

5 Talking about "New" Information: The Given/New Distinction and Children's Developing Theory of Mind

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Successful communication is the result not only of knowing what the words of a language mean and how to put the words together in grammatically appropriate ways but also of knowing how to use the language with others—the domain of pragmatics (O'Neill & Happé, 2000). For example, the ability to communicate utterances that are informative, relevant, polite, ironic, or sarcastic relies on more than simply knowing how to put the words of a language together into a sentence.

The focus of this chapter is the pragmatic ability to provide a listener with information that is *new* rather than information that is already known by the listener and that would be *old* (or, as it is usually referred to by linguists, *given*) and presumably of little interest. The distinction between new and given information has been a recurring theme in my work over the past ten years, during which time it has become apparent to me that the notion of new information can be very slippery. That is, in different contexts it appears to mean very different things. In this chapter, I do not attempt to provide a complete description of what it means to communicate new information. What I do is describe a diverse set of studies—involving children making requests, commenting on events, and learning new words—that, taken together, emphasize different ways of conceptualizing new information and that pose an interesting challenge with respect to describing what kind of an understanding of mind might underlie a child's ability to assess new and given information in these different situations. Toward the end of the chapter, I also provide an overview of

how new/given information is defined within the context of adult communication, in order to appraise the young child's competence. I end this chapter by situating this discussion of what is "new" within the larger domain of pragmatics and theory of mind, with particular reference to a few of the other chapters in this volume.

My interest in the ability of children to provide new information began with the writings of Grice (1975) and his seminal idea that it is reasonable to assume that speakers and listeners, in conversing with each other, try to meet certain general standards:

Our talk exchanges . . . are characteristically, to some degree at least, cooperative efforts; and each participant recognizes in them, to some extent, a common purpose or set of purposes, or at least a mutually accepted direction . . . at each stage, some possible conversational moves would be excluded as conversationally unsuitable. We might then formulate a rough general principle which participants will be expected (*ceteris paribus*) to observe, namely, Make your conversational contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged. (Grice, 1975, p. 45)

Grice referred to this as the cooperative principle and developed it into four maxims of conversation—namely, four assumptions that participants in a conversation are aware of that guide their conduct (1975):

Maxim of quantity

Make your contribution as informative as is required, but not more informative than is required.

Maxim of quality

Try to make your contribution one that is true. That is, do not say anything you believe to be false or have inadequate evidence for.

Maxim of relation

Make your contribution relevant to the aims of the ongoing conversation.

Maxim of manner

Be clear. Try to avoid obscurity, ambiguity, wordiness, or disorderliness in your use of language.

The maxim of quantity caught my attention initially for its clear reliance on a theory of mind and, in particular, its assessments of another person's knowledge. That is, if a speaker is to provide only that information that a listener needs and not more, then a speaker must be able to assess what knowledge the listener can be assumed to share in common and adjust his/her speech accordingly.

A discussion of Grice's maxims is not frequently encountered in the literature pertaining to child language development (but see Surian, Baron-Cohen, & Van der Lely, 1996; Waters, Siegal, & Slaughter, 2000), although one does find much discussion of a related notion, that is, the distinction between new and given information (Clark & Clark, 1977; Greenfield & Smith, 1976; Halliday, 1967). Those who discuss this distinction argue, for example, that an important aspect of using language is the distinction between given information, which the speaker believes the listener already knows and accepts as true, and new information, which the speaker believes the listener does not yet know (Clark & Haviland, 1977).

But how is it that speakers achieve what is captured in Grice's maxim of quantity or the given/new distinction? It's one thing to say that speakers should strive for a certain level of informativeness or "newness," but it is an altogether different question to ask how speakers are able to determine the level at which to pitch a contribution to a conversation.

What Is "New" Information?

New Information Is Information Obtained While a Listener Is Physically Absent

In my first study examining children's ability to communicate new information (O'Neill, 1996), I began by asking myself what might be one of the first factors children take into account when assessing whether some information might be new or given for a communicative partner. That is, if a child was going to adapt her communication to include only new and not given information, what information about another person (i.e., the listener) might be relevant? My intuition was that one of the first circumstances under which children might note that they and a listener have different knowledge is when they and the listener are not *physically copresent* for an event. Indeed, Clark and Marshall (1981) have argued that physical copresence is one important factor that communicative interactants take into account when assessing common ground and mutual knowledge. This intuition was borne out.

In Study 1 of O'Neill (1996), older 2-year-old children (mean age 2;7) were faced with the task of having to ask their parent (generally their mother) to retrieve a toy that I had hidden in one of two containers—a box or a cup—located

on the far-right or far-left side of a high shelf out of the children's own reach. On two *parent-present* trials, the parent was present in the room when I first showed children the toy and hid it in one of the two locations. On two other *parent-absent* trials, the parent did not view the introduction and hiding of the toy because she had either left the room or closed her eyes during this time. The parent then reentered the room or opened her eyes following the hiding. The children were instructed at this point to tell their parent what they wanted her to do. (It should be noted that when the parent entered the room, she was surreptitiously told the location of the toy so as to be able to respond to the child's first request and not to need to ask for feedback, which would present a confound on later trials. On closed-eye trials, the parents peeked.) The question of interest was whether children would adjust their requests for the toy according to whether their parent was absent or not for the introduction of the toy and its hiding. Of particular interest were three types of new information that children might include more often in their requests on parent-absent trials: (1) a point to the container in which the toy was hidden, (2) the name of this container, and (3) the identity of the toy (e.g., duck, pig).

