

15 Common Ground

EVE V. CLARK

1. Introduction

When we talk to people we know, we start from shared assumptions and knowledge that we have built up over time, based on what we each know about the other and on our earlier interactions. Shared or mutual knowledge was postulated by Lewis (1969) as a necessary component in communication. This shared knowledge is now generally referred to as common ground (H. Clark, 1996; Stalnaker, 2002), and it plays a critical role in how we process and accumulate information in the course of communicative interactions (Enfield, 2008; Levinson, 2006).

Common ground can be characterized by the range of shared knowledge that is involved. With *communal* common ground, for example, people share information at the community level, information about such topics as nationality, language, religion, or schooling. But they also share common ground with specific individuals. This *personal* common ground comprises information shared by two or more individuals over and above any communal common ground. It could include details of where each person grew up, their favorite writers, the time one of them takes to run 5 km, the restaurant they last had a meal in together, and so on. For each individual, both communal and personal common ground accumulate over time, within the community, and in relation to particular individuals. Additions to common ground take place through the grounding of new information in communicative exchanges. With grounding, information known to the speaker becomes accepted and recognized as now also known to the addressee.

What are the origins of common ground? That is, how do children get started on establishing and accumulating common ground? And, what strategies do children use for grounding new information? I begin by making some further distinctions within the two main types of common ground, communal and personal, since these appear relevant to common ground in development, and I identify some of the strategies adults make use of when they ground new information. I then turn to the ontogeny of common ground in infants and young children, and examine children's growing ability to make explicit use of common ground as they develop their communicative skills.

1.1 *Gradations in common ground*

Common ground can be viewed from a number of perspectives, from tracking it in a straightforward conversational exchange about the weather, to technical exchanges

about how to splice two ropes together or how to solve a particular equation. In (1), I list types of common ground that I will argue are relevant to its ontogenesis. The main distinction is that between personal and communal common ground.

- (1) a. *personal* (tied to personal experience with the current interlocutor)
 b. *local* (tied to a single communicative exchange)
 c. *communal* (tied to a larger group; covering conventions of language spoken)
 d. *specialized* (tied to subgroups with specialized knowledge of certain domains, e.g. tennis-players, birders, neurobiologists)

Personal common ground is a record of the common ground accumulated over time and over repeated exchanges with a particular individual. This acts like a diary kept in relation to that person, a record of shared experiences over time (H. Clark and Marshall, 1978; see also Goodwin, 2002; MacWhinney, 2005). One privileged part of personal common ground is *local*, tied to a single exchange, with a familiar or unfamiliar interlocutor. *Local* common ground effectively captures what becomes shared information as a result of an exchange with another person: the exchange could concern the opening time for a shop, what time a train leaves, whether a colleague has arrived, and so on. It pertains to particular conversations and the information that each participant offers to the other, on that occasion.

With *communal* common ground, we move to a larger arena; this is the common ground shared with the community we live in, of people with familiar backgrounds and occupations. It commonly includes general knowledge, knowledge about social background, education (schools attended, levels of education attained), religion, nationality, and language(s). One important subset of communal common ground consists of knowledge about the conventions of the language or languages used within the community. Communities come in all sizes, and within the larger community are many smaller ones that share particular areas of expertise about some domain of knowledge. *Specialized* common ground pertains to such areas of expertise shared with members of subgroups within the larger community – with colleagues, friends, or acquaintances. Specialized knowledge is marked by specialized vocabulary, whether for anatomy in medicine, phyla in the plant and animal world, rigging types for sailing boats, migration routes for birds, or scoring conventions for Olympic fencing. Effectively, each area of expertise calls for a specialized vocabulary for talking with others about the distinctions and relationships within that domain. These distinctions within common ground emerge at different rates and under slightly different conditions during early and middle childhood as children learn a first language and become acculturated to their community. All depend on language as a primary means for grounding and accumulating new information.

Local and specialized common ground offer useful distinctions within the more general categories of personal and communal common ground.

1.2 Grounding new information

How do speakers ground new information? They rely on a variety of strategies, using both linguistic and non-linguistic devices, first to mark new information as new, and

second to indicate that that information has been grounded. I focus here on some major options for grounding:

1. An acknowledgment by speaker B of the new information from A, by means of a demonstrative like *that* or a pronominal reference like *her*, as in the constructed examples in (2) and (3):

- (2) A: I just got back from Paris last week.
B: That must have been an interesting trip.
- (3) A: Did you talk to Kate yesterday?
B: Yes, I told her about the arrangements.

Such assertions rely on an understanding of pronominal reference and of how forms like *that* and *her* identify the relevant antecedents.

2. A repeat by speaker B of the new information from A, incorporating it into a follow-up assertion in the next turn, as in (4):

- (4) A: He said he'd be in Connemara next week.
B: Okay, Connemara it is for the next meeting.

Repeats offer a highly transparent option for grounding new information.

3. A bare acknowledgement (*yes, yeah, mm-hm, uh-huh*) combined with further relevant information from speaker B, as in (5):

- (5) A: Will you be going to see Miranda and Theo?
B: Yes, on my next visit to Stockholm.

4. A bare acknowledgement from speaker B, as in (6):

- (6) A: Is *The most human human* the book you were talking about?
B: Mm-hm.

5. A continuation in the next turn where B presupposes understanding of A's contribution, as in (7):

- (7) A: We're hoping to leave from Ullapool on July 1.
B: So bring all our sailing gear, right?

6. Non-linguistic indications of understanding, and hence implied uptake, in the form of a head-nod, an attentive gaze with widened eyes, a lowering of the chin, or combinations of these, sometimes with other gestures, from B, as in (8). These are often combined with verbal acknowledgments.

- (8) A: You heard that the meeting's been postponed?
B: <nods>

Such options for grounding new information are intricately woven into all our interactions. They all acknowledge new information introduced by speaker A to speaker B, and so mark the accumulation of common ground for A and B. This is the positive side, when grounding is successful. When grounding fails, though, speakers have recourse to strategies for dealing with errors and their repair (e.g. Jefferson, 1974; Schegloff, 2000; Schegloff, Jefferson, and Sacks, 1977; Svennevig, 2008).

7. A general request for clarification, as in (9), or a more specific clarification request, with a partial repeat of the prior utterance, as in (10):
- (9) A: We're leaving on the twenty-seventh.
B: What?
- (10) A: We're leaving on the twenty-seventh.
B: On the twenty-what?
8. A full repeat with rising intonation, as a check on what the prior speaker actually said, as in (11), followed by confirmation and continuation, or by rejection and a start-over, as in (12):
- (11) A: We're going to Melbourne in October.
B: You're going to Melbourne in October?
A: Yes.
- (12) A: We're going to Melbourne in October.
B: You're going to Melton in October?
A: No. We're going to Melbourne

In short, establishing common ground is central to all communication. Adults rely on a variety of strategies, some of them illustrated here, for adding common ground in the ongoing exchange. And when communication goes awry, speakers rely on repair. For children, such repair plays an important role in the process of acquisition too.

2. The Ontogenesis of Common Ground

How do infants recognize and build common ground? What might they start out attending to and identifying as constants in their interactions with specific individuals? Does the recognition of common experiences provide an initial form of common ground? And to what extent do infants link their (familiar) surroundings with particular individuals? The first steps in establishing common ground must reside here rather than in language *per se* since infants only start to assign meanings to word forms in their second year.

I first address how children establish common ground and extend this to establish common ground in conversation. Then I turn to how and when children contribute new information for grounding themselves.

How soon do infants recognize objects and actions in their everyday surroundings? As their surroundings and daily routines become familiar, infants may well take them for granted and treat them as known to everyone they interact with. While we have few ways to assess just what a 4- or 8-month-old thinks others know, we can track the physical settings where infants spend their days (cribs, floors, highchairs, toys, etc.), and their daily routines from baths to diaper changes to dressing to eating, each with caregiver actions, gestures, and verbal routines, many of them repeated hundreds of times in the first two to three years (see Ferrier, 1978; Roy, Frank, and Roy, 2012). Infants are also exposed to people using specific words, such as *water*, hundreds of times in their first 12 months – whenever they are offered water in a cup, are placed in a bath, or splash their hands in water at the sink – before they ever attempt to say these words

(Roy, 1999). In short, infants are exposed to highly repetitive routines and patterns of interaction before they can use any language.

