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Co-Constructing Mother–Infant Distress in Face-to-Face Interactions:

Contributions of Microanalysis

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This paper will describe a series of videotapes of face-to-face play, illustrating a complex and varied range of interactions of maternal intrusion and infant avoidance, based on microanalyses of face-to-face play at 3 to 4 months. In one sense infant aversion and withdrawal are completely usual and adaptive coping capacities. From time to time all infants look away and turn their heads and bodies away in order to regulate arousal back down to a comfortable range. On the other hand, more extreme forms of infant aversion and withdrawal can be observed, particularly in relation to maternal over-stimulation and intrusion. Although these patterns are of great importance in the origins of early psychopathology, there are many other potential pictures of early mother–infant difficulty, such as maternal “absence of provision” and infant withdrawal, or complex forms of approach and withdrawal in both partners (Beebe, 2002, 2003), which lie outside the scope of this discussion. These distressed mother–infant interactions must be viewed within a mutual regulation model of interaction, in which both partners contribute moment-by-moment to the exchange, although not necessarily equally or symmetrically (see Beebe, Jaffe & Lachmann, 1992; Beebe & Lachmann, 2002; Tronick, 1989).

Theory of interaction

A theory of interaction requires an understanding of how each partner is affected by his own behavior, “self -regulation,” as well as how each partner is affected by the behavior of the other, interactive regulation (Thomas & Malone, 1979; Tronick, 1989).

Mutual regulation, mutual influence, or co-construction are all terms with a similar meaning that have been used to describe how interactions work. Alan Fogel (1992) has a beautiful description of interactive regulation, which he terms “co-regulation”: all behavior is unfolding in the individual while simultaneously modifying and being modified by the changing behavior of the partner.

Every dyad, such as mother and infant, or analyst and patient, participates in a moment-to-moment interactive regulation process at the nonverbal level. This is not a causal process but a predictive one: Each person’s behavior can be predicted from that of the other. The behavioral process of one partner (e.g., rhythm, facial expression, or vocal intonation) can be predicted from that of the other partner and vice-versa. These processes occur largely out of an adult’s awareness. At the same time, each is affected by his own behavior (self-regulation). This is the fundamental nature of face-to-face social behavior across the lifespan (Badalamenti & Langs, 1992; Feldstein & Welkowitz, 1978; Fogel, 1993; Jaffe & Feldstein 1970; Warner, 1998). Therefore we conceptualize maternal intrusion and infant withdrawal as a co-constructed process between the mother and the infant.

However, this reciprocal nature of the interactive process does not imply that both partners affect each other in equal, symmetrical, or even similar ways (Beebe & Lachmann, 2002). The mother (caretaker) has the greater range, flexibility, and capacity. Nevertheless the infant plays an important role, with powerful capacities to seek and avoid engagement.

Mother and infant co-construct their interactions in two different ways. In a more general way, the mother brings transferences to the baby based on her own history, and the baby often brings self-regulation difficulties, such as difficulties in regulation of arousal, or unusual sensitivities to sound or texture, often referred to as difficult temperaments. So each may contribute to an aversive interaction in this way. Secondly each contributes in the sense that, moment-to-moment, both partners adjust their

behaviors to the other. They adjust timing (rhythm, pausing, turntaking), spatial pattern (approach–avoid), facial and vocal affect, and arousal (behavioral activation/inhibition as well as physiological arousal), which constitute the basic dimensions of the system.