The results clearly showed that 2-year-old children adjusted their requests for the toy depending on whether their parent had been present during the introduction and hiding of the toy. When their parent had been in the room, children's requests were of a very general nature, simply asking for help (e.g., "Gimme help . . . er, helper, helper"). However, when their parent had been absent or had closed her eyes for the introduction and hiding of the toy, the children significantly more often pointed to the location of the toy, named the location of the toy, and named the toy (e.g., "Get that. Get that duck in the box," accompanied by a point to right side of shelf). Overall, 73% of the 2-year-old children provided more new information in their requests on parent-absent trials than on parent-present trials.

In Study 2, these results were replicated with young 2-year-olds (mean age 2;3) using a simplified design in which children had to ask for a sticker placed in one of two identical-looking containers located, out of reach, in the far corners of the table at which the children sat. Because these younger children would not tolerate their parent leaving the room, an open-eye/closed-eye procedure was used. On two *closed-eye* trials, the parent closed her eyes during the hiding of the sticker and, on the other two *open-eye* trials, the parent kept her eyes open. The identity of the sticker was not revealed to children, and thus the question of interest in this study was whether children would gesture to the container in which the sticker was hidden more often when the parent had not witnessed its placement than when the parent had. As in Study 1, I found that children gestured to the location of the sticker significantly more often on closed-eye trials than on open-eye trials.

Thus, in this set of first studies, new information was viewed as information that a listener had not shared with a speaker as a result of being physically

absent at the time the information was made available. It should be noted that the notion of physical absence in this study included actually being out of the room when the new information was conveyed and being "absent" due to having visual access obstructed. In this sense, the definition of physical absence/copresence may be broader than that implied in the work of Clark and Marshall (1981) mentioned earlier. Despite this broader interpretation, children as young as 2 years of age were found to adapt their requests for help in getting a desired object, depending on whether their parent had witnessed the object's introduction and hiding location.

What type of an understanding of mind might mediate this observed tailoring of children's requests? I addressed this question in detail in O'Neill (1996) and present only a summary of my argument here. Even 3- and 4-year-old children have difficulty recognizing the particular knowledge possessed as a result of particular perceptual and sensory experiences and have difficulty answering questions such as "Who knows x?" (cf. source of knowledge studies such as O'Neill, Astington, & Flavell, 1992; O'Neill & Gopnik, 1991). Hence, I argue that 2-year-old children do not tailor their communication on the basis of such a sophisticated conception of knowing as "*seeing = knowing*." Rather, I propose a "*disengagement + updating*" explanation whereby the 2-year-old children adapted their communication, first by taking into account their parent's disengagement from the events taking place and, second, by wanting to update the parent about the significant and relevant events that had happened while the parent was disengaged (i.e., because the parent had left the room or had kept her eyes closed). In using the phrase "taking into account a parent's disengagement," I mean to imply only that a child has realized in some global sense that the parent had become disengaged from an ongoing event—much in the same way that even a 9-month-old will react if a parent suddenly adopts a "still-face" (e.g., Trevarthen, 1977; Weinberg & Tronick, 1996) or discontinues her involvement in a game (e.g., Ross & Lollis, 1987). A child's assessment that the parent has become disengaged from an interaction can take into account a whole host of factors, such as whether the parent is absent from the room, has her eyes closed, is talking about unrelated matters, or appears distracted. Such a notion of disengagement does not necessarily imply that the child recognizes that one or more of the parent's specific sensory capabilities has been negatively affected, such as the ability to hear, see, and so forth. This type of understanding is implied, however, in an explanation that relies on "*seeing = knowing*."

The second part of my explanation involves the notion of updating. I suggest that, after a parent's disengagement from the game, children were motivated to update the parent regarding the significant events that had occurred during the period of disengagement. In the context of these studies, these "significant events" are taken to be the identity of the toy and its location, as opposed to other aspects of the situation, such as the fact that the experimenter hid the toy, about which

the children are not predicted to want to update their parent. That is, children's adaptations may have relied on a simple understanding of the form "Tell other people about significant happenings they did not take part in (or witness) with me." It is also possible that such significant events do not include other possible new information not relevant to the goal of finding the toy, such as the experimenter accidentally dropping the toy on the way to the shelf. Because this study did not manipulate such factors, this cannot be known for sure. Nevertheless, if children are assessing new/given information not only according to physical absence or visual occlusion but also according to the relevance of the new information to the task at hand, then it appears that this distinction encompasses not only the maxim of quantity but also the maxim of relation: make your contribution relevant to the aims of the ongoing conversation. As the reader will see, this notion of relevance and its relation to the new/given distinction arises again in connection with the next two studies to be discussed.