These are a prelude to later interactions where information is exchanged. On the one hand, adults in many cultures gesture and talk to young infants from very early on, and by about 9 months of age, infants begin to reciprocate: they hold objects out to the adult, then happily pass them to and fro in exchange games, and they adopt more and more complex versions of peek-a-boo in another kind of exchange (see Adamson, Bakeman, and Smith, 1990; Rheingold, Hay, and West, 1976). On the other hand, adults impose, from early on, a pre-linguistic form of turn-taking with contingency: the adult talks and gestures, looking directly at the infant, then pauses until the infant offers some kind of “response” – a smile, a coo, a kick of the foot, some babble (Trevarthen, 1977; Bateson, 1979). As infants get older, adults up the ante: while a smile may do at 3 or 4 months of age, once infants can babble, then babble is a must. And once they can produce recognizable words, then adults wait for a word before going on (Snow, 1977). These proto-conversations gradually incorporate language into the infant’s turns. But such proto-conversations differ from the real thing in both semantic contingency and the timing of turns: Children take several years before they contribute to conversational exchanges in an adult-like manner (Casillas, 2014).

In summary, infants accumulate a store of knowledge about their surroundings and daily routines in the first year. Their knowledge of perceptual and conceptual categories and their participation in reciprocal games, object-exchanges, and proto-turn-taking contribute to a starting store of conceptual and social knowledge combined with a general attentiveness to the other in interaction. Together, I suggest, these elements provide the foundations for children’s use of common ground in interaction, and, in particular, their ability to add to common ground during communicative exchanges.

2.1 *Establishing common ground*

In their earliest interactions, infants contribute actions while adults contribute words and actions. For example, in everyday routines, adults typically talk as they bath their infants, while the infants look at them and splash with their hands. From around 10–12 months, infants use gestures – pointing to objects or events of interest, and reaching for objects of desire – before they use words for asserting or requesting (e.g., Bates, Camaioni, and Volterra, 1975; Bruner, 1975; Golinkoff, 1986; Werner and Kaplan, 1963). Young children also use gestures to place information in common ground. For example, when one-year-olds are asked “What have you got there?,” they show the object in question, displaying it to the interlocutor, placing it in common ground.

Establishing common ground depends crucially on establishing joint attention to some object or event. It takes more, therefore, than mutual attention as when adult and child attend to each other. With joint attention, both must focus on some third entity and be aware that that is what each is doing (Tomasello, 1995; H. Clark, 1996). The entity in the focus of joint attention is generally physically co-present in adult–child interactions. It is often co-present in conversation as well. This co-presence stems from the adult impulse to talk about whatever the child appears to be interested in.

As infants and young children track what an adult is doing, they often repeat adult actions, and so acknowledge them, before they give evidence of tracking adult speech as well. In a study of mother–infant interactions with infants aged 0;10 to 1;9, Masur

and Olson (2008) compared adult imitations of infants' actions and vocalizations with infants' imitations of adult actions and words. (An "imitation" here was defined as a full or partial reproduction, within 5 seconds, of the preceding participant's action or utterance.) One-year-olds consistently imitated, or repeated, the adult's *actions* on or with specific objects, and they were more likely to repeat such actions (48% overall) than to repeat adult words (36% overall). And they often treated an action as a turn in an exchange (Masur and Olson, 2008: 707), as in (13):

- (13) Child (1;1): *ball*.
 Adult: **ball**.
 Child <throws ball towards adult>

But infants who repeated adult words early on, acknowledging what the adult had said, also had larger vocabularies at 1;5 and 1;9. As they got older, they were more likely to repeat a word from the adult, which the adult often re-repeated in the third turn, as in (14):

- (14) Mother: where's the baby duck?
 Child (1;5): *duck*.
 Mother: the baby **duck**.

When the mothers repeated what their infants did, they were more likely to do so when the infants vocalized or produced a word than when they performed an action. The infants often indicated awareness in a third turn of the parent's repeat, with smiles, laughter, vocalizations, gestures, etc., but without repeating any words from the adult. These findings suggest that infants, like adults, use their repeats of actions and words to ground that information as part of their current interaction.

Here young children's attention to, and uptake of, adult actions suggest that they are trying to ground them. Young children find it easier initially to act on objects than to produce words, so they appear to rely on showing that they have observed the other's action, placing it in common ground by repeating it, from as young as 0;10, and only shifting to repeats of words as they get older. Their reliance on repeats for both actions and words at this age is a direct antecedent for two-year-olds, who consistently repeat new information from the preceding speaker's utterance to ratify it and thereby ground it (Clark and Bernicot, 2008).

2.2 *Joint attention and scaffolding*

Establishing common ground requires joint attention, physical co-presence, and conversational co-presence. Joint attention itself is typically established through shared focus on the relevant event or entity in context. Achieving the same focus can be done by adopting the child's current focus of attention, or by capturing the child's attention, with gestures, by pointing, showing, or touching X, or by touching the child's arm, hand, cheek to capture his or her attention and direct it to the locus of interest, and with speech, by using vocal attention-getters like *hey*, *look*, *see*, *uh-oh*, and so on (see Howe, 1981; Estigarribia and Clark, 2007; also Butterworth and Jarrett, 1991; Clark and Estigarribia, 2011; Zammit and Schaffer, 2011).

Several factors contribute to the establishing of joint attention: First, gaze-following appears very early in infants as they start to track adult gaze to whatever object the adult looks at (e.g., Senju and Csibra, 2008); second, children start to follow adult pointing at 10 to 12 months of age, at much the same age that they themselves begin to use points to get the adult's attention onto something of interest (e.g., Leung and Rheingold, 1981; Childers, Vaughan, and Burquest, 2007; Puccini, 2013; Moore and Dunham, 1995; see also Marslen-Wilson, Levy, and Tyler, 1982; Bangerter, 2004). In short, by making information shared, they establish common ground.

At this stage, common ground appears to be both *personal*, based on children's familiarity with (and hence memory for) the family setting, particular caregivers, and daily routines, and *local*, accumulated in individual exchanges. At the same time, children begin on *communal* common ground as well, but this is initially rather restricted compared to that of older children, teenagers, and adults. In short, in early development personal and local common ground are somewhat privileged over communal common ground, because one- and two-year-olds know very little about language and language use, and even less about the other cultural ties that link the members of a community.

Young children appear at first to assume that adults know what they know, but this tacit assumption often fails with unfamiliar interlocutors who do not know the information that the child is relying on. This is best illustrated by two exchanges, the first between Meredith (1;6) and an unfamiliar adult, the second between Meredith and her mother (Snow, 1978), as shown in (15a) and (15b):

- (15) a. Meredith (1;6, talking to an unfamiliar adult) *Band-aid*.
 Observer: Where's your band-aid?
 Meredith: *Band-aid*.
 Observer: Do you have a band-aid?
 Meredith: *Band-aid*.
 Observer: Did you fall down and hurt yourself?

In (15a), Meredith fails to convey what is significant about her band-aid because the adult she is talking to has no knowledge of the relevant event, because she lacks that personal common ground. Her mother, however, shares that common ground and scaffolds Meredith's "story" appropriately:

- (15) b. Meredith: *Band-aid*.
 Mother: Who gave you the band-aid?
 Meredith: *Nurse*.
 Mother: Where did she put it?
 Meredith: *Arm*.

What is critical in (15b) is that the adult can scaffold the child's one-word utterances by invoking the common ground already established and readily accessible to both parties. For Meredith, her mother's scaffolding worked because her mother knew about the episode with the nurse, but the observer-adult did not know about this, and so was unable to offer the scaffolding needed (see also Bruner, 1983). In the early stages of

language acquisition, when children produce one-word utterances, their contributing to the telling of a story, as in (15), depends critically on common ground.

Once adult and child have established joint attention on some object or event, they can each add information to common ground. To add something to common ground requires (1) that the first speaker propose it as new information and (2) that the second speaker ratify or acknowledge it. Speakers can do this by repeating some or all of the new information from the preceding speaker's turn (Veneziano, 1988), as Camille's mother does in (16):

(16) Mother and child looking at a book:

- | | | |
|--------------------------------------|----------------------|-------------------------------|
| Camille (1;7.18): /etʃɛ/ | [le chien = the dog] | (OFFERS NEW TOPIC) |
| Mother: <u>le chien</u> . | [the dog] | (RATIFIES) |
| Camille: /kur/ | [court = runs] | (ADDS NEW INFORMATION) |
| Mother: oui <u>il court</u> le chien | [yes, the dog runs] | (RATIFIES) |

And Camille ratifies what her mother says, again by repeating the new information, as in (17):

(17) Camille (1;6.22, sitting on a toy train; her mother has just stopped pushing it):

- | | | |
|--------------------------------------|------------------------|----------------------------|
| <i>ko</i> | [encore = again] | (MAKES NEW REQUEST) |
| Mother: <u>Encore</u> un petit tour? | [another little ride?] | (RATIFIES + NEW) |
| Camille: <i>tu</i> . | [tour = ride] | (RATIFIES) |

Young children repeat not only new words, but also adult repairs of child errors, as in (18), where Philippe's mother reformulates what he was trying to say, thereby offering a conventional way to do this (Chouinard and Clark, 2003). He takes up her correction and repeats it (at least in part) in the third turn of the exchange:

- | | |
|--|--|
| (18) Philippe (2;1.26): <i>une petit de lait</i> / | (OFFERS NEW TOPIC) |
| | [a-fem. little-masc. of milk = a baby milk] |
| Mother: <u>une petite boîte</u> de lait / | (RATIFIES WITH REPAIR) |
| | [a-fem. little-fem. box-fem. of milk = a baby milk carton] |
| Philippe: <i>petite boîte de lait</i> / | (RATIFIES REPAIRED FORM) |
| | [little-fem. box-fem. of milk = baby milk carton] |

Such repeats of words and constructions signal that new information from the previous speaker has been understood and added to common ground.

