

The Evolutions of Joint Attention to Objects Between Infants and Their Mothers: Diversity and Convergence

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In our two-year longitudinal study of communication between North American infants and mothers, we have observed that the interactions of a mother and her infant often fall into distinct individual patterns from an early age. From this idiosyncratic and variable background however, the standard functions of everyday life, such as attracting attention, introducing a new topic, or assisting with difficulties, are somehow achieved. These prerequisites for cultural participation are readily recognized by observers from the same culture. The problem we have set for ourselves in this article is, to try to describe the way in which these standard attention directing functions emerge in the idiosyncratic patterns of two American dyads.

1. WAYS OF KNOWING AND USE OF LANGUAGE

M. Foucault has drawn our attention to the way of knowing (episteme) of the pre-scientific age (see Foucault, 1970, chapter two). For scholarship (analysis) the crucial question was how things were related to one another. The

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question for observers (natural historians) was how to recognize in practice when these relationships might hold. The prescientific answer was by means of the signatures. Each thing bore in its self the marks of those other things to which it was related, so that by looking at a thing the wise man could recognize the totality of its being and its relations to other things.

We social being likewise have an episteme which enables us to recognize an act in its relations to other acts. Participants make their actions visible to other participants, through verbal commentary, through display of affect, and more subtly through conformity to the nonverbal language of culture which identifies and flags each actions for its relation to others (for an exposition of this point of view see Garfinkel 1967). These relations are essential to guide participants in their further actions, nevertheless they have resisted becoming objective facts for observers. As students of social processes, we are prone to confuse our intersubjective apprehensions, available to us as participants, with an objective reality, appropriate for observers. When we who are often participants, act as observers, we are prone to «recognize» the actions of social actors as if we were preparing our own response to them. The present authors believe that this *episteme*

appropriate to participation is not appropriate to the practice of observation.

The issue we are grappling with in our research is how to articulate the appearances of interactions between mothers and infants in a way suited to the practice of observation. We believe that the practice of observation depends on our human experience, shared with our subjects. We can and do attempt to make sense of infants' actions in terms of what we believe is their experience in a situation. We are like the ethnographers in this respect, and unlike the behaviorists. However, what we observers may do, that participants may not, is to lay side by side behaviors of our subjects in different contexts. We begin to see patterns which appear frequently and in various contexts. These patterns are the object of our discourse, while our shared human experience is the ground for our interpretation of the appearances. Therefore we select actions whose role in maintaining the overall patterns of attention direction can be explained with reference to common human experience.

The problem we have set for ourselves in this article is to try to articulate a relation between the idiosyncratic appearances of the early mother-infant relationship, and some of the functions accomplished in the relationship as the child enters. We will trace the evolution of idiosyncratic patterns of joint activity with objects, in two American dyads. We will pay close attention to the ways in which recognizable functions are set into their already established patterns, and we will look most closely at how the infant's activity is maintained. We believe that individual differences in the eventual mode of production of these functions is related to their earlier experience.

2. HISTORY AS A MODEL

This project is hermeneutic, and we will be looking more to history than physical science as a model. Both physics and history are interested by recurrent patterns in their subject matters. However historical explanation differs from explanation in physics in that regularities are not explained in terms of a necessary logic, grounded in underlying laws of nature. Histori-

cal explanation takes for granted that, although the initial conditions can be infinitely various, human outcomes generally shape up in much less variety.

A similar historical interest informs evolutionary theory. The shark, the tuna, the dolphin, and the ichthyosaur have very different ancestries, but share a very similar body plan, through the constraints of their common situation. The panda's thumb develops from a wrist bone, unlike the thumb of a bear, yet both serve similar functions (see Gould, 1980). In examining mother-infant interaction we are struck by examples of convergence from differing developmental roots.

The present authors share a perception of human development as an opportunistic process, not arising from universal necessary causes, but drawing idiosyncratically on a variety of resources. Nevertheless this process is shaped by often similar constraints of situation and culture. The historical approach thus has an appeal for researchers who are interested by individual differences rather than the universal laws typical of physics (Fogel, 1990).

Some investigators of the process of cognitive development in social contexts speak of «intersubjectivity», meaning a shared understanding of what an interaction is about. (e.g. Rogoff, 1990, chapter 4). We feel that this notion needs to be unpacked in terms of more elementary and observable processes, as we attempt to do here. Our work shares with some others (e.g. Goodnow, 1990) a preconception that much human cognition is grounded in shared activity.