New Information Is "the Relevant Thing to Say"

In the study just described (O'Neill, 1996), the communicative situation was an imperative one for children—they were making requests. I began to wonder, however, about communicative interactions of a more *declarative* nature—situations, for example, in which children are simply commenting on events around them. What underlies their ability to provide new information in such settings, and how is new information even to be defined? Consider, for example, two children looking at a flower. One child says, "It's got a bug on it." Some could argue that the very term *new* is inappropriate here, given that both listener and speaker are looking at the same thing and the information to be communicated is not likely to be new to either as both are perceptually aware of it. As we shall see, such situations force an expansion of the definition of new information beyond that of information not available to a listener due to physical absence or disengagement.

Indeed, in the literature and research concerning children's early communicative utterances, new information has been defined in a more lenient manner as information that has been noticed and is new for the speaker alone, rather than according to the more sophisticated definition of new information as information not known by a communicative partner. In what they refer to as the "principle of informativeness," Greenfield and Smith (1976) and Greenfield and Zukow (1978) have argued that, in the one-word stage, "what is taken for granted [i.e., perceived as certain] goes unstated by the child, while uncertain, informative, or changing elements are given verbal expression in the single word utterance" (Greenfield & Zukow, 1978, p. 290). Beyond the one-word stage, a number of studies have suggested that children make explicit the information that is situationally the least redundant (e.g., Hornby, Hass, & Feldman, 1970;

MacWhinney & Bates, 1978; Weisenberger, 1976) or that reflects changing, as opposed to unchanging, elements (e.g., Rowan, Leonard, Chapman, & Weiss, 1983; Snyder, 1978. See also O'Neill & Happé, 2000, for a full review of this early-language literature.)

One question this previous research cannot answer, however, and that my study with Francesca Happé (O'Neill & Happé, 2000) sought to answer, is whether one might see, even at the one- or two-word stage, *consistency* in the types of *topics initiated* by children. That is, how early might children demonstrate, by the timing and topic of their utterances, that they share an adult intuition of what aspects in a situation could be topics of conversation? In other words, when do children recognize those aspects in the environment that are *salient*, in the sense of being potentially of shared interest to others, and worth communicating about (O'Neill & Happé, 2000)? The question is not a trivial one. For example, it has been well documented that individuals with autism display pragmatic impairments that include great difficulty initiating topics, choosing an appropriate topic, staying on topic, and knowing when a topic should be changed (e.g., Baron-Cohen, 1988; Eales, 1993; Fay & Schuler, 1980; Tager-Flusberg, 1981). Thus, these individuals lack the pragmatic ability to determine what is an appropriate or good topic of conversation. For typically developing children, on the other hand, an early, significant step in their pragmatic development is the recognition of those aspects in the environment that have the potential to be of shared interest to the self and a communicative partner and thus worth communicating about.

In O'Neill & Happé (2000), children were presented with eight sets of four objects in the following kind of scenario. A child was seated at a small table with the experimenter on her right and her mother on their left. The experimenter handed the child a small, yellow, plastic duck (Trial 1). The child was free to explore the toy for as long as she wanted, and when she was finished with it she could "give it to Big Bird" by sending it down a chute. Once she had gotten rid of the toy, the experimenter handed her another, identical-looking small duck (Trial 2). Once she had gotten rid of that toy, another identical-looking small duck was produced (Trial 3). And finally, the fourth time (Trial 4), the experimenter handed her a yellow, plastic duck that was about three times larger than the previous three ducks.

In this type of scenario, we might assume that children might name the duck or say something about it (e.g., yellow) on the first trial, say less on the second and third trials when they are given ducks identical to the first, and then, on the fourth trial, comment on the change in the size of the duck (e.g., "big duck"). That is, the new information to be communicated would be related to the attentional system being captured by the perceptually salient or changing aspects of the situation, namely the introduction of the toy on Trial 1 and the change in the property on Trial 4 (cf. Bates, 1976; Greenfield & Zukow, 1978). In this sense, saying "big duck" on the fourth trial would be the "relevant thing to say."

We (O'Neill & Happé, 2000) presented children with eight such series of four objects, which included changes in the identity of the object (e.g., three dogs followed by a ball) and property changes (e.g., three intact teddy bears followed by one teddy bear with an ear missing). Three groups of children participated: 20 typically developing children (mean age = 22 months), a group of 11 children with Down syndrome (mean age = 45 months), and a group of 10 children with autism (mean age = 55 months). The three groups of children did not differ significantly with respect to the size of their productive vocabularies as measured by the MacArthur Communicative Development Inventories (Fenson, Dale, Reznick, et al., 1993). Indeed, all the children were at about a one- or two-word linguistic level. For the purposes of this discussion of new and given information, I highlight only two main findings from the study.

