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5. The Emergence of Mediating Language

The mediating role of language involves its capacity to convey knowled about the world, about other people, about social and cultural interpr tions of situations and events, and about imagined possibilities, pla mythologies and theories. In this role, language serves a different m function than that of regulating interactions between people. Halli (1975) differentiated between the *mathetic* and *pragmatic* functions of guage use in the early phases of acquiring conventional linguistic form contrast that captures this distinction as it emerges in development.

A major point to be brought out here is that language must be well de oped in order to serve the full range of its mediating functions. The c does not immediately make a leap from prelinguistic to linguistic, or f sensorimotor to representational, or any of the other stage changes have been proposed as explanations of developments between 1 an years. The transition is long and composed of a complexity of devel ments in different parts of the social-linguistic-cognitive system. At point the transitions have been traced most completely in the linguistic tem itself, documenting developments in an expanding meaning syst an expanding grammatical system, and an expanding pragmatic syst The connection of these with developments in social and cognitive c petencies has been less well worked out. In this chapter some of the ma developments that take place to establish language as a mediating sys for an individual child are discussed. Succeeding chapters consider h language functions for the preschool child as a mediating system in di ent representational formats and in different knowledge domains.

Representation in Language

The unique contribution of human language is that it serves to commu cate representations of states of affairs between individuals, transfer

complex information from one mind to another, structured in such a way that its transference maintains to an important degree the intended form and content of the original.

The development of this dual function as both an internal (cognitive) and an external (communicative) representational system is a critical turning point in human history and in human ontogeny. This bidirectional function has two interrelated roles, that of speaker/messenger and that of listener/interpreter. That is to say, each participant in a communicative situation uses an external linguistic representation to relate to an internal mental representation. In the case of the speaker, the mental representation (MREP) must be transformed into a language format that imperfectly represents its intention (imperfectly because there is no one-to-one mapping between thought – or for that matter, the world – and language). In the case of the listener, the external linguistic representation (LREP) must be internalized, interpreted, and transformed into an MREP that again, and doubly, imperfectly represents the intention of the speaker. To the imperfection of the speaker's LREP is added the imperfection of the transformation of the linguistic format into the listener's knowledge or belief (MREP) system. Such is the fallible communication system that we rely on to transfer meaning from one person to another. If this is the situation for adults, what can children make of it?

Consider in this regard a well-worn example utterance:

(1) The cat is on the mat.

To interpret this utterance from, let us imagine, a parent, a child must understand at least the words "cat," meaning certain domestic animals of the child's acquaintance, and "mat," meaning a kind of fabric construction, usually found on the floor, perhaps in the bathroom, or in front of the front door; and probably the preposition "on" as indicating a location on top of and not beside, behind, in front of, or underneath. If the child is in view of a well-known cat that is in fact sitting on something understood to be a mat, this utterance may be interpreted to say what is obvious, perhaps to draw attention to it. But suppose this is not the case, and the utterance is spoken out of context. It might be imagined that the child would conjure up an image as many adults do, of a cat curled up in front of a fireplace resting on a bit of rug. This picture, however, requires a good bit more conventional cultural knowledge than our hypothetical 2-year-old possesses. Suppose the child does not share living space with a particular cat and is not viewing a book about cats, and her only acquaintance with mats is in the bathroom. Will she then go to the

bathroom to look for the strange visitor? More likely she will judge tha the sentence just uttered is one more of the many things said around he that are irrelevant to her pursuits, whatever they are.[1]

In general, 2- and 3-year-olds attend to language that informs them about their current activities, provides wanted information, or direct them in familiar actions, and not to random overheard utterances. Build ing up knowledge from what is said is a highly complex skill that call on, not just syntax and lexicon, but modes of relating to the experientia knowledge base, and ways of adding to that base new information arriv ing in the form of discourse about an unfamiliar topic. The kind o representation that is involved takes language in the form of utterance in discourse, relates these to established knowledge about the world derived from experience or from prior linguistic representations – an constructs a new mental model conforming to what is said and mean This process can of course go awry in many directions for many reason beyond those of inadequate linguistic knowledge, but linguistic comp tence is clearly a first step toward this achievement.

What Makes Language Different?

Language represents states of affairs in special ways. It is based o special kinds of categories (grammar), on linear sequences of item (words), on hierarchical orders of constituent parts, and on special wa of referring within and outside of text, among many other things. To represent something in linguistic form is to make choices about wh aspects to represent and how to present them. Events do not simp present themselves as linguistically codable. Any event might be e pressed in innumerable ways (e.g., "Muffy is sleeping on your favor rug again," "That feline is shedding fur all over the mat I just vac umed," etc.). The visible world does not appear (to the untutored eye) separable animate objects undertaking discrete actions that eventuate visibly different states, as the structure of sentences implies. Discr units combined into linear propositions are special characteristics spoken language, not of human thought in general. There is the thought/language mapping problem for the child to solve.

The linear sequence of elements in language is necessary to represen tions presented in the oral medium. However, there is an import payoff for mental functioning from this system of discrete units linea arranged: words and sentences slow down, break up, and objecti thoughts that might otherwise be fleeting and ineffable, chaotic c

nsely complexive. Linguistic forms and structures thus make it feasible to manipulate mentally the separate parts of a concept or idea that in its dynamic nonlinguistic form might be impenetrable. In the more individuated and structured form that language imposes, the idea becomes not only more manageable but more memorable. Thus the linguistic form of representation reveals new potentials not evident or accessible to prior forms of mental representation. For the child, then, acquiring language requires effort, but the achievement results in a continuously unfolding new perspective together with new cognitive and communicative potentialities.

guage Competence

important question to ask then is, "When do these potentials become opened up in childhood?" To enter into the full potential offered by human language and culture the child must acquire the complexities of grammar that make extended discourse possible. It is not until the child is capable of following an extended dialogue and constructing parts of dialogue that mesh with those of the partner that the child can actually enter into the language/culture complex. A special problem for the beginning language user is the rapidity with which information in language is presented. Rapid-fire speech may simply pass the young language learner by, so that only the slow and short utterances are processed at all. "Motherese" – the special register used by adults speaking slowly and distinctly to young language learners – ensures that some messages get through.

We know, both from common observation and scholarly research, that typically by about 4 years of age most children have mastered basic structures of sentence grammar, have acquired a vocabulary of a few thousand words, speak sufficiently articulately to be understood by strangers, and have mastered some basic pragmatic structures such as how to ask questions and how to address adults and peers.[2] But there is much more to be learned. The most important outcome of language acquisition in childhood is mastery of language at a level sufficient to serve the varied cognitive and communicative representational functions possible for adult language users. These functions include telling stories, making plans, reading novels, gossiping, studying history, reading the newspaper, following written instructions, and formulating formal and informal arguments. These activities are possible because language, in its original oral and derived written forms, has become a functional

mode of both cognitive and communicative representations for indivi ual language users.

Language Functions

Different perspectives on these representational language functions both developing and mature forms are found in the sociolinguistic ar philosophical literatures. For example, Taylor (1985) proposes that la guage performs three critical and unique functions: (1) It explicat thoughts, bringing them into explicit awareness; (2) it puts matters int public space where a thought, an idea, a feeling can be shared betwee people; and (3) it formulates our ideas about important human concer that are otherwise inaccessible, such as justice and truth. The first these is recognizable as the explicitation function of language, a goal i formal discourse and often a by-product in informal discourse. As note previously, language slows down and stabilizes what are sometime fleeting thoughts, thus making them accessible to conscious reflectio and reformulation. The conventional symbolic medium (common to mi metic symbolism as well) not only stabilizes, but enforces a (more o less) common understanding of what has been brought into awareness This commonality makes the second function, sharing of ideas and feel ings, possible. The possibility of such sharing emerges for the child onl with the acquisition of language or some other symbolic form. The thir function involves the actual construction in language of ideas that ar not thinkable in other forms, including concepts of morality, mythology religion, science, and the arts. Children begin to reach for these ideas i early childhood, as soon as they acquire the words, but full grasp of the meanings is a lifelong process.

