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Early Pointing Gestures in Zinacantán

Starting with naturally occurring (proto-) pointing gestures of two infants, I examine the role and nature of early gesture in language acquisition and socialization in the Tzotzil-speaking community of Zinacantán, in Chiapas, Mexico. Early "words" are, not surprisingly, only part of the story, since verbalizations are embedded in wider communicative routines that characteristically involve gesture. Although the precursors to gesture have been linked to "practical actions," I argue that considerable conceptual complexity must be involved in emancipating, for example, pointing from grabbing or reaching. I suggest that the developments—both cognitive and sociointeractive—that accompany emerging gesture are consistent with the interactive and conceptual bases for later language development, despite doubts in Western psycholinguistics about both infants' communicative intentions and about the continuity or lack thereof between specifically linguistic and other cognitive attainments. Attention to metalinguistic theorizing in communicative traditions, like that of Zinacantán, which posit no radical discontinuity between gesture and the rest of language, and which conceive of even small infants as emerging interactive participants, may provide a useful theoretical corrective.

Studies of language acquisition often begin with a child's first verbalized utterances, a so-called "one word stage" that involves a minimal production of "morphemes" to which "holophrastic" referential-cum-pragmatic glosses are usually attached. The preoccupation with a child's first "words" reflects a series of perhaps unconscious opinions among child language researchers: (1) that units of reference and predication resembling

the compositionally combinable units of adult utterances are the precursors in children's speech of adult-like language; (2) that single "words" can in some way be abstracted from these "one-word" utterances, at least by analysts, and presumably by the children themselves over the course of language acquisition; and, most important for present purposes, (3) that there is something special about *spoken* language, so that other communicative modalities—notably gesture—employed by infants and their interlocutors are something less (or at least other) than real "language."

The very fact that both caregivers and researchers gloss early utterances holophrastically casts doubt on the first two presumptions.¹ Attention to the gestural "babbling" of deaf infants and their subsequent acquisition of sign-language,² which highlights the systematic and language-like development of nonverbalized communicative repertoires, raises doubts about the third, as do studies of the spontaneously generated language-like "home sign" systems in deaf children of hearing parents.³ Two central questions in child language research, which I intend this article to address if somewhat laterally, are thus: (1) what is the nature of early child communications—how should we understand infants' meanings and "intentions" in their earliest "utterances"? and (2) are early nonverbal productions related to subsequent language acquisition, and if so, how?

I think a comparative, ethnographic look at the phenomena is worthwhile. Western preoccupations with "intention" and interlocutor intersubjectivity have set the epistemological agenda for the study of the communicative abilities of both human infants and nonhuman primates.⁴ Moreover, what I sometimes dub "subtractive" thinking has erected dichotomous walls between allegedly distinct phenomena: words versus gestures, syntax versus mere combination, "real" language versus general communication, and so on. The standard procedure is to define one term strictly and exclusively, and to relegate to the other everything left over once the strictly defined parts have been subtracted from the phenomena in question.

As part of a collaborative study of Tzotzil (Mayan, Chiapas, Mexico), Lourdes de León and I have been involved in a long-term project to characterize what it means to be a "competent speaker" of Zinacantec Tzotzil. One's education into Zinacanteco society and language begins at birth, and Zinacantec infants are incorporated from the first moments of life into a communicative universe in which their actions are endowed with significance, rewarded with interpretation, and celebrated as virtual speech. Preverbal communicative routines in young Zinacantec children appear to develop into integrated events of speech and movement as children begin to talk. Once words appear, these children apparently subordinate "gesture" to a swiftly exploding syntax and spoken vocabulary. Our analytical preoccupation with the resulting *talk* then tends to blind us to the conceptual and pragmatic complexity of the earlier gestural forms, despite the fact that the continuing development of language may depend on a conceptual scaffold provided by earlier communicative routines.⁵

My aim in this article is to document Zinacantec children's early gestures,⁶ to suggest how they may relate to subsequent language developments, and to make an implicit plea for expanding received metalinguistic theorizing,

for example, by reference to Zinacantec notions of communication, speech, and interaction, which sidestep some of the subtractive preoccupations of Western psycholinguistics.⁷

My colleague Lourdes de León has engaged in longitudinal study of a number of young children in several Zinacantec villages over the past few years.⁸

These children's interactions with their caregivers suggest that nonspoken gestural routines develop both before and together with the earliest verbalizations, much as has been reported for infants in Western cultural contexts.⁹ Such gestural routines display an apparent conventional association between morphology—the shape and movement of the gestural articulators, including the face and hands—and a global situational "meaning" or pragmatic force. That is, they quickly acquire a symbolic character, independent of whatever origins they may have in practical action. These gestures also incorporate, from their earliest appearance, evident indexical links with a conceptually complex "context." In both respects gestural routines thus exhibit hallmark characteristics of all human language.¹⁰

I pay particular attention here to gestures that, using English categories, one might label instances of "pointing" or "indicating." However, as recent studies have suggested (see, for example, the papers in Kita n.d.), what falls under such pretheoretical rubrics constitutes a far from unified set of phenomena, which need to be grounded in the context of communicative practices rather than in a priori categories derived from an Occidental theory of "reference." Moreover, the intimate link between verbalized speech and other communicative forms extends beyond pointing routines to other indexical gestures, such as gaze, as we shall see below. In the early communications of Zinacantec infants, gesture and the overall behavioral routines of which they are part are as important to their growing communicative repertoires¹¹ as verbalizations—perhaps more important developmentally, as gestural routines involve physiological skills more accessible to the child than articulated speech.

It has long been argued that there are physical precursors to such communicative gestures as pointing in practical actions like reaching, touching, holding, and attending.¹² Whatever their developmental and motoric links with simple actions, and in addition to classic arguments about the interplay between early gestures such as pointing and the child's implicit theory of "reference" and concept formation (Werner and Kaplan 1963), it will be clear that even very early gestures display striking pragmatic complexity. The conceptual development required in the emancipation of communicative gesture from practical action begins well before words appear, and it seems to depend crucially on the interactive social context in which communication can evolve.

Communication with Zinacantec Children

Zinacantec children are generally restricted in their movements until they reach the age of one year or more. They are swaddled tightly, and ordinarily they are carried on the mother's or another caretaker's back, secured by a

specially woven carrying cloth from which only their heads and sometimes a limb or two are allowed to protrude. Occasionally infants younger than one are put down in a restricted space, especially before they can move themselves about. They are not allowed to crawl freely until just before they start to walk, which is usually well after 12 months, sometimes as late as two years. Concomitantly, caregivers exploit the rich array of tactile and other physical expressive signs provided by infants (who are normally in contact with their caregivers' bodies), which they often treat—that is, gloss to others—as directly communicative (see de León, this issue.) Despite the very different situation described in closely related Mayan societies (see, for example, Brown 1997, this issue), Zinacantecs explicitly express the opinion that infants communicate long before they actually talk, and caregivers are attentive to bodily expressions of what are taken to be communicative desires. I present metalinguistic evidence for this opinion in what follows.

Zinacantec practice also suggests that infants are believed to be *receptive* to communication from others. At the very moment of birth, a Zinacantec child is directly addressed by the attending midwife, both in the doublets of formal prayer and in ordinary speech. The child is also presented, immediately after birth, with some of the relevant objects he or she will need in adult life: tools, utensils, articles of food and clothing, et cetera, all of which are pressed into the infant's outstretched hands. The developmental observations of mothers and other caregivers suggest a close attention to the growing infant's sensitivity to communication and receptivity to a variety of stimuli. For example, long before people talk of a child's being able to *-a'I*¹³ 'understand' (e.g., speech), people comment on its ability to *-ojtikin-van* 'recognize people', itself taken as one sign that *iyul xch'ulel* 'literally, (the child's) soul has arrived', that is, that it has the rudiments of consciousness and reason.¹⁴

As a result of these notions of development and communication, considerable interpretive effort is put into deciphering and interpreting children's behavior, presumably producing feedback for the child and potentially rendering its actions *intentionally* communicative (Grice 1957) as the child grows. In particular, ethno-metapragmatic glosses offered for actions (including what we might want to call "gestures") of very young Zinacantec children routinely use the word *xi*,¹⁵ which characteristically frames glosses, (putative) quotations, and other communicative actions.

The use of *xi* to (re)present or demonstrate (Clark and Gerrig 1990) "speech" provides implicit evidence for a notion of mind and communication in Zinacantec metalinguistic theory, and it thus deserves a brief digression. In the vast majority of textual examples from adult speech, *xi* occurs alone or supplemented by a quotative "hearsay" particle *la* (Haviland 1987, 1989, 1996), together with what purports to be either a direct quotation or a pronominally shifted indirect quote from a narrated protagonist. The quoted material can be as varied as speech itself, whether predicative or expressive ("*Myerta*," *xi la li me'el une* "Sht!," said the old lady, they say.), and it may come in the full range of illocutionary guises. The purported narrator can be real, hypothetical, or impersonal ("*K'u yu'un xik' ech'ele?*" *xi sk'oplal*. "Why did he take her along?" gossip will say.). Notably, the

modality or channel of the "quoted" material can also vary, from purported spoken verbalizations, to evidentially marked translations into words of actions or even thoughts. (Retelling the Pear Story film [Chafe 1980], which contains no spoken dialogue, a Zinacantec narrator put Tzotzil words into a protagonist's mouth [or mind]: *Ja' nan lek chkich' ech'el skotol xi yilel un.* ' "Perhaps it would be better if I just took all [the pears]," he said apparently. ') Finally, even when what is quoted is seemingly raw sound, (*Xi ispas ye, "ta pi" xi un.* 'He went like this with his mouth, "Ta pi," he said. '), what is expressed is communicative intent (in this case, a cartoon mouse summoning his elephant friend with a whistle).

A three-month-old Zinacantec child, held by a cousin, waves her arms and makes a little cry when she sees her mother pass. The cousin remarks, "*ja' i'lván xi*" 'she says she saw her.' Or a six-month-old child grabs for the spoon with which her mother is feeding her (see Figure 3 below), and an onlooker remarks, "*k'an, xi*" 'she says, "[I] want [it]."' That the children themselves are sensitive to such adult metacommentary is borne out by material we will meet shortly.

Complex Pointing Gestures

Here are a couple of preliminary examples of what I take to be complex "pointing" gestures performed by two Zinacantec children, both of whom happen to be my godchildren, when they are just over a year and a half old. They will serve as illustrations of the sort of conceptual development and sophistication required for the communicative routines that these children, both of whom were still at the "one word stage," had already mastered. There will follow a series of further illustrations of how these communicative capacities continue to develop.

In the first introductory illustration (see Figure 1),¹⁶ Lupa, aged 19 months, who is walking hand in hand with her grandfather, (1) lifts a plastic bucket she is holding "in the direction of" a wooden bench. Shortly after she so "points" with the bucket, (2) she bangs it a couple of times on the bench and says *bebex* (her version of the word *p'ep'ex*, which is in turn a Zinacantec "baby talk" equivalent for the positional root *chot* 'seated' or the command *chotlan* 'sit down!'). Lupa's grandfather understands that he is to sit on the bench and replies that he will comply.

In line with the standard idea that "pointing" emerges from touching, we observe that "mediated touching" is taking place here. The gesture starts with a nontouching "referential point" or reach (using the bucket as an instrument). It continues with real touching, in fact, banging. But the gesture does more than "refer" (to the bench): it is a command, as the adult clearly understands. Moreover, the gesture's amplified interpretation—as with many referential acts—relies on a familiar Gricean "relevance" inference (bench—sit on the bench), which is only afterward supplemented by the explicit baby-talk predicate 'sit'!

