of the tentative lessons drawn.

The course was of normal length for the third foreign language, some 140 lessons of 40 minutes' duration. The materials used were: (written) teacher-created ad hoc handouts, newspaper clippings in large numbers (predominantly from France-Soir and La Vie) and graded readers; (spoken) recorded native-speaker readings of the textual material, assorted listening comprehension materials and teacher talk. In addition, a film (Louis de Funès, Le petit baigneur) was seen in sections, with accompanying comprehension and vocabulary exercises.

The pedagogical methods employed included Asher's Total Physical Response (Asher 1977), dictionary use, vocabulary learning, grammatical deduction but also explanation, a focus on meaning and the extraction of information, contextual guessing, reading and listening for gist or specific information, and the study of cultural background. Pronunciation was the only
productive skill consistently trained after an initial period of familiarization. Speech was at first in Swedish or monosyllabic French from the pupils – what has since been called 'restricted two-way communication' (Dulay, Burt and Krashen, 1982). As the year progressed, French more and more came to be used spontaneously by the pupils. At the end of the year, with the summer holidays approaching, a short productive course in "Tourist French" was introduced, with active speech training in tourist situations. By this time, phrases could be learned as wholes, and yet could be fitted into a structure that was reasonably well understood, as the grammar with which the group had become familiar had a coverage far in excess of that normally met with in a one year course.

Evaluation

The attitudinal survey conducted at the end of the first trial year showed that the course at least had face validity, that is, the students agreed, on the whole, with the goals and methods of the experiment, and had become more positive during the year; they had a sober but encouraging view of their own achievements in so short a time, and they saw the course as conferring greater cultural understanding than the conventional type.

The second trial year benefited from the lessons of the first and, indeed, the classes were not made to feel they were engaged in an experiment, but saw the methods as specific to the teachers or to the special situation of the third foreign language. Towards the end of the course, they were matched against pupils pursuing the equivalent beginners' French course in another gymnasium in the town. The test instrument chosen, for want of a better, was a national test normally administered to 16 year-olds after three years of French as a second foreign language. In other words, the level was unreasonably high, but it cannot in any way have favoured the trial groups who had studied 'newspaper French' rather than 'school French'.

The scores on the four sub-tests are given below:
The results show differences significant at the 5% level in favour of the experimental groups in the three sub-tests listening comprehension, reading comprehension and grammar, words, phrases, i.e. the three trial groups have scores superior to the three control groups. The differences in raw scores are, however, not as great as might have been hoped, especially in the comprehension tests (unfortunately, due to an error the listening comprehension test was administered to the trial groups a full month before the control groups). What is most interesting, however, is the fact that by far the greatest difference in raw scores and average percentage lead is found in the grammar, words, phrases sub-test, which is productive. In other words, had we postulated the strong hypothesis that our receptively oriented course was the best way to train productive skills, it would have been confirmed by this test, at least in respect of the specific productive abilities which it embodied.

We do not, however, wish to exaggerate the scientific validity of these results. The trial and control groups, while fully equivalent within the schools system, were in no way scientifically matched. There is no way to estimate reliably the pedagogical skills of the two trial teachers as compared with the control groups' three teachers. It is, again, difficult to say how neutral the test instrument was in respect of the various tested classes.

What we can state with conviction, however, is that most of the trial pupils learned to cope with newspaper articles in French, became familiar with the dominant features of the structure of the language, acquired a modest central vocabulary, proved that significant transfer undoubtedly occurs from receptive to productive skills, and gained through authentic materials a wider cultural understanding of the Francophone world and greater intellectual stimulation than in a traditional course.
Furthermore, one of the groups (and not the best) was tested for speech production by an experienced examiner from the local College of Education, who reported that they were fully comparable with traditionally taught groups, and surprisingly willing to respond. This is yet further evidence that natural acquisition had occurred. Our trial cannot, of itself, prove the thesis that the provision and manipulation of comprehensible input is the best basis for at least early language learning, but it certainly helps to support the ever-growing body of affirmative evidence that this is the case.

**Language Planning**

Finally I should like to return to a suggestion I put forward a number of years ago in the *Modern Language Journal* (Davies 1976), the case for which has been strengthened over the years for both pedagogical and political reasons. I suggested then that all pupils, in all countries, should be given productive abilities in an international language of recourse, where at present English seems the obvious candidate. They should further study one, or preferably two languages for full comprehension, both listening and reading. The expected transfer to productive abilities would then be a bonus, but not an aim of these relatively shorter courses.

In addition, there should be optional reading comprehension courses available in related languages where, for instance, a Danish reading course would be specifically designed for a native English speaker who had fluent comprehension of German.

The picture might then look something like this for a Swede who at present is expected to achieve some sort of active mastery of three languages:

<table>
<thead>
<tr>
<th>Mother Tongue</th>
<th>Active Communication</th>
<th>Full Comprehension</th>
<th>(Optional) Reading Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swedish</td>
<td>English</td>
<td>Danish</td>
<td>Spanish, Portuguese</td>
</tr>
<tr>
<td></td>
<td></td>
<td>French</td>
<td>Italian</td>
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<td></td>
<td></td>
<td>Russian</td>
<td>Polish</td>
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</tbody>
</table>
The ideal communicative situation is one where each interlocutor can speak his native language, and be understood by the hearer(s), which is why one should encourage more languages to be learned, but making use of the immense saving of time offered by receptive goals and the receptive way of learning. The common language of recourse would then be used where a native language was not understood by all the partners in an exchange.

This type of language programme is certainly one which should be adopted by the European Community, for instance, for political and socio-cultural reasons. But, in view of the pedagogical arguments presented earlier, there is no reason to fear a shift in emphasis to receptive skills. For those who wished to continue the study of foreign languages to higher levels, the best foundation of progress would already have been laid. Comprehension is the essential base on which advanced language skills can be built. It is also the sine qua non of communicative competence.

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Design

The design was a 2x2 within groups design, with natural versus non-natural relations and continuous versus non-continuous descriptions as within-subjects factors.

Procedure

Each subject heard 16 descriptions, 8 natural and 8 arbitrary, half of each group continuous, half discontinuous. There were four different lists, all balanced for structure, content and presentation order. Each description contained three sentences describing the layout of the set of four objects. After each such presentation the subject drew a diagram depicting the scene. Before hearing the test items, the subjects received two practice trials. After the presentation the subjects were given a post-experimental interview and a test on short term memory. (The Swedish version of the WISC digit-number test.)