Another technique for establishing common ground with children is to invoke comparisons, for instance when adults offer information relevant to the construction of

biological categories (Chouinard and Imber-Olivares, 2012). Parents of young children, for instance, often compare animals to humans, and so ground the new information about some type of animal in the child's own experience, as in (19):

- (19) a. 'The bat sleeps upside down. Do you sleep upside down?'
 b. 'Look at his feet. Do they look like your feet?'
 c. 'He's licking his paws. That's how a cat cleans his hands'

Still another technique is to invoke shared experiences or memories of some recent episode or event with the child, with prompts like "Remember ..." (Clark, 2010), as in (20):

- (20) Adult: Oh. This hill is very – Remember when we were climbing those rocks? It was – STEEP.
 Child: (3;8.16): *No. no, it was – really – hard to get – up.*
 Adult: Mm-hm.
 Child: *'Cause it was steep.*
 Adult: *'Cause it was steep, right. Very good.*
 Child: *We saw a lizard.*

Some of these techniques include options that children themselves adopt from very early on, such as ratifying new information by repeating it. They also make use of acknowledgments like *uh-huh*, *yeah*, or *yes*. And they presuppose understanding of the adult's contribution when they continue with a semantically relevant utterance. Indeed, many of their utterances, even at age 1, appear to be semantically contingent on what the adult has just said (Balog and Roberts, 2004).

2.3 *Communal common ground*

A major part of communal common ground is the conventions of language. These become established as children acquire language, with their increasing grasp of the conventions for the language or languages spoken in their community. These conventions are established in part through children's observations of language use by others, and in part through feedback from more expert speakers. This feedback is incorporated into ongoing exchanges by adults' checking up on exactly what their children mean when they make errors (Chouinard and Clark, 2003; Clark and Bernicot, 2008; Clark and de Marneffe, 2012).

The conventions of a language govern the comprehension and production of phonological forms, morphological inflections, the lexicon, and the syntax (Clark, 2009). On all of these aspects of language, children hear how adults use the language and also receive extensive feedback when they make errors. But getting forms and their uses right is just part of language use. Children must also design their utterances to be understood as intended, and that requires mastery of the complex shifts in conceptual perspective needed as they take into account what their addressee knows on each occasion. Speakers can mark conceptual perspective through lexical and syntactic choices (e.g., Clark, 1990, 1997). These choices have to be integrated with other options that mark information as already in common ground compared to new information that is not yet grounded.

Children learn the conventions of their language in part because adults consistently check up on children's intended meanings by reformulating in conventional terms what they think the child meant to convey (Chouinard and Clark, 2003). This feedback results in frequent repairs to the phonological, morphological, syntactic, and lexical errors young children produce, as shown in (21)–(24):

(21) A phonological repair in an adult reformulation:

– Philippe (2;2.10): *il a des neus le camion.* [it has tires the truck]

< “neus” for “pneus” >

Mother: oui, il a des pneus, pneus. [yes it has tires, tires]

Philippe: *pneus.* [tires]

Children also make spontaneous self-initiated repairs to phonology from age one on (Käsermann and Foppa, 1981; Tarplee, 2011). This suggests that they must represent the adult versions of words in memory and then monitor their own productions for a match to the adult one from very early on in the process of acquisition (Clark and Hecht, 1983). In fact, three-year-olds are much better at recognizing words produced by an unfamiliar adult than they are at recognizing their own words or those of another three-year-old (Dodd, 1975).

(22) A morphological repair in an adult reformulation:

– Abe (2;4.24, playing): *He falled. He falled again.*

Father: Okay he fell, but no he's at the boat now

When on the point of mastering morphological distinctions, children often make spontaneous self-initiated repairs as well. In English, they spontaneously repair irregular forms, going from *mouses* to *mice*, or from *sitted* to *sat*, and also from the pronoun *him* to *her* for a female referent (Clark, 1982). Getting the conventional morphology right, like the other forms of language, makes children easier to understand, because they display more communal common ground.

(23) A syntactic repair in an adult reformulation:

– Abe (2;5.10): *I want butter mine.*

Father: Okay give it here and I'll put butter on it.

Abe: *I need **butter on it.***

Syntactic repairs are generally repairs to word order, constituents, and construction choice.

(24) A lexical repair in an adult reformulation:

– Child (2;4.29, being carried): *Don't fall me downstairs!*

Father: Oh, I wouldn't drop you downstairs.

Child: *Don't **drop** me downstairs.*

Lexical repairs are particularly visible when children use the wrong word for something unfamiliar, and, say, label an okapi with *That's a zebra*, or an aardvark with *That's a mole* (e.g., Gelman, Coley, Rosengren, Hartman, and Pappas, 1998). Adults usually offer immediate feedback in the form, "It looks like a zebra, but it's an okapi," and then highlight some property that distinguishes the two animal types (see Clark and Wong, 2002; Kurumada, 2013).

Feedback like this, combined with their own observations of adult usage, helps children master the conventions of their language. Adult feedback consistently provides conventional forms, whether phonological or syntactic, morphological or lexical. These are the forms that children need in order to understand the intentions of others, and to convey their own intentions and be understood. Mastery of these conventions plays a central role for common ground: knowledge of a language and its use offers extensive communal common ground with other users of that language and so allows for more extensive and detailed communication of both needs and interests. Finally, adult reformulations of child errors also attest to the importance of interaction for the acquisition of language. It is in conversation that children master the conventions and so also learn how to use common ground.

2.4 *Specialized common ground*

One problem for children is that many things they learn are not available to everyone they encounter. This is particularly problematic at the one-word stage when they are highly dependent on scaffolding. This may also pose a problem for children who are learning two languages since some people speak only one or the other, not both. The children must therefore classify people according to language. Such classifications can be made on many other grounds too, in particular on the basis of shared interests or special areas of expertise.

At first glance, *specialized* common ground would necessarily seem to be a late acquisition. But for some children, specialized common ground emerges early, along with what have been characterized as early intense interests. From as young as age two, certain children show an intense interest in a particular domain – balls, cars, planes, dinosaurs: they inspect any and all instances they encounter, they collect toy versions, and they play with them intensely (DeLoach, Simcock, and Macari, 2007). These early enthusiasms, exhibited by some 20% of four-year-olds, may be long-lasting, and often have a direct impact on the rest of the family (Johnson, Alexander, Spencer, Leibham, and Neitzel, 2004). These children often master an extensive vocabulary for the domain, with as many as 40 terms for dinosaurs, for instance, by age 4;6 (e.g., Chi and Koeske, 1983; Gobbo and Chi, 1986; see also Johnson and Mervis, 1994, on five-year-olds' emerging expertise with terms for shore bird types and their attributes).

Children with early intense interests start by sharing specialized common ground with family members. Some move on to share this common ground with other children with similar interests. But young children also encounter both adults and children who know little or nothing about these particular domains. Such encounters offer children important lessons in dealing with differences in what communal common ground they can assume, and what not. This is analogous in many ways to encounters with people who do, or don't, speak the same language. This experience necessarily contributes to children's growing skill in assessing common ground with others as they encounter

a greater range of adults and children on an everyday basis (Clark, in press). As they get older, children's specialized common ground becomes associated with interests and hobbies more generally, some shared with adults, others shared with peers – in all cases, with subgroups within the larger community.

3. Contributing to Conversation

How do children assess common ground and decide on the devices they need for conveying new information and for grounding new information from others? Like adults, young children need to (1) assess current common ground, (2) ground any new information, and (3) design their utterances for their addressee; they need to indicate, on each occasion, what to count as given vs. new information, and to acknowledge the addressee's status relative to the child's.

When do children take personal and communal common ground into account as they design their utterances for specific addressees? I first look at when children take into account what their addressees know, and then take up what children know about linguistic options for marking information as already given, *in* common ground, vs. information that is new, not yet grounded for the addressee. And then I turn to how children distinguish among addressees by age and status, for example, as they design their utterances.