In the second scene-setting example, Mal, aged 20 months, is being carried on her cousin's back. She says the word *me'* 'mother', and apparently points out to her left (see Figure 2). The wider conversational context, and

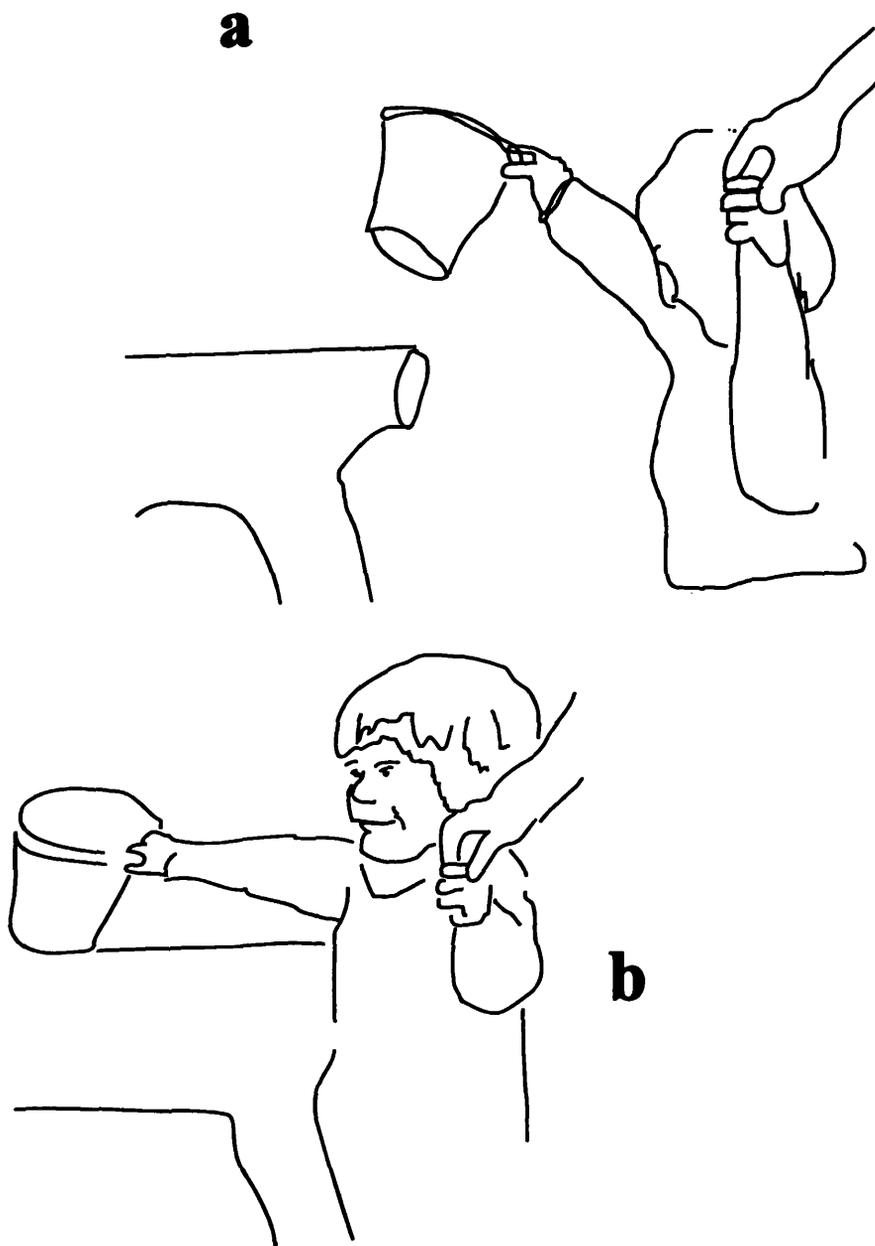


Figure 1
Bebex, "Sit down!"

the expanded interpretations the adults offer of her "utterance," again suggest that the child is capable of quite remarkable communicative sophistication. First, note that this is an "absent referent pointing gesture." Mal's mother (if, as the adults assume, that is the "mother" Mal refers to) is nowhere to be found on the scene, having gone to another part of the village for a visit. Indeed, Mal's little performance comes just after a discussion, which she has been observing intently, between her caregiver and a visiting woman who has asked where Mal's mother is. The caregiver has told her

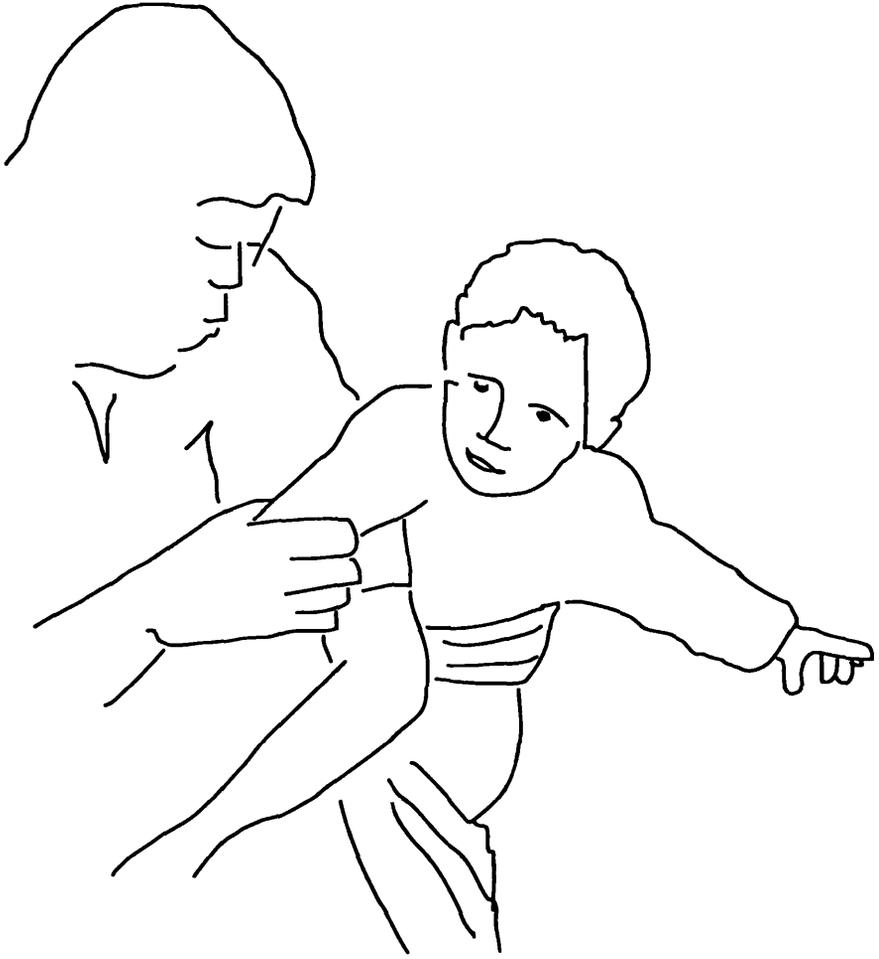


Figure 2
"Mother."

that the mother is away in another household. Mal fixes a silent gaze on the visitor for a few moments, and then "utters" the sequence of characterizing term (*me'* 'mother') plus pointing gesture (in the direction of the path leading away from the house) illustrated. The following short interpretive conversation, from which the first line is illustrated in the scene just described, ensues (Transcript 1):

Transcript (1): Mal points to "mother"

M= Mal; L= her caretaker; T= the visitor

- | | | |
|---|----|---------------------------------------|
| 1 | m; | <i>me'</i> ((points))
mother. |
| 2 | l; | <i>bat lame'</i>
Your mother went. |
| 3 | t; | <i>bat lame'</i>
Your mother went? |

4	m;	<i>ja'</i> ((retracts hand)) ?
5	t;	<i>ja'</i> ¹⁷ Yes?
6	l;	<i>ba sa' xi</i> "Went to look," she says.
7	m;	<i>xi'</i> ?
8	l;	<i>si'?</i> "Firewood"
9	[t;	<i>ba sa' si'</i> ((laughs)) ¹⁸ "Went to look for firewood."

Both Mal's interlocutors immediately interpret the combination of her word and gesture¹⁹ (at line 1) as a predication: "My mother went (that-away?)."²⁰ Mal proceeds with a mini-narrative, apparently pronouncing in sequence her versions of the adult words *sa'* 'search for' (at line 4) and *si'* 'firewood' (line 7). (Women in this household frequently leave the house compound in the direction indicated in the early mornings to collect firewood in the nearby forest.) L, Mal's usual caretaker and an expert in her communications, in each case interprets the little girl's babyish pronunciation (lines 6 and 8) for T, an aunt who lives elsewhere and who at first misunderstands the little girl's words.

This child, by 19 months of age, has arguably already mastered a rather abstract kind of pointing gesture. It combines orientation or direction²¹ with narration; it is performed in the absence of any referent that can be "pointed at"; and it exhibits a kind of proto-syntactic relationship with verbalization, providing, as it were, a gestured verb for a spoken argument. How much of this complexity Mal intends or understands, and how much merely results from the eager interpretations of caregiver and doting aunt (not to mention videotaping ethnographer), are impossible to determine from this single interaction. It is at least clear from the video record that Mal had been attending to the prior conversation about her absent mother, and that she "addressed" her "utterance" by deliberately fixing her gaze on her interlocutor before launching the little performance. The "single word utterances" that Mal and her cousin Lupa are emitting at this age are seen to be highly structured communicative performances once the gestures and the interactive context are added back in.

Learning to Point

So, how do these Tzotzil-learning infants learn to gesture? What emerging motor, conceptual, and interactive skills are involved in using the body to communicate as they do? As mentioned, standard wisdom has it that pointing gestures (motions often involving an extended index finger, and in some sense decoupled from—for example, spatially removed from—their presumed referents) evolve or emerge out of simple efforts to grasp and hold desired objects. The implied just-so story here is plausible, and one finds in

natural interaction manifold evidence to link attempts to grab desired objects with a *communicated desire* to have or hold said objects. For example, in Figure 3, Mal, at 8 months, seems to grab at the spoon that her mother is using to feed her. (The mother holds it carefully just out of the infant's reach so she won't throw food all over the yard.) One might argue here that the child simply wants to have the spoon, and the mother knows this from (among other things) the way she grabs at it. The child may not "intend" to "communicate" anything in particular to anybody (assuming, for example, a Gricean view of intentional communication, Grice 1957). We should certainly not want to impute to her evidently impulsive grab a language-like character, although the movement ("gesture"?) clearly serves as a symptom or indication from which the mother infers the child's desire/intent.

There is a serious puzzle here about how one can get from *real* grabbing and grasping, where the *real* object is, as it were, ready to hand, to the conceptually more distanced "feigned" or "ritualized grasping" of pointing. There must be semiotically mysterious stages all along the way. Let's see if we can fill some of them in.



Figure 3
Grabbing for/pointing at a spoon (Mal, 8 months).