RESULTS

The results are summarized in table 1 and figure 1. As can be seen, the experimental predictions were confirmed. The "non-natural" condition, which resembles the Ehrlich and Johnson-Laird experiment, reproduces the results obtained there, with 43% correct answers for the discontinuous descriptions and 73% for the continuous. F'(1,15) = 6.94. p < .025. This effect is almost completely obliterated in the "natural" condition where respectively 81% and 87% correct answers were obtained. F'(1,15) = 1.67. p > .10.

Table 1 shows the ANOVA results for the complete 2x2 design. Both main effects are significant, but not the interaction.

In the post-experimental interview, an attempt was made to explore the subjects' strategies in solving the task at hand. A crude classification of the answers is shown in table 2, which shows the number of subjects who spontaneously or when questioned, reported that they had tried to create a "picture in their head", a mental
Figure 1. Percent correct answers for the four experimental groups.

Table 1. Summary table for the Content (natural/arbitrary) X Presentation order (continuous/discontinuous) ANOVA.

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>16</td>
<td>1</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>7.5625</td>
<td>1</td>
<td>7.6525</td>
<td>8.68*</td>
</tr>
<tr>
<td>CxP</td>
<td>3.0625</td>
<td>1</td>
<td>3.0625</td>
<td>3.42</td>
</tr>
<tr>
<td>S</td>
<td>44.5</td>
<td>15</td>
<td>2.9967</td>
<td></td>
</tr>
<tr>
<td>CxS</td>
<td>7.5</td>
<td>15</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>PxS</td>
<td>12.9375</td>
<td>15</td>
<td>0.82625</td>
<td></td>
</tr>
<tr>
<td>CxPxS</td>
<td>13.4375</td>
<td>15</td>
<td>0.8958</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>105</td>
<td>63</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p ≤ .01

image, or something similar, when listening to the descriptions, and where it also can bee seen how many subjects that noted the principal dimensions in the stimulus materials, i.e. the natural/non-natural and the continuous/discontinuous dimensions. All subjects but one were aware of the latter dimension.

A separate omega square analysis was done for four of the subgroups that emerged on the basis of the aforementioned classification, i.e. use of/no use of mental imagery and awareness/no awareness of the naturalness dimension in the test materials. The results are
Table 2. Number of subjects that on the basis of the interview data were classified as having tried to create a mental image of the array, and of the number of subjects that noticed the principal dimensions in the stimulus materials.

<table>
<thead>
<tr>
<th></th>
<th>+</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental image</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Content</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Presentation order</td>
<td>15</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 3. Omega square estimated explained variation for the main effects and the interaction for all subjects, and for the different subgroups.

<table>
<thead>
<tr>
<th></th>
<th>All subjects</th>
<th>Mental image</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 16</td>
<td>N = 12</td>
<td>N = 4</td>
</tr>
<tr>
<td>Content</td>
<td>.15</td>
<td>.26</td>
<td>.03</td>
</tr>
<tr>
<td>Presentation</td>
<td>.06</td>
<td>.07</td>
<td>.06</td>
</tr>
<tr>
<td>order</td>
<td>.02</td>
<td>.01</td>
<td>.03</td>
</tr>
<tr>
<td>Interaction</td>
<td>.02</td>
<td>.01</td>
<td>.03</td>
</tr>
</tbody>
</table>

presented in table 3. The number of subjects is small and the classification is crude, the results of the analysis should therefore be viewed cautiously. Some interesting, though perhaps more bewildering than clarifying results do however emerge. For instance, the effect of the naturalness factor, as measured by omega square explained variance, drops from .26 to .03 for those subjects that chose some strategy other than trying to create a mental picture, even though all these subjects noticed this dimension in the stimulus materials! (It is of course quite another thing to claim that they noted this in all the intended cases.)

As could be expected, there was no significant correlation between the results on the STM-test and the results on the main experiment,
and these results will therefore not be discussed further. (They situations, the subjects' relevant background knowledge will vary. This has two consequences, one theoretical and one methodological.

The theoretical implication is that it is more or less meaningless, from a psychological point of view, to talk about the complexity or coherence of the text as such. These are not qualities of the text, but of the relationship between the text and the reader, or rather the readers' cognitive processes and background knowledge. Statements about texts as being difficult or easy to read are in principle nothing more than generalizations from an unspecified and not clearly defined reader-group, with homogeneous background knowledge. (In most cases presumably quite similar in these respects to the person making the statement.)

Given the results from the current experiment, it seems as if similar background knowledge is a necessary but not sufficient condition for two people to process a text in similar ways. This can be seen in the results of the performed omega square analysis on the different subgroups that were formed on the basis of the post experimental interviews. How these results should be analyzed is not clear. What seems clear, however, is that there exists some connection between reported strategy and obtained response patterns. This is even more interesting when one considers the fact that the dichotomous variables used for classifying the subjects do not do justice to the variation in the strategies reported by the subjects. Some claimed, for instance, that they used some sort of mental imagery only (or mostly) for discontinuous descriptions, others that they used this strategy only (or mostly) for non-natural descriptions. The number of subjects and the number of test-items are obviously too small to make it possible to do any meaningful non-speculative analysis of the relationship between reported strategy and obtained response patterns. These results are reported here not primarily for the conclusions that can be drawn from them, but to point to the necessity for further investigations concerning the relationship between subjects' reported strategies and their performance on different reading tasks. A deeper insight into this relationship could shed light on our knowledge of the process of reading, and on the representational status of mental models.
REFERENCES


APPENDIX

 Literal translations into English of the stimulus materials

 Natural continuous descriptions

 The jacket is below the hat
 The jacket is above the trousers
 The trousers are to the left of the shoes
 The cloud is above the boat
 The boat is above the fish
 The fish is to the left of the shark
 The fork is to the left of the plate
 The knife is to the right of the plate
 The glass is above the knife
 The table is below the lamp
 The table is to the right of the chair
 The mat is below the chair
 The roof is below the chimney
 The door is below the roof
 The window is to the left of the door
 The tree is below the sun
 The tree is to the left of the flower
 The bird is above the flower
 The table is above the mat
 The chair is to the left of the table
 The chair is below the picture
 The mouth is below the nose
 The eye is above the nose
 The eye is to the left of the ear