Halliday's (1975) six basic functions of early speech map quite closel onto those outlined by Jakobson (1960) as basic linguistic functions (emo tive, conative, phatic, referential, poetic, and metalingual). Halliday d vided these functions into Pragmatic and Mathetic, and he propose that children began with Pragmatic functions. Pragmatic functions in clude Instrumental, Regulatory, and Interactive, while Mathetic (fun tions related to knowing or learning) include Personal, Imaginative, an Heuristic. Examples of each and of the Informative function, which Hall day suggested emerges later – toward the end of the second year – a shown in Table 5.1, drawn from my study of crib dialogues and moth logues from the child Emily during her second and third years (Nelso 1989c, 1990).

ble 5.1. *Halliday's functions of beginning language*

nction	Example[a]
gmatic	
trumental	I need more juice (request)
gulatory	Put blanket on (directing parent)
eractive	Night-night (response to parent leaving)
thetic	
rsonal	I standing up (describing own action)
ginative	Carl playing ring a rosie (comment on picture)
uristic	Mommy tired, mommy go nap (repeating parent explanation)
rmative	[Toy Mouse is] In Daddy's room (providing information from own memory)

om Emily at 2 years (Nelson, 1990). Reprinted from J. Miller (ed.), *Research on ild Language Disorders*, with permission of the publisher.

alliday suggested that early in development each utterance encodes ly one function, but in mature language each utterance expresses both erpersonal (communicative) and ideational (cognitive) functions, as ll as an intertextual function, relating the individual utterance to other ments of the discourse. He suggested further that the Pragmatic func- ns of early child language map onto (in some sense) the Interpersonal, hereas the Mathetic map onto the mature Ideational, although of course specific functions addressed by an utterance are quite variable and re complex than those expressed by the beginning language learner. om this perspective the Informational function, which first appeared in data from his own son at about 18 months of age, expresses both the erpersonal – in that there is someone to whom information is being ected – and the Ideational, the information being conveyed.

alliday's (1975) theory explicitly claims that the Informative function ing language to inform someone about something that that person es not already know) develops late, toward the end of the second ar, and that it develops in conjunction with the development of gram- and entering into dialogue with others. Halliday puts the emphasis dialogue and the structures that form a coherent text, highlighting point when conversation between parent and child on a topic sus- ined over more than one turn becomes possible. This is an important try point for the child into the full meaning potential of the culture. What we lack is a description of how the child moves from this set of rimitive functions to the mature set of complex uses of language. Be-

tween 3 and 5 years most children become much more adept at all the uses of extended discourse. By 5 years they can retell a story, maintaining its sequential and causal structure, although in skeletal form. Their memories for events are more elaborated, and they can begin to use language for planning and explaining to others, as well as to follow the directions, plans, and explanations that they are given. They use language creatively in setting up and carrying through narrative play themes (Sachs, Goldman, & Chaille, 1984). These capabilities indicate that they have developed basic skills in using linguistic presentations to build novel representations that are different from those they have constructed from their own direct experience, and that they are able to move back and forth between their own representations, the linguistic representation of those representations, and the linguistic representations of other people, whose representation of an event may differ from their own.

Halliday's theory is explicitly social-interactional. The functions he attributes to the child's early expressions are those that relate self to others. Vygotsky's (1986) interpretation of private speech (speech for self – what Piaget termed "egocentric speech") viewed the use of language in monologue as a development from social speech toward inner speech, thinking in speech, or what here has been termed "cognitive uses of LREPs." The private speech literature has been primarily concerned with the use of speech in the preschool period for self-regulation of action (Luria, 1961; Diaz & Berk, 1992; Kohlberg, Yaeger, & Hjelvtholm, 1968). But Vygotsky's description of inner speech clearly implies more than this single regulatory function. As the study of monologic presleep speech has revealed (Nelson, 1989c), talk to self in the early childhood years appears to serve a number of cognitive representational functions. It is interesting that the incorporation of other voices is among the earliest of these.[3] Thus the interiorization of speech-encoded representations appears to be, as Vygotsky suggested, an important process in moving toward the full functional complex of the language potential.

Beyond Basic Functions. The achievement of mediating language functions requires the acquisition of skills for composing and interpreting extended discourse, and for retrieving from discourse presentations the representation of a previously unknown event, narrative, theory, or other knowledge form that the producer intended to impart. As every one who has attempted, successfully or not, to learn a second (or later) language knows, this level of accomplishment takes extensive practice

discourse genres – conversation, narrative, explanation – both written and oral, usually over several years of intensive exposure. Part of the skill involves memory and conceptualization, which are also developing during the early childhood years (see Chapters 6 and 8), but these must be attuned to the language mode. Thinking in a language differs from thinking in images (or in some neutral code), and differs from language to language, as bilingual and multilingual individuals testify.[4]

It is this high level of cognitive and communicative functioning with language that is the concern in this work. As is the case for those who learn a second or third language to this degree of competence, its achievement by first language learners takes years of practice in a community of like speakers. Although children learn their first language with what is often characterized as amazing speed and efficiency, it is at least two years after the beginnings of productive speech before most children have acquired reasonably complex grammar at a level sufficient to carry on a connected conversation (Bloom, 1991a). It is at least another year before the average child can begin to represent complex states of affairs in language and thus engage in extended discourse. Thus the beginning point for achievement of this milestone is tentatively set at about 4 years of age, and the skills involved continue to develop further for many years.

To engage in the functions of language at the level of preliterate oral competence with language attained by a reasonably competent 5-year-old ready for school lessons, involves many skills. On the cognitive side, a level of conceptual knowledge encompassing aspects of the common culture, such as knowledge of plants and animals, tools and machines, numbers, space, and time is necessary, as well as the skill of attending to verbal explanations and stories extending over at least several minutes, and remembering critical parts of these. Conversation with peers and adults, respecting turn-taking conventions and topic extension, playing with others in fantasy dramas or games, participating in formal and informal groups of different kinds are all important preparation. Specific linguistic skills include developing a vocabulary of about 2000 words or more, mastering both sentence and discourse grammar, and understanding the pragmatics of language necessary to interpret the most common usages of the child's social group and community.

Regrettably, there is little in the language literature that focuses directly on the issue of the achievement of these integrated skills, although many of them have been considered separately. Much of the research on language in the preschool years is focused on "preliterate" accomplish-

ments, concerned primarily with print. To set the stage for a more
tailed consideration of some of these achievements, a proposed
quence of representational levels in language is sketched next.

Levels of Representing with Language

It is proposed here that language as a representational medium develc
through a sequence of stages. Representation is used in the two sen
that were introduced earlier: (external) representation for others a
(internal) representation for self (Miller, 1990). The general thesis is tl
these two faces of representation stand in a dynamic dialogic relati
such that development in one leads to development in the other in
continuous chaining process. The theoretical model is conceived as op
ating on four successive levels that make possible the use of language f
cognitive functions in different increasingly complex ways. As befor
the internal mental representation or mental models will be referred
as "MREPS," while the external linguistic representation (of self or otl
ers) will be referred to as "LREPS."[5]

Level 1: Undifferentiated

At this level (introduced in Chapter 4) the MREP is based solely on dire
experience. Language forms experienced in specific situations are e
tered into the MREPs of those situations, thereby taking on meanin
within them, and can be used productively within them. However, th
form and content of the MREP is resistant to influence or input from a
source but direct experience. This level is characteristic of the ear
stages of language acquisition, up to about 2 years, when grammar a
dialogue begin to develop.

