# Why Should Children Adapt, and When?[1]

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## 1. Introduction

This paper is a contribution to the debate on children's perspective taking skills. Although much research in the past 50 years has been dedicated to analysing children's egocentrism as well as their early emerging skills in adapting to their interaction partners, one question which has been largely neglected is which kinds of adaptation are related to the different functions of children's utterances in their everyday life. Whereas psychological and psycholinguistic experiments (e.g., Marvin et al. 1976, Sabbagh & Baldwin 2001) have contributed answers in considerable detail regarding the question as to in which experimental settings children exhibit which kinds of perspective taking skills (linguistic or other), observing children in their home context reveals the kinds of interaction with which children are concerned in the surroundings where they learn their mother tongue. There, they deal daily with interaction partners who may possess either more (like mothers) cognitive and linguistic skills than they do themselves, or less (like younger siblings), resulting in abundant situations where the children can adapt, or fail to adapt, to their interaction partners' needs. In such situations, children's perspective taking skills are revealed through their abilities to adapt linguistically as well as conceptually to their interaction partner. This study concentrates on conceptual perspective taking, i.e., children's growing ability to take into account their partners' informational status. While research on children's theory of mind (e.g., Wellman 1990) has largely focused on children's ability to assess others' knowledge and beliefs, the question asked here is which kinds of speech in children's everyday life demand such ability to assess others' knowledge, and which kinds of adaptation to the child's interaction partner are related to different functions of child speech.

To address this question, a home-based longitudinal study is presented. The utterances of one child concerning one specific domain are analysed with regard to their functions, based on Halliday's (1975; 1994) concepts. Each of these functions is then specified regarding its relevance to the question of a child's perspective taking and adaptation abilities.

The paper is structured as follows. To begin with, previous psycholinguistic insights on the subject of children's perspective taking

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abilities are briefly summarized, and the kinds of methods applied in the relevant studies are outlined and contrasted with purely naturalistic home observation as adopted in the present study. The following section deals with Hallidayan theory, highlighting those aspects of the theory which promise to be interesting for the question at hand. Then, the longitudinal home study is presented. One central conclusion of the paper will finally be, in simple terms, the following: Perspective taking is revealed whenever it is relevant – but maybe it is not relevant as often (or early in life) as might be expected.

## 2. How Children Learn to Take Other People's Perspectives

The roots of the perspective taking debate go back to Piaget's (e.g., 1947/1950) famous claim that children are predominantly egocentric up to the age of seven. This means basically that they are unable to take others' conceptual perspectives, as well as unable to differentiate between different interlocutors' communicative or informational needs. For example, in his well-known "three-mountain tasks," Piaget asked young children questions which required taking other people's point of view, overwhelmingly resulting in failure.

Piaget also conducted analyses on children's language, concluding that nearly half of his subjects' utterances served functions other than communicative (Flavell 1963). Characteristic of this *egocentric speech* is a lack of a discernible communicative aim, as well as a lack of any attempt to check whether others are listening, or any attempt to inform, persuade or make others do something. Moreover, there is no perspective taking or adaptation of the message to the listener's informational needs or input capacity. The explanations and discussions among children of 4 to 6 years show that they still have systematic difficulties taking another person's point of view. It is hard for them to make new information intelligible to others and to clarify misunderstandings.

However, children talking audibly to themselves without addressing anybody are not necessarily egocentric. A different interpretation of this behaviour is that it is to be viewed as the transition from outer to inner speech: it mostly occurs at times when the children are confronted with a problem (Vygotsky 1934/1977). The children acknowledge the situation, make a "verbal copy" of it and reproduce associations of previous experiences in order to find a solution. Later authors (e.g., Miller 1951) found that children, rather than talking to themselves a greater amount of the time, use language to serve informational functions in two-thirds of their speech. The transfer of information is enhanced by the ability to take another person's perspective (Billmann-Mahecha 1990).

Today, among experts it is commonly agreed that even very young children exhibit much more perspective taking competence than Piaget assumed. One important outcome of the egocentrism debate is the insight that, while the transfer of information is not always a central function of speech, effective transfer of information requires the ability to account for the interlocutor's state of knowledge or belief. Thus, at least a certain amount of adaptation to the interaction partner is necessary in communication situations involving the transfer of information.

Piaget's theory had great impact on psychological and psycholinguistic research. In the following decades, many experiments (e.g., Shatz & Gelman 1973; Sachs & Devin 1975) were designed to falsify Piaget's hypotheses. The effect was that it was worked out in detail what children learn, step by step, until they reach adult abilities.