 Natural discontinuous descriptions

 The jacket is below the hat
 The jacket is above the trousers
 The trousers are to the left of the shoes
 The cloud is above the boat
 The boat is above the fish
 The fish is to the left of the shark
 The fork is to the left of the plate
 The knife is to the right of the plate
 The glass is above the knife
 The table is below the lamp
 The table is to the right of the chair
 The mat is below the chair
 The roof is below the chimney
 The door is below the roof
 The window is to the left of the door
 The tree is below the sun
 The tree is to the left of the flower
 The bird is above the flower
 The table is above the mat
 The chair is to the left of the table
 The chair is below the picture
 The mouth is below the nose
 The eye is above the nose
 The eye is to the left of the ear

 Arbitrary continuous descriptions

 The pen is below the ruler
 The pen is above the eraser
 The eraser is to the left of the paper
 The boy is above the girl
 The girl is above the mother
 The mother is to the left of the father
 The sausage is to the left of the egg
 The loaf is to the right of the egg
 The cheese is above the loaf
 The ball is below the skiprope
 The doll is to the right of the block
 The saw is below the hammer
 The nail is to the left of the saw
 The apple is below the banana
 The apple is to the left of the grapes
 The pear is above the grapes
 The truck is above the bus
 The car is to the left of the truck
 The car is below the bicycle
 The cat is below the dog
 The cow is above the dog
 The dog is to the left of the pig

 Arbitrary discontinuous descriptions

 The pen is below the ruler
 The pen is above the eraser
 The eraser is to the left of the paper
 The boy is above the girl
 The girl is above the mother
 The mother is to the left of the father
 The sausage is to the left of the egg
 The cheese is above the loaf
 The loaf is to the right of the egg
 The ball is below the skiprope
 The doll is to the right of the block
 The saw is below the hammer
 The nail is to the left of the saw
 The apple is below the banana
 The apple is to the left of the grapes
 The pear is above the grapes
 The truck is above the bus
 The car is to the left of the truck
 The car is below the bicycle
 The cat is below the dog
 The cow is to the left of the pig
 The cow is above the dog
In this paper I would like to discuss some developments in research on second-language learning in childhood, including a study that we have been carrying out at the University of California, in Berkeley on children in American bilingual classrooms.

I'd like to begin in the old scholastic tradition by making some distinctions. The first is between second-language learning in preschool and in school-age children. I believe that second-language learning in older children is a different process than it is in younger children because more is demanded of older children, in particular because school-age children have to learn literacy-related skills - reading and writing in a second language.

A second distinction is between second-language learning in a "natural" or untutored context and second-language learning in a "formal" classroom or tutored context. This distinction is not necessarily coterminous with the first. School-age children can learn a second language, just as younger children learn the language - through exposure. Even when they have some formal instruction in school, many minority-language children learn the majority language principally through exposure to native speakers and through hearing and using the language in everyday contexts.

But I should quickly point out the difficulty of using this sort of typology for child second-language learning. Many immigrant children in America and Europe learn the second language informally both before they come to school and while they are in school, and they also receive formal instruction in the language. This consideration is often ignored in pedagogy: many minority-language children are "passive" bilinguals when they come to school, in the sense that
their comprehensive abilities have been developed through exposure to the majority language. These children may make rapid progress in the language, at least in attaining oral fluency. But, as we shall see, there is more to classroom second-language learning than this.

Second-Language Learning in Preschool Children

Before discussing second-language learning in the classroom, I would like to talk about some developments in research on second-language learning in preschool children. I would like to start with three traditional research questions that have motivated much of the work in this area (Hatch, 1977):

1. Is second-language learning the same or different from first-language learning?

2. To what extent do interference and transfer enter into second-language learning?

3. Is there an optimal age for successful second-language learning?

L1 and L2. In the 1970s there was a great deal of excitement because of evidence from research that seemed to indicate that second-language learning of a particular language followed much the same developmental sequence as children followed in learning that language as a first language. Part of the evidence came from case studies of children learning such constructions as the negative, questions, and auxiliaries - typically with English as the second language (Dato, 1971; Milon, 1974; Ravem, 1974). Second-language learners seemed to follow a sequence that recapitulated the sequence characteristic of the second language rather than that of the child's own first language.

There was also evidence from cross-sectional research involving large samples of children. Here I am thinking of the "morpheme studies" of Dulay and Burt (1973, 1974a) which seemed to indicate that children learning English as a second language showed the same
"acquisition order" with respect to specific grammatical morphemes, regardless of their first language. Dulay and Burt concluded that their subjects - Chinese- and Spanish-speaking children acquiring English - were not using the strategies of their first language as the basis for approaching their second, but rather progressed through a developmental sequence that was similar to that characteristic of children acquiring English as a first language.

The next wave of research, however, showed that there were problems with this thesis. New case studies indicated that some children, from some language backgrounds, do not follow the typical developmental path (Cancino et al, 1974; Hakuta, 1976). Furthermore, the morpheme studies came under attack from a number of quarters. Longitudinal case studies sometimes showed very different results than did cross-sectional research; the morpheme order obtained for a given subject by analyzing spontaneous speech did not always correlate with the morpheme order obtained by the Dulay and Burt elicitation procedures; in addition, cross-sectional studies measure the accuracy with which morphemes are supplied in obligatory contexts at one point in time, and it is questionable whether they tell us anything about the acquisition of these morphemes over different points in time (Hakuta & Cancino, 1977; McLaughlin, 1978; Rosansky, 1976).

Finally, the thesis that first- and second-language learners follow the same developmental path became more difficult to maintain as evidence accumulated concerning the role of individual differences in both first and second-language learning (especially Peters, 1977 and Wong Fillmore, 1976). Although there appear to be important similarities in the language learning process, the focus of the most exciting recent research, in my view, has not been on the similarities between first- and second-language learning, but on the cognitive, developmental and social psychological reasons why learners differ.