Language forms used within events that the child experiences may
learned and used to indicate any part of that event or the event as a whol
During this early period children begin to narrow their word meanings
the size and content implicated in the references used around them
extracting them from event contexts and generalizing to new instances
the same type, building on the connections that exist in the mental mod
as examples in Chapter 4 demonstrated. Nonetheless, the words learn
remain tied to their world models and do not form systems of their ow
The models may incorporate Donald's social-mimetic representations
well as basic personally organized event schemes. They are thus alre
social and symbolic but not truly linguistic.

Transformation

marks the beginning of the real communicative-cognitive exchange ss. The child can transform some part or aspect of her own MREP – ental model – into verbal form to convey information to others on asis of her own experience.[6] Halliday (1975) recognized this as the gence of the informative function of language, which he dated to d of the second year (see previous section). But the MREP itself is open to input from any but direct experience. The ability to form an underlying representation into a verbal message effectively es over time, becoming more complex as the necessary language develop. This level makes possible the beginning of the use of ge to exchange talk about the past, the anticipated future and the (pretended), as well as the present ongoing activity. The child can et another's question or comment regarding her own present or perience and respond contingently, but she does not adjust her in response.

Opening to Language

level the child can interpret another person's LREP in ongoing se and can enter parts of it into her own prior or present MREP of e event, which is now composed of a mixture of event representa- ocial mimesis, and language forms embedded therein. It is possi- the LREP may become confused with her own MREP, and parts her's presentation may thereby enter into her own at this point. *child will not or cannot maintain two simultaneous mental representa- the same situation*, that is, her own MREP and another's LREP. onstraint exists because the *basic* event representational system support two versions of the same event at the same time. This on does not apply to the dual representation of a *component* of the for example, a child at this stage may remember that something was present at the beginning of an event has disappeared.

cognitive prerequisites for this level include the capacity for de- and extended extraction of, and memory for, patterned informa- The language prerequisites include the acquisition of grammatical ms and lexical items that make interpretation of connected discourse ible. These forms (e.g., temporal and causal language, intratextual erence) have been extensively studied and found to undergo a gthy development, lasting well into the school years, indicating that

their organization as an integrated system is a prolonged process, not completed in early childhood. The child must experience presentations of extended discourse in order to develop the system. Stories, memories, and in general talk about the child's own experience – past, present, and future – are the major ways that children are given practice with these functions, at home and in preschools and schools.

Level 4: Language Modeling

At this level, incorporating the verbal LREP of a novel reality from another person (something that the child has no representation of from her own experience) into a new MREP begins to become possible. This implies that the child now has the capacity to construct enduring *representations of language* in her own mind. Note the distinction between a temporary language representation in the "mental space" that enables an interpretation of a linguistic LREP in terms of the MREP (level 3), and the maintenance of an internal linguistically formulated LMREP (level 4). The difference is roughly that of short-term (operational) memory and long-term semantic memory. Gradual improvement in this ability, involving increasingly complex and lengthy constructions, can be expected. At this point the child is aware of the difference between her own MREP and that of someone else and will not confuse the source of her MREP. Two contrasting MREPs or possible views of the same situation may be maintained simultaneously. At least one of these must be – and possibly both will be – in linguistic form. It is the existence of dual levels of representation – event/mimetic/imagic and verbal – that makes comparison possible.

At this point, then, children will have developed basic skills in using linguistic LREPs to build novel MREPs that are different from those they have constructed from their own direct experience, and they will be able to move back and forth between their own basic event MREPs, the linguistic LREPs of those representations, and the linguistic LREPs of other people, whose representation of an event may differ from their own. These developments have important implications for cognitive functioning during the preschool years, implications that will be further considered in later chapters.

Figure 5.1 represents the interactive progression of these representational skills in graphic form. On the right-hand side of this diagram is the parental figure [represented as a hybrid mind in Donald's (1991) sense] consisting of simultaneous MREPs in event, mimetic, and linguistic forms. On the left-hand side is the developing child mind, equipped first

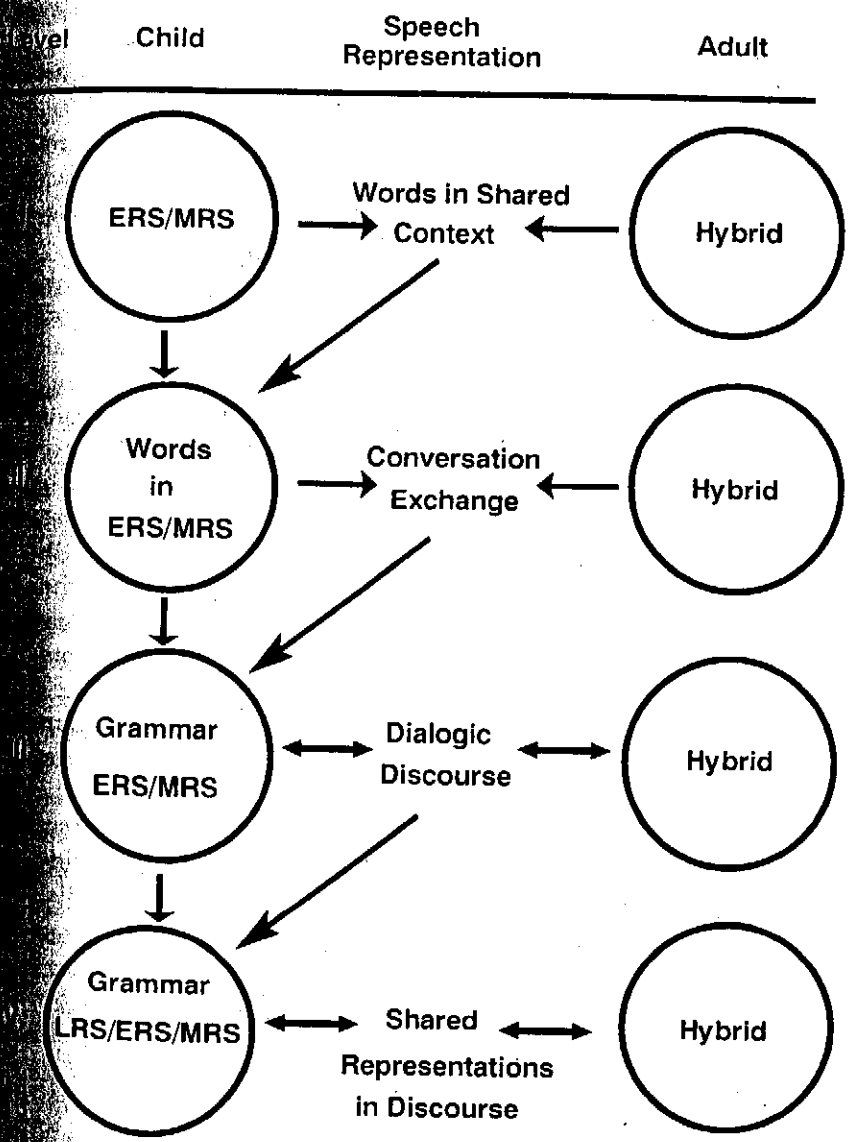

Figure 5.1. Development of Representational Levels. *Note:* ERS = event representation system; MRS = mimetic representation system; LRS = language representation system; Hybrid = mixed representation system in mature mind.

with event structures (ERS) and mimetic structures (MRS), as described in the previous chapters, which come to embed words within them. At the third stage words and grammar develop their own complex systems functioning to support transformation from ERS and MRS MREPs into language LREPs, and at the fourth stage language becomes an inrepresenting medium. Movement between stages is supported by the increasingly elaborate and complex use of language in communicative exchanges, shown in the middle of the diagram.