3.1 *Assessing common ground*

Do children keep track of what is already in common ground? Such tracking is a prerequisite for using a given–new strategy in organizing information, where given information is already grounded and new information is not. To add to common ground, children need to know what the other knows, and quite young children track this in some detail. In one study, O'Neill (1996) looked at whether two-year-olds took account of what their parents knew when they requested a sticker that was out of reach and out of sight for the child. After showing the sticker to the child, the experimenter placed it in a box or cup that she then put on a shelf behind her, out of the child's reach. Young two-year-olds (2;3) were significantly more likely to point to the container holding the sticker for parents whose eyes had been shut (73%) while the sticker was hidden, than for parents whose eyes had been open (45%).

A second, slightly older group (2;7), whose parents were outside the room when a sticker was hidden in one of several containers on a shelf out of reach, was significantly more likely to both point (94%) and request the relevant object verbally (75%) than two-year-olds whose parents were present and watched as the sticker was hidden (44% used points and 50% object labels).

In short, two-year-olds supply the new information needed when the parents do not know it, but do so less often when their parents are present and watching. In follow-up studies (O'Neill and Topolovec, 2001), older two-year-olds were quite good at assessing how informative their own pointing gestures were, and at 2;8 would add a label as they pointed in situations where a point alone might not have worked. When the children's pointing gestures were either visible or not to the parent, at 2;9 they consistently added

a label for the target box (e.g., “the car one”) to their points only when their gestures might not have been visible. But younger children (2;4) did not differentiate the two conditions, apparently not yet able to assess how effective their own gestures were (see also Pechmann and Deutsch, 1982).

In other studies, children at 12 months pointed at a fallen object more often for adults who didn’t know where it fell than for adults who did know, as shown in Figure 15.1. Young one-year-olds also appear able to keep track of which of two adults had played with a specific toy with them earlier on, and they make use of that information when invited to help put *the toy* away (Liebal, Behne, Carpenter, and Tomasello, 2009). At both 14 and 18 months, children were more likely to pick up the particular toy they had played with with that adult (the toy was in common ground for the two of them) than a toy not played with (not in common ground), as shown in Figure 15.2 (see also Moll, Richter, Carpenter, and Tomasello, 2008; Ganea and Saylor, 2007; Liszkowski, Carpenter, and Tomasello, 2008).

In short, 12-month-olds track some aspects of what others do and don’t know. Two-year-olds do even better, but they still have a long way to go in assessing common ground in each exchange (local common ground) and keeping track of it over successive exchanges with the same addressee (personal common ground).

These findings argue strongly against the claim sometimes made that very young children simply point to get attention on themselves, or to orient their own behavior. By 12 months, their pointing gestures are contingent on what the other person knows in that context. That is, children as young as 12–14 months already keep track of what their interlocutor knows in certain settings: whether the adult saw *where* an object fell down, and so might, or might not, need new information to locate it; or which toy the child and the adult had earlier played with together (the toy picked up when the child

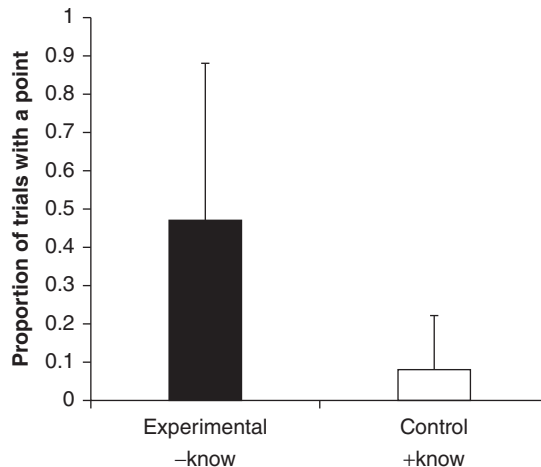


Figure 15.1. Number of pointing gestures by 12-month-olds for adults who didn’t know (–) vs. did know (+) the location of a fallen object. Reprinted with permission from U. Liszkowski, M. Carpenter, and M. Tomasello, 2008: Twelve-month-olds communicate helpfully and appropriately for knowledgeable and ignorant partners. *Cognition* 108(2): 732–739, at p. 738

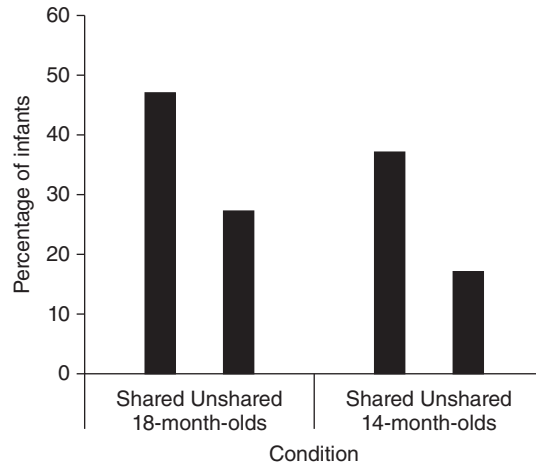


Figure 15.2. Infants keep track of shared experience in play at 1;2 and 1;6. Reprinted with permission from K. Liebal, M. Carpenter, and M. Tomasello, 2009: Infants use shared experience to interpret pointing. *Developmental Science* 12(2): 264–271, at p. 269

is asked to put *the toy* away); or whether the parent saw where a sticker was hidden or not. What these young children have yet to master are the linguistic devices appropriate for the addressee on each such occasion.

In assessing what one's addressee knows, one also needs to take the addressee's perspective into account. Children are able to do this, perceptually, by around 18 months, e.g., by tilting a cup so the other can look inside it to see a design on the bottom. By age 2;0, they can turn a book in the horizontal plane so the picture remains upright for the person facing the child (Lempers, Flavell, and Flavell, 1977). Children start to mark perspective in language quite early too, becoming more and more sophisticated by three to four years of age (Clark, 1997). They expect speakers to use the conventional terms for categories early on and reject non-conventional forms, for example a ball labeled as a *duck*, as young as 1;4 (Koenig and Echols, 2003). They also keep track of which referring expression a particular speaker used before, and retain that perspective, adopting the same forms of reference for specific referents (see Matthews, Lieven, and Tomasello, 2010; Serratrice, 2008; Brennan and Clark, 1996). And in settings where children can see pairs of objects, one a familiar cultural entity such as a toy Santa Claus, say, and the other a novel (unfamiliar) object, children distinguish whether an adult is asking in a way that signals recognition about some culturally familiar entity or is asking for information (Liebal, Carpenter, and Tomasello, 2013). With an information question, both three- and five-year-olds assumed she was asking about the novel object, but with the recognition question, five-year-olds assumed she was referring to the culturally familiar object, namely the entity in communal common ground for the adult and child.

These findings are pertinent to claims about the development of theory of mind, where the child has to assess what another person knows or believes. The classic demonstrations of children's ability to say what each of the two participants in a deception task knows have shown that children under age four typically fail to attribute the relevant

knowledge to each participant observed (e.g., Wimmer and Perner, 1983). Things change, though, when children themselves play a direct role in the deception (Chandler, Fritz, and Hala, 1989): Two-year-olds can successfully hide an object from another and report that the other does not know where that object is. In some cases, infants as young as 15 months succeed in these tasks (e.g., Onishi and Baillargeon, 2005). Effectively, classic theory-of-mind tasks appear to have underestimated what children know about the knowledge and beliefs of others. But when observed as participants in pretense and in small deceptions, children as young as one and two show that they know a good deal about what other people do and don't know (see Leslie, 1987).

3.2 *Adjustments to status and age*

Another dimension in what children know about what their addressees know is the register they choose. In one study (Shatz and Gelman, 1973), four-year-olds varied their speech depending on whether they were talking to two-year-olds, four-year-old peers, or to adults, as they explained, for example, how a Noah's Ark toy worked. They used shorter utterances to two-year-olds than to peers and adults, and they differentiated their addressees both by the kinds of requests they made and by how they gave directions. To the two-year-olds, for instance, they used imperatives (e.g., *Pick up the lamb*), while to adults, they made polite requests (e.g., *Could you . . . , Would you like . . .*). They also used different labeling strategies: *That's a lamb*, to a two-year-old, compared to *I think that's a lamb*, in a hedged assertion to an adult. In short, four-year-olds take the age and status of their addressees into account.