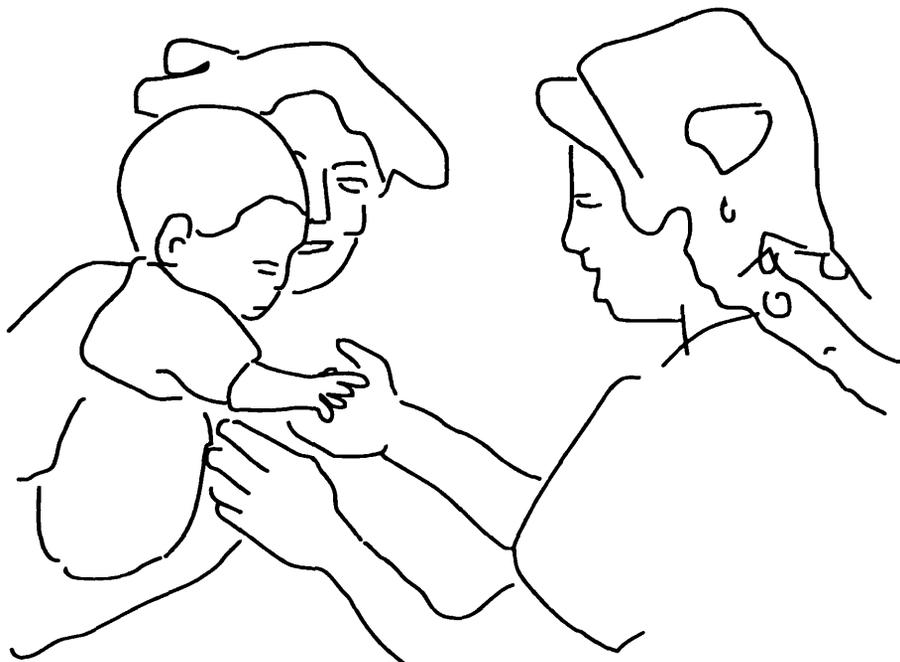


Figure 4
Mal (6 months) reaching for her mother.

Long before Mal was reaching for spoons, she was reaching for her mother—for example, as illustrated in Figure 4, at the age of six months. Even here, however, the clear relation between her practical desire (to be held by Mom), and her gesture (reaching out her hand in the direction of her mother's hands, outstretched in return), is treated as mediated by a socially communicated intention. In the video from which this drawing is taken, the cousin holding Mal and Mal's mother engaged in a little teasing game, waiting for Mal to reach for her mother (and, indeed, teaching her to do so) only to pull her out of reach, repeating the sequence until Mal's giggles threatened to turn to cries (at which point the mother whisked the little girl straight onto the breast).

It is to early "gestures" like these that Zinacantecs begin to assign explicit glosses, showing a native metapragmatic theory about infants' communicative intents. In the case of Figure 4, a typical comment would be *tzk'an sme'* 'she wants her mother' or *tzk'an petel* 'she wants to be held.' In the case of Mal's actions in Figure 3, as I mentioned, a typical gloss would be not "she wants [to hold] the spoon" but simply (*ta j*)*k'an xi'* "I want it," she says.' The movement itself is treated as glossable and quotable.²²

More telling, perhaps, in tracing the conceptual development involved in learning to point is the fact that apparent grabs/points may sometimes be "directed at" objects that, in a certain sense, could not be the targets of real grasping in the first place, making the "gesture" both less and more than a practical attempt to get hold of something.²³ Consider, for example, "reaching" when the target object is clearly (at least to an adult) *out of reach*, as in

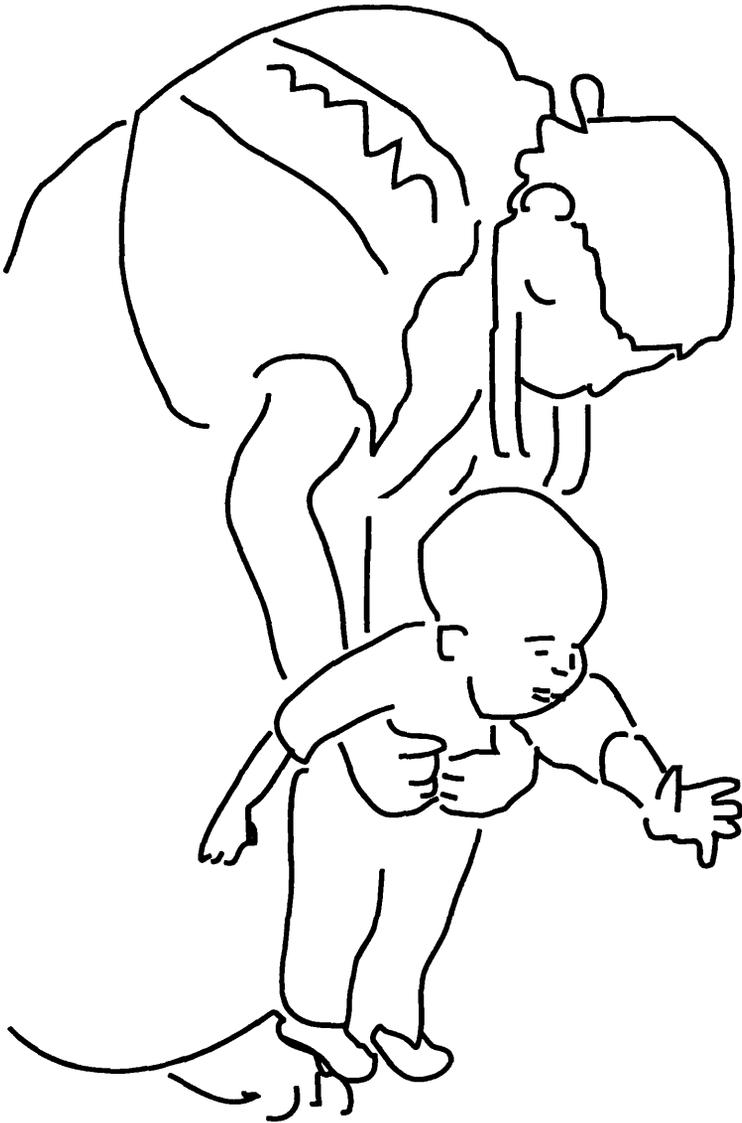


Figure 5
Mal (9 months) "reaches for" a distant toy.

Figure 5, where a 9-month-old Mal seems to grab in the direction of a toy another child is using about two meters away. (Mal's mother has set her in a standing position, although she is still many months away from being able to walk.)

More strikingly, Figure 6 shows an 11-month-old Mal on her mother's back. She has been napping as her mother washes clothes, but she wakes up and engages in a small sequence of interactive play with Lourdes de

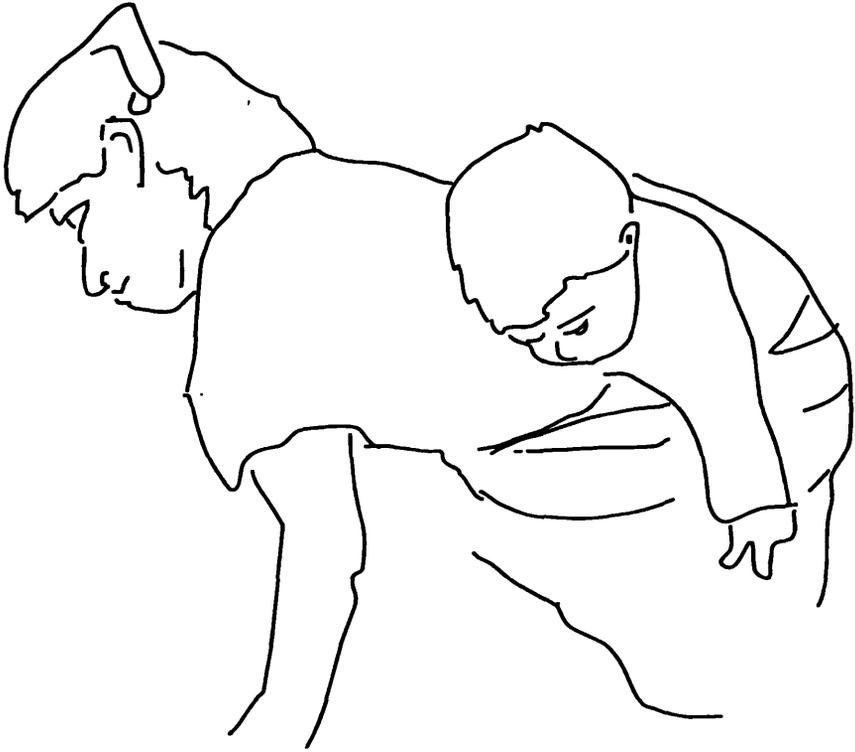


Figure 6
Mal (11 months) points to an object on the ground.

León, who is filming the scene. She catches Lourdes' eye and points at an object on the ground, out of her reach, but clearly something to which she intends to call Lourdes' attention. She has now moved beyond a grasping hand (with extended fingers) to a pointing hand (with only the index finger extended)—something she has learned to form and use in the intervening two months since the action illustrated in Figure 5. In both cases, however, Mal reaches for an object that can't in fact be reached—and, indeed, she exhibits no real effort to reach it—suggesting that the movement has more a communicative than a practical function.

Around this same age, 11 months, Mal also starts to reach/point at things which, in the end, we know she does not really want to hold at all. For example, at 11 months, sitting in a makeshift highchair (which immobilized her at a time when she often tried to escape the confines of her caregiver's grip), she observed a cat scratching and batting at a ribbon dangling from a garment. She stretched out her hand (with the index finger partly extended in something that looked like a pointing movement) in the direction of the cat (see Figure 7). Perhaps she wanted to draw its attention, but she quickly withdrew her hand when the cat threatened to scratch. Here the interpersonal effect was directed both to the cat itself and to those who were observing her play—as one can see by her glance and smile (Piaget 1962)

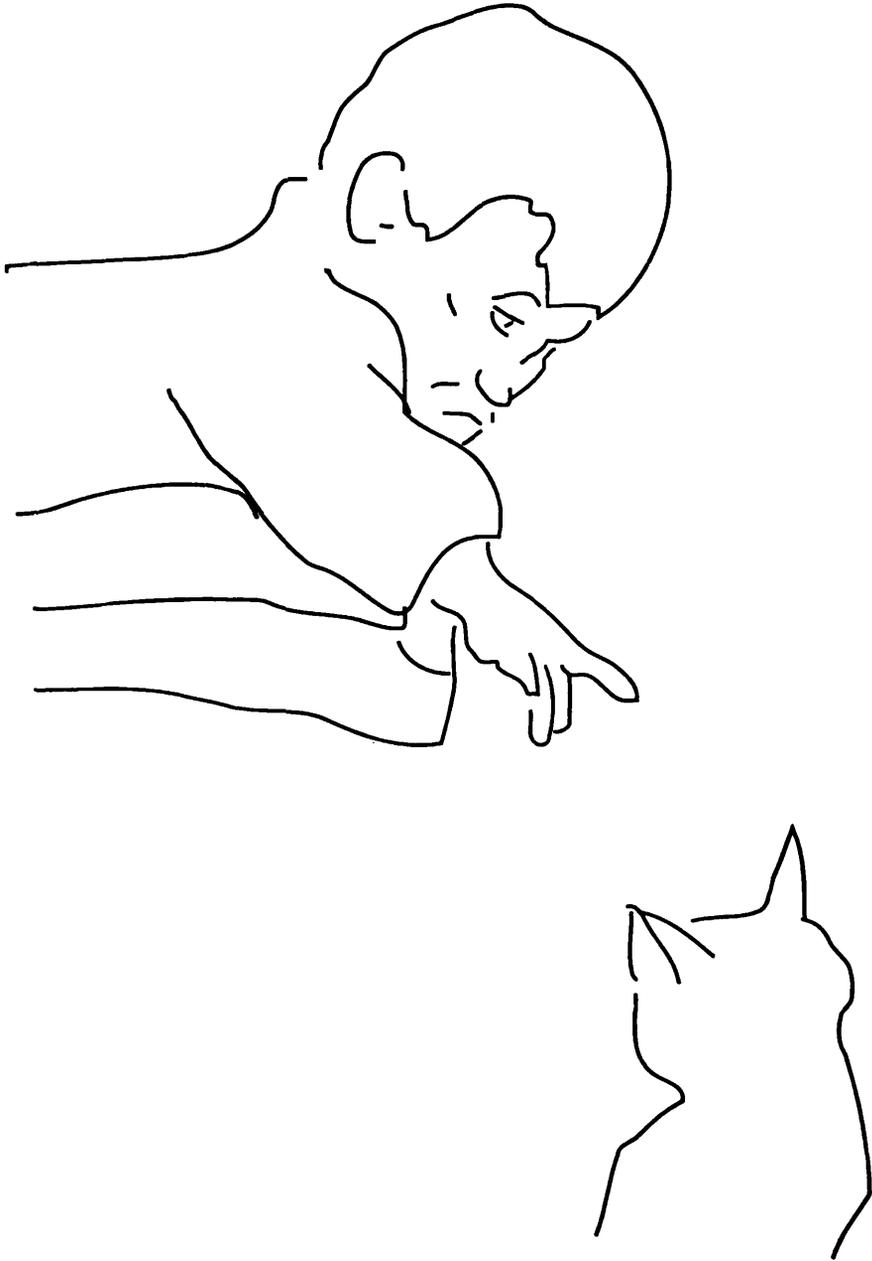


Figure 7
 Mal (11 months) "reaches for" the cat.