One behavior we measured was children's naming of the toys throughout the four trials and/or their talk about the change on the fourth trial. Interestingly, and somewhat surprisingly, there were no differences overall among the groups in the total number of such utterances observed. However, the *timing* of these utterances among the four trials did differ. Among the typically developing children, significantly more such talk occurred on the first and fourth trials than on the second and third trials, producing a pronounced U-shaped pattern of responding. In contrast, among the children with autism, no prominent U-shaped pattern of responding was observed. In addition, and unlike among the typically developing children, their utterances were also very rarely directed to the mother or the experimenter and occurred largely while the child was looking at the toy. The pattern of responding among children with Down syndrome fell in between that of the other two groups of children.

In addition to these differences at the level of children's vocalizations, differences were also seen at the overall level of children's behavioral actions with the toys. For example, we observed the pattern of certain target behaviors occurring on each of the four trials for a given toy—behaviors such as manually or visually exploring a toy, producing any play behavior with a toy, or producing any verbal or communicative behavior to mother or the experimenter. If any such behaviors were observed on a trial, a score of 1 was given; if none, a score of 0. We were interested in seeing, across all the toys, whether the pattern of responding over the four trials would differ among the three groups. And it did. Among the typically developing children, the two most common patterns of responding were either to produce the target behaviors on the first and fourth trials but not on the intervening trials (i.e., a U-shaped pattern of responding: 1001) or to produce the target behaviors on the first two trials only, followed by a recovery on the fourth trial (i.e., 1101). Among the children with Down syndrome, the most common pattern was to produce the target behaviors on all four trials (i.e., 1111). Among the children with autism, the most common pattern seen was one we referred to as "other," in which the occurrence or absence of the target behaviors was more

randomly distributed across the four trials and not timed with the changes in identity or property of the toys on the first and fourth trials (e.g., patterns such as 0111, 0011, or 0100). That is, the children with autism often behaved as though they were oblivious to the changes on the first and fourth trials, or as suddenly interested in the toys on the second and third trials.

These findings are the first to suggest that, even at the one- and two-word stage, typically developing children direct their attention in a remarkably similar way to certain aspects of the environment around them—at least with respect to the toys we showed them. That is, their vocalizations occurred at very similar times during the game, and their content was remarkably similar. These results also suggest that the difficulty children with autism face in initiating what others consider appropriate or relevant topics of conversation may be in part a result of the fact that they do not, even at an attentional level, appear to find the salient, changing aspects of the toys of interest in the same way the typically developing children and children with Down syndrome do.

With respect to the typically developing children, furthermore, the results of this study raise the question of how children as young as 22 months have come to understand that the first appearance of a toy, or a change in its property, is something worth talking about. It could be argued that children's utterances simply reflected their own interests. But I argue that they reflected more than this. If children were just commenting on their own subjective interests, how does one explain the fact that the timing and content of their utterances were so similar? Presumably their own subjective interests were changing moment by moment, and so, if their comments reflected these changing interests, they would not have shown consistency with respect to timing and content. An example that comes to mind is the child with autism who commented "pig" rather inexplicably on a trial that did not involve any pigs, although the child had encountered pigs on an earlier series of four trials. In contrast, the typically developing children seemed to be selectively attuning their comments to certain salient, more objective changes in the situation, resulting in similarities with respect to the timing and content of their utterances. The findings of this study may indeed rest, in part, on the ability of these children, by 22 months, to assess what other people around them pay attention to and communicate about. Such assessments, leading to a general sense of "what people talk about," could be based on a number of cues, such as observation of another person's line of regard, use of referential gestures, or actions with an object. These behaviors could serve as a means whereby children could note regularities in what interests another person and other people in general. And research has amply demonstrated that children are sensitive to such nonverbal behaviors from as early as 9 months of age (e.g., Baldwin, 1991; Butterworth, 1991; Butterworth & Grover, 1990; Corkum & Moore, 1995; Leung & Rheingold, 1981; Murphy & Messer, 1977; Scaife &

Bruner, 1975). In addition, the ability to initiate the kinds of topics observed in this study seem, in some cases, to rely on an appreciation of what is the canonical or typical situation (e.g., an intact teddy bear). There is certainly developmental evidence to suggest that the noting of discrepancies from the norm may be of growing (and even particular) importance to children during the second to third year of life (e.g., Kagan, 1991).

New Information Is an Unshared Perspective on an Event

In this final study that I will discuss (O'Neill, Topolovec, & Stern-Cavalcante, 2002), the situation remained a declarative one, but the roles for the child and the adult were reversed. It was now the child's task to determine the intended new information being conveyed by an adult and the particular perspective in the communicative situation being highlighted by the speaker.

In this study, children were presented with a situation in which they had to assume some aspects of a particular situation (jointly viewed by the adult and the child) to be given or irrelevant and one particular aspect to be the new or nonshared information to which the speaker was intending to refer. The use of adjective terms is a case in point. Suppose a child witnesses an adult holding a teddy bear and saying "fuzzy." What is the child to make of this label? The possible meanings of the term "fuzzy" are almost limitless—brown, fat, furry, two-eyed, round, big, heavy, and so on. Indeed, adjectives are often used to capture aspects of an object that relate to how our senses are impacted by the object—its taste, smell, appearance, sound, and feel. Given this, it makes sense that many aspects could be salient and competing for attention. A simple account based on some notion of perceptual salience, in which the relevant salient dimension simply "pops out" to the child (or a listener of any age), is not likely to offer a full explanation of how the relevant dimension is determined.