Our interests and methods (see below) in some ways resemble those of the «activity theorists» (see for example von Cranach et al. 1985). We likewise try to make explicit the organisation of action. However we sketch the organisation in terms of the social and bodily relations, rather than in terms of mentalistic constructs such as goal, plans and intents. We share the social constructionist critique of these concepts (Gergen & Davis, 1985). Mentalistic concepts are useful for participants to disambiguate their actions in social contexts. The context of observation does not require us to interact with the participants in that way. We therefore discipline ourselves to write of actions and affects. We wish to make explicit how they

might affect one another, so that recognizable recurrent patterns emerge, independently of the goals or intentions of the participants.

3. METHODS

To articulate the idiosyncratic development of interactions, lengthy longitudinal observations are necessary. The two infants and mothers described here were part of a larger study of infants videotape in a playroom with their mothers. Three cameras were mounted at a height of two or three feet; two images were selected and set into a split-screen record: one image typically showed the infant's face and upper body, while the other image showed the mother. The sessions lasted for five minutes once a week from age one month until age six months, for ten minutes from age six months to a year, and for fifteen minutes once every two weeks during their second year. The instructions given to mothers were to play with their infants as they would at home.

The videotapes were extensively reviewed by the first author, with the assistance of several student research assistants. We started by viewing tapes of interactions from different dyads at various ages. The question we had in mind was «How is the child's attention directed and maintained in these interactions»? We sketched out initial answers to these questions in everyday language. The mother might be trying to «assist» the baby with a «difficulty», or the baby might be «expressing» an aversion to mother's «interference». These everyday language descriptions of interactions place the action in a rather abstract domain of everyday North American metaphysics. Our process of work was to bring the description into the realm of activity and arousal — of processes that happened in time, and succeeded one another, and might affect one another. We then compared our descriptions with further segments of the videotape record to decide if these patterns were consistently present. After comparing, we would generally revise our description of the pattern somewhat. Then we would compare further video documentation of the pair. Usually this process required several passes,

refining description, and comparing against the videotape record each time.

4. TWO INFANTS

The two infants we will describe were drawn from a sample of twelve in the study. Although we are describing diversity, these two were not selected for maximum diversity. On the contrary, on many popular psychological variables, these dyads are similar. The infants are both male, and first-born. «Sensitive» and also «Intrusive» are words several observers have used of both mothers. The diversity we will illustrate could not easily be captured by a standardised scale. However we believe that in each of these histories, development makes sense in terms of the past. That is why we adopt this approach.

For each infant we will first summarize an everyday language impression, and then go on to detail the prominent experiences in the early development of joint action. We will then describe how these early experiences appear to be integrated in the evolution of joint activity.

Andrew

Impression

During the first of observation Andrew's mother gave the impression of close attention to baby's reactions. However baby seemed avoidant after about four months, and mother's attempts to get baby's attention were usually unsuccessful. Nevertheless Andrew was not often exploring objects with apparent concentration; he looked often indecisive. During the second year he seemed responsive to his mother's actions, but not often cooperative.

Position

During the observation time from age one month to five months, Andrew was on his back; mother sat and leaned over him, placing her face above and in front of him at a distance of about 50cm. At about five months baby was rolling over regularly in the sessions. At about six months he was sitting up for the observa-

tions, and by seven months was able to crawl around the room.

Information in Mother's Voice

Andrew's mother's voice marked most prominently baby's state of attention to herself. She spoke fairly consistently in a soft mid-pitched aspirated voice. She would speak more, and usually louder, when baby was turned toward her, than when baby was turned away. She would be most likely to speak, and her speech would vary more in tempo (often slowing down) and loudness, at times, or just after times, when baby was orienting toward, or increased arousal towards, something mother was doing. When she did not have baby's attention, she would usually speak in a more restricted timbre, in short utterances, about 2-4 seconds duration, with much longer quiet periods in between; many of these were obvious bids for attention, such as calling the baby's name, or they were accompanied by gestures that brought baby closer, such as pulling baby in.

Thus the experience of mother's more variable and louder voice would accompany baby's stronger reaction to something mother was doing. To us as culture-bound observers, she was clearly «trying to get baby's attention». However, in so doing, there was little systematic relation between her speaking and the baby's own actions, or his opportunities for action.