directed at the adults present immediately after the little interaction. Reaching? Pointing? Just playing? A definitional decision is less important than recognizing her apparently deliberate "communicative intent."²⁴

By two months later, Mal demonstrates that she is capable of "abstract" reference through gesture. At 13 months, she has had a fall, and her mother has rushed to hold her and nurse her until her crying stops. As she sits in her mother's lap, she suddenly makes a crying face (though she does not

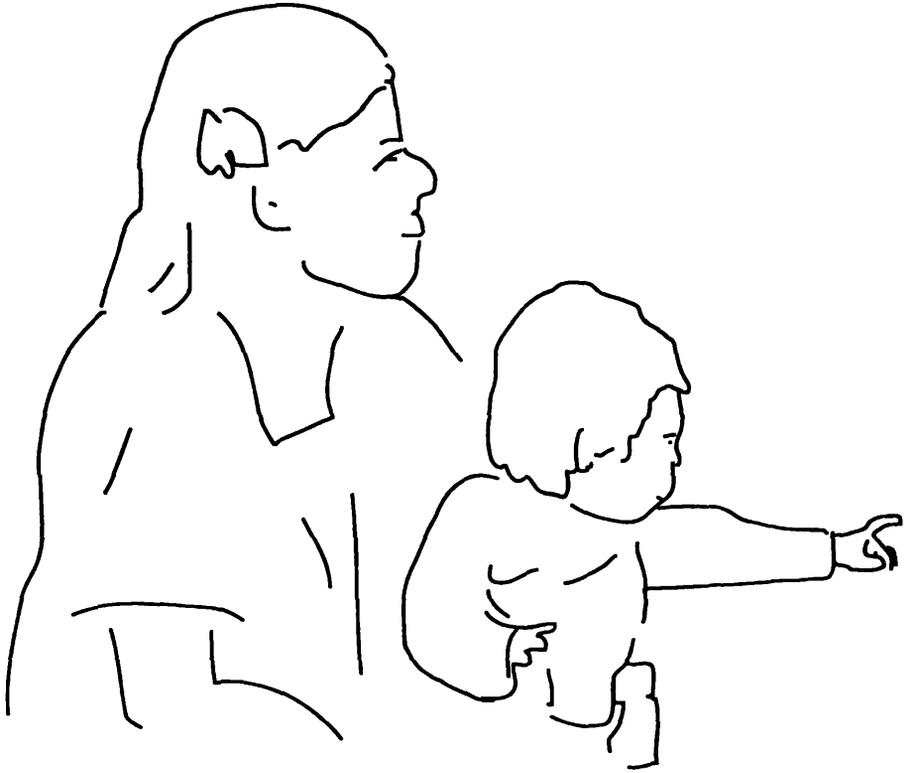


Figure 8
Mal (13 months) "recounts" a fall.

in fact cry or make any sound at all) and "points" at the makeshift playpen where she had earlier taken the tumble (see Figure 8). All adults present gloss the sequence as something like: "Look there where I hurt myself." That is, they again interpret her movements as equivalents to a little speech. Mal has engaged in a mini-narrative genre—recounting a memory—through a vehicle that once again appears to involve a proto-syntagm which in this case combines two gestures (the grimace and the point).

Gestural Morphology

Further evidence that grasping/reaching/holding has given way to semiotically charged gesturing comes from what we might call gestural morphology: the form of movements and actions that go beyond those required for the alleged underlying "practical" motives. The "additional" elements may have a conventional character, incorporating aspects of gestural motion or form with standardized meanings, the conjunction of which must be learned in the same way that the phonological shape of a spoken morpheme must be learned. The elements may also add to a "practical" action like grabbing or holding a specific interactional character, a pragmatic *inflection* overlaid over the action itself. The extended index finger—something that Mal only mastered by about 11 months—is one example of such

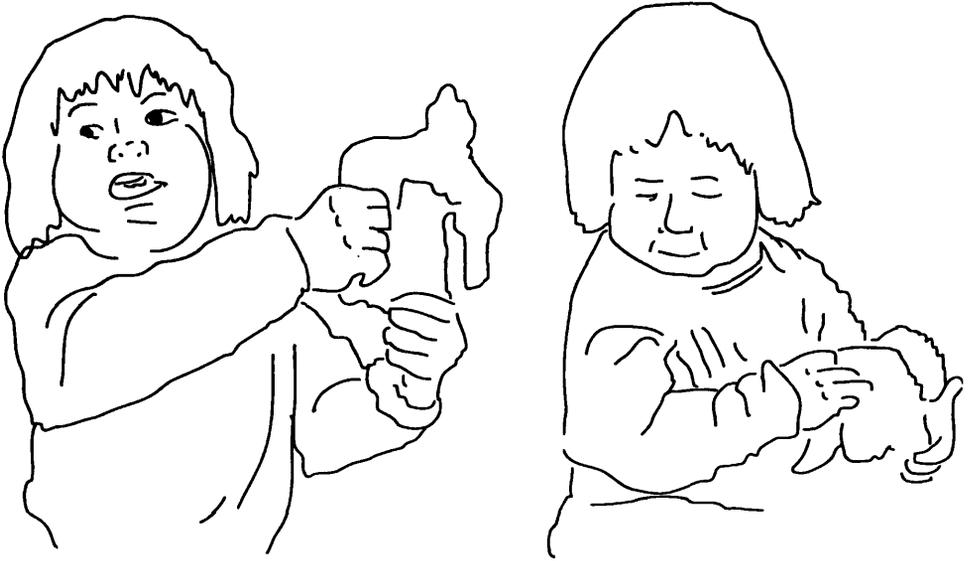
conventionalized morphology. Here are two further illustrations of what I mean.

Lupa, at 19 months, is playing with a ring and pole toy—part of the stimulus kit that Lourdes de León has used to elicit Tzotzil spatial language (see de León 1991). A playmate has one of the rings she wants. Lupa “reaches” for it, but she does not extend her hand so far as to try physically to wrest it away from the playmate. At the same time, she bends her outstretched finger in a kind of beckoning gesture, clearly conventional and clearly intended to communicate that she wants the other to hand it over, but without going so far as simply to grab it (see Figure 9).

More dramatically, grasping can involve not only holding on to something but also demonstrably (“communicatively”) keeping it *away from* somebody else. Lupa at 20 months of age wrenches a toy away from a playmate, accompanying her grabbing gesture with exaggerated motion (that is, pulling it not only out of the other’s hands but also well out of her reach as well), clenched teeth, and a kind of grunt or “trying hard” vocalization²⁵ (see Figure 10). She can also send a similar interactional signal just by slightly turning away from her antagonist while holding the toy (see Figure 11).



Figure 9
Lupa (19 months) “asks for” a toy.



Figures 10 and 11

Figure 10 (left): Lupa (20 months) takes a toy away. Figure 11 (right): Lupa (20 months) turns away with a toy.

Let me recapitulate the considerations that have driven my parade of examples so far. When a child reaches for a desired object, she uses an instrument (her hand) physically to retrieve the thing. We presume that she has some idea (a "concept") of the object, and also some idea that she wants it and can get it. If we complicate this imagined scenario with a minimal dose of social interaction (for example when the child's father hands her an object and she reaches for it²⁶), we must additionally posit joint orientation to the object on the part of both interactants, and a context of activity including mutual attention that permits the whole exchange to come off. The father's offer is rudimentary communication, simpler than but in many ways comparable to a customer's *placing* an object on a store checkout counter (Clark 1997)²⁷; the child's uptake is like the shopkeeper's reply or countermove. What more is involved in pointing? Following Clark's decomposition of "indicating" as a method of signaling (Clark 1997:164ff.), we may distinguish several additional semiotic elements. First, an indexical sign now intervenes between the object and the interactants. The object or referent is no longer directly in hand, but rather some instrument (here, the child's finger) performs what Clark calls a locative action (for example, orienting or moving in some direction), establishing a "physical connection" with the intended referent. Moreover, on Clark's analysis, the referent must be further "specified under a particular description" (for Clark, usually part of a complex referring expression, but in the case of a prelinguistic child, perhaps a vague and inferred characterization like "something edible," or a characterization derived from the specific shape of the pointing hand or other instrument) to allow the interlocutor to calculate exactly what the pointer intends to indicate.

Raw grasping or reaching—the precursors from which such gestures are said to be “ritualized” or “emancipated”—omits at least two crucial aspects of this semiotic complexity. There is no indexical relation between sign and referent, but only the object itself.²⁸ Further, the element of collaborative communication (for Clark, the signaler’s intent that her interactant be able to work out the referent from the sign) is irrelevant to reaching gestures but crucial to pointing.