So, in such a situation, how is a "meeting of minds" achieved? How does a child zero in on the intended perspective of the speaker? In this study, precisely because adjectives often relate sensory information, it made sense to me that children would zero in by attending, in addition to the label, to the actions performed by the speaker that might specify more clearly the intended "sensory perspective." The intended "sensory perspective" of interest in our study was touch—that is, the novel adjective term used by the adult referred to a tactile property of an object. The prediction was that gestures used by a speaker that accompanied the novel adjective term and illustrated the tactile property in question would be noticed by children and used in determining the intended meaning of the term.

Two- and 3-year-old children participated in the study. For each novel adjective term to be learned, children were first given a teaching trial on which they

were presented with a target object (that they all knew the identity of) to explore manually and that had an interesting tactile property—the “target” property. For example, they were given a mouse that was filled with rubber, grapelike balls. During this exploration time, half of the children, those randomly assigned to the *descriptive gesture* group, heard the experimenter label the object as *globby* five times according to a preset script (e.g., “Wow, it’s a globby mouse. Look, it’s a globby mouse.”). Each time the label was used, it was accompanied by a descriptive gesture that highlighted the insides of the object (e.g., rolled balls between thumb and forefinger). The other half of the children, assigned to the *point gesture* condition, also heard *globby* used in the same preset script, but instead of the label being accompanied by a descriptive gesture, it was accompanied by a point gesture to the object as a whole. Immediately following this teaching phase for each novel adjective term, children were presented with two identical-looking test objects, for example, two fish, that differed only with respect to their insides. In the case of the fish, one fish “matched” the target object during teaching and was also filled with grapelike balls. The other “nonmatching” fish was filled with cotton wool. Children were asked to find the globby fish.

Did presenting the novel adjective term with a descriptive or point gesture make a difference? The answer was clearly yes. Children given a descriptive gesture chose the correct test object significantly more often than children provided with only a point gesture. When choosing the test object, these children were also significantly more likely to reproduce the descriptive gesture with the test toys. Children given the point gesture also indicated more uncertainty at the time they needed to choose the matching object, asking such questions as “This one?” significantly more often.

In addition to this effect of the gesture types on children’s test choices, when children’s comments during the teaching phase were transcribed, a further difference was found with respect to the number of properties of the toys mentioned by children at the time of teaching the target term. Among the children given the descriptive gestures, repetitions of the adjective term were most commonly observed. Among children provided only with point gestures, repetitions were also observed, but another type of comment was also observed that was rarely observed among the descriptive gesture group—comments about other *nontarget* properties and parts of the toys, as in the following examples:

His tail is grey.

It walks. It has a mouth. It has a nose and it has a chin. And it has a butt. This thing on it.

He looks like a big squirrel. But, he looks like a round circle.

Look it. The spongy cow is pretty good. He has funny little spots.

Such comments, we argued, reflect the fact that, given only a point gesture, the speaker’s intended referent was not clear, and therefore children were more likely

to name properties and parts of the object that were salient and that caught their attention in their effort to discern the meaning of the novel adjective term. That is, we believe these comments reflect the greater number of properties children in the point gesture were entertaining with respect to the possible meaning intended by the adult when using the novel adjective term.

So, overall, in this study of adjective learning, children were presented with situations in which the sensory information being highlighted (i.e., tactile information, in most cases) was not visually salient and could not be ascertained through visual inspection. This study demonstrates that, in such situations, children as young as 2 years of age approach the task of word learning very actively and utilize relevant pragmatic gestural cues provided by the speaker to decipher the meaning of the new information (i.e., the novel adjective term) uttered by the speaker.

The situation children encountered in our study may sound similar to that encountered in other studies that examine word learning and the role of non-verbal information provided by a speaker. For example, Baldwin (e.g., 1991, 1993) has shown that children as young as 16 months of age will check a speaker’s line of visual regard to determine which of two possible referents the speaker is referring to when uttering a novel label. The situation children encountered in our study was quite different, however, in that only *one* referent was ever present at the time of teaching, and the child needed to determine the *particular aspect* of the object the speaker was referring to. This, I argue, is a more difficult task for children than determining which of two referents is intended by a speaker.

It is interesting to contemplate how the situation presented to children in this study of adjective learning actually made things quite a bit easier than may be often the case when people use adjective terms. In this study, the adjective terms all referred to sensory properties of the objects. This makes it possible for a speaker to use some sort of accompanying sensory action to help the listener zero in on the intended aspect of the object. However, many adjective terms are much more subjective and abstract—lovely, terrible, ugly, pretty—and cannot be so easily accompanied by a physical action that helps to clarify their intended referent. Indeed, in many such cases it may be difficult even for the speaker to define exactly what aspect of the object leads her to use the adjective in question (e.g., what aspect of a painting is a speaker referring to when she calls it “lovely” or “horrible” or “interesting”?)