Interference. A similar development has occurred in research on the role of interference and transfer in second-language learning. In the early 1970s, researchers were struck by the similarity between errors reported in the first-language acquisition literature for English and errors that appeared in the speech of second-
language learners of English. For example, Dulay and Burt (1974b) argued that speech samples of Spanish-, Chinese-, Japanese-, and Norwegian-speaking children learning English as a second language indicated that the types of mistakes made by the children were strikingly similar and that therefore the learning process was essentially the same, regardless of the first language of the child. Most errors were seen as reflecting developmental mistakes of the type found in the speech of children acquiring English as a first language. In this view interference or transfer errors were seen to be relatively rare and unimportant.

Again, however, subsequent research suggested that transfer errors do occur and are important in understanding second-language acquisition (Keller-Cohen, 1979; Lightbown, 1980; Wode, 1981). Furthermore, Hakuta and Cancino (1977) questioned whether the methodology used for coding errors did not bias the results. If the omission of high frequency morphemes - such as nouns and verb inflections and the verb to be - are regarded as developmental errors, and if interference errors usually involve large constituents or changes in word order, then the relative opportunity of occurrence of the two types is not equivalent. In addition, it may be that second-language learners simply avoid certain linguistic structures on which they would be likely to make errors (Schachter, 1974) - and it is conceivable that such avoidance tendencies reflect structural differences between their first language and the target language.

What has happened in this area, it seems to me, is that researchers have ceased arguing about whether interference errors or developmental errors are more important, and have started to look at the conditions under which transfer from the first language occurs. This line of research - as exemplified in the work of Lightbown (1980), Keller-Cohen (1979), Wode (1980), and Zobl (1980) - strikes me as an important development.

The optimal age. The third question that has traditionally interested researchers is the optimal age issue. For years it was accepted dogma that young children acquire a second language more quickly and easily than do older learners because they are biologically predisposed to learn languages in a way that older learners
are not. There are really two parts to this proposition: first, the statement that young children acquire languages more quickly and easily than do older learners, and second, the statement that the reason for this superiority is biologically based.

Suffice it to say that the evidence in support of both parts of this proposition is meager. If we take the second statement first — that there is a biological reason why children are superior language learners, some critical period — we find that there is no evidence that the aging of the brain diminishes ability to learn new languages. Nor is there evidence that any period of the life span is critical to such acquisition. As Kinsbourne (1981) put it after summarizing the neurological evidence:

The well-documented greater plasticity of the immature than the mature brain relates to the ability to compensate for structural loss of brain tissue; it has not been shown to affect the functioning of the brain while it is intact (p 56).

In fact, comparisons between older and younger learners under experimental conditions (Asher & Price, 1967) and in naturalistic learning situations (Ervin-Tripp, 1974; Fathman, 1975; Snow & Hoefnagel-Höhle, 1978) indicate that older learners perform better.

There has been a recent attempt to revive the younger-is-better myth. Krashen, Long, and Scarcella (1979) argued that, although older learners acquire morphology and syntax in a second language faster than young children, younger learners ultimately attain higher levels of proficiency. That is, rate favors older learners, but ultimate attainment favors younger children. Unfortunately, the Krashen et al. argument is seriously flawed. Even though they appeared to speak of syntactic and morphological development, they cited principally research that indicates a superiority of children over adults in pronunciation (which may in fact be the case). The research that deals with syntactic and morphological development, however, indicates that the best time for learning second languages, both in terms of rate and ultimate attainment, is in early adolescence — from 12 to 15 (Fathman, 1975; Pathowski, 1980; Snow & Hoefnagel-Höhle, 1978). It is true that in two of the three studies
Krashen and his associates cited, younger children made larger gains over time, but this was because older learners had reached "ceiling" levels of proficiency (about 90%).

Further evidence against the "younger-is-better" position comes from research with school children, which consistently indicates that older children do better learning a second language than do younger children. In one British study, for example, involving 17,000 children learning French, children with five years of experience who began at eleven years were found to be more successful language learners than children who began at age 8 (Stern, Burstall & Harley, 1975). Studies in Switzerland, Denmark, and Sweden all indicated that older children do better than younger ones (McLaughlin, in press). Perhaps the most convincing evidence comes from recent Canadian research, which found that children in "late" immersion programs who had accumulated 1400 hours of French starting at age 12 obtained French test scores equivalent to students who had accumulated over 4000 hours of French starting at age 5 in "early" immersion programs. (Swain, 1981).

Nonetheless, it seems to me that much of the debate about the optimal age for learning second languages is off the mark. The evidence suggests that, because they have at their disposal superior cognitive and mnemonic abilities, older children are better than are younger children at learning second languages - all things being equal. But all things are rarely equal and it seems to me to be foolish not to exploit the greater time younger children have available to learn a second language. If nothing else, pronunciation will be helped by early exposure to a second language.

Second-Language Learning in School-Age Children

This brings us to the question of second-language in older, school-age children. Perhaps the most dramatic recent development on the American scene has been the promulgation of the so-called "Natural Approach" to classroom second-language teaching. There has been
another, somewhat different development as well, which I will refer to as the "Functional Approach". I want to say a few words about each of these before turning to our research in bilingual classrooms.

The Natural Approach. The Natural Approach has developed from the theoretical arguments of Stephen Krashen. According to Krashen (1982), formal instruction in a second language is effective only as a source of input for some learners, but that there is little transfer from formal, conscious learning to communicative performance. According to this school of thought, the only way to develop competence in a second language is through extensive communicative experience.

As developed by Krashen and Tracy Terrell, the Natural Approach is a method of second-language instruction, where the emphasis in language teaching is on meaningful interaction, where errors are tolerated as a natural product of the acquisition process, and where the teacher's role is to furnish learners with "comprehensible input" that is understandable to the learner and yet provides new structures or other language materials that the learner has not yet acquired.

Although I believe that there are many commendable aspects to the "Natural Approach", there are a number of problems. One problem for the teacher attempting to use this method is to determine what is "comprehensible input" for the children in her class, especially when they vary in ability in the second language. What input is easy enough to be understood and yet sufficiently in advance of what the child knows to provide new material for learning? It is also difficult for teachers to avoid the temptation to correct students' errors. Teachers are likely to feel that unless students receive feedback about their mistakes, they will continue to make them. It is one thing to accept, in theory, the notion that non-native speaking children should be allowed to experiment creatively with the second language; it is another thing to deal with this "creativity" in practice. Indeed, some authors (e.g., Canale & Swain, 1980) have argued that if grammatical accuracy is not emphasized from the beginning, certain grammatical inaccuracies will "fossilize"—that
is, will persist over time in spite of further language training. The result can be a classroom "interlanguage" - a language that satisfies communicative needs in the classroom but does not correspond entirely to the language system used by native speakers of the language (Selinker, Swain & Dumas, 1975).