Figure 5.1 incorporates the supposition that whereas at first children produce words and more complete utterances to express their prelinguistic MREPs and interpret parents' words within this system, parents produce and interpret from a different mental representational complex including a long history of representing in as well as through language. Thus parent and child are operating with different mental representations of the same represented reality. In particular, the parent has a multilayered culturally and historically informed conception of what the activity parent and child are engaged in, whereas the child's MREP is confined to the event as experienced. This asymmetry is in fact the key to the developments outlined. Figure 5.1 also conveys that grammar (language systems of all kinds) is not the language MREP itself, but a necessary *tool* prerequisite for interpreting and mentally representing through language. As shown here, words, as the basic carriers of meaning, are the mediators between the more basic representation system and the linguistic one.

Note that this scheme puts equal emphasis on the child's representations and expressions and on the social interactions that provide the context and the impetus for the move to the next level. This dialectic process is considered again in the last section of this chapter.[7]

Words and Meanings

The beginnings of the entry into language – acquisition of first words and early multiword constructions – were described in Chapter 4. The problem of word learning is sometimes discussed as though it begins and ends in the early years of life, but of course it is one component of the linguistic system that continues to develop, acquiring new forms and new meanings throughout life. It is in fact the key to the development of all cultural knowledge domains. Therefore, while recognizing the crucial problem of word meaning facing the beginning first language learner, we must also recognize that a theory of word meaning acqui

must span the limited cognitive, social, and linguistic capacities of ...ncy to the most sophisticated knowledge structures of mature adult-...d. Implicit in many current proposals regarding word learning in ...y childhood is the assumption that different processes apply at that ...e than at later stages. However, the present proposal is that we can ... understand the acquisition of words and their meanings if we con-...the problem as continuous across the lifespan.

...is proposal grows out of the experiential system view on which the ...all theoretical framework of this book is based. It is at odds with a ... vigorously set out by a number of writers (e.g., Markman, 1987, ...; Golinkoff, Mervis, & Hirsh-Pasek, 1994) that the young child is in ...al need of "constraints," "rules," or "principles" that can be applied ...ord-learning situations to decode the meaning of a novel word. ...e proposals are based in formal linguistic or cognitive theories that ...n turn formulated in terms of rules and principles; thus the child is ... as needing to acquire the right rule to apply to a novel word. But as ...ed by many scholars (e.g., Anderson & Nagy, 1989; Johnson-Laird ..., McNamara & Miller, 1989; Miller, 1990), word meanings are com-... and multilayered, and are acquired partially and fallibly over time ... experiencing their use in different contexts (Sternberg & Powell, ...), a process consistent with the developmental view espoused here. ...view has been interpreted as one that rests language acquisition on ...al interaction (Behrend, 1994), reducing a complex product to one ...ce of causation in an either/or contrast (either the child has internal ...straints or principles or the child relies on social learning). The dia-... system view is far more complex, relying on the child's cognitive, ...al, and knowledge structures, as well as her increasing command of ...anguage and its lexical organization and her experience of words in ...-social discourse contexts. Indeed, it is this complexity that makes ...achievement of meaning, even of some seemingly very simple ...ords, so prolonged and uncertain, as the following discussion lays out ...more detail.

...om about 18 to 20 months of age children begin acquiring words at a ...id rate, so that by 6 years of age they have accumulated somewhere ...ween 6,000 and 14,000 lexical items (depending on different esti-...es). These estimates yield a rate of about 4 to 10 new words a day, ...ggesting a powerful engine at work. In light of this impressive accom-...ment, many researchers have searched for the mechanism and ...have identified a process of "fast mapping," which involves assigning ...words to evident referents on first encounter.[8] Such assignments may be

off-track for various reasons, yet a striking characteristic of children's acquisition of words is that they tend to be used in appropriate sentential and extralinguistic contexts. This is not to say that children never misuse words – their errors often strike us as amusing. Nonetheless, on the whole both the grammar and the semantics/pragmatics tend to be in the right court.

Paradoxically, when children are tested for understanding of specific words, or when they are pressed by psychologist interviewers, the results often show that they lack an understanding of critical components of the meaning of common words. For example, preschool children often insist that "animal" refers to groups of different animals and not to any given instance of *animal*. Or they may respond similarly to both "before" and "after," to "same" and "different," or to "more" and "less." They may seem to treat "because" as though it means "so," and "tall" as though it means "big." Therefore, a major puzzle is how they can be right in production and so fallible in comprehension. It appears that "fast mapping" may be a weak mechanism at best. Moreover, as an explanatory mechanism it stops short, providing only an association between a form and something encountered in the same context, leaving meaning to be constructed in some way as yet unknown.

A classical view of word learning based on Augustine (1950/397) is similar to the fast mapping proposal: "When they [my elders] named any thing, and as they spoke turned towards it, I saw and remembered that they called what they would point out, by the name they uttered" (p.). Many theorists since Augustine stated his case 1600 years ago have echoed, more or less, his description of how children learn to speak. This process implies an "ostension" paradigm wherein the adult points to something and names it, causing the child to acquire the word (e.g., Brown 1958b; Quine 1960; Macnamara 1982; Markman 1987). Recently, however, psychologists, drawing on Quine (1960) and Wittgenstein (1953), have recognized the weakness of this paradigm. Quine (1960) drew attention to the problems in the following way: How can a linguist in an alien world who observes a native speaker uttering "gavagai" when a rabbit runs by be certain that "gavagai" means "rabbit"? There are numerous other referential possibilities that Quine and others have pointed out. "gavagai" might mean rabbit running (or just running), rabbit in general, the color brown, rabbit ear (or ear in general) or, more exotically, "undetached stages or brief temporal segments of rabbits" or "all and sundry undetached parts of rabbits" or "the fusion of all rabbits – that single thing

discontinuous portion of the spatiotemporal world that consists of rabbits" (pp. 51–52). It seems obvious that the ostension paradigm on its own cannot solve the word-learning problem.

The ostension paradigm works, if at all, for object labels, and traditionally it has been assumed that these are what the child begins with at least (see Chapter 4 for counterevidence to this assumption). Recent accounts explicitly assume that children beginning language learn primarily nouns and make the default assumption that "words refer to whole objects" (Markman, 1991). From the perspective taken here, however, the lexical acquisition problem viewed in the Quinean mode is misanalyzed, and the solutions proposed are inadequate to the real problems of word learning in early childhood, as well as in later life. The ostension paradigm on which the analysis is based is limited to a subset of words, to a limited period of developmental time, and to a single aspect of the multifaceted meaning of words (reference).

The emphasis on noun learning in the literature on lexical acquisition in early childhood leaves the superficial impression that the only words that parents and children use together during the preschool years, and thus the only words that children learn, are those referring to object kinds and object hierarchies (superordinate and subordinate). However, although nouns form the largest grammatical class of words acquired by young children – and of words used in the language – they are not the majority of words learned. Other word types include action verbs, and the adjectives, prepositions, pronouns, and a miscellaneous set of often unclassified words (such as "thank you" and "okay"). Equally important is the fact that not all nouns – including those learned by young children – refer to objects. English grammar makes a distinction between count nouns and mass nouns, the latter usually but not always referring to substances rather than discrete items. But both kinds of nouns can refer to a variety of other ontological types, for example, locations (e.g., "park," "kitchen"), events ("lunch," "party"), times ("morning," "week"), and natural phenomena ("rain," "sun"). (All these examples are from vocabularies of children under 2 years.)