Gradually, the focus of research shifted to children's development of what is called a *Theory of Mind* (Wellman 1990). This concerns mainly conceptual perspective taking, such as children's acknowledgement of other people's minds, their desires and beliefs, etc. The beginnings of conceptual perspective taking have been shown to emerge at only 9 months (Reddy 1991): infants start playing with others' intentions and expectations, and they like to perform actions that amuse others, even differentiating between different interaction partners. During their third year of life, children learn to understand that human actions are caused by their emotions and desires, which is displayed, for instance, in their pretend play (Wellman 1990; Astington & Gopnik 1991). The understanding that people are also influenced by what they believe (maybe falsely) emerges at age 3 or 4 (Bartsch & Wellman 1989; Moses & Flavell 1990).

Regarding linguistic perspective taking, it has been pointed out that early non-egocentric traits are revealed in the communicative cooperation and coordination of turns, such as waiting for another person's confirmation. Such skills emerge already at 18 months (Garvey 1977). The ability to follow the principle of relevance, denoting the interlocutors' mutual effort to focus on a shared communicative goal, emerges gradually. At the beginning of this development, infants succeed in securing their listeners' attention almost from birth (Keenan & Schieffelin 1975). Gradually, they learn to take others' communicative aims into account, and act and talk accordingly.

Concerning the linguistic form of utterances, adaptation to the interaction partner's needs is a basic conversational skill that children already acquire from the age of two, as psycholinguistic research carried out mainly in the 1970's and 80's showed. Children soon learn to adjust their speech to different listeners such as adult, peer, baby, and baby doll

(e.g., Shatz & Gelman 1973; Sachs & Devin 1975; Dunn & Kendrick 1982). Towards younger listeners, especially siblings, there are some characteristics in the speech of three- or four-year olds that are reminiscent of *motherese* (the kind of language mothers use when talking to their young children). For instance, they use shorter sentences than towards grown-ups and fewer relative clauses or coordinated main clauses, but more expressions to interest the child. With their peers, the children use the same kind of language as towards adults.

## 3. Ways of Studying Children's Abilities

Most of the results presented above were obtained in experimental, i.e. laboratory studies, where children are presented with specific tasks to solve, and fairly specific skills are addressed. However, this is inevitably an unnatural situation, which may create a bias, causing children to act differently than they would at home. In the worst case, this bias might result in a researcher's conclusion that the children are not capable of fulfilling the task and therefore do not possess the relevant skills, although in comparable everyday situations they might, in fact, rather naturally succeed in similar tasks.

In order to avoid such a bias, some researchers employ a different method, namely home observation. In such studies, children are observed in their homes mostly for a few hours monthly. In most cases, the studies involve a stranger to the family who acts as observer or as technical assistant, e.g., handling the video camera. Often, also in the homes specific tasks are conducted. There, such tasks are assumed to be more comfortable for the children. Whether tasks are involved or not, it is obvious that it is impossible to attain the same degree of control in the homes as in the laboratory. However, the amount of experimental bias is reduced in favor of more naturalness for the children.

Occasionally, longitudinal studies of children in their homes have been carried out which do not involve any strangers at all. While several famous researchers recorded their children's utterances using first paper and pencil (e.g., the diaries of Clara and William Stern, see Deutsch 1991; Halliday 1975), and later on more sophisticated equipment such as audiotape (Ramge 1976), to my knowledge there are no such studies which explicitly address children's emerging perspective taking skills in their homes.

Although various elementary factors have been pointed out in which laboratory settings differ from home (Schaffer 1989), studies which combined home-based observation and laboratory experiments have demonstrated a high consistency in results (Howe & Ross 1990; Dunn et al. 1991; Youngblade & Dunn 1995). For instance, a positive correlation was

found between naturalistic home observations of preschoolers' sibling-directed internal state language and sibling-directed affective behaviour in comparison with laboratory measures of perspective taking abilities. Nevertheless, specific aspects of perspective taking, especially those dealing with children's spontaneous utterances as in the present study, may only be addressed at home, while others (such as those investigating fairly specific skills) are better addressed in the laboratory.

## 4. Interaction Partners at Home

At home, children are confronted with different interaction partners. This fact constitutes a kind of challenge to the children that would be much harder to control in a laboratory in which all of the participants are strangers to the children. Primary caretakers, which in Western societies are often the children's mothers, are most used to dealing with the child: they understand much of what they say, and they adapt their own speech to the child's abilities. Other people spend much, but not as much time with the child, such as fathers, grandparents, or other caretakers. Such people have just as much knowledge as primary caretakers, but less experience in adapting to the child (Barton & Tomasello 1994). Younger siblings might provide the greatest challenge to a young child at home: they know less, so conceptual adaptation would be necessary for a young child, and they cannot themselves adapt to the older child.