Even younger children, around age two, can make some distinctions, for example when doing the voice for a toy by using high pitch, vs. talking to a baby with pretend babble or one-word utterances, vs. talking to a parent with normal pitch (Sachs and Devin, 1976). As they get older, children reveal considerable knowledge about the clusters of features that characterize speech to addressees who differ in age, sex, and status. As they do the voices in role playing with child vs. adult puppets, for example, they consistently issue politer requests to higher-status addressees, using hints (e.g., *Ice-cream tastes nice, doesn't it?*) rather than demands (e.g., *I want some ice-cream*). They also adjust their pitch (higher for young child and baby roles, lower for male roles), their utterance length (shorter for younger speakers), and their mode of address (politer to higher-status roles, less polite to lower-status ones). Finally, by age six or so, they also recognize that some roles call for specialized vocabulary, a reflection of specialized knowledge, and they produce terms like *thermometer*, *fever*, and *plaster cast*, say, when talking in the role of doctor (Andersen, 1990; Andersen, Brizuela, DuPuy, and Gonnerman, 1999; Brizuela, Andersen, and Stallings, 1999).

Other studies have shown that children can judge how polite different forms are before they manage to choose the most appropriate level of politeness in their own speech (Bates and Silvern, 1977). In making judgments of politeness, English-speaking three- to four-year-olds correctly distinguish more polite from less polite forms, and identify such added elements as *please* and modal verbs like *would* as signals of greater politeness (see also Axia and Baroni, 1985). Again, age and status elicit politer forms.

In summary, children begin early on to attend to social characteristics of their addressees in deciding how to talk to them: in simplifying their speech to younger

children and babies, they show implicitly that they have less communal ground with them because younger children know less language. In contrast, they use more elaborate, politer forms to adults, where they assume communal common ground and take account of their higher status. By age six or so, they show awareness, in their role playing with puppets, of a variety of social dimensions, including age, gender, and status.

3.3 *Grounding new information*

How do children ground new information? What are the options? Children, from the one-word stage on, typically *repeat* new information from their interlocutor, and thereby ground it. As a result, they repeat new words they are offered, they repeat new information, and they repeat the corrected forms offered in feedback after they make errors, typically in the next turn. Their repeats ground the relevant information, whether this consists of a new word, a correction, or some new information.

Their repeats ratify the information within an exchange, for instance, where this takes the form of a repair that they acknowledge in the next turn (Chouinard and Clark, 2003), as in (25):

- (25) D (2;8.14, with a toothbrush in his hand): *An' I going to tease.*
 Mother (puzzled): Oh. Oh, you mean you're going to pretend to do your teeth?
 Child: *Yes.* (then, as his father came by a minute later)
 Father: Are you going to do your teeth?
 Child: *No, I was pretending.* (Clark, unpublished diary)

Here, the child attended to his mother's correction – *pretend* in lieu of the child's *tease* – as she checked up on what he meant, and then, a minute later, he showed that he had grounded that repair by using the verb *pretend* in the subsequent exchange with his father.

They repeat to ratify and so ground new words offered, and simultaneously try them out (Clark, 2007, 2010), as in (26) and (27):

- (26) Naomi (2;7.16): *mittens.*
 Father: gloves.
 Naomi: *gloves.*
 Father: when they have fingers in them they are called gloves and when the fingers are all put together they are called mittens.
- (27) Adam (2;4.15): *wat dat?*
 Mother: what is that?
 Adam: *I don't know. giraffe. bunny-rabbit.*
 Mother: that's a kangaroo.
 Adam: *kangaroo.*

And they also use repeats to ground new information from the preceding speaker's utterance (Clark and Bernicot, 2008), as in the exchange from Bloom, Hood, and Lightbown (1974), in (28):

- (28) Peter (1;9.7, opening the cover of tape recorder): *Open. Open. Open.*
 Adult: Did you open it?
 Peter: (still watching the tape recorder): *Open it.*
 Adult: Did you open the tape recorder?
 Peter (still watching the tape recorder): *Tape recorder.*

Adults, though, are more consistent in contributing new information to an exchange, with the information structured as given-before-new in their utterances (Haviland and Clark, 1974; see also Fisher and Tokura, 1995). Two-year-olds do offer new information on occasion, but at first they do this mainly in introducing a new topic: they rarely add anything new in their turns within an exchange (Clark and Bernicot, 2008). Compare the utterances in (29), where Elodie ratifies but adds nothing more to what was new in the adult's prior utterance, now grounded, and (30), where Estelle proposes a new topic, then in her next turn ratifies the adult's repair, but does not add anything new herself:

- (29) Mother: Hum / *C'est trop sucré.* [hmm. it's too sweet]
 Elodie: (2;3) *Uké* / [sucré = sweet]
- (30) Estelle (2;3): *Ze mets à bouche.* [I put in mouth]
 Mother: Tu le mets à la bouche. [You put it in your mouth]
 Estelle: *Oui ze mets à la bouche.* [Yes I put in my mouth]

Some researchers have proposed that young children pick out only what is new at the one-word stage (e.g., Baker and Greenfield, 1988), but deciding what to count is challenging and can end up being circular when the child's words are taken as criterial. By 3;6 to 4;0, though, children have begun to add new information fairly consistently to their own turns during an exchange (Clark and Bernicot, 2008), as in (31) and (32):

- (31) Mother: *Après t'as le printemps.* [Then you get spring]
 Zoë (3;2): *'temps et après l'été!* [Spring and then summer]
- (32) Mother: *Il est un p'tit peu plus blanc parce que je ne l'ai pas acheté à la même boulangerie.*
 [It's little bit whiter because I didn't buy it at the same bakery]
 Daphnée (3;9): *C'était où cette boulangerie?* [Where was this bakery?]
 Mother *C'est la boulangerie qui se trouve euh derrière l'église, la place Schoelcher.*
 [It's the bakery that's uh behind the church, in Schoelcher square]

These observations suggest that children first offer new information in the form of a new topic. At the same time, they repeat new information from others to ratify it and so add it to common ground. And at this stage, of course, they also supply new information in answers to questions like *Where is your cup?* At the next stage, children start to add new information themselves, in the same turn where they ground what was new information from the previous speaker. Learning to manage the flow of information takes time. It also depends on children's mastery of the relevant lexical and syntactic options. Finally, it is

even longer before children can manage the flow of given and new information within a narrative (e.g., Hickmann, Hendriks, Roland, and Liang, 1996).

Young children repeat new words much more often than they repeat new information (Clark, 2007). Why? By repeating a new word, children achieve two things: first, they show that they have identified that word as the one on offer, and second, in repeating it, they also have a first stab at trying out its pronunciation. (When they fall short, adults often re-repeat, thus ratifying in their turn the child's attempt at use.) But with new information from another speaker, the child needs only to ground it. Repeating it is just one option, albeit initially the one most often favored. They could also ground new information by using a deictic like *that* for an action or event, or a pronoun like *he* for a person. So children will have an increasing number of options at their disposal for grounding new information besides use of repeats.

As children learn more of their language, they discover other options for grounding. These include use of a *demonstrative* that points to the object or event just mentioned (see example (2)), and use of a *pronoun* that also points back to a lexical noun phrase or proper name just uttered (as in example (3)). But to make use of either of these options, children must understand how pronouns refer, and which dimensions of meaning they may include, e.g. gender (*he* vs. *she* vs. *it*), number (*he* vs. *they*), formality (Fr. *tu* vs. *vous*; Ital. *tu* vs. *Lei*, etc.), and case (*I* vs. *me*, *she* vs. *her*). In fact, they could use a *semantically related term* instead for the same purpose (as in *the dog/our terrier*; *that source of milk/[John's cow]*), and exploit taxonomic inclusion or an orthogonal relation (e.g. *my goldfish/my pet*) once they master the relevant vocabulary (Clark and Svaib, 1997). But for these devices to "work" in second and subsequent mentions, children need both to have acquired these uses and to understand how such forms function within a communicative exchange. Since few of these options are available to children under 2;6, they tend to rely primarily on repeats to ground new information.

They could, of course, rely instead on a non-linguistic resource and use a gesture, a point, that could pick out a referent mentioned earlier, in context, provided the exchange concerns the here and now. But not all adult-child communication concerns the here and now, and such points are ambiguous between a present reference and a "second mention." Young children do sometimes use gestures to identify earlier events that occurred in a particular place, as when Piaget's young daughter Jacqueline flapped her arms up and down in a depictive gesture in front of a window where they'd seen a butterfly a few days before (Piaget, 1962). They also refer to earlier events with points to absent referents, gesturing to a place where an object used to be (Knudsen and Liszkowski, 2012) or using a depictive gesture in alluding to a road-drill seen the day before (Clark, unpublished diary; Carter, 1978). From age two on, in fact, children and their parents talk about non-present objects and events as well as the here and now (see Sachs, 1983; Veneziano, 2001).