Gesture

Andrew's mother's movements also reflected baby's state of attention to her, although somewhat differently than her voice. During the first six months, she would move more smoothly and with more parts of her body in unison, when baby was, as above, orienting toward her, or momentarily aroused about something mother was doing. During these times, her face often dipped closer to baby. When baby was oriented away from her, she most often sat still and further back. She touched baby most often, just after baby had turned away from her or from the activity she was doing; she often rubbed him slowly.

Thus if Andrew is reacting to his mother's smoothness of movement, that reaction comes

with arousal toward what mother is doing. If Andrew is reacting to mother's touch in this context, that reaction comes with the experience of turning away.

Joint interactions with objects

During the six months, when Andrew's mother used the toys provided, she favored insistent repetitive stimulation. After she picked up a toy, often bringing it quickly into position over baby's face, she shook (a rattle) or squeezed (a squeaky toy). This almost always got baby to straighten his head and gaze at the object. He would often make some swipes in the general direction of the object. Since mother generally held the object just out of reach, these movements made no contact. Mother maintained a steady rhythm of her shaking or squeezing action in the same position, often speaking in her characteristic voice. During this time baby would maintain fixation on the object, bring down his arms (if they were raised), and begin to jerk his arms and legs strongly and repetitively. Sometimes his neck was hyper extended as he gazed fixedly at the object. Mother only rarely followed up the action of shaking with placing the object in baby's hand; the typical variation we saw was some back and forth movement in the position of the object that she was shaking. After typically ten to thirty seconds of this shaking and agitation, mother would slowly put the toy down. Baby's agitation would usually subside.

Baby did have other interactions with objects, sometimes placed in his hand by mother, more often, especially later, picked up from the floor. When baby dropped objects in the first few months, mother often picked them up: sometimes to restore them to baby's hand; more often to make with them, or to, move them just at baby's arms length. She often picked up a new toy after baby dropped something, and again to enlist his attention. The only times we saw him persist in an activity were when he was looking away from mother, and had an object affording a very easy grip. Baby's actions on objects in this social context were thus very fragmentary until such time as his grip was strong to hold on to objects firmly. During the fourth to six months, Andrew sometimes

supported an object freely in the air, and manipulated it for an extended period of time. This occurred mostly while mother was not speaking, and out of baby's line of sight to the toy.

Thus baby was paying sustained attention to an object only in one of two contexts: the first was mother's continuous effort to attract his attention, with no opportunities to act, and with apparent discomfort for baby. The second was baby's solitary activity, without any apparent relation to mother's activity. Mother's attention maintaining actions seemed incompatible with baby's sustaining a continuous focus of attention through diverse movements related to one object.

Joint activity with objects at seven months

Andrew began to sit up easily and regularly during the observations at the age of seven months. Rather than two distinct phases, we saw a continuum of responses to mother's activity. Mother usually sat in front or sometimes to the side of baby; he would typically have several toys in front of him, and usually one in his hands. When mother talked in her characteristic voice, or touched lightly an object in baby's reach, no consistent reaction was evident. However when mother picked up some object within baby's reach, or made a moderately loud noise different from her characteristic speech, then baby would slow, or stop his activity altogether, with hands somewhat lower but not resting; he would stare fixedly in the general direction of mother, however his gaze could not be seen to follow the movements of mother's hands or face. When mother picked up an object and presented it to baby, then baby would typically grab and flail at the presented object. A crisis seems to occur in his activity if mother offers an object; he usually resolves it by foregoing his own activity and adopting a fairly stereotypical activity with the new object. Mother continued to present objects as soon as they were taken up, and the pattern that emerged was mother drawing attention to an object, baby taking it up, mother picking up another object (often what baby had just dropped) and drawing attention to it.

In this third quarter of the first year, Andrew's attention to mother's activity was no longer constrained by the limitations of his postures; at the same time mother's activities became differentiated according to the state of his activity. When his arms and hand movements are strong and his gaze is directed toward his activity, then mother attempts to get his attention through highly stimulating devices such as rattling, or walking a toy over his body. On the other hand, when Andrew's activity seems indecisive, she will often speak in a low voice and make subtle movements with a toy. This often succeeds in getting his attention, and she invariably then builds up the intensity of her actions, usually leading to arousal on his part until he turns away.