Another problem with the Natural Approach is that, by stressing Krashen's (1981) notion of "acquisition" (as distinct from "learning"), this method runs the risk of making it appear that learners will "catch" a second language by exposure, much as children catch the measles or chicken pox (Saville-Troike, 1978). But the experience of language-minority children in submersion, all-English classes has shown that it is possible for children to have had years of exposure to English without acquiring fluency in comprehension or use.

Finally, there is the question of the role of formal language instruction. According to the Natural Approach, the best form of instruction in a second language is one in which emphasis is given to providing appropriate input to the learners and encouraging them to use the language in meaningful interpersonal communication. This may be an effective method with young children, but older children may also profit from instruction that involves rule-isolation and attention to grammatical usage (Canale & Swain, 1980; Gadalla, 1981). In fact, there is evidence that older children do benefit from being exposed to explicit grammatical instruction. (Long, 1983).

The Functional Approach. A recent approach that shares some aspects of the Natural Approach, but which is different from it in fundamental ways is the so-called "Funtional Aproach". The functional syllabus also differs from the traditional grammatical syllabus because it looks at language from a pragmatic rather than from a descriptive point of view. The point of language instruction is to teach people how to do things with language.

The theoretical basis for the Functional Approach can be found in the notional/functional syllabus designed by the Council of Europe
(van Ek, 1977) and in Cummins' (1980, 1981) model of language proficiency. The Council of Europe's notional/functional syllabus derived from an examination of the linguistic needs of foreign language learners in different European countries. These needs were matched with what could be done in a classroom in a limited time and the syllabus designed accordingly. Thus, if the need of the learner is to develop the oral proficiency to survive in a foreign country, language instruction focuses on this survival objective.

Cummin's position is that there are two aspects of language proficiency: (a) those skills needed for context-embedded, face-to-face communication, and (b) those skills needed for context-reduced, academic communicative proficiency. Granted that context-embedded language is present and needed in the classroom, the type of language used in academic instruction and on achievement tests is substantially different (Wong-Fillmore, 1982). The intent of the functional approach is to help children learn those functions and uses of language that are part of the decontextualized language proficiency they need to succeed in the classroom.

Like the natural approach, the functional approach stresses meaningful communication in the classroom and deemphasizes grammatical instruction. But the functional approach goes beyond the natural approach in focusing on the special needs of children in the classroom, where they must acquire face-to-face communicative competence, but also academic communicative competence.

The limitation of the functional approach at the present time is that not enough is known about the functions that characterize normal instruction in schools. There have been some attempts to describe context-reduced academic language (especially Graf, 1984, Wong-Fillmore, 1982d), but more careful observational research is needed of the language used in instruction in different subject matter at different grade levels. Furthermore, there is the question of how to teach functional language to minority-language children. Again, there are some beginnings (especially the work of De Avila, Duncan, and Cohen, 1981 on discovery learning), but much more experimentation and research is needed.
I would now like to describe some research that we have recently been conducting at Berkeley from a functional point of view. My co-workers, Lily Wong Fillmore, Paul and Mary Sue Ammon, and I have been studying language learning in third- and fifth-grade Spanish- and Chinese-speaking children who are learning English in American schools. There are many aspects to this research, but today I would like to restrict my comments to our attempts to assess oral language proficiency in these children and to some of our findings.

Classroom language use. We were unhappy with the kinds of oral language proficiency measures that were currently available for several reasons. First, most tests that are widely used assume that language proficiency is a unitary concept. They measure vocabulary comprehension or production, the mastery of a small set of grammatical morphemes, or in the best cases a range of such skills, and assume that a sampling of a part or parts of the system will reveal the state of the whole. We felt, however, that oral language proficiency was not a single, unitary concept, but consisted of several different skills.

Second, the widely used tests assume that language competence is the same in different contexts. In keeping with our functional perspective, however, we felt that it was important to distinguish between the type of language used in normal social, face-to-face interactions, and the language that is used in the classroom. There is overlap, of course, but the range of language functions and skills that children are expected to possess in the classroom goes considerably beyond those needed for everyday interactions.

On the basis of classroom observations we conducted a functional analysis of the language children have to handle if they are to participate effectively in classroom learning activities at the grade levels we were studying. Our aim was to develop a test that assessed the oral language skills that children needed in these classrooms. The analysis yielded the following sets of skills.
Comprehensive Skills:

Procedural Language

Turn allocation statements
Formating and instructional statements
Contextualizing statements
Directives concerning behavior, participation

Language Used for Exchange of Information

Explanations
Descriptions
Relational statements (new to old information)
Definitions and exemplifications
Summaries and recapitulations
Requests for information, explanations, summaries
Requests for feedback and confirmation
Evaluative statements

Productive Skills:

Self-Initiated Speech

Explanations
Descriptions
Informational statements
Requests for help, clarifications
Requests for information
Requests for attention, turns

Responses to Teacher Elicitation Sequences

Opinions solicited by teacher
Information as requested by teacher
Illustrations of points as requested
Instances of classes, categories as requested
Summaries or restatements as requested
Restatements of information provided in the lesson
The next step was to devise a procedure that took the form of a science lesson in which our subjects were taught some information in a format similar to a real classroom lesson. There were two versions—a lesson on shells—which we called the "Shell Game"—and one on rocks—called the "Rock Game."

Each involved an audio recorded lesson which the subject interacts with and responds to verbally. There was a collection of materials to look at and talk about—shells in one case and rocks in the other. To overcome the artificiality of talking to a tape recording, we used some high technology. We rigged things up so that the subject heard both the stimulus tape and their own voices through the same channel via a pair of Sony walkman-like headsets. By designing the language used in the lesson so that no matter what or how the children responded, they would receive immediate feedback, they were by and large fooled into talking naturally with the canned teacher.