3.4 Ordering given and new

Within utterances, speakers generally place given information before what is new. The given information has already been grounded and so is known to both speaker and addressee. The new information is what is being added by the current speaker, so it

is not yet known to the addressee, who has to acknowledge hearing it in order to add it to common ground. The orderly flow of new information in relation to what is given has been characterized in terms of a Gricean contract between speaker and addressee, the Given–New Contract (Haviland and Clark, 1974). The order of *given* followed by *new* appears fairly general across languages, consistent with the idea that each speaker first grounds new information from the prior speaker, and then adds something new in that same turn.

Other devices can also signal what is new. In English, one can place added stress on the word or phrase that is new, regardless of where it is in the utterance, as in the following hypothetical exchange:

- (33) A: So James came to the party last night after all.
 B: No, no. It was HARRY who came.

That is, both stress and word order can signal that a piece of information is new.

Determiners offer yet another device for distinguishing given from new. First mentions are typically new, and first mentions are characterized by use of the indefinite article, as in “a cat.” But in second or subsequent mentions, because the information is now given, the speaker uses a definite article instead, “the cat,” or a pronoun, “it,” as in (34):

- (34) I saw a cat outside. The cat had tortoiseshell markings. It was very friendly.

When do children master these devices for signaling given vs. new information? They rely early on word order and stress. Some typical examples of young two-year-olds’ uses of these devices to mark new information are given in (35) (Weisenburger, 1976; Wieman, 1976; see also Arnold, 2008).

- (35) a. Mother (pointing to letter A on truck in picture):
 What’s that on the side of the milk-truck?
 David (2;0): *Milk-truck B*.
 b. Mother: What’s in the street?
 David (2;0): *FIRETRUCK street*.

Determiners take longer to acquire. Children tend to overuse the definite article, as if they either assume too much common ground with their addressee, or simply assume knowledge closely equivalent to their own, as in (36) and (37) (from Brown, 1973: 354):

- (36) Sarah (3;6.6): where’s the black tape?
 Mother: What black tape?
 (37) Adam (3;4.18): “Put it up,” the man says.
 Mother: Who’s the man?

While some early uses of indefinite and definite articles appear quite appropriate (Maratsos, 1974; Emslie and Stevenson, 1981), children’s later usage suggests that it takes several years to master use of the indefinite for introducing information that the addressee doesn’t yet know. But by age six or seven, children appear quite aware of

how to use the two articles, as shown in the exchange between the two children in (38) (Melissa Bowerman, unpublished diary):

- (38) Christy (7;0.21, listening as younger sister Eva tells their mother about a TV program, with no previous mention of an island)

Eva: the island.

Christy You're saying "the"! ... She doesn't know!

In elicitation studies where children typically tell the story of a multi-panel cartoon strip, some six- to seven-year-olds still overuse the definite determiner for new as well as given information (e.g., English: Warden, 1976; French: Bresson, 1977; Italian: Power and Dal Martello, 1986; Dutch, English, and French: Rozendaal and Baker, 2008). And, both in early conversations and in later story-telling, children take still longer to master the substitution of pronouns for lexical noun phrases and proper names, for second and subsequent mentions of what has become given information, in common ground (Rozendaal and Baker, 2010; Hickmann and Hendriks, 1999).

How then do very young children introduce new information? In probably the commonest strategy early on, they introduce a (new) topic-under-discussion. In fact, by age 2;0 to 2;6, children initiate as many as two-thirds of the exchanges they have with their caretakers (Bloom, Margulis, Tinker, and Fujita, 1996). By introducing a topic, the child places new information on the table – information that the adult then ratifies to place it in common ground. Children can introduce new information as long as it constitutes the topic, but they rarely add new information to their utterances in mid-exchange until age 3;6 to 4;0. On the other hand, they consistently ratify new information offered by the adult, adding it to common ground. Then they wait for the adult to supply the next new installment in the exchange (Clark and Bernicot, 2008). In short, adults continue to carry the conversation with two- and three-year-olds, but with much less scaffolding than they offer to one-year-olds (see example (11)).

As they get older, children begin to organize their own utterances in terms of given plus new, and contribute more fully to the exchanges they engage in. As they make increasing use of the linguistic devices available – demonstratives, pronouns, and semantically related terms – they not only ground new information offered by their interlocutors, but also offer new information themselves.

4. Conclusion

The emergence of grounding in conversation reflects the interaction of multiple factors. Children must track what is going on and respond contingently, ratify what is new, and contribute new information themselves. Their earliest efforts fall far short of this. They begin by registering what is in common ground locally, within the exchange. They ratify what is new – words or information – in the prior speaker's utterance, by repeating the pertinent word or phrase. This places it in common ground for current purposes. Reliance on repeats remains a primary strategy for the first two to three years, as children take up both new words and new information from their conversational

partners. They also take up adult repairs given as feedback to their errors, and ground these too through repeats.

As they master the various linguistic devices for tagging information as given or new within an exchange, they make use of word order – with given typically preceding new – and consistently place added stress on new information. They also start to use definite and indefinite articles, signaling the status of the information they offer with their choice of article. But deciding which device to use, to mark information as given or new, demands some assessment of what their addressee already knows. Children start on such assessments early, attending to what someone can see, for example, as early as 12 months. By age two to three, they can not only keep track of what the addressee probably knows, but also supply appropriate information in the form of pointing gestures and verbalization to the addressee who, for instance, does not know where some object is hidden. This emerging skill is built in part on their perspective-taking abilities in a variety of domains, including language use (Clark, 1997).

With age, children extend their reliance on common ground to include more and more personal and communal information as they assess what their conversational partners can be expected to know ahead of time. On occasion, they can also assume specialized knowledge, about dinosaurs, say. But their accumulation of common ground and their ability to mark information appropriately as given versus new remains most visible in their management of local common ground within each communicative exchange. What is remarkable is how early children are able to add information to common ground. Contributing new information for someone else, though, takes considerably longer, perhaps because this generally requires more linguistic knowledge and greater skill in deploying it.

Acknowledgments

Preparation of this chapter was supported by the Freiburg Institute for Advanced Studies, Albert-Ludwigs-Universität, Freiburg, Germany, and by the Max-Planck-Institut für Psycholinguistics, Nijmegen, the Netherlands. I am grateful to Herbert H. Clark, Brian MacWhinney, and William O'Grady for helpful comments on earlier versions.

REFERENCES

- Adamson, Lauren B., Roger Bakeman, and C. B. Smith. 1990. Gestures, words, and early object sharing. In V. Volterra and C. J. Erting (eds.), *From Gesture to Language in Hearing and Deaf Children*, pp. 31–41. Berlin: Springer.
- Andersen, Elaine S. 1990. *Speaking with Style: The Sociolinguistic Skills of Children*. London: Routledge.
- Andersen, Elaine S., Maquela Brizuela, Beatrice DuPuy, and Laura Gonnerman. 1999. Cross-linguistic evidence for the early acquisition of discourse markers. *Journal of Pragmatics* 31: 1339–1351.
- Arnold, Jennifer E. 2008. THE BACON not *the* bacon: How children and adults understand accented and unaccented noun phrases. *Cognition* 108: 69–99.
- Axia, Giovanna and Maria R. Baroni. 1985. Linguistic politeness at different ages. *Child Development* 56: 918–927.
- Baker, Nancy D. and Patricia M. Greenfield. 1988. The development of new and old