The situation is more flexible, but it seems that we see here the patterns worked out during the first six months, wherein baby's activity with objects is incompatible with responding to mother. The situation is more flexible, in that baby can now more easily sustain contact with objects, and also can adopt any degree of orientation to mother. After Andrew was crawling easily, (about eight months), he could also modulate his response to his mother by withdrawing or moving toward her. However we see that, to the degree he begins to respond to her, his own activity is stymied.

In the fourth quarter of baby's first year, during a time when significant cognitive changes are occurring (Diamond 1988), we see little change in this dyad's joint activity. His motor skills improve, and we see him take more interest in the nesting of one toy inside another, but we still see his own activity stymied by the occasionally successful attempts by mother to gain his attention. These attempts include lunging close to him, interposing herself between an object and baby, and stroke-tickling his abdomen.

At one year he is unlikely to spontaneously seek to engage his mother while playing with objects. How she handles this is illustrated in playing ball: she sometimes sends the ball toward him, and when he picks it up, she then tries to arouse him with her voice until he releases it; she then seizes it to return to him again. She also includes herself in interaction with him by placing objects next to objects he

is working with, or making noises with objects that he is handling. He generally ignores her or tries to twist the object out of her reach. If she persists the result often looks like a tug-of-war.

5. THE SECOND YEAR

At the start of Andrew's second year, most of his mother's actions are very responsive to whether he looks or doesn't look at her. When Andrew looks at her, she intensifies her display, which stimulates Andrew more, and the most common outcomes is a crescendo of arousal; when Andrew disengaged usually mother would become immediately flat, and after some moments begins again her attempts to get attention with another activity. When Andrew looked at mother his activity was disrupted; he less frequently went back to what he was handling before, and when he did, he seemed frequently to be at a loss for what to do — he would bang and flail or handle the objects passively and aimlessly.

During his second year, Andrew played more at greater length with objects. His mother made fewer attempts to attract his attention away from his play to her own activity. She is frequently successful with highly stimulating interventions, such as tickling Andrew with a puppet, or engaging in a tug-of-war. However, if she attempted to attract his attention by speaking and demonstrating, Andrew would usually turn from his own activity to watch her, and then avert, turning toward something else. When he did so, mother often changed her activity immediately to focus on the new object, sometimes using the same object with which she had just attempted to get his attention.

Although Andrew did not respond cooperatively when his mother bid for his attention by voice and demonstration, the social convention, he did often respond in the course of his activity to her gesture and voice. If she made a very visible movement, Andrew would often make a similar movement with his toy. If she spoke a syllable with emphasis, Andrew would often say a similar syllable with like intonation.

During his first year, Andrew's mother often got his attention with subtler interventions,

when Andrew was indecisive in his action. During the second year, Andrew frequently encountered difficulties in play, when for example, a toy is stuck inside another, or when a latch needs to be opened. In such situations, Andrew sometimes let out a loud yelp. More often he slowed down or repeated ineffective small movements, looking very much like what we earlier described as «indecisive». In either of these situations, Andrew's mother often intervened: however Andrew did not make a definite pause, nor look toward her. Her action was thus superimposed on his, rather than fitting into a place which he had created for her.

Andrew's responses to mother's interventions did not usually seem to be complex movements. On the contrary, during his second year, his reactions to her interventions seemed reminiscent of his first year. He would slow down, look, then avert his head, and often reach vigorously for something else; if the stimulation was more vigorous and intrusive, he might flail or squirm, and perhaps grasp and object moving very close to him. Although his reactions to mother's interventions were so elementary, his mother appeared quite skilled in setting up situations where these elementary reactions would serve her purpose. Thus she would more often speak, and in a more variable voice, when she intervened in Andrew's activity to assist him, for example in opening a latch.

Thus although Andrew was clearly responsive to his mother, a cultural convention of responding to intervention, or bids for attention, with still gaze and inhibition of activity, did not evolve fully.

Jerry

Impression

As a young infant, Jerry seemed frequently pleasantly aroused in the lab. His mother spoke frequently and often directed his attention to objects in the room. Jerry was mobile early, and spent more time in motion, than did other infants. Although mobility seemed to play more cooperatively with his mother, as he approached two years old.

Mother's Voice

Jerry's mother marked a variety of his experiences with a repertoire of at least half a dozen distinct mannerisms. She spoke mostly in the same timbre of voice: an exaggerated, higher-pitched, «baby-voice», however she varied prosody and loudness significantly. In the early months especially, she marked points of when baby was aroused with delight, by a slower and louder voice, and points of baby's effort with a quicker-paced voice. Her voice was used very flexibly: although the starts and stops within a particular interaction were correlated with her actions, yet the particular correlation varied from instance to instance.