In addition, words do not come identified as noun or verb; some words refer to actions as well as objects in the same form, and others denote actions in both verb and noun forms (Nelson, 1995). An instance of the former is the word "drink" which is often used to refer to an entity that may be interpreted as an object (e.g., a glass or bottle holding a liquid) or a substance, the liquid itself, and is also used to refer to the act

of consuming the liquid. For example, a mother talking with her 20-month-old daughter says,

(2) "D'you want *a drink?*"

and follows within a few minutes with the imperative,

(3) "Allison *drink.*"

as Allison blows bubbles in the glass rather than drinking. "A drink" is actually ambiguous in most uses. It uses a count noun quantifier (*a*) to apply to what is presumed to be a substance, a liquid, requiring a mass noun quantifier. In this case the count noun is used in English to encompass the liquid in its container (the quantified).

An example of the action noun/verb problem is taken from a transcript of telephone play between child (C) at 18 months and mother (M): C picks up phone.

(4) M: Make *a little phone call?*
Who are you *gonna call?*

This sequence is typical of talk between mothers and their 20-month-old children in the context of the toy telephone, where the word is first used in a noun phrase (a little phone call) denoting an *event* and immediately thereafter as a verb denoting the *act* of speaking on the phone with someone.

The implications of these complexities of nouns and "dual-category" words for the child's semantic and grammatical category development have been generally ignored (Nelson, 1995; Nelson, Hampson, & Kessler Shaw, 1993). The Augustinian paradigm won't work for these words (or for many others), neither will the "whole object" or other alleged principles now in the literature (e.g., Golinkoff, Mervis, & Hirsh-Pasek, 1994). Rather, children must be working at both very abstract and very concrete levels simultaneously during language acquisition. They must be able to interpret the discourse context to assign *call* in the above example to the action of calling, and also to accept it in both its noun and verb roles. The strategies that children use to untangle these complexities have begun to be identified for both nouns and verbs (Tomasello & Olquin, 1993; Olquin & Tomasello, 1993), showing that their strategies rest importantly on the child's interpretation of the adult's discourse intention.

Of course vocabulary acquisition does not end at 2 or even 6 years of age, and the child's words are not confined indefinitely to a small ra

contexts. Between 6 years and 18 years many children expand their vocabularies 10-fold from about 10,000 to about 100,000 words according some estimates, which works out to about 20 new words a day, twice many as the most generous estimates quoted for the preschool years. observers agree that the vast numbers of words learned during the school years must be learned from seeing or hearing them used in con- That is, they are not specifically taught in vocabulary drills. The retical question this poses is then just that faced by the toddler: How learner extract meaning from context? According to Sternberg and ll's (1983) analysis, the answer depends upon finding a *relevant* fit novel word to one's *knowledge base*. Indeed, the general principle evance to the knowledge base has wide application.

vance

rber and Wilson's (1986) analysis (introduced in Chapter 4) of how speaker and listener make sense to each other despite the vagaries language they use provides the theoretical framework for this pretation. They claim that verbal communication between two or people is made possible because participants assume that what is communicated is *relevant* to ongoing discourse, to the current con- and the *cognitive environments* of the communicators. It is sug- here that the general problem for the language-learning child is greatly different from that of any speaker and listener – it is to inter- the utterance of another within the context of the activity, as repre- within the listener's current cognitive environment. The applica- of this model to the problem of establishing a first meaning system requires consideration of how the two participants may mutually pret each other.[10]

rber and Wilson (1986) rest the assumption of relevance on *shared* but they do not conceive of context simply in terms of the ment-to-moment external environment within which two people are ated. Rather, they invoke the idea that relevance applies to the *cogni- nvironments* that the communicators share. They emphasize that peo- construct *different* mental representations of their environments based the history of their different experiences with it. In a statement applica- to the developmental problem they write: People "have mastered different concepts; as a result, they can construct different representa- ons and make different inferences . . . even if they all shared the same narrow physical environment . . . their *cognitive environments* would still

differ" (p. 38). In spite of these differences, speakers and listeners are able to communicate by making assumptions about what is shared of the cognitive environments, what the listener knows about the speaker context. The relevant point for the present purpose is that communicatio between people always rests on *inference* and *interpretation*. The cognitiv environments of the communicators at least temporarily share sufficien common structures so that the relevance of a communication can be in ferred. If not, the usual strategy of the child is to ignore it, although a adult, expecting intentionality, may pursue the matter by further inquir as to the speaker's meaning.

An important part of the relevance assumption is that words may b interpreted differently depending upon their relevance in a particula cognitive environment. When attempting to communicate, a speake makes assumptions about the cognitive environment of the listener, an the listener, to interpret the message, makes assumptions about th relevance of the words to the present situation, when the situation in cludes the prior discourse, the listener's cognitive environment, and th listener's assumptions about the speaker's cognitive environment.

This idea about shared cognitive environments is precisely equivalen to the notion of *cognitive context* that Nelson and Gruendel (1979) intro duced as a proposal for how children might begin to learn to make sen to each other. We analyzed talk between 3- and 4-year-old peers playi together in a preschool, showing that their talk relied upon a bac ground of shared understandings of such things as the school day, th structure of telephone conversations, and the content of meals (see t later section of this chapter entitled "Developing Discourse"). We su gested that sustained talk would be established within contexts – bo present and those familiar to the child from previously establish scripts – that provided supportive structure independent of the act discourse. We tested this idea further with mothers and their 2-year-o children in conversational contexts that provided different degrees scripted support (meals, play) and found, for example, that childr answered questions more readily in the familiar scripted context, a that more complex language involving categorical language and about the past and the future was used in the familiar struct (Lucariello & Nelson, 1986). These findings support the model presen in Figure 5.1 indicating that at levels 2 and 3 the cognitive context is of the mental event representation (MER).

Sperber and Wilson's (1986) position implies that words can be used many different ways to convey messages, and that the listener mu

...ively interpret what the speaker's *intention* may be. A person's lexicon may contain much relevant information about the complexities of possible uses of particular word forms, but no given instance of the word can be perfectly predicted outside of its context of use. The child who must somehow use the situation to interpret flexibly what is meant in that context is therefore only at a somewhat greater disadvantage than the adult. In contrast, if the child came to the language with highly constrained expectations about word meanings (e.g., Markman, 1987, 1991; Golinkoff, Mervis, & Hirsch-Pasek, 1994) she would be at a loss.

These claims imply that in order for the child to extract elements of meaning from the *discourse context*, the word must be made relevant to the child's *cognitive contexts*, conceived here as event knowledge. The child's cognitive contexts may vary in terms of the familiarity of situations, of speakers, of activities, and of ways of formulating messages. Some of the ways in which the child's cognitive context and the social context work together are evident in studies of the conditions under which children acquire nouns (Tomasello & Farrar, 1986) and verbs (Tomasello & Kruger, 1992), which have established that very specific conditions of making words relevant to the child's attentional focus within an activity – different for different types of words – determine whether the child will acquire the word. Further, the child may come to recognize how certain words are used in quite specific discourse contexts, and gradually accrue meaning to them. Again, it is the relevance of the new word to the child's interpretation of a communication within an established cognitive activity context that determines whether the word will be entered into that context and thereby derive meaning from it.