Thus, in interaction situations within families, cognitively and linguistically inexperienced children communicate with different, but well-known, interaction partners with either more or less cognitive and linguistic skills than themselves. In contrast, adults talking to each other are usually on a similar level with respect to their cognitive and communicative skills. This difference may have consequences at two levels of linguistic interaction, namely, *form* and *content* of an utterance.

How a child learns to differentiate between diverse kinds of linguistic interaction can best be determined by comparing situations involving various interaction partners. The present study focuses on the interaction between one child of one and a half years at the beginning of the study until nearly four years of age, and his mother and younger brother. Naturally, the brother, who is 17 months younger than the target child, has even less communicative competence and less knowledge of the world than him, while the mother is more skilled (see fig.1).

Thus, the child faces two different interaction partners with different communicative needs. In specific situations, knowledge about the informational status of the interaction partner is relevant. This study analyses in which kinds of situations knowledge about the other person's

knowledge enhances communication, and how these factors are increasingly accounted for by the child in the course of the study.

| | Interaction with the younger brother | Interaction with the mother |
|---|---|---|
| **Linguistic form** | brother has less communicative and linguistic competence than child: older child needs to adapt linguistically | mother has more communicative and linguistic competence than child: adaptation is difficult and not necessary for the child |
| **Content and information** | brother has less knowledge about the world than child: Conveyance of information is easy in principle for the older child, but may not be accepted | mother has more knowledge about the world than child: Conveying information to the mother is difficult for the child |

Figure 1: Different linguistic interaction situations with different partners

## 5. A Hallidayan Perspective

Although it is clear enough from previous research as outlined above that children from a very early age learn to adapt to their interaction partner, the question remains unresolved which kinds of adaptation are related to different functions of children's utterances in their everyday life. As pointed out above, not all utterances serve predominantly to convey information; however, informing effectively requires cognitive adaptation to the interaction partner. The contents of children's utterances can only be analyzed via home observation, as experiments trigger specific kinds of utterances, thus biasing the child's linguistic behavior. Halliday (1975) presented a detailed functional analysis of child speech at home. His framework (Halliday 1994) will be used in the following to address the question of how children gradually learn to use language with the effect of conveying information to others.

According to Halliday, adult language always serves three metafunctions simultaneously, which he labels the *ideational*, *interpersonal*, and *textual* metafunction, respectively. In his terms, the *ideational* metafunction involves structuring the clause as a representation, construing a kind of process in ongoing human experience, and representing reality in a specific way. The *interpersonal* metafunction is

characterised as the "intruder function," employed for transactions between speaker and listener: the clause reflects the speakers' relationship to their interaction partners, and their way of confronting them with the reality reflected by the ideational function. Finally, the clause's message is structured by the *textual* metafunction, creating relevance to the context of the utterance. Here, the focus is on how speakers structure their interaction textually, how they relate their utterances to each other and to the wider discourse context. These issues are reflected in the clause's Given-New and Theme-Rheme structures. Thus, this metafunction reflects the way information is conveyed to others, based on what the speaker believes is new or given in the discourse context, and how that information is to be structured.

Children do not have all these functions at their disposal when they start communicating. Each of their utterances initially serves only one function, and they gradually explore all of the three functions, until each utterance involves all three functions (in different weightings). One reason for this initial one-dimensionality is that children's early utterances do not contain enough grammatical structure to be able to represent more than one function at a time. For example, a one-word utterance like "Mummy" might serve to attract Mummy's attention on an interpersonal level, but no more than that. "Doggy," on the other hand, may represent the presence of the dog in the child's visual field. In contrast, utterances containing more words, and more structure, are increasingly suitable for conveying more than one meaning at the same time.

According to Halliday, the textual metafunction is special in that it is intrinsic to language. Conveying information via language means using language as an alternative to experience, in addition to a mere reflection of it. It is possible to represent the world non-verbally (e.g., by pointing); it is equally possible to contact and influence other people without words (e.g., by crying), but it is impossible to convey information without some kind of symbol system (such as language) in a broad sense.