In Western psychological literature these aspects of the progression to communication and language are linked to the move from practical action to reference and predication, and to particular notions of intention, intersubjectivity, and a “theory of mind.”²⁹ In Zinacantán, in commentary and implicit theorizing about young children, communicative intent is expressed as a desire (despite a relative inability on the part of the child) to speak: *ba sa’ xi’* “[mother] went to look [for firewood],” she says.’ Following the lead of Zinacantec caregivers, we see that both aspects of the increased semiotic complexity of pointing seem patently to characterize the examples with which we began: pounding with the bucket to invite grandfather to sit, or sticking out a finger to show where mother has gone. Moreover, one begins to find evidence for the necessary conceptual development in the apparently communicative movements of at least these two Zinacantec children at quite early ages, both well before and later accompanying (and supplementing) their first intelligible words. Adult Zinacantecs attribute such semiotic complexity to the actions of the infants in their midst, via metapragmatic glosses and commentary. Sooner or later, one assumes, the resulting interactive feedback will have its effects on what the infants themselves understand themselves to be doing or to be able to do.³⁰

Not-Pointing

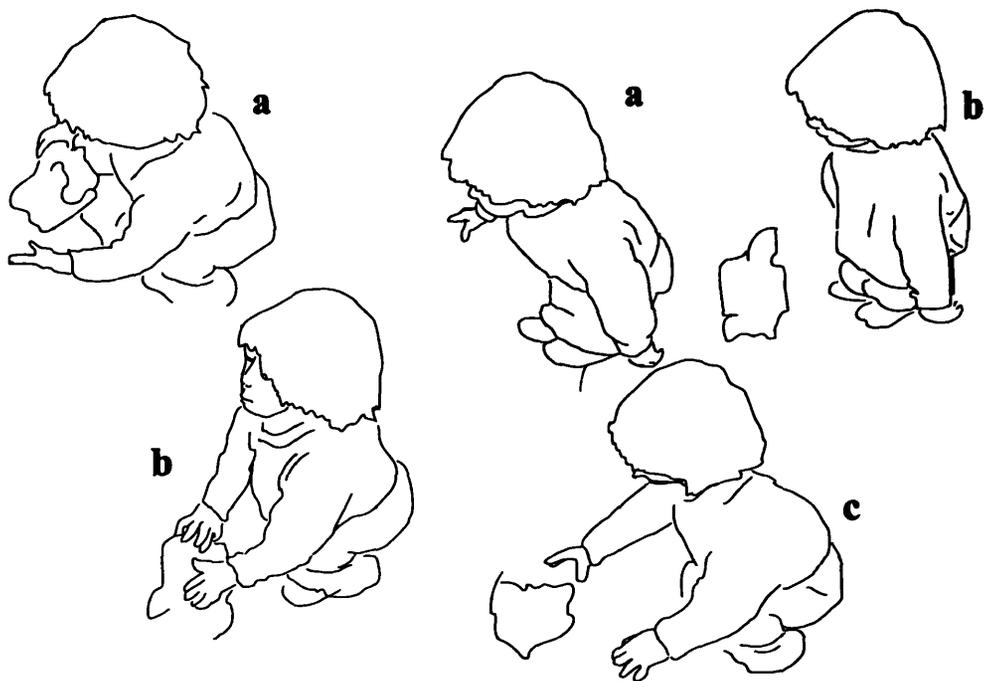
We have looked so far at a range of actions and movements that might plausibly be seen to derive from holding, grasping, reaching, and grabbing. I think it would have been equally possible to look at other ritualizable actions: markers of attention (startling, looking, and listening), acts of disposing (throwing away—leading perhaps to giving away/offering), or expressions of inner states (cries—leading perhaps to calls), and so forth. I will hazard only a brief illustration of these possible alternate paths to gesture in my concluding remarks below, although all are widely exemplified in the Zinacantec material with which Lourdes de León and I have been working. First, however, let me return to grasping, holding, and reaching as precursors to communicative gesture, for some final complexities.

Note that in the little mythical ontogeny of gesture that stands as an implicit background to my remarks so far, not only can a reaching motion function as a proto-point; so, too, can the *absence* of a reaching gesture (in a context, that is, where such a gesture might be expected) function as a kind of “negative point.”³¹ Thus, *withholding* a grasp becomes as much an “action” in its own right as grasping, once one realizes that motions and the (stylized, i.e., symbolic) actions they come to stand for may have (intentional?) communicative value.

Lupa, for example, by 20 months, had a well developed "I'm not touching" gesture, a kind of conventionalized "sitting on her hands," which she displayed in a variety of contexts, among them a deliberate withholding of holding. For example, in Figure 12 Lupa has just set down on the ground a wind-up toy dog. She shows that she is restraining herself from touching the dog or picking it up again (as it does its little dance) by folding her hands up into her body.³² How such a gesture can figure in an interactive sequence is a matter to which we shall now turn.



Figure 12
Lupa (20 months) deliberately does not touch.



Figures 13 and 14

Figure 13 (left): Lupa (20 months) bangs a toy dog, and then sets it down.

Figure 14 (right): Lupa (20 months) waits while her playmate fixes the toy dog.

The toy dog in question here actually runs off a little battery, controlled by a small switch, meant to be child proof. Lupa and her playmate (our daughter Isabel, aged 7 years at the time) have been vaguely fighting over possession of the toy, and Isabel has now—on her mother's instruction—turned it off. In part (a) of Figure 13, Lupa has picked up the toy and banged on it (evidently to try to turn it on again—another variant of “holding as gesture”). Unsuccessful, at (b) she places the dog on the ground in front of Isabel,³³ at the same time gazing at her in an evident wordless “request” for Isabel to set it in motion once again.

Up until now, whenever Isabel has touched the toy dog, Lupa has jealously picked it up. (It was from one of these sequences that Figures 10 and 11 were drawn.) Now, waiting for Isabel to fix it, Lupa communicates her ambivalence about the other's handling of the toy. As shown in Figure 14, Lupa first half-reaches for the dog as Isabel picks it up (a), then resists the urge to grab it, using her “folded hand” gesture (b), and finally, when Isabel turns the toy on and sets it down, reaches out to grab it again (c). By gesture Lupa clearly communicates to her interactant the opposite message from her earlier grabbing gesture of Figure 10: she wants the other to fix the toy, and she withholds her claim on it for the moment.

Interaction

The existence of what I have claimed to be interactive, communicative routines, combining gestures with early vocalizations, would be hard to

explain in the absence of frequent and focused interaction between infants and their caregivers—parents, aunts, siblings, visitors, and so on—in which the infant is treated as a limited but nonetheless receptive and communicative interlocutor. Although descriptions from elsewhere in the Maya area describe a very different situation,³⁴ the Zinacantec infants with whom we have spent time are constantly engaged in (or treated as being engaged in) interactive communication. Mal and Lupa, whom we have met so far in this article, are both first-born children, perhaps the recipients of more dotting attention than offspring farther down the birth order. However, their interactions are not atypical of those of other children. Consider, briefly, the following vignettes from 10-month-old Chepa, the last of eight children in a household that also includes her siblings (the oldest about 20 years old), her parents, and her paternal grandparents.

Chepa has only the beginnings of vocalization, repeating monosyllables as, for example, she plays with bits of food. Adults do not hesitate, however, to gloss even her monosyllables (or, as we shall see, her bodily states—see de León, this issue) as expressions of her desire to communicate, sometimes with specific others. At Chepa's baptismal meal, when she was being passed between midwife, godmother, and mother as the object of celebratory attention, she repeated a monosyllabic cry, which sharply drew the attention of all three women. Reaching for her mother and staring intently at her at a moment when the adults were attending to another part of the room, she uttered a sound that sounded very much like *me'* 'mother.' At this same moment, the midwife who was holding Chepa, noticed that the infant had wet herself and passed her back to the mother (see Figure 15).

This all occurred in the context of the following short but complex little interaction (Transcript 2) between the three women (and the baby).

Transcript: Chepa "says 'mother' "

CH=Chepa, MO=mother, GM=godmother, MID=midwife

- | | | |
|---|------|--|
| 1 | ch; | <i>me' mm</i>
??? |
| 2 | mo; | <i>jaaaa</i>
[|
| 3 | gm; | <i>me:' xi</i>
She says "Mother."
[|
| 4 | mid; | <i>t'uxi:</i>
She got wet. |
| 5 | mo; | <i>je'</i>
Huh! |
| 6 | mid; | <i>t'uxul che'e yu'van</i>
Yes, she really is wet.
[|
| 7 | gm; | <i>tzk'abta sba</i>
She peed. |
| 8 | mal; | <i>yu'un tzk'abta sba yu'van</i>
Of course, she peed. |

...



Figure 15
Chepa is passed from midwife to mother.

- 12 mid; *tzk'an tzk'ex xi*
She wants to be changed, she says.

The godmother, having heard what she thought was a clear *me'*, comments in surprised and admiring tones (line 3) that the baby had "said 'mother.'" The midwife, passing the baby back, hazards another characterization of the baby's communication: that she was calling for her mother's attention because she needed to be changed (line 12). In both cases, the monosyllable plus the interactive behavior of the child are glossed into proper Tzotzil.

Chepa continues to produce monosyllables as she moves to her mother's lap, and the godmother now engages her in direct interaction (see Figure 16 and Transcript 3). She playfully prompts the child to repeat the word *me'* (line 14); she then comments to the child's mother (line 15), with a little laugh, that this is what she heard the little girl to have said. The mother repeats: "She did, indeed, say that," going on to comment "how disgusting!"³⁵

Transcript 3: Chepa continues to "talk"

- 13 ch; *bla'*
???
- 14 gm; *me' xi*
You say "Mother!"
- 15 *me' xi ((jm jm jj jj))*
She says "Mother."³⁶
- 16 mal; *yu'un xi yu'van*
She did say it, indeed.
- 17 *animal yan x'elan*
She's very disgusting.



Figure 16
"Say, 'Mother!'."

Additionally, Chepa has several developed gestural routines, treated by all around her as both interactive and communicative. For example, just as one might be tempted to interpret reaching or grasping as a precursor to intentional pointing, in Chepa's interactions gaze itself is interpreted as deliberately communicative. At this same baptismal meal in which many unknown people were present, the little girl repeatedly stared fixedly at one of the strangers, ultimately prompting her mother to *gloss* the behavior, in an aside to the little girl's godmother, as virtual speech: *much'u le'e xi yilel* 'She seems to be saying, "Who is that?"' (Recall from the digression about *xi* above that evidentially hedged uses of the framing verb—as here, where *xi* cooccurs with the qualifier *yilel* 'it appears' [derived from the root *il* 'see']—sometimes serve to put words into otherwise mute but in principle expressive mouths: those of speakers of unintelligible languages, cartoon characters, and here a prelinguistic child.)

There is even an apparent link between gaze and pointing. Chepa, an eighth child, has been largely bottle-fed, since her mother's breast milk is insufficient to feed the baby's ravenous appetite. Both breast and bottle are familiar objects in Chepa's world, and she has well-developed ways to signal her desire for them. In Figure 17 Chepa, who has been staring across the room at her sisters warming her bottle, suddenly begins to cry, keeping her gaze fixed on the distant bottle, and extending her hand in what looks like a proto-point.

Moreover, even at age 10 months Chepa seems to have her own version of the "withheld pointing" we met with Lupa. Chepa's mother offers her breast as a first option when the infant is restless or crying, but Chepa clearly knows that she will feed better from the bottle. In Figure 18, she has



Figures 17 and 18

Figure 17 (left): Gazing and "calling" for a bottle. Figure 18 (right): Pushing away the breast.

been put on the breast, but instead of beginning to nurse she deliberately and repeatedly pushes the nipple away, according to her mother signaling that she wants a bottle instead. While outsider observers might be skeptical about Chepa's ability to communicate intentionally—to "mean" in the sense of Grice (1957)—this is not a doubt shared by her mother, constant and attentive target of Chepa's expressions of desire.

Conclusions

To recapitulate, I have argued that well before a Zinacantec child utters its "first words" it is likely to have a well-developed set of communicative gestural routines that already exhibit several defining characteristics of "language": conventionality, indexical links to context, interactivity, and (perhaps more contentiously) apparent communicative intent. Whether or not they evolve developmentally out of such actions as reaching, grabbing, and watching (which have their own cognitive requisites), these routines are emancipated from practical goals—for example, holding a desired object, or attending to something—and have added conceptual and semiotic complexity: they serve to refer to, or to call an interlocutor's attention to something.