- information in young children's early language. *Language Sciences* 10: 3–34.
- Balog, Heather L. and Felicia D. Roberts. 2004. Perception of utterance relatedness during the first-word-period. *Journal of Child Language* 31: 837–854.
- Bangerter, Adrian. 2004. Using pointing and describing to achieve joint focus of attention in dialogue. *Psychological Science* 15: 415–419.
- Bates, Elizabeth, Luigia Camaioni, and Virginia Volterra. 1975. The acquisition of performatives prior to speech. *Merrill-Palmer Quarterly* 21: 205–226.
- Bates, Elizabeth and Louise Silvern. 1977. Social adjustment and politeness in preschoolers. *Journal of Communication* 27: 104–111.
- Bateson, Margaret C. 1979. The epigenesis of conversational interaction: A personal account of research development. In M. Bullowa (ed.), *Before Speech: The Beginning of Interpersonal Communication*, pp. 63–77. Cambridge: Cambridge University Press.
- Bloom, Lois, Lois Hood, and Patsy Lightbown. 1974. Imitation in language development: If, when, and why? *Cognitive Development* 6: 380–420.
- Bloom, Lois, Cheryl Margulis, Erin Tinker, and Naomi Fujita. 1996. Early conversation and word learning: Contributions from child and adult. *Child Development* 67: 3154–3175.
- Brennan, Susan E. and Herbert H. Clark. 1996. Conceptual pacts and lexical choice in conversation. *Journal of Experimental Psychology: Learning, Memory, and Cognition* 22: 1482–1493.
- Bresson, François. 1977. Syntax, semantics, and utterance: Determining a referent. *International Journal of Psycholinguistics* 4: 31–41.
- Brizuela, Maquela, Elaine S. Andersen, and Lynne Stallings. 1999. Discourse markers as indicators of register. *Hispania* 82: 128–141.
- Brown, Roger W. 1973. *A First Language: The Early Stages*. Cambridge, MA: Harvard University Press.
- Bruner, Jerome S. 1975. The ontogenesis of speech acts. *Journal of Child Language* 2: 1–20.
- Bruner, Jerome S. 1983. *Child Talk*. London: Fontana.
- Butterworth, George and Nicholas Jarrett. 1991. What minds have in common is space: Spatial mechanisms serving joint visual attention in infancy. *Developmental Psychology* 9: 55–72.
- Carter, Anne L. 1978. From sensori-motor vocalizations to words: A case study of the evolution of attention-directing communication in the second year. In A. Lock (ed.), *Action, Gesture, and Symbol: The Emergence of Language*, pp. 309–349. London: Academic Press.
- Casillas, Marisa. 2014. Turn-taking. In D. Matthews (ed.), *Pragmatic Development*, pp. 53–70. Amsterdam: John Benjamins.
- Chandler, Michael, Anna S. Fritz, and Suzanne Hala. 1989. Small-scale deceit: Deception as a marker of two-, three-, and four-year-olds' early theories of mind. *Child Development* 60: 1263–1277.
- Chi, Michelene T. H. and Randi D. Koeske. 1983. Network representation of a child's dinosaur knowledge. *Developmental Psychology* 19: 29–39.
- Childers, Jane B., Julie Vaughan, and Donald A. Burquest. 2007. Joint attention and word learning in Ngas-speaking toddlers in Nigeria. *Journal of Child Language* 33: 199–225.
- Chouinard, Michelle M. and Eve V. Clark. 2003. Adult reformulations of child errors as negative evidence. *Journal of Child Language* 30: 637–669.
- Chouinard, Michelle M. and Kristi Imberi-Olivares. 2012. Getting information from other people: Who do children turn to? In M. Siegal and L. Surian (eds.), *Access to Language and Cognitive Development*, pp. 100–114. Oxford: Oxford University Press.
- Clark, Eve V. 1982. Language change during language acquisition. In M. E. Lamb and A. L. Brown (eds.), *Advances in Developmental Psychology*, vol. 2, pp. 173–197. Hillsdale, NJ: Lawrence Erlbaum.
- Clark, Eve V. 1990. Speaker perspective in language acquisition. *Linguistics* 28: 1201–1220.
- Clark, Eve V. 1997. Conceptual perspective and lexical choice in acquisition. *Cognition* 64: 1–37.
- Clark, Eve V. 2007. Young children's uptake of new words in conversation. *Language in Society* 36: 157–182.
- Clark, Eve V. 2009. *First Language Acquisition*. 2nd ed. Cambridge: Cambridge University Press.
- Clark, Eve V. 2010. Adult offer, word-class, and child uptake in early lexical acquisition. *First Language* 30: 250–269.

- Clark, Eve V. In press. Conversational partners and common ground: Variation contributes to language acquisition. In M. Hickmann and E. Veneziano (eds.), *Sources of Variation in First Language Acquisition: Languages, Contexts, Listeners*. Amsterdam: John Benjamins.
- Clark, Eve V., and Bernicot, Josie. 2008. Repetition as ratification: How parents and children place information in common ground. *Journal of Child Language* 35: 349–371.
- Clark, Eve V. and Marie-Catherine de Marneffe. 2012. Constructing verb paradigms in French: Adult construals and emerging grammatical contrasts. *Morphology* 22: 89–12.
- Clark, Eve V. and Bruno Estigarribia. 2011. Using speech and gesture to introduce new objects to young children. *Gesture* 11: 1–23.
- Clark, Eve V. and Barbara F. Hecht. 1983. Comprehension, production, and language acquisition. *Annual Review of Psychology* 34: 325–349.
- Clark, Eve V. and Trisha A. Svaib. 1997. Speaker perspective and reference in young children. *First Language* 17: 57–74.
- Clark, Eve V. and Andrew D.-W. Wong. 2002. Pragmatic directions about language use: Words and word meanings. *Language in Society* 31: 181–212.
- Clark, Herbert H. 1996. *Using Language*. Cambridge: Cambridge University Press.
- Clark, Herbert H. and Catherine Marshall. 1978. Reference diaries. In D. L. Waltz (ed.), *Theoretical Issues in Natural Language Processing*, vol. 2, pp. 57–63. New York: Association for Computing Machinery.
- DeLoach, Judy S., Gabrielle Simcock, and Suzanne Macari. 2007. Planes, trains, automobiles – and tea sets: Extremely intense interests in young children. *Developmental Psychology* 43: 1579–1586.
- Dodd, Barbara. 1975. Children's understanding of their own phonological forms. *Quarterly Journal of Experimental Psychology* 27: 165–172.
- Emslie, Hazel C. and Rosemary J. Stevenson, 1981. Pre-school children's uses of the articles in definite and indefinite referring expressions. *Journal of Child Language* 8: 313–328.
- Enfield, Nicholas J. 2008. Common ground as a resource for social affiliation. In I. Kecskes and J. L. Mey (eds.), *Intention, Common Ground and the Egocentric Speaker–Hearer*, pp. 223–254. Berlin: Mouton de Gruyter.
- Estigarribia, Bruno and Eve V. Clark. 2007. Getting and maintaining attention in talk to young children. *Journal of Child Language* 34: 799–814.
- Ferrier, Linda J. 1978. Some observations of error in context. In N. Waterson and C. Snow (eds.), *The Development of Communication*, pp. 301–309. New York: Wiley.
- Fisher, Cynthia, and Hisayo Tokura. 1995. The given–new contract in speech to infants. *Journal of Memory and Language* 34: 287–310.
- Ganea, Patricia A. and Megan M. Saylor. 2007. Infants' use of shared linguistic information to clarify ambiguous requests for objects. *Child Development* 78: 493–503.
- Gelman, Susan A., John D. Coley, Karl S. Rosengren, Erin Hartman, and Athina Pappas. 1998. *Beyond Labeling: The Role of Maternal Input in the Acquisition of Richly Structured Categories*. Monographs of the Society for Research in Child Development 63 (serial no. 253).
- Gobbo, Camilla and Michelene Chi. 1986. How knowledge is structured and used by expert and novice children. *Cognitive Development* 1: 221–237.
- Golinkoff, Roberta M. 1986. "I beg your pardon?" The preverbal negotiation of failed messages. *Journal of Child Language* 13: 455–476.
- Goodwin, Charles. 2002. Time in action. *Current Anthropology* (special issue on Repertoires of Timekeeping in Anthropology) 43: S19–S35.
- Haviland, Susan E. and Herbert H. Clark. 1974. What's new? Acquiring new information as a process in comprehension. *Journal of Verbal Learning and Verbal Behavior* 13: 512–521.
- Hickmann, Maya and Henriëtte Hendriks. 1999. Cohesion and anaphora in children's narratives: A comparison of English, French, German, and Mandarin Chinese. *Journal of Child Language* 26: 419–452.
- Hickmann, Maya, Henriëtte Hendriks, Françoise Roland, and James Liang. 1996. The marking of new information in children's narratives: A comparison of English, French, German and Mandarin Chinese. *Journal of Child Language* 23: 591–619.
- Howe, Christine. 1981. *Acquiring Language in a Conversational Context*. London: Academic Press.
- Jefferson, Gail. 1974. Error correction as an interactional resource. *Language in Society* 3: 181–199.