Because of this, Halliday claims that the textual metafunction is irrelevant to children in the beginning, when they are primarily concerned with the here-and-now. Thus, this element of children's speech emerges only after the other main functions, representative (*ideational*) and *interpersonal*, have been acquired.

Similar claims have been put forward by Givòn (1984), who observes that children's discourse mostly consists of single propositions, and that it is predominantly manipulative. According to Givòn, there is no need for an exchange of information, as the background is shared by all participants; the discourse topics are present, and the participants share a high degree of

empathy. Adult communication is based on the informative speech act because the opposite is true.

This is the issue explored in the present study in more detail.

## 6. Longitudinal Study

The present study investigates the interaction of one child, beginning at eighteen months until nearly four years of age, with his mother and his younger brother. The study focuses on one specific area of talk, namely, the target child talking about his brother. The data are evaluated in relation to Halliday's (1975; 1994) analysis of linguistic functions. Halliday's framework is used to relate the *content* of the target child's utterances to underlying metafunctions. While it is expected that a development in content should also be reflected in linguistic structure, a detailed analysis on a structural level is beyond the scope of the present study. Instead, the specific relationship of each speech function to the question whether the child is able to take into account his listener's informational status is explored.

### *6.1 Procedure*

The interaction of J, a German boy, with his family members (mostly, his mother and his brother L, who is 17 months younger than J) was watched closely by his mother over several years, with a special focus on his abilities to take his interlocutor's perspective. A diary was kept, and regular video sessions were taken. The video sessions were conducted about once a month, covering about one hour of interaction which was not controlled, i.e., typical home interaction was recorded. Relevant parts of the video recordings were transcribed, taking into account the situational context. The data were evaluated qualitatively; relevant situations were analyzed according to what they suggest about the child's ability to adapt to his interaction partner. In the following, the main findings concerning speech functions are presented together with anecdotal evidence.

### *6.2 Conceptual Perspective Taking*

At 29 months, J was perfectly able to play the role of a messenger, as the following example illustrates:

> Mother to J: ["Go to Dad, ask him if he is hungry."] J goes to the room where his father is, and asks (with raising intonation): "Hunger?" ["hungry?"]. There is no clear answer, so he asks again: "du Hunger?" ["you hungry?"] His father's answer is Yes, and J says: "gut" ["okay"] and leaves the room again, shuts the

> door behind him and tells his mother: "Papa Hunger" ["Dad hungry"].

Already some weeks before this, J was able to inform two different people in one situation according to the situational needs:

> J gives L the bottle back, which L had thrown away, and says: "da, Tuka. dricke Lalet." ["there, L. drink bottle"]. L holds the bottle the wrong way, J informs him: "kehrt um!" ["wrong way!"]. Then something leaks out, and J tells his mother: "Tuka keckert, Mama. bauber!" ["L spill, Mum. clean!"]

In this situation, J seemed to be perfectly aware of the state of knowledge of the people involved, and how they should be informed (e.g., his mother, at that moment busy with cooking, needed to be informed in order to clean up. Thus, for her, the information is new). How did he learn to do this?

According to Halliday's (1975) and Givòn's (1984) findings outlined above, children do not often feel the need to convey information at all. Their speech, in the beginning, does not have the effect of informing, but rather represents reality and/or reflects the interpersonal relationship to the children's interaction partners.

In order to analyze the functions of natural interaction within the family context, I concentrated on one specific area of talk, namely, J's talk about his younger brother. The reason for choosing this area is that there were no obvious reasons why J should talk about the brother at all, other than informing people about L's doings, as such talk is not suitable for satisfying any personal needs (which has been claimed to be one of the main reasons why young children talk at all). In fact, however, during the early years, J altogether talked more *about* L than *to* him. The functions of these utterances, as far as they are discernible, are revealing concerning the development of J's speech functions, as well as with respect to his understanding of his interlocutors' informational needs.

*6.3 Ideational / Representational Function: Comments on Experience*

Right after L was born, J commented on his presence. At times, it was not clear whether J addressed his utterance to an interlocutor or not. J put his experience into words, glad about his knowledge of language and of his grasp of the experience. This corresponds to Halliday's *ideational* function. No information was conveyed, and very often, there apparently was no addressee. At 18 months, for instance, J kept muttering "kuka" (J's version

of L's name), whenever he heard him, played with him, etc. At 24 months, the comments had become linguistically somewhat more sophisticated[2], as in the following example:

> J [puts on a hat; walks over to L, mutters to himself]: "kuka" ["L"]
>
> J [puts hat on L's head]: "kuka hut" ["L hat"]

Such (rather non-emotional) comments on experience were most common during the stage of rapid vocabulary expansion.