Taxonomies of New and Given Information

Up to this point in the chapter, I have presented a relatively informal discussion of some of the different types of new information that I have observed children to provide or to utilize in their early communicative interactions with

others across a number of different studies of mine. One reason I chose this focus is that the topic of new and given information is one that has not been studied very much among children. With respect to adult communication, in contrast, a fairly vast literature exists on the topic of new and given information. I do not attempt to review this literature in full here but highlight some work where the focus has also been to distinguish different types of new or given information or to consider what information about others might be taken into account when making assessments about new and given information. It is of interest to note that, in many of these discussions, different means by which information may be considered to be new, or assumed to be given, are contrasted. However, a detailed account of *how* a speaker or hearer might decide what information is new or given to a conversational partner is left unspecified.

In a review of the adult literature, Prince (1981) identified three main ways in which various authors have defined givenness:

1. Givenness defined in terms of *predictability* or *recoverability* (e.g., Geluykens, 1989; Gundel, Hedberg, & Zacharski, 1989; Halliday, 1967; Halliday & Hasan, 1976; Kuno, 1972, 1978; Ostman and Virtanen, 1997):

Givenness_p: The speaker assumes that the hearer can predict or could have predicted that a particular linguistic item will or would occur in a particular position within a sentence (Prince, 1981, p. 226).

2. Givenness in the sense of *saliency* (e.g., Chafe, 1976):

Givenness_s: The speaker assumes that the hearer has or could appropriately have some particular thing/entity/ . . . in his/her consciousness at the time of hearing the utterance (Prince, 1981, p. 228).

3. Givenness in the sense of referring to *shared knowledge* (e.g., Clark & Haviland, 1977; Kuno, 1972), which may be most dependent on extralinguistic information and perhaps a prerequisite for the other types of givenness:

Givenness_k: The speaker assumes that the hearer "knows," assumes, or can infer a particular thing (but is not necessarily thinking about it) (Prince, 1981, p. 230).

Another approach to the issue of what constitutes "shared knowledge" has been to outline, as Clark and Marshall (1981) have done, the types of mutual knowledge that may be taken into account by speakers and listeners.¹ Clark and Marshall proposed that the following four kinds of mutual knowledge may be taken into account:

1. *Community membership*: things that everyone in a community knows and assumes everyone else in the community knows.

2. *Physical copresence*: things that we assume another person knows by virtue of the fact that the person was physically copresent in a situation.
3. *Linguistic copresence*: things that people assume others know as a result of what was previously communicated to them.
4. *Indirect copresence*: things that people assume a communicative interactant knows indirectly as a result of being physically or linguistically copresent.

In terms of the studies discussed in this chapter, givenness_k and, more specifically, *physical copresence*, was a primary consideration in the design of O'Neill (1996), in which it was presumed that the presence or absence of the parent might represent a salient and noticeable event to children and result in their taking this into account when addressing the parent, as children as young as 2 years of age were able to do.

Givenness_s, in contrast, is closer to the notion of new and given information explored in the study of children's exploratory behavior and commenting while observing new and old toys (O'Neill & Happé, 2000). It is also explored in the study of children's sensitivity to gestural information provided by the speaker indicating the "new" property to be discovered (O'Neill et al., 2002). In these two communicative settings, a certain piece of information or a certain perspective became salient as a result of extralinguistic factors, such as the sequence of toys encountered or the gestures used by the speaker.

When discussing the O'Neill and Happé (2000) study earlier in this chapter, the notion of relevance was brought up, in the sense that typically developing children seem to possess, as early as 22 months of age, a sense of what the "relevant" thing to say is. In the adult communication literature, Sperber and Wilson (1986, 1987; also Wilson, 1994) have proposed a *theory of relevance*, at the heart of which it is assumed that "human cognition is relevance-oriented: we pay attention to information that seems relevant to us" (Wilson, 1994, p. 44). Relevance theory abandons the notion of mutual knowledge in favor of a notion of "cognitive environment" that includes a set of facts "manifest" to an individual, where "manifest" is defined as being perceptible or inferable (Sperber & Wilson, 1986, 1987). For example, one way in which information can be made more manifest to a hearer is through acts of ostension, as in the study of adjective learning discussed earlier (O'Neill et al., 2002), in which descriptive gestures were used to highlight the tactile properties of the objects. Any such act of ostension, according to relevance theory, conveys a presumption of relevance and does so "because attention goes only to what is presumed relevant" (Sperber & Wilson, 1987, p. 700).

Overall, relevance theory has as its focus the explanation of interpretations made by *hearers* and the main inferential abilities involved in verbal

comprehension. Distinctions between given and new information (or similar distinctions of topic and comment; presupposition and assertion) are argued to be better explained in terms of "foreground implications" and "background implications" (Sperber & Wilson, 1986, 1987). Moreover, such implicatures are viewed not as resulting from conscious effort but rather as arising as automatic effects of the hearer's tendency to maximize relevance and the speaker's exploitation of that tendency. Many aspects of relevance theory have received vigorous debate (the reader is directed to the open peer commentary in Sperber & Wilson, 1987).