She might speak in between distinct movements of rattle, or alternate her voice with Jerry's, or use one noise while making a toy approaching Jerry, and another when it touched him. She would have specific prosody for particular games that she played regularly with Jerry.

Position and Attention to Mother's Displays

During the first two months of observation (ages 1-3 months), Jerry was most often on his back, with mother to the side. She would often raise and lower a mirror, or some other toy, over baby's head, while speaking frequently in a variable voice. She would sometimes put the mirror in baby's hands, or allow baby to grasp the mirror on his own, but just as often take it away. She would sometimes manipulate a rattle over baby's head, but very slowly, and with variation; she wouldn't shake it. During both these activities baby would generally gaze at the object with some agitated movements of the limbs, but also with an evident longer term course of tension and relaxation, which seemed related to mother's frequent speaking: she would be speaking in a softer and lower voice, but with the same markings and variation as usually. It was not so clear whether she was reflecting or contributing to baby's states of tension and relaxation during these times.

Thus this baby's early experience of objects in this social context was fairly continuous, and only moderately uncomfortable. It seemed that the varied and soothing voice that mother used complemented the way that she manipulated

objects, and maintained a lower level of agitation than might have otherwise occurred.

This mother often put baby on his stomach from the third to sixth months. Although the position was less comfortable for baby, he maintained contact with objects in the hand, although it was less easy to manipulate them. She would sometimes place objects in front of baby in this position, or remove wet objects from baby's grasp, or hold onto objects that baby was grasping. She also often supported baby in a sitting position, with objects within reach; he grabbed for them and brought them closer.

When she did place baby on his back 3-6 months, she would often brush baby with toys, or shake a rattle over baby's head. Baby would generally be agitated, and often vigorously mouth one of the soft toys. She would not persist in any one of these actions for very long; nevertheless, she would alternate them for much of the time that baby was on his back. Baby would persist in his self-stimulating activity.

Thus in the second quarter of his first year, while Jerry was on his front, he manipulated objects freely, to the variable accompaniment of mother's voice, marking his own effort. While he was on his back, and mother was actively involved in activity directed at him, he would self-stimulate and would not respond to her.

With the coming of crawling skill at about 6 months, the distinct patterns were renegotiated. From about 6 months to 9 months Jerry generally sat obliquely, often sideways, to mother, about two to three feet away. He spent less than ten percent of his time in crawling; most of his time was spent in manipulating toys. He did not seem as repetitive as Andrew in his manipulations; although he did bang and flail he toys occasionally, more often his actions were an irregular sequence of lifting, pulling, and twisting toys. While he was occupied with a toy his mother would be talking to him, often commenting on his activity, or on some aspect of the toy, in her highly variable voice.

Mother's activity was not entirely contingent on baby. She acted on the toys herself, with varying degrees of references to baby. Sometimes she made no call or turn of her body toward baby, sometimes she might mention his name,

without special emphasis, sometimes she might persist for up to a minute in calling his name, turning toward him, and eventually reaching toward him. She did not enter his personal space very often, nor did she often stimulate him directly with touch. Mostly he did not turn toward her. When he did pay attention to her activity, he generally looked at the object in her hand, rather than at her. She generally persisted in her activity with the same gestures and tones of voice, while Jerry looked at her, or hesitated, and often for some time after he turned away.

Although she did not change her voice or gestures immediately upon getting or losing Jerry's attention, she did respond to his aversions or interest in a longer time scale. She rarely persisted in trying to draw him in for longer than ten seconds after he clearly averted to another activity. However she would often maintain her own activity with an object for some time after she had ceased trying to engage Jerry.

During the course of Jerry's first year, his mother less often marked Jerry's own state of effort or pleasure, by drawing out or deepening her voice. She increasingly marked beginning of a new activity of her own or Jerry's, by speaking in a new intonation, and persisting in this intonation for some time, often as long as the activity lasted.

Thus in the third quarter of the first year, there was continuous activity on the part of mother, that was only very loosely contingent on baby's response. Her activity would draw his attention to objects and would maintain (or sometimes decrease) in intensity when he turned toward her, rather than peaking. Although she did not mark his responses to herself, she did mark the actions that she was trying to engage him in. That is, she would conduct her activity with a distinctive tone of voice and with distinctive gestures, for as long as she was engaged with a particular object. Although there were subtle shifts in her tone after Jerry turned away, these were superimposed on a stronger pattern of tonality and gesture that was maintained as long as she maintained activity with a toy.