*6.4 Interpersonal Function: Involved Comments Directed at an Interlocutor*

When J reached the age of 30 months, J's comments were mostly directed to other people, and they increasingly reflected clear intentions. Also, J's emotional involvement was increasingly discernible in his comments directed to his mother, as in the following example at the age of 29 months:

> J runs from one side of the high chair to the other, and both laugh aloud. J points to L, looks at his mother and says: "Kuka latte putt" ["L laughs his head off"]

This utterance seems to express a desire to share an emotionally loaded experience with an interlocutor, corresponding to Halliday's *interpersonal* function merged with representational elements. Simple, apparently non-emotional comments (which did not require an interlocutor), as described above, were characteristic for a specific developmental phase, and then they disappeared. In contrast, comments expressing emotional involvement did not disappear, although they occurred with a somewhat higher frequency during the time in J's early years when he was easily excited. Sharing emotion is a kind of communication that is, of course, important to grown-ups as well.

The interpersonal metafunction, in Halliday's terms, contains more than simply sharing emotion. Here, the focus is on the fact that there was a distinct development from the simple representation of reality to a discernible desire to *share* exciting elements of this reality with an interlocutor. A detailed analysis of specific linguistic elements should

[2] It is to be noted here that J was a late talker; he only reached the 2-word-stage at about 24 months.

reveal how this higher-level development is reflected linguistically; however, this is not the aim of the present paper.

In the previous stage, J did not seem to mind whether there was an interlocutor or not. Now, in contrast, he approached his interlocutors directly, apparently trying to share some excitement via language. In the literature, this kind of communication has been called an attempt at "meeting others' minds" (Bretherton et al. 1981), providing insights about the child's "theory of mind" which at this point at least contains the assumption that other people do have minds that the child can meet. However, this kind of communication does not have the effect of conveying new information to the child's interlocutor(s) (whether or not this should be intended).

*6.5 Starting to Inform: Explanations and Elaborations*

At 27 months, J started to talk about his younger brother, or about his own interaction with L, by giving some kind of explanation or elaboration with regard to a present situation, as in the following entry:

> J feeds L, i.e., he hands over single peas, even though L bites into his fingers from time to time. J's comment: "Kuka mag Erpe" ["L likes peas"]

In such examples, J's utterance conveyed more than what was obvious in the discourse situation. J did not seem to want to share emotion, but rather to expand on reality. Increasingly, such utterances served as meaningful information to explain J's own or L's actions, as in the following entry noted at two years nine months:

> L is in the pram, J stands beside him. J moves L's cap upwards and says to his mother: "hab ich Müttüt hocheschiebt! besser sehen tann!" ["I moved up the cap! can see better!"]

Note that J's two-clause utterance contains meaningful textual structure: the second clause is an enhancement of the first (a reason is given for the action represented in the first clause). Thus, explanations and elaborations serve three metafunctions at once, as adult language – according to Halliday – regularly does. The message function of language is discovered by the child later than the other functions. In explanations and elaborations of present (and to the interlocutor obvious) situations, it is there, but it does not seem to be predominant. Giving explanations and elaborations does not necessarily require taking other's point of view, as

the speaker does not provide new information to an uninformed interlocutor, but simply expands on what is directly visible in the discourse situation.

*6.6 Conveyance of Information*

At about the same age, J started to utter sentences that informed his mother about facts she did not know. In the following example, J seems to understand the deeper intention of his mother's utterance and answers accordingly, correcting her error:

> J fetches some cereals called "Frootloops" out of their box, and his mother tells him to finish his own frootloops first. J corrects her: "ne, Tuka pupus auf" ["No, L eat frootloops"]; he did not fetch them for himself. Then he feeds him.

Shortly after this, J tried to make others meet L's needs:

> L has just finished his slice of toast, then J pushes his plate towards his mother: "bitte Lutas Bot geme! Lutas mehr Bot hame!" ["please give L bread! L wants more bread!"]

Furthermore, J told other people about events they did not observe:

> J tells his father that L slept in the pram while his mother, J, and L were shopping (L is now awake and in the kitchen with the others): "Buggy Tuka häte noch" ["L sleep in the pram"]

As illustrated by the latter example, J talked about past and future events from the age of 30 months. Thus, the ability to talk about temporally remote events emerged in line with the ability to convey information to others. Now, J seemed to have learned that language may not only serve as an expression of experience, but also as an alternative to it.