How and whether words and their meanings are acquired also depends on what words are already known, and on the state of the general knowledge base. Much recent work on children's category knowledge, and their ability to make inferences about properties of instances from hearing a category name, underscores the intricately tangled relation between general knowledge and lexical organization, in young children as well as in adults. For example, from hearing "This dax is a bird," a child might be able to infer properties such as flying and nest-building (Gelman & Markman, 1986; Taylor & Gelman, 1988). When children learn words, they not only call on old knowledge – general and specifically lexical – but also acquire new general knowledge.

Thus the general solution to the puzzle of how words are learned at any age lies in the fact that people – children as well as adults – use *discourse context* to interpret language. They make inferences about what

is *relevant* within the context of the utterance. The context they use fo this purpose is *cognitive context* – in the child's case, the dynamic mode of the world of events, built up on the basis of present and previou experiences in similar event contexts, and updated within the particula discourse context of the situation of use. It is because of this basis tha words may sound right in the child's first productive use: Children hav assigned the word to the appropriate context; but because it is restricte to the contexts in which it has been encountered it will be found to la aspects of a more general meaning that becomes apparent in testin situations.

Thus the claim here is that word learning is a matter of *inference* base on *contexted relevance* within discourse situations. Both the strengths the rapid acquisition of vocabulary appropriate to the child's uses – an the weaknesses – context-restricted meanings – result from the sam process. This process thus accounts for three common observations children's word learning: *Fast mapping* is the entering of a novel wor into its context of use. *Appropriate production* occurs because the word used in contexts similar to those in which it was observed. *Restric comprehension* is observed because accrual of meaning outside the conte of first use is a slow and uncertain process.

'Cause: An Example of Developing Meaning in Discourse[11]

The model in Figure 5.1 places the burden of representational develo ment as well as word meaning on discourse practices. The dialecti process involved at both levels can be seen through a detailed exami tion of gradually developing situated meanings. A longitudinal stud collaboration with Elena Levy (Levy, 1989; Nelson & Levy, 1987; Lev Nelson, 1994) focused on the dialogic and monologic talk of a chi Emily, whose language in the crib was tape-recorded at frequent in vals between the ages of 21 months and 36 months (Nelson, 1989c). F bed dialogue, mostly with Father, and talk to herself when alone enab a view of the use of the same term in both dyadic and individual funct over several months.

Here the development of the term " 'cause," beginning in Emil second year, is examined. Causal terms (e.g., "because" or " 'cause") assumed to express intentions, goals, and cause–effect relations, and general it is observed that children begin to use the terms "because" "so" early in the preschool period (Hood & Bloom, 1979; Bloom et 1980) but do not achieve full understanding of their logical implicati

much later (French & Nelson, 1985; French, 1988; Byrnes, 1991). ily used the word " 'cause" in her monologues from the earliest vations when she was 21 months.

Because" or " 'cause" was used by Emily's father at this time in sages such as the following:

(5) F: everyone's asleep
you know Tanta's asleep and Mormor's asleep
everyone is going to *sleep because* you know what happens in the night-time? people go to sleep at night-time . . .
E: Carl mommy sleeping
F: yeah, Carl's mommy's sleeping too
do you think Chris is sleeping?
how about Chris? hmmm?
and Annie and Jeannie?
everybody's *asleep 'cause* it's . . . [E interrupts]
. . . (???) *sleep because* he's a little baby (1;10.30)

that in this example "because" follows "sleep" three times.

fore 2 years Emily's own monologic uses of " 'cause" tended to in specific patterns, such as with "sleep" or "baby," as the follow- xamples illustrate:

(6) Emmy went to sleep *'cause* M Mor (1;9.8)
(7) Emmy didn't go to sleep *'cause* in bed (1;10.30)

pattern "sleep . . . 'cause" is thus similar in form to segments of leep dialogues between Emily and her parents, concerned with iations over sleep. Another set of early uses of " 'cause" was fol- by a clause containing "baby" or "bed." These instances coincided Emily's move to a new room and a new bed in anticipation of the of a new baby; no doubt her parents provided a justification for oom change, using similar discourse patterns.

similarity between Emily's uses and her father's discourse pat- suggests that her use of " 'cause" was borrowed from her father's, the sense of verbatim imitation, but rather as internalized pattern: use" follows "sleep," linking it to a second utterance. Note that the rn was embedded in talk when Emily was already in her crib, being to sleep. However, the talk itself (like Emily's own talk) was not ically about the here and now situation but about rules and expecta- surrounding the going-to-sleep event. Thus Emily's interpretation this talk (to the extent that she interpreted it rather than simply accept-

ing it as part of the going-to-bed- ritual) must be based on her MER of th sleep situation.

Emily's use of " 'cause" was then borrowed from the discourse pa terns of adult speech in the going-to-bed/sleep context of discourse. Thi use of a term in a borrowed context requires little or no grasp of th semantics of the term or the full interpretation of parental explanation. I is simply a connector, linking "the baby," "sleep," or "bed" to anothe utterance, in the context of parental justification of an action or event grounded in the child's representations of routine events. Many earl instances of " 'cause" in fact were partly or fully inappropriate with respect to their larger discourse context, indicating that the semanti interpretation was missing, as in the following:

(8) Emmy went to sleep
'cause Mommy Mormor Emmy get up (1;9.8)

The proportion of inappropriate uses in her monologues declined wit time; 68% of the instances of " 'cause" in the early period were judge inappropriate, 47% of those in the middle period, and only 19% in th late period (between $2\frac{1}{2}$ and 3 years).

Later, " 'cause" began to co-occur with a coordinate clause introduce by "but," as in the following example:

(9) my won't go to sleep
but I later
'cause my hava cold (2;0.9)

The co-occurrence of " 'cause" and "but" formed part of a pattern us in Emily's pre-sleep negotiations with her father. In these negotiatio Emily attempted to attain a goal and her father attempted to block

(10) (Emily requests a toy)
F: Okay you go get it
but be quick about it
because we have to go to sleep (1;10.30)

(11) E: Daddy (rock) me for a couple min . . .
but this is the last night
because then (?) . . . (1;11.20)

"But" and " 'cause" together help create a compromise agreement: "bu offers an alternative to an absolute refusal and " 'cause" provides a just cation. In these contexts " 'cause" expresses a relationship between action (or blocking of an action) and a judgment, statement, or desire th

presses a motive for the action (cf. Bloom et al., 1980; Bloom & Capatides, 1987). Here " 'cause" is a connector used in the context of a second type of connector, "but." This discourse pattern includes a statement (often negative) followed by justification (" 'cause"), sometimes including a compromise ("but").

In the later months the logic of psychological justification became more complete. Most (73%) of the instances of " 'cause" were now fully interpretable, and sometimes the term occurred with "so" or with other terms; for example.

(12) *actually* it's Stephen's koala bear . . .
'cause it's really Stephen's
as a matter of fact it's Stephen's (2;9.12)

This usage suggests that Emily was extending her understanding of the semantics of " 'cause," and systematizing it with other terms that refer to causal and truth conditions.

Thus it is seen that, during the first two to three months of the study the uses of " 'cause" were apparently borrowed from parental uses, or were pragmatic generalizations based on distributional relationships observed in adult speech. During the later months ($2\frac{1}{2}$ to 3 years) uses reflected a better grasp of the format of psychological justification: description + negative contrast (*but*) + compromise (*so*) + explanation (*'cause/actually/really/as a matter of fact*). This organization of related terms in lexical domains or paradigmatic structures reflects a process of semantic systematization during the preschool years that has been studied in detail by Bowerman (1982) and Karmiloff-Smith (1979). It is indicative of the child's analysis of components of meaning of related words and a recognition thereby of their relatedness.