The Shell and Rock Games were designed to teach children about some things they could talk about and do during the test. The procedures gave the children information about shells (or rocks) and then had them answer questions, describe specific shells, look for differences, arrange them in different ways, and illustrate points made by the teacher. The language used was like that used in classroom lessons. It was relatively decontextualized and required that the children understand in order to do what they are asked to do or respond to a question. The items were generally arranged from the easy to the more difficult.

The tests were administered individually and the test administrator kept a record of the nonverbal responses make by the children as they progressed through the lesson. The verbal responses were audio-recorded. The test results were scored for both comprehension and production by graduate students in linguistics. In keeping with our thinking about the complex, multidimensional nature of oral language proficiency, we scored for three different types of oral language proficiency: Well-Formedness (the grammatical correctness of the structures used by the subjects), Grammatical Complexity (the complexity and variety of the structures produced), and Informativeness (the amount of information produced).
Individual differences. We looked at 156 children in 17 different Northern California schools. All of the children in our sample had limited proficiency in English. Some were in bilingual (Spanish-English or Chinese-English) classrooms and others were in classes where they received various form of special instruction in English. The larger study was concerned with the language gains of these children over a year as a function of differences in instructional methods.

It became apparent as we looked at individual scores on our three production measures that there were different patterns. There was a great deal of between-classroom variability, as well as within-classroom variability. Some children scored above the group mean on Well-Formedness but below the mean on Grammatical Complexity and Informativeness. Other children scored below the mean on Well-Formedness but were above the mean on Complexity and Informativeness. That is, some children seemed to use the language carefully. If they said something, they wanted it to be said correctly. They were judicious in their speech, not risking being grammatically incorrect by using complex constructions. Other children risked more. They tried to communicate a lot, but in the process made many grammatical mistakes. We called the first type "pennypinchers" and the second "spendthrifts". There were other children who fell below the group mean on all measures and some who were above on all measures. In keeping with our economic metaphor, we called the children who were below on all measures the "hardcore poor" and those who were above on all measures the "filthy rich".

We were able to identify 21 pennypinchers, 11 spendthrifts, 12 hardcore poor and 18 filthy rich in our sample of 156 children. Of course, these were "ideal types" and the majority of the children in our sample fell somewhere in between. In future research we want to look at whether children exhibiting these patterns change over the course of the year and what teaching methods are most effective with each type.

What is of special interest in these findings is that they correspond to similar results from other studies. For example, Snow and
Hoefnagel-Höhle (1979) reported that some learners adopt a wholistic or imitative strategy in learning a second language, while others focus on grammatical accuracy. Similar findings have been reported by Meisel (1980) and members of his group. Pienemann (1980) described two Italian girls learning German, one of whom was careful to avoid all deviations from target norms, while the other chose the quickest and easiest way to express herself, regardless of the mistakes she made. It may be that such strategies relate to personality factors, such as the willingness to take risks and tolerance of ambiguity.

To conclude, I think that recent developments in research on second-language learning in children, both preschool and school-age children, indicate that the more simple conceptions of the past are giving way to more complex formulations. The child's success in learning a second language depends on the age of the child, the conditions of presentation, the opportunities for language use, the social context, the languages involved, the language skills to be learned, the personality and learning styles of the child, and other factors. There is a lot more to the story than what I have been able to present here, but I hope that what I have said gives some indication of the complexity of the phenomena and the dynamic nature of this field of study.
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This paper reports on an analysis of dyadic conversations between Danish learners and native speakers of English. The data consists of 40 video-taped conversations in English, each between a pupil from a Danish school and a native speaker. There are 10 learners from grade 6 (1 year of English, 11-12 years old), 10 from grade 8 (3 years of English, about 14 years old), 10 from grade 10 (High School I gymnasioklasse, about 5 years of English, age 15-18 years) and 10 from grade 12 (last year of High School III gymnasioklasse, 17-20 years of age). The first 10 minutes of each conversation has been analysed. The setting is the videotraining at the University of Copenhagen. The native speakers (NSs) are roughly the same age as the learners (Ls), except those who converse with the six grades — those are all grown-ups or teenagers.

The situation was intended as an informal chat about everyday topics concerning the participants. They were given a list of topics which they might talk about (school, spare time, holidays, etc.) but there were no explicit restrictions on either participant. They were given a written instruction underlining that the conversation should be two-sided, and that both parties were expected to ask questions. As we thought it would be most considerate to our subjects to introduce the two parties to each other before they went into the studio, and as they were simply interrupted when they had talked for a certain time, the recordings only represent the so-called business phase of spoken discourse. There is no opening and no closing phase.

SIC 10, 109-121
Characteristics of L-NS conversations as compared to those of NS-NS.

The NS is almost always the dominating conversational party; this means that it is the NS who takes the responsibility for keeping the conversation going, showing initiative by suggesting the topics of the conversation and by asking most of the questions (Holmen, forthcoming). Another striking feature in L-NS conversations is the amount of communicative break-downs and the metalinguistic phases that are necessary when the two parties aim at establishing or reestablishing a mutual understanding. In conversations between NSs the metalinguistic phases are restricted to an occasional "what do you mean by so and so?" or "how do you define such and such a term?". In NS-L conversations they take up a considerable amount of time. The following analysis will focus on two phenomena within the metalinguistic phase, viz. the communication strategies and the repairs. Descriptions of repair work in conversations (e.g. Schegloff, Jefferson, and Sachs 1977, Schwartz 1980) classify repairs in the following way: Self-initiated repair, i.e. initiated by the speaker of a trouble source, or other-initiated repair, i.e. initiated by the interlocutor; and self-repair, i.e. repaired by the speaker of the trouble source, or other-repair, i.e. repaired by the interlocutor. The communication strategies may be considered as a sort of self-repairs characteristic of interlanguage speakers; it has become the tradition within the field of foreign language acquisition studies to treat them as a special area of interest (Færch and Kasper 1983a). The repairs treated in this analysis are other-initiated self-repairs.

When listeners do not understand their interlocutors' utterances, they make a repair request, i.e. a demand to have the utterance or parts of it explained. Usually the interlocutor will then make the required repair, which is usually a repetition of the utterance in a slightly changed, more easily understandable form. Both NSs and Ls make repair requests, which are, however, of a somewhat different nature.
Repair requests.

Generally speaking, repair requests may be stated linguistically or extralinguistically. The NSs in question always use linguistic repair requests such as "what" or "sorry", often accompanied by body language, e.g. leaning forward.