With respect to children's communicative competence in particular, I would point out that it is quite likely the case that at times what would be "presumed relevant" by adult standards may not be so for children, calling into question the automaticity of this process as described by Sperber and Wilson (1986, 1987). That is, children may overassess or underassess the aspects of a scene or object presumed to be relevant by adults. Indeed, Sperber and Wilson (1987) may be implying this when they state that "humans have a number of heuristics, some of them innate, others developed through experience, aimed at picking out relevant phenomena" (p. 703). We have gained very little knowledge from research to date, however, as to what might be the nature of such heuristics developed through experience.

Pragmatics, Theory of Mind, and Language

In this last section of the chapter, I attempt to place the evidence and ideas discussed so far within the realm of pragmatics and the overall theme of this volume, namely the interdependent relation between language and theory of mind.

Pragmatics is a notoriously difficult area of inquiry to define, although a general description is that it refers to the study of ways in which speakers and listeners *use* language in social interaction (Levinson, 1983). In most conceptualizations, a boundary is drawn between pragmatics and the phonological, morpho-syntactic, and semantic components of language. At the heart of pragmatics is the use of language in an appropriate manner. For example, the ability to give a listener just the right amount of information in reply to a question so as not to sound rude (too little information) or pedantic (too much information). Or, for example, knowing that while "kitty" may be an appropriate term for the cat with a 2-year-old, it is not generally the appropriate term to use with adults. Studies of mine, such as the ones described in this chapter, have been concerned with the question of how speakers come to adapt their speech in an appropriate manner, particularly in contexts where what determines the most appropriate utterance requires an assessment of newness or givenness. In such contexts, the mental states of the listener and the speaker (i.e., attentive state, knowledge state,

etc.) must be taken into account at some level in order to designate certain information as new or given. This is not to say that the child's understanding of mind always plays a role in the production of pragmatically appropriate utterances. For example, observed frequency alone may explain the use of "kitty" with children and "cat" with adults. Nevertheless, particular areas of pragmatic development, such as the assessment of new versus given information, are certain to rely on a child's developing understanding of their own mind and other people's minds.

For example, in several other chapters in this volume, authors discuss how pragmatic factors may play a role with respect to (a) developments in a child's understanding of mind achieved through communication, and (b) developments in communication achieved as a result of the child's developing understanding of the mind. But it is not the case that in all of these situations the effect of the pragmatic factors will depend on a child's current level of understanding of the mind.

Consider two events of type (a) discussed separately by Dunn and Brophy (this volume, chapter 3) and Harris (this volume, chapter 4). Dunn and Brophy discuss the findings of Dunn and Brown (1993) in which the pragmatic intent of the speaker when engaged in talk about causes (i.e., the intent to control the child or to share in play) was later found to influence children's understanding of emotion and their performance on cognitive assessments. Relatedly, following a review of several training studies, Harris concludes that the variation in children's performance on theory-of-mind tasks may be attributable to a greater degree to a mother's pragmatic intent to introduce varying points of view in a conversation or narrative, rather than simply to the total number of explicit references to mental states that she makes. In both of these cases, the pragmatic factor can be viewed as part of the situational context of children's learning, brought about as a result of the goal of the speaker. That is, the pragmatic stance of the speakers in these cases can operate independently of any need on the part of the listener (i.e., the child) to assess this stance. The pragmatic intent of the adult, so to speak, is simply a feature of the context in which the information is learned by the child. The effect of this pragmatic intent operates independently of the child's level of understanding of mind.

Such situations stand in contrast to those in which the pragmatic factors involved do require a certain level of understanding of the mind in order for the goal of the communication to be achieved. These are the types of situations encountered by children in the three studies of mine described in this chapter and provided as examples of how children's own understanding of the mind may contribute to their communicative competence. Other examples can be found in this volume. For example, Slomkowski and Dunn (1996, cited by Dunn & Brophy, this volume, chapter 3) found that better performance on theory-of-mind tasks by children at 40 months of age was associated with more frequent

and extended "connected" conversation with their friends at 47 months of age. Similarly, Dunn, Cutting, and Fisher (2002) found that the characteristics of the child's friend, including his/her theory-of-mind ability, was related to the quality of discourse, joint pretend, and connectedness of communication of the dyad as preschoolers. "Connectedness" is viewed by Dunn and her colleagues as reflecting "the extent to which each speaker is tuned in to what the other is talking about..." (Dunn & Brophy, this volume, chapter 3, p. 59) and could, as such, be argued to represent not just a pragmatic feature of talk but rather the pragmatic ability to produce connected talk that relies on an understanding and sharing or meeting of minds.