In all these miniature communicative routines the interactive situation is of central importance. There must be an observer/interactant for the transformation of "practical" action into signal to take place, and on the standard Gricean view the further move from signal to sign requires evidence of conscious intention that Western psychology is reluctant to concede to very young infants. At the earliest stages we have seen, taking as given received theories of mind, the only evidence for this transformation comes in the metapragmatic interpretations offered by observers. As Lock (1993) puts it, "[i]nfants in this period [0-9 months] give no evidence of intending to

communicate, but only communicate by virtue of the fact of their being within a socio-cultural human group, in which it is impossible *not* to communicate" (p. 279). No appeal to "intention," mutual attention, or more than minimal internal cognition on the part of the infant need be made for the communication to "come off," since interlocutors will by default discover "referents" for young children's "pointing" gestures.³⁷

In both native Zinacantec theory and interactive effect, however, the gestural routines are taken to be glossable and intentional precursors—indeed, exemplars—of language. This is part of the force of the metapragmatic glossing of actions as speech, and it coincides with a Zinacantec view, implicit in both practice and ideology, that children are emerging interactional participants right from birth. Moreover, the consistent development of these communicative gestural routines, and the fact that Zinacantec children well before they start to produce recognizable Tzotzil words begin to elaborate the routines, to play and to experiment with them, suggest that the youngsters can, indeed, become aware of the semiotic potential of their actions. Consciousness of this semiotic potential is, as Grice urged, in turn a necessary part of the conceptual development that underlies meaning in language, including the first "words," which later combine with and are themselves emancipated from gestural routines. Petitto (1988) has no doubts, in describing American and Canadian children and their early pointing, "that they express themselves in a communicative, intentional, and even referential manner," but she goes on to argue on other (subtractive) grounds that "we are still not justified in viewing the gestural means for expressing this intention as linguistic" (p. 202). Citing Petitto's arguments, Lock (1993), whose own work favors what he calls a "continuity-with-restructuring" view of the interrelation between gesture and early words, points out that facts parallel to those cited here for Zinacantec Tzotzil "may reflect a temporal co-existence of two very differently based systems, and that continuity cannot be assumed" (p. 296, fn. 2). Whether early gestures run in parallel with language acquisition at the level of cognitive mechanisms is not a question Zinacantecs ask of their infants, in whom they celebrate alike the semiotic potential of gestures, vocalizations, and words. This potential is realized under conditions of mutual attention in an interactive social context—something that these children are sensitive to from the very first moments of their lives.

Notes

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this journal induced me to rethink the entire project, and I am indebted to them for their suggestions, even where I have chosen to ignore them.

1. The psycholinguistic literature takes a "one word stage" as axiomatic, although not without reservations. For doubts about the "singularity" of "single words" in a variety of typologically different languages see the collections in Slobin (1985, 1992) and subsequent volumes, or Bates et al. (1988), among others. For Lock (1993), referring to a "one word stage" is a heuristic convenience, masking the fact that there are often very early word *combinations*, and, more importantly for present purposes, not taking into account that "many early 'words' are in fact produced in combination with gestures" (p. 285). Lock suggests that "the child enters this ['one-word'] stage with a communicative repertoire that is slowly reworked into a linguistic one based on reference and predication" (p. 284).

2. On gestural "babbling" see Petitto (1988), Petitto and Marentette (1991). On acquisition of ASL, see Bellugi and Klima (1982a, 1982b), Petitto (1983), Newport and Meier (1985).

3. See Goldin-Meadow (1993), Goldin-Meadow and Mylander (1998), Goldin-Meadow et al. (1994).

4. See note 37 below.

5. See Vygotsky (1978), Bruner (1983), Bruner and Sherwood (1976), Kaye and Charney (1981). One concrete example of such scaffolding has been suggested in the possible modality advantage for signers, who might be expected to learn language more quickly than hearing learners of spoken language, since they need not change modality in the transition from prelinguistic gestures to lexical forms. See, for example, Bonvillian et al. (1983), Goodwyn and Acredolo (1993); for a critical view see Petitto (1988).

6. Because our studies of acquisition depend more on the vicissitudes of field-work than on laboratory controls, I am unfortunately unable to comment more than anecdotally on the gestures of young Zinacantec *boys*, since we have studied in detail only our goddaughters, with whom we periodically share households, and despite the fact, as pointed out to me by the editor of this journal, that gender is presumably of significance here, as elsewhere, in socialization. I will also have nothing to say about an important parallel topic, the elaborated repertoire of adult gestures in Zinacantán, which presumably provide a kind of target for the language-learning child. There are perhaps unexpected formal and semiotic complexities of deictic gestures (cf. Haviland 1993, 1997) that provide a conceptual challenge for infants who confront them. Nor will I attempt a comparative discussion beyond the Tzotzil frontier, limiting myself in this article to a preliminary report from the field about a topic of much wider cross-cultural scope.

7. Gergen et al. (1996) argue that "[t]o presume Western concepts of the mind, along with its methods of study, not only lends itself to research of little relevance to other cultures, but disregards and undermines alternate cultural traditions."

8. See de León (1997, 1999, in press).

9. See, for example, Bates et al. (1979), who argue for a functional equivalence between early gestures and the (prelinguistic) vocalizations that accompany them.

10. Whether or not they also exhibit the first stirrings of "syntax" is a subtractive question whose answer is less clear, although it arises below in the example illustrated in Figure 2.

11. The role of gesture in early infant communication is a classic theme in acquisition studies. See, for example, Shore et al. (1984), Dobrich and Scarborough (1984), Acredolo and Goodwyn (1988); on pointing specifically, see Bates et al. (1989).

12. See, for example, Carter (1975), McNeill (1985), Hannan (1992). Bates et al. (1983) make the particularly strong argument that "all of the child's first

words—whether they are nouns or verbs, predicates or arguments, function terms or substantives from an adult point of view—begin as actions or procedures for the child. The infant does not ‘have’ her first words; she ‘does’ them” (p. 65). For a critical assessment of such a developmental claim as applied to pointing gestures, see Lock et al. (1990), who “conclude that pointing as a gesture” does not have “any single origin” (p. 53). As Lock et al. point out, many classic studies argue for the origins of pointing in reaching on the basis of highly anecdotal evidence, most notably Werner and Kaplan (1963) who base their claim on two diary studies, Bates (1976) who draws on observations of one child, Vygotsky (1986) who cites no observational evidence, and Lock himself (Lock 1980), whose notes on three children are heavily influenced by his reading of Vygotsky. Though he is ambivalent about assigning a unique origin in practical actions such as reaching to pointing gestures, Lock (1993) does not hesitate to characterize “expressive” or “instrumental” communicative gestures (clapping, for example, or “asking” with an outstretched open palm) as “actions that are ‘lifted’ from [the child’s] direct manipulation of the world” (p. 280).

13. Tzotzil is written in a practical orthography, in use in Chiapas and based on Spanish, where the symbol ‘ represents a glottal stop (not written in word initial position), an apostrophe (‘) marks glottalized consonants, *j* is a voiceless velar fricative, *x* a voiceless palatal fricative, and the digraphs *ch* and *tz* voiceless palatal and alveolar affricates respectively. In transcripts, lines connected with an open square bracket ([]) temporally overlap. The following abbreviations are used: ASP = aspect, 1/2/3 = 1st/2nd/3rd person, ABS = absolutive, 0 = null affix, and CVC = consonant-vowel-consonant.

14. For a classic discussion of the Tzotzil soul see Guiteras-Holmes (1961). See also the discussion of K’iche’ expressions regarding the soul in Pye (1992:240–241). The “arrival of the soul” can continue throughout one’s life in Zinacatán, and people comment even about adolescents that their “souls have come” as they evidence growing mastery of Zinacantec standards of behavior. The souls of drunks and epileptics “leave” or “are lost,” and of corpses “have departed.”

15. The word *xi* derives from an underlying intransitive verb root *chi* ‘say’, which takes one syntactic argument (the sayer, cross-indexed with absolutive affixes), and one logical argument (the “speech” quoted, which is not morphologically cross-indexed on the verb). Even as an intransitive verb, *chi* is defective in the sense that it allows only unmarked tense/aspect, represented by the prefix *x*-. Hence, for example, *x*{ASP}-*i*{1ABS}-*chi* > *xichi* “I say.” In the third person, this produces an exceptional assimilation: *x*{ASP}-0{3ABS}-*chi* > *xi* “he/she says.” (There are also plural forms.) The word *xi* has apparently undergone a further process of grammaticalization (Lehmann 1982), Heine et al. 1991, Bybee et al. 1994), moving from a verb meaning ‘say’ to a presentational adverb meaning ‘thus.’

Though the various uses of the word seem transparently related semantically, they can be grouped on syntactic grounds into several quite distinct contexts. At the demonstrative end of the scale, *xi* occurs together with explicit locatives or other deictics to express a notion like “(do it) *this way*” or “in *this direction* (look!)” (Tzotzil *xi to vi*, lit., ‘over this way, you see’). Similarly, it precedes possessed, nominalized adjectives to form expressions like *xi smuk’ul* “so big.” It can also precede or follow a fully inflected verb, usually with a locative or manner interpretation: *xi chimuy ech’el* “I climb up *this way*, or in *this direction*.” In these adverbial contexts, only the grammaticalized “third person” form *xi* can occur.

By contrast, *xi* participates in a unique construction type in Tzotzil, following a bare CVC verb root without further inflection to indicate an action that happens suddenly or without further elaboration. A good translation in English would be “it

just Xs" or "it just gets Xed" where X corresponds to the CVC root and "it" corresponds to the verb's underlying absolutive argument (in the case of a transitive verb, its patient). For example, *chot xi* 'he just sat down abruptly' (from the positional root *chot* 'seated'), or *lam xi naylo* '[they] quickly put a plastic sheet over it' (from the transitive root *lam* 'cover'). Here, both the first and second person forms *xichi* and *xachi* can also occur, with the grammatical subject of *chi* again corresponding to the expected absolutive argument of the accompanying CVC root: *tzak xichi* 'he just grabbed me (i.e., without warning)' [*tzak* 'grab,' a transitive root].

Xi also combines with the interrogative *k'u(si)* 'what?' to form a semi-frozen expression *k'uxi*, which means 'how,' or literally, "what does (it) say?" Here the word's origin in a verb of speaking is more obvious, as in the greeting *k'uxi avo'on* 'how are you? (lit., what does your heart say?)' or the phrase *ja' ti k'uxi* 'whatever he says.'

Finally come the uses of *xi* (and inflected forms in other persons) as an explicit verb of speaking. These range from contexts of (putative) quotation, both direct and indirect, to somewhat stylized evidentials (*xi chka'i* 'they say, I hear—i.e., it is rumored'; *xi mantal* 'they say, giving an order [Tz. *mantal* Span. *mandar* 'order']—i.e., they ordered'), to an explicit verbal prompt. For example, when an experienced speaker tells a younger person exactly how to formulate a verbal request, or when a mother prompts an infant learning to talk, the instruction often takes the form *X xi* 'say "X"!' (or 'one ought to say "X"').

See Lucy (1992), on the Yucatec Mayan cognate *ki*, which Lucy dubs a "metapragmatic presentational." Other explicit metapragmatic characterizers are available in Zinacantec Tzotzil, and they are also applied to apparent infant communications as well as to other sorts of phenomena, but a description of their use is beyond the scope of this article.

16. Readers who have worked with video will be aware of the serious limitations of still representations of motion, especially in appreciating the motoric trajectories of the actions involved and the precise synchronization of movement with talk. Technological limitations of the printed page force us to make do with these schematic cartoons.

17. In adult Tzotzil, *ja'* is a pro-predicate, sometimes glossed as an "attention" word. It means "this is the case" or "this is it," and etymologically it forms the root for independent first and second person pronouns (e.g., *wo'on < ja' -on* {1ABS} 'I (lit., "this is me!").' T, the visitor, interprets Mal's verbalization at line 4 as this adult *ja'*, which would in this context represent an affirmative answer to T's question at line 3. L, the caretaker, knows that Mal does not yet have this word in her vocabulary, and she therefore "corrects" the interpretation of the turn, glossing it (with the explicit quoting verb *xi* in line 6) as Mal's baby-talk pronunciation of the verb root *sa'* 'search for.'