The Ls'repair requests are stated either linguistically or extralinguistically. Linguistic repair requests are partly in English, e.g. the "echo" mentioned by Hatch (1978), i.e. repetition of a word which has not been understood, or English interlanguage expressions such as "what", "one more time", or "what's the ...". They are also frequently expressed in Danish "hva'", "hva' si'r du" (what, what say you), and always understood as repair requests by the NSs. They may also be mere hesitation sounds: "er" or "mm" or their Danish equivalent "øh". The extralinguistic repair requests were facial expressions: the wrinkling of eyebrows, moving the lips or looking away. It seems as if there is a signal which could be called "lack of understanding expressed by the eyes", which triggers off repairs from the NSs. It is interesting to notice how these react to any kind of bodily and facial tension in their interlocutors and how much attention they pay to such extralinguistic signals.

NS repairs
There are in this data no instances of the NSs resorting to foreigner talk in the sense of simplification resulting in ungrammatical, pidginized utterances, as mentioned elsewhere (e.g. Hatch 1978). The fact that the NSs in our project stuck to a grammatical norm may be due to the experimental setting and the fact that it is never crucial for the two parties to ascertain a 100% mutual understanding, as they are engaged in a totally noncommittal conversation. The analysis of the repairs comprises the setting up of a typology; such a typologi may obscure the fact that they rarely appear only one at a time, but usually in a combination of several types at
a time (as it should appear clearly from the examples). The general principle in the repairs is to make changes that will minimize the effort which the L must make to process the utterance. The categorisation is based on the change that is made in the repaired utterance as compared to the utterance that contained the trouble source.

**Repair types**

**Prosody**  
- loudness
- distinct articulation
- spacing, i.e. short pauses inserted before and after the constituents that make up the trouble source according to the NS's intuition.

Example: NS: and how do you get on with her  
L: what  
NS: how do you - get on - with her

The inserted pauses give the impression that the speech rate is slowed down.

**Phonology**  
- vowel deletion → full vowel. Example:  
NS: d'you watch a lot of television  
L: what  
NS: do you watch a lot of - television

**Syntax/discourse**  
- wh-questions → yes/no questions. Example:  
NS: how did you come here to-day  
L: (looks uncomprehending)  
NS: on the bus
wh-question = or choice. Example:

NS: how do you take your papers round
L: (looks uncomprehending)
NS: do you cycle or do you walk

declarative question = interrogative question. Example: NS: your're frightened of the Communists
L: er - "hva'"
NS: are you frightened of the Communists

pronoun = referent. Example:

NS: do they come to Denmark ever
L: (wrinkles eyebrows)
NS: have Abba ever been in Denmark

extensions, i.e. making explicit something which is implied in the utterance by the context. Example:
(talking about the L's holiday in Sweden)
NS: when did you go
L: what
NS: when did you go - to Sweden

Vocabulary

A little less than half of the repairs (41.25%) contain vocabulary changes. Such vocabulary repairs can be explanations - example:

NS: how do you get on with your teachers
L: --what mean--
NS: for example if you're not getting on well at if you have a problem at school (L yes) can you talk about it with your teachers.
approximations - example:
NS: er how long how much time do you spend at the stables
L: what
NS: how how much time do you spend with the horses
shifts up and down a conceptual hierarchy - example:
NS: are you interested in any art form
L (looks ununderstanding)
NS: do you like drawing or painting

One of the interesting things about repairs is that they reflect the speaker's intuitions about the nature of the trouble sources and the required grammatical simplification. These intuitions seem very helpful indeed, as most of the repairs are successful and make the Ls understand immediately.

**Communication strategies**
When the learners have gaps in their interlanguage, when they do not know the adequate expression for their ideas, they use communication strategies. Example:
NS: is he er is he in the army er in er the Air Force
L: no he has
NS: L: been a -tst - - in the home "hjemmeværn hjemmeværn" ------
the home er army (giggle)

In this example, the learner does not know the English word for hjemmeværn (home guard) and tries to switch into Danish and later to use an English approximation. In this case it is easy to identify the learner's linguistic gap and the following communication strategy, but it is not always so easy in this kind of data. The researcher can make common sense guesses as to what has been going on in the learner's mind, but it is impossible to achieve a 100% safe method (for a discussion of this problem see Færch and Kasper 1983b). The following proce-
A communication strategy has only been registered if preceded or accompanied by some kind of hesitation or enquiry phenomenon. This is based on the belief that learners of this kind, viz. pupils, especially at the lower grades, always signal to the native speaker that they use a communicative strategy, i.e. there must always be some signal connected with the use of a communicative strategy by which the Ls draw the NSs' attention to the fact that the following term or expression may be deviant, but will they please try to make it make sense. Such signals are often linguistic: *what's in English, I don't know what you say in English*, or there may be a hesitation pause, a giggle, an enquiring look or some other kind of body language like moving in the chair, leaning back or looking around. The oldest Ls often use a rise of intonation to indicate their use of a communication strategy.

It is beyond the scope of this paper to discuss other findings in this area and the various classifications established in the literature (Færch and Kasper 1983a), but it should be kept in mind that videotaped data permit the observation of certain communication strategies, whereas others would be observable in other kinds of data - e.g. introspective data would probably give much more detailed information about different kinds of reduction strategies. The following classification of the communication strategies found in the videotaped data comprises three main categories: reduction strategies, mother tongue based strategies, and target language based strategies.

I  **Reduction strategies**
   - Gesture instead of language
   - Formal reduction
   - Abandonment

II  **Danish based strategies**
   - Code switching
   - Borrowing
III English based strategies
Restructuring
Approximation
Paraphrase
Shifts up and down the conceptual hierarchy

ad I Reduction strategies
An example of gesture used instead of language is the learner who wants to explain that one of the wheels of his bike was flat: so next morning it was + gesture (thumb and index close together). Formal reduction covers such cases where the learner reduces the number of words in the utterance. Example:

NS
L er I'm - (sigh) - every Wednesday I - (sigh) I er

NS
L --- don't know what it er --- (sigh) I -

NS  aha you take a newspaper around to
L a newspaper er

NS people aha
This example also illustrates how very good the native speakers are at guessing the meaning the learners want to express; as they have just talked about the learner's work beside the school, the word newspaper is sufficient for the interlocutor to allow her to guess the meaning as in most other cases in the data - correctly.