Developmental Course of Word Meaning Over Time

The analysis of Emily's uses of " 'cause" over the 16 months of this study sheds more light on the gradual acquisition of both grammatical and semantic components of language, and their relation to both the child's conceptual representations and parental discourse. On the basis of this and other similar analyses of other words (Levy & Nelson, 1994), a general process model of the derivation of meaning from discourse context can be extracted, consistent with the preceding sections of this chapter, as follows:

1. New language forms are acquired, together with their distributional relations with other language forms, on the basis of the discourse con-

text, both extrasentential (broad discourse patterns) and intrasentential (syntactic).

2. Discourse patterns are interpreted in terms of the child's event knowledge system; extralinguistic context provides the conditions for instantiating relevant event representations. Recognition of patterns and forms may be first restricted to the particular activity contexts in which they were originally experienced (where experienced means noticed by the child). For the child, the relevant event context may be different from the immediate event observed by the adult; thus it is "cognitive context" that is at issue here, as discussed previously. Sentential context includes the co-occurrence of forms, for example, noun–verb; and/or a recurrent syntactic frame such as a particular prepositional phrase.
3. On the basis of adult uses of the form in identifiable contexts, the child may form a discourse notion regarding the use of the form and subsequently use it herself in closely constrained syntactic "formats" and in the context of specific topics.
4. Use of the form itself – especially in formally contrastive alternation with other forms – alerts the child to further uses by other speakers and leads to additional knowledge about the "meaning context" that it represents.
5. Comparison of the uses of the form by self and others may lead to a period of resystematization of the form and other forms that are semantically or syntactically closely related.
6. Subsequently the child's uses indicate at least partial control of the form in productive speech. However, comprehension tests of the form may reveal gaps in the child's knowledge, and productive uses may remain confined to well-understood event contexts.
7. Full control of some forms ("full meaning") may be delayed for years after the form is first acquired and readily used. Further reorganization of the meaning system may be required before adult-level understanding is achieved.

In its most general claims this description is expected to apply to the acquisition of all linguistic forms, but different types of forms may exhibit some of these developmental characteristics and not others. For example, the child may need to do very little refining of her use and understanding of names of common objects, whereas terms referring to abstract notions such as temporal perspective (Clark, 1971; French & Nelson, 1985; Weist, 1986) or quantification (Karmiloff-Smith, 1979) may be used for many years before their context-independent functions are fully analyzed.

The patterns observed here illustrate the process of deriving lexical and grammatical knowledge from discourse; they indicate both that discourse is the source of knowledge of language forms, and that discourse is the context within which meaning and use of language forms is developed and elaborated. The use of words themselves contributes to change in their function, implying on ongoing process of a dialectic

change between the child and her social/linguistic environment, as outlined earlier.

Whereas Emily did appear to be quite sensitive to both the discourse and grammatical constraints on uses of " 'cause," her initial use revealed little or no realization of its semantic entailments. This is the reverse of the assumption of constraints models, which assume that the child starts with a hierarchy of ontological principles to choose among hypotheses one that is likely to be correct. The alternative proposed here is that use of the term by self and others in well-understood event contexts furnishes the substantive data that eventually become organized as semantic knowledge.

Extracting meaning from discourse context requires that the child identify what the relevance of the word is within that context. Discourse cannot provide meaning, but only clues to meaning, as this example indicates. But as implied in the example, discourse also provides a way into structured meaning of complex sentences, and it provides the basis for extracting paradigms that underlie the internalized language system. Initial words occurring in discourse are related by the listener to the cognitive context and the particular utterance in which they occur. The process of *use before meaning* (within similar contexts) may be engaged by the child, from which *meaning from use* gradually accrues.

This process as described here is general, applying to all types of words in all phases of development. The major differences in ease of acquisition for some words, such as object nouns, appear, not because of internal or external constraints, but because the relevance of some words to the discourse context is more apparent than it is in others. Seen in this way, word meaning emerges from shared cognitive context and the mutual interpretation of relevance to that context by speakers and listeners, tutors and learners.

Developing Discourse: from Scaffolds to Frames

So far discourse has been considered as context supporting the acquisition of word forms and meanings. However, the inverse problem is how discourse itself is constructed from language forms and functions and how it develops over time. If words must be learned from discourse, the child must engage in discourse, but discourse requires that the child interpret words and sentences. How can this circle be breached?

Although there are many discourse forms, genres, styles, and regis-

ters in a language (Hymes, 1974; Bakhtin, 1986), the discourse context of the young child begins as simple conversational exchanges.[12] Most systematic analyses of conversational exchanges between parent and child have focused on the achievement of pragmatic competence. Bloom (1991a) assumed that "A major goal of language acquisition is for the child to be able to take something from what someone else says and form a contingent message that converts simple turn taking into discourse" (p. 435). Bloom's longitudinal research with children from 2 to 3 years indicated a developmental increase over this period from simple adjacency (a child utterance following a parent's) to greater contingency of topic. Younger children introduced new topics or changed the topic more than half the time, while older children's contributions shared the topic of the parent utterance, and added information. As Bloom (1991a) notes: "To participate in conversations, children must be able to use the information in a prior message to access something stored in memory, hold that representation in mind, and access the procedures of language for its expression" (p. 436). This formulation of the problem provides a perspective on the representational demands involved in dialogic discourse that accords with the view developed here. Bloom's characterization involves using a presentation in language to access something in one's own representation, which is then expressed in language form. Her study documents how long and hard is the progress toward ease in accomplishment of this level. A number of authors have emphasized the importance of "scaffolding" by the parent as the child learns to take part in these exchanges. Bruner (1983) provides a theoretical account of this process and shows how a parent may "up the ante" over time, requiring more quantity and more complexity from a child as linguistic and cognitive development advance.

Engaging in a conversation on a single topic that extends to 3, 4, or more turns requires even greater representational capacity and skill than studied by Bloom and her colleagues in 2- and 3-year-olds, and necessitates kicking away some of the scaffolding previously depended upon. The grammatical requirements for this engagement go beyond those of simple and complex sentence structures, and involve deixis, that is, the establishment of relations of space, time, and person in relation to the speech context, and anaphoric reference, reference to elements previously introduced as topics. Analysis of conversations between parent and child that are focused on talk about the past (see Chapters 6, 7, and 9) indicates that the parent initially scaffolds the child's contribution to maintain coherence from one exchange to the next, resulting in extended

course on a single topic. By 4 years of age, and earlier for some, the child is able to engage in fairly long conversations with an adult on a topic about something she has experienced (Hudson, 1993; Fivush, 1993) or is experiencing (Tessler, 1991), indicating that the child is able to share the adult's frame of the topic.

In contrast to talk with adults, preschool children's talk with peers has been stigmatized as egocentric since Piaget's (1926) report, characterizing children as talking past each other, talking for their own sakes and not for engaging others. More recent analysts (e.g., Garvey & Hogan, 1973; Garvey, 1990; Nelson & Gruendel, 1979) have emphasized the opposite: that children do engage in perspective-taking and shared topic. Nonetheless, as French, Boynton, and Hodges (1991) have pointed out, much of the communication between young peers (around 2 years) is limited to attention-getting and struggles over possession. Their analysis reveals that extended interactions lasting more than a few seconds between peers aged 2 to 5 years depends strongly on establishing shared background event knowledge and/or a shared familiar activity context, such as the housekeeping center in preschool. These provide the frame that serves simultaneously to support the play and the language in it. In play with props, as in the housekeeping corner, or with doctor props (Goldhs, Goldman, & Chaille, 1984) the talk is incidental to the activity. Seidman's study (Seidman, Nelson, & Gruendel, 1986) following up the suggestions from Nelson and Gruendel (1979), showed as predicted that play and talk interactions were more sustained when the participants instantiated a shared script. The shared familiar context of the play, and the objects that help to instantiate it, provide the background event and mimetic context in which talk contributes to sustaining the pretense, but does not convey new representational material.