18. Lest it might be thought that Mal's continuing turn at line 7 is merely an echoing repetition, see (Brown, this issue) of L's turn at line 6, note first that the final glottal stop of Mal's *xi'* renders it an entirely different word, following Tzotzil phonological canons, and second, that both interlocutors simultaneously interpret it, in lines 8 and 9, as her attempt to enunciate the adult word *si'* 'firewood.' By contrast, T's turn in line 9 does have the character of a dialogic repetition (note that it contains no framing verb *xi*), in this case coordinating separate parts of Mal's original performance into a single sentence.

19. On the interpretability of early gestures, as evidenced by spontaneous caregiver glosses, see Lock (1980).

20. An anonymous reviewer for this journal made the useful observation that, taken together, the different parts of the communicative scenes illustrated provide the essential elements of what would be syntactically complete predications. The

elements in the first example (Figure 1) are an action ('sit') in the imperative mode, a location ('on the bench'), and an argument ('grandfather'), in which the location is gesturally indicated, the action is spoken, and the argument is inferred (presumably from a combination of the grandfather's being evidently addressed and physically pulled by the hand). In the second scene, illustrated in Figure 2, it is the argument that is verbally expressed, whereas the gesture supplies at least the location, and possibly the action and the argument as well, if we consider this to be a "pointing gesture": 'mother' (spoken [and gestured?]), 'gone' (gestured or inferred), 'that way' (gestured). Standard methodology in child language research requires repeated production of constructions as evidence for the acquisition of syntax, but even this pair of examples suggests these children's capacity for mixing and matching expressive modalities with the discrete notional elements of predication.

21. See Haviland (1993) on the conceptual complexity even of such an apparently simple notion as "direction."

22. Adam Kendon (1990) has characterized those gestures commonly known as "emblems," the most eminently conventional and adult gestures as "quotable." Pointing gestures, too, have the quality of readily substituting for (as well as supplementing) spoken deictics.

23. Experimental and observational evidence suggests that even very young infants are sensitive to the size and availability of an object they "intend" to grasp, modifying hand shapes in accord with the graspability of the target (Siddiqui 1995). On reaching for something that *can't* be grabbed, compare the observation of Bates et al. (1983) that one of the infants they observed, "[i]nstead of extending her whole upper body toward the goal, . . . would extend her forearm with the elbow partially flexed and perform an open-shut movement with the hand. This gesture, although it was apparently derived from earlier reaching efforts, was clearly unsuited for actually picking things up. Instead, it seemed to be an intentional signal to the listener" (p. 66).

24. An anonymous reviewer for this journal raised the Geertzian wink/blink conundrum in connection with these examples, asking how one can infer meanings at all from such isolated motions, especially since at this age the children have no real words, but only a repertoire of sounds as well as facial and other bodily expressive stances. Furthermore, even if one can in some cases infer communicative intent, the same reviewer asks whether more distinctions—for example, between real pointing and other sorts of exploration/reaching—ought to be made. (Lock et al. 1990 distinguish by hand shape what they characterize as "point slips out," when the index finger is extended, but not the arm and hand, and also "poking" or "scratching," which involves actual touching with an extended index finger.) The fieldwork parallel of the psychology laboratory's "inter coder agreement" in this case is native metacommentary. For me, and more importantly for Mal's caregivers, a crucial aspect of the alleged "pointing" gestures is their combination with other apparently communicative acts: catching an interactant's eye before, during, or afterward; smiling or grimacing; uttering a stylized vocalization: in short, an ensemble of behaviors which, in context, are unmistakably communicative. The coordination of these little gestural routines is not yet with "language," as neither Mal nor Lupa entered the "one word stage" before about 15 months of age.

25. It would be relevant, but beyond the scope of this article, to categorize the range of stylized vocalizations invented by these children, both accompanying and preceding intelligible word-like forms. See Dore (1986) and Nelson and Lucariello (1986).

26. I build here on a schematic illustration suggested by an anonymous reviewer for this journal.

27. See note 33.

28. See Petitto's characterization of true "names": "A critical characteristic of names is that they are physically distinct from the objects or actions to which they refer; that is, a behavior cannot simultaneously be a referent and its name" (1988:198).

29. See, for example, Trevarthen (1979) and Gopnik and Meltzoff (1987).

30. Compare Ninio and Snow (1996): "An infant smiling and raising her arms to be lifted up cannot utter the sentence '*my parent is a reflective agent,*' even if she does believe at some vague level of cognition that the parent will understand her need to be picked up; she would not make a similar complex gesture to a coat tree or a Saint Bernard" (p. 56). See also Tomasello et al. (1993).

31. There is an obvious parallel here with the significance of silence or hesitation in the "second pair part" of an "adjacency pair" in a conversational sequence (e.g., Sacks et al. 1974).

32. Lourdes de León, who knows this gesture well, tells me that Lupa frequently used it as a display of nervousness, as, for example, when being asked to speak or otherwise perform when her normal reticence made her reluctant to do so. Bates et al. (1983) cite Werner and Kaplan's "claim that the idea of reference begins prior to symbolization *and* outside communication in the peculiar activity of pointing-for-self. This exploratory gesture supposedly serves as a kind of sensorimotor aid to the establishment of a subject-object distinction: It makes contact with the object, concentrates attention on the object, and yet at the same time literally pushes it away. If this analysis is correct . . . then even a quintessentially communicative gesture like pointing emerges first as an instrument for private thought" (p. 65). One anonymous reviewer for this journal asks whether Lupa's "withholding" movement is, instead of a communicative gesture, "part of thought itself," a kind of internal self-regulation. However one might answer such a question, the gesture is simultaneously *externalized* cognition, and hence characteristically susceptible to interpretation by interlocutors.

33. Herb Clark (1997) argues that a family of "gestures" which he calls "placing"—putting an object (a "referent"?) in a position within an interactive space as a deliberate communication—complements the kinds of indicating we call "pointing." There is an interesting analogy between Clark's placing/pointing distinction and the continuum between relatively creative and relatively presupposing indexical signs proposed by Silverstein (1976).

34. Pye (1992) reports from his work on K'iche' acquisition his impression that "vocal interaction between infants and parents is minimal, although there is some variation between parents in this regard, particularly among different social classes" (p. 242). Of one typical mother he says she shows "no indication of trying to elicit speech from [her child] and repeatedly ignores his other sounds," being, in this respect, "a fairly typical representative of Mayan mothers" (p. 243). Pye also notes that "[m]ost ethnographers of Mayan societies report that parents do not engage in any traditional games or songs with their infants" (p. 242) of the sort that might produce typical Western adult-child routines and games. Pye quotes, in evident agreement, snippets from various Mayan ethnographers: "[t]here is . . . little or no pride on the part of parents over the speed with which children learn [to talk]" (Vogt 1969:185); "[p]eople pay little attention to the sounds that a child makes before it learns to speak intelligibly" (Wagley 1949:29); "[t]he Quiché woman is a gentle and solicitous mother, but she never takes time off from serious occupations like weaving to play with her children, or talk to them. . . . Men pay no attention whatever to small babies except to call their wives when they cry" (Bunzel 1959:101).

Along similar lines, Brown (1997), contrasting the Tzeltal community of Tenejapa with typical Western middle-class families, reports "relatively little mother-child interaction with prelinguistic children" and "very minimal motherese." A rather different situation is described both by de León (this issue) for Zinacatec Tzotzil, and by Brody (1991) for Tojolab'al.

35. It is unclear whether this last line, spoken jokingly and with a smile by Chepa's mother as she takes the baby onto her lap, refers (1) to the fact that the little girl is apparently pronouncing words—at 10 months—unexpectedly early, (2) to the simple fact that she has peed on herself, or (3) that, being wet and in need of a change of clothes, she should be so inconsiderate as to call her mother.

36. The difference between the prompting *me' xi* "Say: 'Mother!'" and the reporting *me' xi* "She says, 'Mother.'" can be read from the godmother's changing addressee here. In the first case she looks at Chepa and smiles as she utters the phrase (prompting). In the second she engages the baby's mother as her interlocutor (commenting).

37. Despite our disagreements, my understanding of the issue arose in conversation with Danny Povinelli about the alleged pointing gestures (and the associated theory of mind) of apes, where the question of referentiality and mutual attention is particularly vexed. See, for example, Povinelli and Eddy (1996a, 1996b), and especially the startling results of Reaux et al. (1999). For other treatments of ape "pointing" see, for example, Povinelli and Davis (1994), Leavens et al. (1996), Call and Tomasello (1994), or Mitchell and Anderson (1997), who are more noncommittal than the aforementioned authors on the issue of ape theories of mind. Leavens and Hopkins (1998) claim that "communicative pointing is commonly used by laboratory chimpanzees, without explicit training to point, language training, or home rearing."

References Cited

- Acredolo, Linda, and Susan Goodwyn
1988 Symbolic Gesturing in Normal Infants. *Child Development* 59:450–466.
- Bates, Elizabeth
1976 *Language and Context: Studies in the Acquisition of Pragmatics*. New York: Academic Press.
- Bates, Elizabeth, L. Beningni, I. Bretherton, L. Camaioni, and V. Volterra
1979 *The Emergence of Symbols: Cognition and Communication in Infancy*. New York: Academic Press.
- Bates, Elizabeth, I. Bretherton, C. Shore, and S. McNew
1983 Names, Gestures, and Objects: Symbolization in Infancy and Aphasia. *In Children's Language*, 4. Keith E. Nelson, ed. Pp. 59–123. Hillsdale, NJ: Lawrence Erlbaum.
- Bates, Elizabeth, Inge Bretherton, and Lynn Snyder
1988 *From First Words to Grammar: Individual Differences and Dissociable Mechanisms*. Cambridge: Cambridge University Press.
- Bates, Elizabeth, Donna Thal, and Kimberly Whitesell
1989 Integrating Language and Gesture in Infancy. *Developmental Psychology* 25:1004–1019.
- Bellugi, Ursula, and E. Klima
1982a From Gesture to Sign: Deixis in a Visual-Gestural Language. *In Speech, Place, and Action. Studies in Deixis and Related Topics*. Robert J. Jarvella and Wolfgang Klein, eds. Pp. 297–314. Chichester: John Wiley.

- 1982b The Acquisition of Three Morphological Systems in American Sign Language. *Papers and Reports on Child Language Development* 21:1–35.
- Bonvillian, J. D., M. D. Orlansky, and L. L. Novack
1983 Developmental Milestones: Sign Language Acquisition and Motor Development. *Child Development* 54:1435–1445.
- Brody, Jill
1991 Indirection in the Negotiation of Self in Everyday Tojolab'al Women's Conversation. *Journal of Linguistic Anthropology* 1(1):78–96.
- Brown, Penelope
1997 Conversational Structure and Language Acquisition: The Role of Repetition in Tzeltal Adult and Child Speech. Paper delivered to the Annual Meetings of the American Anthropological Association, Washington, DC, November 27, 1997.
- Bruner, Jerome S.
1983 *Child's Talk: Learning to Use Language*. New York: W.W. Norton.
- Bruner, Jerome S., and V. Sherwood
1976 Early Rule Structure: The Case of Peekaboo. In *Play: It's Role in Evolution and Development*. J. S. Bruner, A. Jolly, and K. Sylvia, eds. London: Penguin Books.
- Bunzel, R.
1959 *Chichicastenango: A Guatemalan Village*. Publications of the American Ethnological Society, 12. Seattle: University of Washington.
- Bybee, Joan, Revere D. Perkins, and William Pagliuca
1994 *The Evolution of Grammar: Tense, Aspect, and Modality in the Languages of the World*. Chicago: University of Chicago Press.
- Call, Joseph, and Michael Tomasello
1994 Production and Comprehension of Referential Pointing by Orangutans (*Pongo pygmaeus*). *Journal of Comparative Psychology* 108:307–317.
- Carter, Anne L.
1975 The Transformation of Sensorimotor Morphemes into Words: A Case Study of the Development of 'More' and 'Mine'. *Journal of Child Language* 2:233–250.
- Chafe, Wallace
1980 *The Pear Stories. Cognitive, Cultural, and Linguistic Aspects of Narrative*. Norwood, NJ: Ablex.
- Clark, Herb
1997 Indicating and Placing. Paper presented at the workshop on Pointing, Max Planck Institute for Psycholinguistics, Oud Turnhout, Belgium, June 1997.
- Clark, Herbert H., and Richard J. Gerrig
1990 Quotations as Demonstrations. *Language* 66(4):764–805.
- de León, Lourdes
1991 Space Games in Tzotzil: Creating a Context for Spatial Reference. Working paper no. 4, Cognitive Anthropology Research Group, MPI for Psycholinguistics, Nijmegen, The Netherlands.
1997 Vertical Path in Tzotzil (Mayan) Acquisition: Cognitive vs. Linguistic Determinants. In *The Proceedings of the 28th Child Language Research Forum*. E. Clark, ed. Stanford: Center for the Study of Language and Information.
1999 Verb Roots and Caregiver Speech in Early Tzotzil (Mayan) Acquisition. In *Cognition and Function in Language*. B. Fox, D. Juravsky, and L. Michaelis, eds. Pp. 99–119. Stanford: Center for the Study of Language and Information.