## 7. Discussion: Learning to Convey Information

The analysis of J's talk about his younger brother proved that – in this area of talk – he rarely appeared to try to convey information to people who already knew. Instead, there was a distinct development in the functions of his speech. Initially, J liked to put whatever he saw or felt into words, obviously enjoying his new ability to do so, employing solely the representational function of language. At that time (i.e., from about 18 to 30 months), it did not seem to matter much whether there was an addressee or not. During J's third year of life, his utterances increasingly reflected a desire to explain, elaborate, or share an emotional experience with an addressee. In those utterances, the interpersonal function seemed to be

predominant. Starting from the age of two and a half years, J managed to convey information to others, increasingly appearing to take into account the state of knowledge of his interlocutor. Now, all three metafunctions of linguistic communication were employed.

These results show that the earliest functions of the child's talk about his brother are predominantly representational, expressing reflections on (shared) experience that do not necessitate perspective taking. Later on, interpersonal functions emerge, which involve emotional sharing with the interlocutor, but not necessarily any understanding of the listener's mind. The function of information conveyance emerges only after the other functions of talk. Starting with explanations and elaborations of situations observable by both interlocutors, the child becomes increasingly able to convey information which is new to the listener.

Talk which serves the predominant function of conveying information is most effective when the child takes into account the listener's informational status, although it is of course possible (and often the case even in later years) that the child simply mentions facts without considering the listeners' interests and previous knowledge. However, the interlocutors' knowledge and beliefs are *irrelevant* for the other speech functions developed earlier, while for the speech function acquired last, the conveyance of information, they are not. Thus, at an earlier age, children do not need to take into account others' conceptual perspectives in talking, and this may be one reason why they do not exhibit sophisticated perspective taking skills (apart from those involved in learning language at all, as claimed, e.g., by Tomasello et al. 1996). The option of dealing with, and affecting, their interaction partners' informational status simply does not exist before children have learned how to use language as a substitution for experience, i.e., to present experiential meaning to others who have no access to the experience itself.

The age at which this ability emerged in the present study, i.e., at about two and a half years, corresponds to the age at which the target child, like other children (e.g., Dunn & Kendrick 1982), started to adapt linguistically to his younger brother (Tenbrink 1998). This is reflected by the fact that the language he directed to his brother differed in several respects (complexity, vocabulary, etc.) from that with which he addressed his mother. This correspondence of linguistic and conceptual perspective taking confirms the finding that at this age, the interaction partners' needs become increasingly relevant to the child.

## 8. Conclusion

During their third year of life, children learn to adapt to their interaction partner in linguistic form. Talking to younger children, they use features such as shorter sentences, repetitions, etc., reminiscent of the language mothers employ towards very young children. Towards older people, adaptation in form is difficult as they are linguistically superior.

Regarding the content of utterances, taking into account the interlocutor's needs is especially important if the speaker intends to convey information. In children's everyday life, the conveyance of information is only peripheral. When they begin to speak, children do not convey information at all, and they do not seem to want to. Rather, they put events into words, sometimes with and sometimes without involving an interlocutor. Increasingly, however, interpersonal functions such as sharing emotional involvement arise. Finally, information may be conveyed at times, firstly by explaining (or elaborating on) a present, rather obvious situation, but increasingly effective with regard to the interlocutor's state of knowledge.

Experiments on children's *theory of mind* mostly concentrate on whether children are able to consider other people's beliefs under certain circumstances; whereas home observation sheds light on in what kind of situations such ability is relevant in natural interaction. As the informational function emerges later than the other functions, other people's knowledge and beliefs – which are especially important for the conveyance of information – are, to the child, irrelevant before the child has learned to use all functions of language.

Future research needs to address at least three issues:

First, as the present study concentrated on only one specific area of talk, the results need to be confirmed by an analysis of data containing a broader range of topics.

Second, the conceptual development analysed here (from simple representation of reality to successful conveyance of new information) should be reflected systematically on the linguistic surface. A detailed structural analysis of the linguistic data is needed to work out the relation of the child's grammatical development to his conceptual development.

Finally, a closely related question is how interlocutors adapt to each other *dynamically* during the course of interaction in order to achieve effective communication. As far as linguistic form is concerned, this may mean that the interlocutors negotiate the vocabulary and the linguistic level of utterances. With regard to content, both interaction partners need information about their interlocutor's state of knowledge or belief, which may also be negotiated in ongoing discourse. How children learn to use up-

dated information about their interaction partner which constitutes a contrast to their previous assumptions is a question that still remains to be solved.

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