The assessment of information as new or given also always implies at least two communicative interactants—underscoring the nature of such situations as representing a "meeting of *minds*." Consider that by the age of 22 months, the typically developing children in the O'Neill and Happé (2000) study already demonstrated a common understanding of what is relevant to talk about in the context of the series of toys shown to them. This ability is similar to the notion of "community of minds" discussed by Nelson (this volume, chapter 2). She states that, "the Community of Minds depends inextricably on the capacity to talk about matters of interest to the members of the community, that is, to talk about things that are on members' minds" (p. 30). I would agree with Nelson that the ability to recognize topics that will engage and be relevant to other minds is crucial to entering the community of minds. A question for further research is how children actually come to recognize certain topics as such.

The three studies described in this chapter do raise questions, however, about the level of understanding of mind that a child needs in order to enter the community of minds. For example, if, as Nelson (this volume, chapter 2) argues, entering the cultural community of minds requires a full-fledged understanding of how shared knowledge comes into being, then the consequence is that none of the children in my studies would be granted entry. They would be instead, as Nelson would most likely agree, on "a pathway that leads into the larger community of minds" (p. 37). However, the 2-year-old children in the O'Neill (1996) study clearly demonstrated an ability to track the difference in their parent's shared/nonshared information based on the salient cues to the parent's presence or absence that were provided. Thus it would appear that they have certainly, even in Nelson's view, acquired "the key to the door that opens into the Community of Minds" (this volume, chapter 2, p. 32) at a much earlier age than would be suggested by their performance on traditional theory-of-mind tasks, such as false-belief tasks.

Finally, as Dunn and Brophy (this volume, chapter 3) wisely remind us, our understanding of communication and of minds is played out in a dyadic context (at minimum!). When considering relations between an understanding of the mind and communicative competence, one must therefore not forget that

two minds are interacting. As Dunn and Brophy state, "the aspects of conversation that have been discussed depend on characteristics of both child and interlocuter, and on the quality of the relationship between them" (p. 63). In many discussions of the relation of language to theory-of-mind understanding, it is the interlocuter's language that is at focus and its effect on the child's theory of mind. However, the results of Brophy and Dunn (2002), Hughes, Dunn, and White (1998), and Dunn et al. (2002), described in Dunn and Brophy's chapter, clearly suggest that the influence of the interlocuter's language on the child's theory of mind may be mediated by the theory of mind held by the interlocuter—for example, the child's mother or the child's friend in the studies cited. The same issue is raised by Harris (this volume, chapter 4), who argues that it is very possible that mothers will vary in their emotional and psychological insight, and in their disposition to articulate and compare different points of view. Indeed, it is hard not to wonder about the consequences of a child's mother's theory of mind when reading the transcripts provided by Dunn and Brophy (this volume, chapter 3) and recognizing that, for one mother at least, the line between lying and imaginary stories is so fragile that the solution is to try to stop the imaginary stories.

Summary

I have shown through this brief overview of several studies of mine that the notion of given and new (or shared and nonshared) information in communicative settings is a multifaceted concept. Different levels of theory-of-mind understanding will be needed to explain how speakers and listeners comprehend or decide to treat information as new or given. The simplest account may be based on a definition that takes into account only the physical copresence or absence of speaker and listener. But it may be even more often that we encounter situations in which speaker and listener are privy to the same event, but a speaker or listener adopts a certain perspective on the event. Hence, the definition of new information needs to be broadened to include: (a) cases in which the new information almost seems to "jump out" of the scene, in a manner that suggests something more to do with visual or perceptual salience than cognitive or informational salience (e.g., the situation encountered by children in O'Neill & Happé, 2000) and (b) cases in which the new information may comprise a particular sensory perspective that needs to be ascertained using paralinguistic pragmatic cues, such as gestures, to determine which of many possible (perhaps nonvisible) salient features is being highlighted by the speaker and referred to by the novel adjective term (e.g., the situation encountered by children in O'Neill et al., 2002). Impressively, even the latter is within the grasp of children as young as 2 years of age.

In addition, in this chapter I have conveyed that understanding the interdependent relation between language and an understanding of the mind will require further refinement of key components within each domain and an approach that highlights the fact that minds are interacting. For example, with respect to the key components in the domain of language and pragmatics, it is important to distinguish the contribution of nonverbal means of communication (often referred to as pragmatic factors); the varying contexts of communication (the pragmatics of a situation); the varying intents of speakers and listeners (pragmatic intents); and the ability to use language appropriately (the domain of pragmatics and the correct pragmatic use of language). Although some of these features may have implications with respect to the level of theory-of-mind understanding required, others may speak more to the theory-of-mind understanding achieved as a result (rather than required to produce such talk). With respect to understanding the mind, this chapter and several others in this volume discussed in this chapter, have identified what appear to be key components when considering the relation between these two domains and two minds interacting: namely, an understanding of a community of minds, an appreciation of different points of view, an understanding of relevance, and an appreciation of different sources of knowledge.

Note

1. Inferences regarding shared knowledge, and the potential importance of other factors such as group and category membership (e.g., gender, nationality, age, place of residence), are also discussed in a large body of work examining the general question of how people form models of what other people know and whether one's own knowledge is used as the primary basis from which the knowledge potentially possessed by another is imputed (see review by Nickerson, 1999).

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