In Jerry's case, unlike Andrew's, during the fourth quarter of the first year there was a remarkable change in the style of attention.

Jerry would engage in many of the same sorts of activities as before, but now also in some joint activities which involved a complex movement, such as kissing a puppet after mother called his name and presented it to him. These actions seemed quite different than the earlier reactions Jerry (or Andrew) had shown toward movements of objects, in that Jerry would often look at her briefly before responding to one of her actions. Although she would often continue speaking, she did not generally move as much while he was paused and looking at her. Thus his experience while pausing to look at her did not disrupt his initial response to her.

6. THE SECOND YEAR

The characteristics of mother and Jerry's interaction around direction of attention continued into the second year. Jerry's attention to her often interrupted an activity, but he frequently returned to it, maintaining some continuity with what he was doing before. Interruptions seemed stressful; he most often mouthed an object and looked vacantly into space, during or immediately after a period when mother had his attention. However as he passed one year and approached a year and a half, Jerry would look at mother with increasing frequency and more calmly; he began to integrate the looking into his action — that is he would preserve the posture incipient for his action, while he paused to look at mother.

This seemed to open up new possibilities for joint activity for Jerry and his mother, that didn't seem to be available to Andrew and his mother. Jerry could register and attend to an intervention by mother, while maintaining the organization of the activity. Jerry's pauses created a venue for mother's action; during the course of the second year, she would more often intervene during these pause and reciprocally, Jerry would pause more often when he encountered difficulty with his own activity.

Over the course of the second year, Jerry also increasingly paused at times when his mother introduced a new topic. As before, when she had Jerry's attention, she did not build up his arousal. When she solicited Jerry's attention,

she provided opportunities for him to jointly act on objects with her, for example, bringing an object toward her. After eighteen months Jerry began look at mother, while apparently searching for objects, and to take cues from her about direction. We noticed that while he did so, he would maintain his posture and tonus; his mother's action of directing would not interrupt his own organization for movement.

7. CONCLUSION

Despite their differences, both dyads participated in many normal looking transactions around objects. It seems to us that the action of mothers, working with the dyad's idiosyncratic pattern of attention, is crucial to the appearance of normalcy in joint activity. While Andrew marked no places for his mother to act, his mother compensated in a number of ways: by quickly adjusting her actions to confirm what baby was in the process of doing; by intervening in baby's activity without waiting for him to pause or indicate frustration; by introducing new topics in a stimulating and direct manner. Thus she seemed to be always on the alert to find places where she might insert her actions, without him signalling to her.

Jerry's mother did not seem to have to compensate so much. Jerry created well-marked places for her action to fit into his. Thus Jerry's mother could respond more as if Jerry were a conversational partner in her own culture.

Through trying to articulate the development of joint activity, we were drawn to make explicit the timing of interventions and how arousal builds up during attention directing activities. Differences between these two similarly described dyads were easily observable, when expressed in these terms. Furthermore, when patterns of attention were identified in these terms, both prior experience and current situation could be seen to shape the evolution of joint activity. We think then that this kind of descriptive analysis can help make sense of individual differences in these fundamental social cognitive processes.

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ABSTRACT¹

The authors share a perception of human development as an opportunistic process, not arising from universal necessary causes, but drawing idiosyncratically on a variety of resources. In this paper they trace the evolution of idiosyncratic patterns of joint activity with objects, how the infant's activity is maintained and directed, in two mother-child dyads until two years old. The authors also show that, although the processes used by the two dyads are different, the same functions are achieved, like attracting attention, introducing a new topic, or assisting with difficulties.

RESUMO

Os autores partilham a percepção de que o desenvolvimento é oportunista, em vez de surgir de causas universais necessárias, é delineado idiosincriticamente por uma variedade de recursos. Neste artigo os autores descrevem a evolução de padrões idiosincráticos de actividade conjunta com objectos em duas díades até aos 2 anos de idade, como a actividade da criança é mantida e direccionada. Por outro lado, os autores também mostram que apesar das duas díades usarem processos diferentes, alcançam as mesmas funções, como atrair a atenção, introduzir um tópico novo, ou ajudar nas dificuldades que o bebé tem.

¹Editor's Abstract.