Abandonment means that the Ls give up, stop talking and leave it to the NSs to solve the problem of how to continue. Example:

NS could you tell me a little about the Stone Age I I'm L

NS not too well acquainted with it L er --- "nej det"

NS well for example how did people live how did L ---

NS they er eat or drink or what they er (sigh) mm ---

NS well was it hunting mainly L ---
In this excerpt the L twice gives up any attempt to express herself.

ad II  Danish based strategies.

When Ls use code switching, they say the word(s) in Danish. Example:

(the L goes to navigation classes)

NS what do you learn there
L to compas reading a compas
NS er knots you mean
L and - er "knob" yeah

From a communicative point of view this is not always such a bad idea as it may immediately seem - many words are similar in Danish and English (as in the example), so that the NS is able to understand.

Borrowing means using terms from other languages, in this case the mother tongue, Danish, pronounced with an English or anglicized pronunciation. Example:

NS do you have other animals
L yes a dog and two  erm tst
NS L - skilpads (Danish skildpadde = tortoise)

In this example the strategy did not work very well, but as said above - given the similarity between the two languages - it often leads to successful communication.

ad III  English based strategies.

Restructuring means that the Ls begin an utterance, discover that they have a gap and change the structure of the utterance. Example:

she couldn't get a a -- go on the school because they had no money.

It is probably from the context (talking about the L's mother returning to work after several years as a housewife) that the L lacks the word scholarship or grant in her interlanguage.
Approximation covers the use of synonyms and words that are close in meaning. Example:

L we have a a a "what hedder det - lygte" - light in the hand

It is here possible to know that the L is searching for the word lygte (lantern); as she knows no English equivalent she uses a semantically related word. This communication strategy is in principle similar to the repair type approximation.

An example of paraphrase is the following, where the learner does not know the English word for underholding (entertainment, shows), and after trying to use the strategy of code switching goes on to explain the meaning of the word he would like to use:

(talking about what kinds of television programmes the learner prefers)

NS
L er - - - how do you say "underholding" - you know

NS (giggle) oh I don't know
L something you just look at

NS
L something singing and something - - /hwits/

This communication strategy is similar to the repair type explanation; the NSs' explanations, however, tend to be more precise definitions of the words than the Ls' paraphrases.

Twenty questions.

Often the two parties get involved in a kind of twenty questions game where many different communicative strategies are used. Example:

NS what do you spend your pocket money on
L --tst- a

NS a a drake (giggle)
L drake you know yeah not a a little
Here the L tries to borrow the Danish word drage (kite), makes an approximation which he then tries to explain, again using the borrowed term; the NS now tries to guess if it is a bird or music and finally ask the L to explain; the L then gives a paraphrase and finally succeeds in making the NS understand what he wanted to say.

**The effect of communication strategies.**

In foreign language pedagogy we usually discuss the communication strategies from a pedagogical point of view - which of them are the best in the sense that they further learning? It is generally considered that the target language based strategies are the most suitable for this purpose. From a communicative point of view it is difficult to decide whether e.g. paraphrase is better than a gesture, they seem to work equally well where the smooth flow of the conversation is concerned. But it is of course obvious that the flow is considerably hampered if there is too much metalinguistic communica-
cation to be dealt with; also NS may get tired or irritated if they have to help the Ls express themselves all the time. In this paper, a rough idea of L-NS conversations has been given, stressing the cooperative aspect. Perhaps this picture is too rosy to apply in general. It certainly takes friendly and patient NSs to cope with the metalinguistic phases that are necessary for the younger Ls, but the NSs in our data never show any irritation. In all of the 40 conversations there is only one symptom of irritation, which may shed a certain light on the NSs' real attitude to the Ls:

(the two parties are conversing about football)

NS: you don't
L: next Sunday we are going to fight Virum
NS: say you fight them - you play them - poor Virum
L: oh well you
NS: if I want to yeah
L: understand what I mean so

1) This paper is based on a more detailed description of the conversational data including also some quantitative analyses (Glahn, forthcoming).

2) The present data are part of the corpus collected by the PIF project (Project In Foreign language pedagogy) University of Copenhagen (Færg 1983), which was sponsored by the Danish Research Council for the Humanities.
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On Communication, 3
Selected papers from a seminar arranged by the
Department of Communication Studies, on 24-25 May,
1984

Gustavsson, Lennart (ed)

This report contains nine papers presented at the
interdisciplinary seminar arranged by the Department of Communication Studies, University of
Linköping, on 24-25 May 1984.

The guiding concept for the seminar was that of
'understanding'. The contributors to this report dis-
cuss various aspects of the understanding of hidden
meanings and implicit messages, the acquisition of
tacit knowledge in specific contexts as well as the
role played in understanding by background knowledge
and fundamental assumptions. One of the papers deals
specifically with pictorial communication. Three
papers are related to the acquisition, learning and
teaching of second or foreign languages.

understanding; tacit knowledge; hidden meaning; pictorial
communication; cultural confrontation; coherence; language
learning; communicative competence
Belgium (Flemish), 14 years

Belgium (Flemish), 18 years

Figure 2
Belgium (French), 14 years

Belgium (French), 18 years

Figure 3

Belgium (French)
England, 14 years

England, 18 years

Figure 4
England
New Zealand, 14 years

New Zealand, 18 years

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In the Faculty of Arts and Science at the University of Linköping, Sweden, research and postgraduate research training are conducted within broad problem areas – themes – instead of traditional academic disciplines. There are four themes: Health and Society, Communication Studies, Technology and Social Change, and Water in Environment and Society. Within each theme research is pursued through cooperation between scholars with different scientific backgrounds. Research activity commenced in 1980 and after a period of construction of 6–7 years each theme will have an establishment of 20–25 research posts – professors, readers etc. – and ca. 40 research students.

Previous issues:

SIC 5 Severinson Eklundh, Kerstin. The Notion of Language Game – A Natural Unit of Dialogue and Discourse. 1983.
SIC 9 Klintbjörk, Piroska. On the development of the child’s ability to identify affective state from the prosodic features of adult speech. 1984.

Ilona Nilsson, Åsa & Åsa Agren, Caretta.

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