- In press Finding the Richest Path: The Role of Language and Cognition in the Acquisition of Verticality in Tzotzil (Mayan). *In Language Acquisition and Conceptual and Development*. M. Bowerman and S. Levinson, eds. Cambridge: Cambridge University Press.
- Dobrich, Wanda, and Hollis S. Scarborough
1984 Form and Function in Early Communication: Language and Pointing Gestures. *Journal of Experimental Child Psychology* 38:475–490.
- Dore, J.
1986 Holophrases Revisited: Their "Logical" Development from Dialog. *In Children's Single Word Speech*. M. Barrett, ed. Pp. 23–58. Chichester: Wiley.
- Gergen, Kenneth J., Aydan Gulerce, and Andrew Lock
1996 Psychological Science in Cultural Context. *American Psychologist* 51: 496–503.
- Goldin-Meadow, Susan
1993 When Does Gesture Become Language? A Study of Gesture Used as a Primary Communication System by Deaf Children of Hearing Parents. *In Tools, Language, and Cognition in Human Evolution*. Kathleen R. Gibson and Tim Ingold, eds. Pp. 63–85. Cambridge: Cambridge University Press.
- Goldin-Meadow, Susan, and Carolyn Mylander
1998 Spontaneous Sign Systems Created by Deaf Children in Two Cultures. *Nature* 391:279–281.
- Goldin-Meadow, Susan, Cynthia Butcher, and Carolyn Mylander
1994 Nouns and Verbs in a Self-Styled Gesture System: What's in a Name? *Cognitive Psychology* 27:259–319.
- Goodwyn, Susan W., and Linda P. Acredolo
1993 Symbolic Gesture versus Word: Is there a Modality Advantage for Onset of Symbol Use? *Child Development* 64:688–701.
- Gopnik, A., and A. N. Meltzoff
1987 The Development of Categorization in the Second Year and Its Relation to Other Cognitive and Linguistic Developments. *Child Development* 58(6): 1523–1531.
- Grice, H. Paul
1957 Meaning. *Philosophical Review* 66:377–388.
- Guiteras-Holmes, Calixta
1961 Perils of the Soul: The World View of a Tzotzil Indian. Glencoe: Free Press.
- Hannan, Thomas E.
1992 An Examination of Spontaneous Pointing in 20- to 50-Month-Old Children. *Perceptual and Motor Skills* 74:651–658.
- Haviland, John B.
1987 Fighting Words: Evidential Particles, Affect and Argument. *Proceedings of the Berkeley Linguistics Society*, 13, Parasession on Grammar and Cognition. Pp. 343–354. Berkeley, CA: Berkeley Linguistics Society.
1989 Sure, Sure: Evidence and Affect. *Text* 9(1):27–68.
1993 Anchoring, Iconicity, and Orientation in Guugu Yimithirr Pointing Gestures. *Journal of Linguistic Anthropology* 3(1):3–45.
1996 Projections, Transpositions, and Relativity. *In Rethinking Linguistic Relativity*. J. J. Gumperz and S. C. Levinson, eds. Pp. 271–323. Cambridge: Cambridge University Press.
1997 Shouts, Shrieks, and Shots: Unruly Political Conversations in Indigenous Chiapas. *Pragmatics* 7(4):547–573.

Heine, Bernd, Ulrike Claudi, and Friederike Hünemeyer

1991 *Grammaticalization: A Conceptual Framework*. Chicago: University of Chicago Press.

Kaye, K., and R. Charney

1981 *Conversational Asymmetry between Mothers and Children*. *Journal of Child Language* 8:35–50.

Kendon, Adam

1990 *Gesticulation, Quotable Gestures, and Signs*. In *Culture Embodied*, Senri Ethnological Studies, 27. Michael Moerman and Masaichi Nomura, eds. Pp. 53–78. Osaka: National Museum of Ethnology.

Kita, Sotaro, ed.

N.d. *Pointing*. Proceedings of the Workshop on Pointing, sponsored by the Max-Planck Institute for Psycholinguistics, Oud-Turnhout, Belgium, June 12–16, 1997.

Leavens, David A., and William D. Hopkins

1998 *Intentional Communication by Chimpanzees: A Cross-Sectional Study of the Use of Referential Gestures*. *Developmental Psychology* 34(5):813–822.

Leavens, David A., William D. Hopkins, and Kim A. Bard

1996 *Indexical and Referential Pointing in Chimpanzees (Pan troglodytes)*. *Journal of Comparative Psychology* 110:346–353.

Lehmann, Christian

1982 *Thoughts on Grammaticalization: A Programmatic Sketch*. Vol. 1, *Arbeiten des Kölner Universalien-Projekts* 48. Cologne: Universität zu Köln, Institut für Sprachwissenschaft.

Lock, Andrew J.

1980 *The Guided Reinvention of Language*. London: Academic Press.

1993 *Human Language Development and Object Manipulation: Their Relation in Ontogeny and Its Possible Relevance for Phylogenetic Questions*. In *Tools, Language, and Cognition in Human Evolution*. Kathleen R. Gibson and Tim Ingold, eds. Pp. 279–299. Cambridge: Cambridge University Press.

Lock, A., A. Young, V. Service, and P. Chandler

1990 *Some Observations of the Origins of the Pointing Gesture*. In *From Gesture to Language in Hearing and Deaf Children*. V. Volterra and C. J. Erting, eds. Pp. 42–55. Berlin: Springer-Verlag.

Lucy, John A.

1992 *Metapragmatic Presentationals: Reporting Speech with Quotatives in Yucatec Maya*. In *Reflexive Language*. John A. Lucy, ed. Cambridge: Cambridge University Press.

McNeill, David

1985 *So You Think Gestures Are Nonverbal?* *Psychology Review* 92(3):350–371.

Mitchell, Robert W., and James R. Anderson

1997 *Pointing, Withholding Information, and Deception in Capuchin Monkeys (Cebus apella)*. *Journal of Comparative Psychology* 111:351–361.

Nelson, K., and J. Lucariello

1986 *The Development of Meaning in First Words*. In *Children's Single Word Speech*. M. Barrett, ed. Pp. 59–86. Chichester: Wiley.

Newport, E. L., and R. P. Meier

1985 *The Acquisition of American Sign Language*. In *The Cross-Linguistic Study of Language Acquisition*, 1. Dan I. Slobin, ed. Pp. 881–931. Hillsdale, NJ: Lawrence Erlbaum.

Ninio, Anat, and Catherine E. Snow

1996 Pragmatic Development. Boulder: Westview Press.

Petitto, Laura

1983 From Gesture to Symbol: The Relationship between Form and Meaning in the Acquisition of Personal Pronouns in American Sign Language. *Papers and Reports on Child Language Development* 22:100–107.

1988 "Language" in the Prelinguistic Child. *In The Development of Language and Language Researchers: Essays in Honor of Roger Brown*. Frank S. Kessel, ed. Pp. 187–221. Hillsdale, NJ: Lawrence Erlbaum Associates.

Petitto, L. A., and P. Marentette

1991 Babbling in the Manual Mode. *Science* 251:1483–1496.

Piaget, Jean

1962 *Play, Dreams, and Imitation*. New York: Norton.

Povinelli, Daniel J., and Timothy J. Eddy

1996a Factors Influencing Young Chimpanzees' (*Pan troglodytes*) Recognition of Attention. *Journal of Comparative Psychology* 110:336–345.

1996b Chimpanzees: Joint Visual Attention. *Psychological Science* 7:129–135.

Povinelli, Daniel J., and D. Richard Davis

1994 Differences between Chimpanzees (*Pan troglodytes*) and Humans (*Homo sapiens*) in the Resting State of the Index Finger: Implications for Pointing. *Journal of Comparative Psychology* 108:134–139.

Pye, Clifton

1992 The Acquisition of K'iche' Mayan. *In The Cross-Linguistic Study of Language Acquisition*, 3. Dan Slobin, ed. Pp. 221–308. Mahwah, NJ: Erlbaum.

Reaux, James E., Laura A. Theall, and Daniel J. Povinelli

1999 A Longitudinal Investigation of Chimpanzees' Understanding of Visual Perception. *Child Development* 70(2):275–290.

Sacks, H., E. Schegloff, and G. Jefferson

1974 A Simplest Systematics for the Organization of Turn-Taking for Conversation. *Language* 50:696–735.

Shore, Cecilia, Barbara O'Connell, and Elizabeth Bates

1984 First Sentences in Language and Symbolic Play. *Developmental Psychology* 20:872–880.

Siddiqui, Anver

1995 Object Size as a Determinant of Grasping in Infancy. *The Journal of Genetic Psychology* 156:345–358.

Silverstein, Michael

1976 Shifters, Linguistic Categories, and Cultural Description. *In Meaning in Anthropology*. K. Basso and H. Selby, eds. Pp. 11–56. Albuquerque: University of New Mexico Press.

Slobin, Dan, ed.

1985 *The Crosslinguistic Study of Language Acquisition*, 2. Hillsdale, NJ: Erlbaum.

1992 *The Crosslinguistic Study of Language Acquisition*, 3. Mahwah, NJ: Erlbaum.

Tomasello, M., A. Kruger, and H. Ratner

1993 Cultural Learning. *Behavioral and Brain Sciences* 16:495–552.

Trevarthen, C. B.

- 1979 Instincts for Human Understanding and for Cultural Cooperation: Their Development in Infancy. *In* *Human Ethology: Claims and Limits of a New Discipline*. M. von Cranach, K. Foppa, W. Lepnies, and D. Plooi, eds. Pp. 530-571. Cambridge: Cambridge University Press.

Vogt, Evon Z.

- 1969 *Zinacantan: A Maya Community in the Highlands of Chiapas*. Cambridge: Harvard University Press.

Vygotsky, Lev

- 1978 *Mind in Society: The Development of Higher Psychological Processes*. M. Cole, ed. Cambridge: Harvard University Press.

- 1986 *Thought and Language*. Cambridge: MIT Press.

Wagley, C.

- 1949 *The Social and Religious Life of a Guatemalan Village*. *Memoirs of the American Anthropological Association*, No. 71. Arlington, VA: American Anthropological Association.

Werner, H., and B. Kaplan

- 1963 *Symbol Formation*. New York: Wiley.