- Johnson, Kathy E., Joyce M. Alexander, Steven Spencer, Mary E. Leibham, and Carin Neitzel. 2004. Factors associated with the early emergence of intense interests within conceptual domains. *Cognitive Development* 19: 325–343.
- Johnson, Kathy E. and Carolyn B. Mervis. 1994. Microgenetic analysis of first steps in children's acquisition of expertise on shorebirds. *Developmental Psychology* 30: 418–435.
- Käsermann, Marie-Louise and Klaus Foppa. 1981. Some determinants of self-correction: An interactional study of Swiss German. In W. Deutsch (ed.), *The Child's Construction of Language*, pp. 77–104. London: Academic Press.
- Knudsen, Birgit and Ulf Liszkowski. 2012. Eighteen- and 24-month-old infants correct others in anticipation of action mistakes. *Developmental Science* 15: 113–122.
- Koenig, Melissa A. and Catharine H. Echols. 2003. Infants' understanding of false labeling events: The referential roles of words and the speakers who use them. *Cognition* 87: 179–208.
- Kurumada, Chigusa. 2013. Navigating the variability in the linguistic signal: Learning to interpret contrastive prosody. PhD dissertation, Stanford University.
- Lempers, Jacques, Eleanor L. Flavell, and John H. Flavell. 1977. The development in very young children of tacit knowledge concerning visual perception. *Genetic Psychology Monographs* 95: 3–53.
- Leslie, Alan M. 1987. Pretense and representation: The origins of "theory of mind." *Psychological Review* 94: 412–426.
- Leung, Eleanor H. and Harriet L. Rheingold. 1981. Development of pointing as a social gesture. *Developmental Psychology* 17: 215–220.
- Levinson, Stephen C. 2006. On the human "interaction engine." In N. Enfield and S. C. Levinson (eds.), *Roots of Human Sociality: Culture, Cognition, and Interaction*, pp. 39–69. Oxford: Berg.
- Lewis, David K. 1969. *Convention: A Philosophical Study*. Cambridge, MA: Harvard University Press.
- Liebal, Kristin, Tanya Behne, Malinda Carpenter, and Michael Tomasello. 2009. Infants use shared experience to interpret pointing gestures. *Developmental Science* 12: 264–271.
- Liebal, Kristin, Malinda Carpenter, and Michael Tomasello. 2013. Young children's understanding of cultural common ground. *British Journal of Developmental Psychology* 31: 88–96.
- Liszkowski, Ulf, Malinda Carpenter, and Michael Tomasello. 2008. Twelve-month-olds communicate helpfully and appropriately for knowledgeable and ignorant partners. *Cognition* 108: 732–739.
- MacWhinney, Brian. 2005. The emergence of linguistic form in time. *Connection Science* 17: 191–211.
- Maratsos, Michael P. 1974. Preschool children's use of definite and indefinite articles. *Child Development* 45: 446–455.
- Marslen-Wilson, William, Elena Levy, and Lorraine Tyler. 1982. Producing interpretable discourse: The establishment and maintenance of reference. In R. J. Jarvella and W. Klein (eds.), *Speech, Place, and Action*, pp. 339–378. New York: Wiley.
- Masur, Elise F. and Janet Olson. 2008. Mothers' and infants' responses to their partners' spontaneous action and vocal/verbal imitation. *Infant Behavior and Development* 31: 704–715.
- Matthews, Danielle, Elena Lieven, and Michael Tomasello. 2010. What's in a manner of speaking? Children's sensitivity to partner-specific referential precedents. *Developmental Psychology* 46: 749–760.
- Moll, Henrike, Nadja Richter, Malinda Carpenter, and Michael Tomasello. 2008. Fourteen-month-olds know what "we" have shared in a special way. *Infancy* 13: 90–101.
- Moore, Chris and Philip J. Dunham (eds.). 1995. *Joint Attention: Its Origins and Role in Development*. Hillsdale, NJ: Lawrence Erlbaum.
- O'Neill, Daniela K. 1996. Two-year-old children's sensitivity to a parent's knowledge state when making requests. *Child Development* 67: 659–677.
- O'Neill, Daniela K. and Jane C. Topolovec. 2001. Two-year-old children's sensitivity to the referential (in)efficacy of their own pointing gestures. *Journal of Child Language* 28: 1–28.
- Onishi, Kristine H. and Renée Baillargeon. 2005. Do 15-month-old infants understand false beliefs? *Science* 308: 255–258.
- Pechmann, Thomas and Werner Deutsch. 1982. The development of verbal and nonverbal devices for reference. *Journal of Experimental Child Psychology* 34: 336–341.

- Piaget, Jean. 1962. *Play, Dreams, and Imitation in Childhood* (trans. C. Gattegno and F. M. Hodgson). New York: Norton. Originally published as *La Formation du symbole chez l'enfant*.
- Power, Richard J. D. and M. F. Dal Martello. 1986. The use of the definite and indefinite articles by Italian preschool children. *Journal of Child Language* 13: 145–154.
- Puccini, Daniel. 2013. The use of deictic versus representational gestures in infancy. PhD dissertation, Radboud University Nijmegen.
- Rheingold, Harriet L., Dale F. Hay, and Meredith J. West. 1976. Sharing in the second year of life. *Child Development* 47: 1148–1158.
- Roy, Brandon C., Michael C. Frank, and Deb Roy. 2012. Relating activity contexts to early word learning in dense longitudinal data. In Naomi Miyake, David Peebles, and Richard Cooper (eds.), *Proceedings of the 34th Annual Meeting of the Cognitive Science Society*, pp. 935–940. Austin, TX: Cognitive Science Society.
- Roy, Deb K. 1999. Learning words from sights and sounds: A computational model. PhD dissertation, Massachusetts Institute of Technology.
- Rozendaal, Margot I. and Anne E. Baker. 2008. A cross-linguistic investigation of the acquisition of the pragmatics of indefinite and definite reference in two-year-olds. *Journal of Child Language* 35: 773–807.
- Rozendaal, Margot I. and Anne E. Baker. 2010. The acquisition of reference: Pragmatic aspects and the influence of language input. *Journal of Pragmatics* 42: 1866–1879.
- Sachs, Jacqueline. 1983. Talking about the there and then: The emergence of displaced reference in parent–child discourse. In K. E. Nelson (ed.), *Children's Language*, vol. 4, pp. 1–28. Hillsdale, NJ: Lawrence Erlbaum.
- Sachs, Jacqueline and Judith Devin. 1976. Young children's use of age-appropriate speech styles in social interaction and role-playing. *Journal of Child Language* 3: 81–98.
- Schegloff, Emanuel A. 2000. When others initiate repair. *Applied Linguistics* 21: 205–243.
- Schegloff, Emanuel A., Gail Jefferson, and Harvey Sacks. 1977. The preference for self-correction in the organization of repair in conversation. *Language* 53: 361–382.
- Senju, Atsuchi and Gergely Csibra. 2008. Gaze following in human infants depends on communicative signals. *Current Biology* 18: 668–671.
- Serratrice, Ludovica. 2008. The role of discourse and perceptual cues in the choice of referential expressions in English preschoolers, school-age children, and adults. *Language Learning and Development* 4: 309–332.
- Schatz, Marilyn and Rochel Gelman. 1973. *The Development of Communication Skills: Modifications in the Speech of Children as a Function of Listener*. Monographs of the Society for Research in Child Development 38 (serial no. 152).
- Snow, Catherine. 1977. The development of conversation between mothers and babies. *Journal of Child Language* 4: 1–22.
- Snow, Catherine. 1978. The conversational context of language acquisition. In R. N. Campbell and P. T. Smith (eds.), *Recent Advances in the Psychology of Language*, pp. 253–269. London: Plenum.
- Stalnaker, Robert. 2002. Common ground. *Linguistics and Philosophy* 25: 701–721.
- Svennevig, 2008. Trying the easiest solution first in other-initiation of repair. *Journal of Pragmatics* 40: 333–348.
- Tarplee, Clare. 2011. Next turn and intersubjectivity in children's language acquisition. In H. Gardner and M. Forrester (eds.), *Analysing Interactions in Childhood: Insights from Conversation Analysis*, pp. 3–22. Chichester: Wiley-Blackwell.
- Tomasello, Michael. 1995. Joint attention as social cognition. In C. Moore and P. J. Dunham (eds.), *Joint Attention: Its Origins and Role in Development*, pp. 103–130. Hillsdale, NJ: Lawrence Erlbaum.
- Trevarthen, Colwyn. 1977. Descriptive analyses of infant communicative behaviour. In H. R. Schaffer (ed.), *Studies in Mother–Infant Interaction*, pp. 227–311. London: Academic Press.
- Veneziano, Edy. 1988. Vocal-verbal interaction and the construction of early lexical knowledge. In M. D. Smith and J. L. Locke (eds.), *The Emergent Lexicon: The Child's Development of a Linguistic Vocabulary*, pp. 109–147. New York: Academic Press.
- Veneziano, Edy. 2001. Displacement and informativeness in child-directed talk. *First Language* 21: 323–356.
- Warden, David A. 1976. The influence of context on children's use of identifying expressions and references. *British Journal of Psychology* 67: 101–112.

- Weisenburger, Janet L. 1976. A choice of words: Two-year-old speech from a situational point of view. *Journal of Child Language* 3: 275–281.
- Werner, Heinz and Bernard Kaplan. 1963. *Symbol Formation: An Organismic Developmental Approach to Language and the Expression of Thought*. New York: Wiley.
- Wieman, Leslie A. 1976. Stress patterns of early child language. *Journal of Child Language* 3: 283–286.
- Wimmer, Heinz and Josef Perner. 1983. Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children's understanding of deception. *Cognition* 13: 103–128.
- Zammit, Maria and Graham Schaffer. 2011. Maternal label and gesture use affects acquisition of specific object names. *Journal of Child Language* 38: 201–221.