By 4 to 5 years many children can use shared cognitive contexts to maintain an extended conversation on a single topic that also introduces unshared information, without the support of related props or pretense. One of the conversations between two 4-year-old girls reproduced from Nelson and Gruendel (1979) illustrates this more sophisticated level of exchange of representations and presentations of new knowledge.

(13) A: At morning it's lunch time.
B: But *first* comes snack, then comes lunch.
A: Right . . . Just in school right?
B: Yeah, right, just in school.
A: Not at home.
B: Well, sometimes we have snacks at home.

A: Sometimes

. . .

B: Because when special children come to visit us, we some times have snack. Like, like, hotdogs, or crackers, or cookies or or something like that.

A: Yeah, something. Maybe cake.

. . .

B: Or maybe hotdog.

A: Maybe hotdog.

B: But, but, but, Jill and Michael don't like hotdog. Don't you know, but, do you know Michael and Jill?

A: I know another Michael.

B: I know, I know another Michael.

A: No, I know just one Michael. I just know one Michael.

Note: Ellipses (. . .) indicate bits of repetitive talk.

At the outset these two children have agreed that "at morning, lunchtime." They then go on to consider snack at school (shared event knowledge that they can agree on; thus there is no conflict in the representations presented by the conversation). This is followed by information that sometimes there is snack at home, and that under particular circumstances (special children) different foods can appear. Both children contribute to and agree on this. But then the notion of hotdogs for snacks raises a conflict. Some children that B knows don't like hotdogs. How to deal with this raises the issue of whether A knows these children. Remarkably, they are able to agree that they know different Michaels. By wending their way through this shared information about snacks and friends they have apparently succeeded in conveying new information and modifying prior representations of their structure of these categories. This kind of achievement is not possible, even for the 3-year-old, who does not conceive of more than one reality, because representing different experiences through language has not yet become a possibility.

This level of exchange, which is not supported by external playmates ity or props, goes beyond talk about shared experience, present or past. In this exchange, the two girls first share knowledge based in the school routine, and then move to individual knowledge of their different nonpresent home routines, effectively asking questions and acknowledging differences. This level of interaction reflects an ability to represent and express one's own event knowledge, and to compare another's different event knowledge presented through language with one's own.

...course, this sample is still replete with infelicities in comparison with ...adult exchanges, and it reveals a somewhat complexive and circular ...ucture reminiscent of Vygotsky's conceptual complexes. Nonetheless, ...clearly a step along the way to competent dialogic discourse without ...requirement of detailed scaffolding provided by adults.

...The progression from very limited ability to engage on a sustained ...even when scaffolded by parents, to a reasonable level of ease in ...ying on a conversation requiring the processing of nonshared infor...tion with a peer, takes a very long time. "Co-constructing" an account ...an adult or exchanging information with peers does not yet indicate ...the child can either (1) construct an account of an episode (remem...d, anticipated, or imagined) with the necessary linguistic markers ...structures for providing an understandable account to another per...who has not experienced the episode herself; or (2) interpret the ...unt of an unshared episode presented by another. But these earlier, ...demanding forms are steps along the road toward the later achieve...ts. As with any development, one must be careful not to confuse ...er precursor abilities (in this case, engaging in scaffolded conversa...) with the full range of competence of the developed form.[13] In... analyses of older children's conversations (Dorval & Eckerman, ...Dorval, 1990) indicate that it is many years before children acquire ...kills that enable them to stay on topic and share perspectives. Sec...aders still produce many unrelated turns, and coherence contin... increase at least through the ninth grade. Dorval (1990) views ...developments in terms of steps toward collaboration within a par...tion structure. These more developed conversational skills and ...ures lie beyond the abilities of the preschoolers that are the focus of ...alyses here, and thus beyond the scope of this discussion.

...ing in Language: How Culture Enters the Mind

...viously proposed, to enter into the potential offered by human ...age and culture the child needs to acquire the complexities of gram...hat make extended discourse possible. It is not until the child is ...e of following an extended dialogue, and constructing parts of a ...ue that mesh with those of the partner, that the child can actually ...into the language/culture complex. The developmental course im...a long period during which language is learned and used for com...unicative functions, and its mechanisms for constructing extended ...ms of discourse are acquired in these communicative contexts, prior

to the point where they may be used for more advanced functions, so that the earlier levels provide a ratchet for movement to the next level.

The limited extent of cognitive functions of language during the early levels have been noted in the preceding sections, but these limitations should not negate the importance of those cognitive aspects that enter the mind within the language envelope from the very beginning. These include attention to the ways that language in general and a specific language in particular carves up the world into more discrete and conventional categories than those of the prelinguistic period (see Chapters 4 and 8). Beyond this very basic cognitive function lie many further cognitive reflections of communicative functions of language. The emphasis in this chapter on words and word meanings reflects the proposed ideas that language must first be *extracted* from its communicative functions and forms before it can serve to establish new representations. But this does not mean that in the early stages language use has no impact on mental representations. Learning the use of words of all types indicates how one's language partitions the world. Learning the use of "call," "help," and " 'cause" articulates notions of communicative, social supportive relations, and intentions that may not have existed in the implicit MER system. Later, learning the meaning of words like "know," "remember," "fair," and "wrong" signals entry into the cultural categories of knowledge and justice. Each move involves establishment of new vocabulary for new cultural concepts, each at a more complex and abstract level.

Learning words is thus learning to think in cultural forms. This proposition does not entail that particular words of a particular language cut up the world and its ways differently than any other language, although many such differences between language do exist. However, the claim does entail that to learn the language means learning to think culturally in addition to thinking individually or even socially. This is the basic meaning of the Sapir–Whorf hypothesis (Lucy, 1992; Whorf, 1956): Language embodies the culture, thus thinking in language is thinking culturally. This meaning is implicit as well in Vygotsky's ideas of inner speech, although it was spelled out more completely in his discussion of scientific concepts. Wertsch (1990, 1991) has extended Vygotsky's account to encompass Bakhtin's (1981) conceptions of "voices in the mind" (heteroglossia). As suggested previously, children seem to be exceptionally open to a variety of different voices and are able to "reenvoice" them quite accurately from early in development (Dore, 1989). Thus it is not only the categories of the culture that enter the mind from language use

But L is not equivalent to culture!

language users themselves also are represented there. As well, individual knowing system remains and develops, not only in terms of persons and linguistic cultural representations, but also in terms integration of all this within as well as without. The remainder of book considers more fully these important issues of language, cul- and the developing mind.

ion

apter, the following topics have been broached that relate to the he book:

ning – of words and other forms – is acquired through social dis- se.

course reports external representations of affairs that may differ from erson's prior internal representation of such affairs.

ticipation in discourse requires extensive practice.

mpetence in interpreting discourse representations facilitates and be necessary to establishing internal representations formulated in nguage.

en internal language representations come into play, thinking in lan- ge emerges.

propositions we only need to add the recognition that lan- cultural system. Its forms and structures have a cultural his- its meanings are culturally embedded; they are not the prop- dividuals, dyads, or small groups. It follows that when thinking e emerges, culture enters the mind. Unlike the thinking of the that of the 5-year-old – and much more the 10- or 20-year- only socially mediated but also, by virtue of sharing a com- age, culturally mediated. Because most of the interesting organizations exist as cultural properties (not as childish constructions) this step is the most important one for bringing to the cognitive world of adults. This chapter has only begun ion of these revolutionary developments. Succeeding chap- ore of the story, and show other ways in which language used representationally – both internally and externally – in ol years.