The study of face-to-face play

How can the theory of mother-infant mutual regulation be verified empirically? For over three decades, researchers have studied mother–infant face-to-face play in the laboratory. Mother and infant (in an infant seat) are seated in the same plane, with two cameras on the face and upper body of each partner. The cameras are synchronized into one split-screen view. The mother is instructed to “play with your infant as you would at home”, and the two are left alone to interact. The original analyses (Beebe & Stern, 1977; Stern, 1971; Trevarthen, 1979) were based on frame-by-frame coding of 16 mm film, 24 frames per second. Numbers were printed at the top of each frame, and the films were coded by rocking the film back and forth by hand, looking for the beginning and ending of each action, such as shift of gaze or slight increment of smile. These behaviors are rapid and fleeting, lasting one quarter to one third of a second. These analyses revealed that, regardless of whether the interaction was positive or distressed, each person’s behavior could be used to predict that of the other, second-by-second. What does that mean? Each is co-ordination with the other's timing, responding to the other’s spatial orientation (particularly through shifts of head), or going in the same affective direction, increasing or decreasing facial-visual engagement (Beebe & Lachmann, 1988; Beebe, Lachmann & Jaffe, 1997). For example in the “chase and dodge” interaction described below, many of the sequences of maternal head movement toward the infant, and infant head movement away, were found to be split-second and quasi-simultaneous: before one completed a movement, the other had already begun an adjusting movement (Beebe & Stern, 1977).

The self-regulation dimension of these interactions can be illustrated by an experiment of Field (1981). Field monitored infant heart rate just before, and just after the

infant looked away from mother, while mother and infant were playing face-to-face. In the 5 seconds before the baby turns away from the mother, infant heart rate shoots up from baseline, a pattern indicating decreasing ability to process information. As soon as he looks away, the baby's heart rate shoots back down to baseline, information processing is facilitated, and soon afterward he looks back at mother. In many of the films described below, just at the point that the baby is attempting to regulate arousal down, the mother has difficulty tolerating the baby's moment of separation, the moment of looking away. She will try to up the ante and call the baby, possibly pull the hand, or even gently try to force the infant's head back toward her. She is escalating the stimulation at the very point the baby needs to decrease stimulation and arousal. This is a critical moment of conflict in mother-infant interactions and it is prevalent in many of these films. The baby's goal is to regulate his arousal within comfortable limits. Looking away is a frequent and adaptive means of regulating arousal. If the partner does not interfere with it, the moment of looking away is brief and the baby comes right back.

Another study of difficulties in infant self-regulation is that of Koulomzin, Beebe, Anderson, and Jaffe (2002). This study distinguished secure vs. Avoidant attachment patterns (Ainsworth separation-reunion paradigm) at 12 months from 4 month *infant* behavior during face-to-face interaction with mother. At 4 months, the infants who will later be classified as avoidant look at the mother less. Only when they are self-soothing by fingering their clothing or a strap are they able to sustain gazing at mother that is equivalent to that of the secure infant.

Our model of interaction proposes that we are always attempting to regulate what goes on inside us, self-regulation, in relation to what is going on in the interactive process, interactive regulation. Self-regulation has many dimensions. The baby's capacity to self-soothe is an essential aspect, but the term covers the capacity to regulate arousal through all the states of sleep and wake, as well as the ongoing predictability of the infant's behavior. Louis Sander (1977, 1995) has argued that the nature of self-regulation

in infancy sets a trajectory for its lifespan development, although this trajectory may certainly transform. What is at stake in the self-regulation process is access to inner state. Sander poses these questions: as development proceeds, what kind of awareness do we have of our inner state? What capacity to articulate our inner state? What regard for our inner state? What ability to use our inner state to organize what we do next? Self-regulation and interactive regulation are always going on together, each affecting the success of the other (see also Gianino & Tronick, 1988; Tronick, 1989;).

Infant presymbolic intelligence

What kind of intelligence are infants capable of? How might infants represent these interactions? Infants have a remarkable intelligence, but it is *pre-symbolic* (Beebe & Lachmann, 1988, 1994; Beebe, Lachmann & Jaffe, 1997). They perceive events in time and space, and facial and vocal affect; they sense their own arousal at every moment. Infants perceive contingencies (predictable relationships) between their own movements and those of the partner. They have an early sense of agency: They can predict that certain of their behaviors are followed by certain consequences in the environment, leading to a primitive sense of causality that “this” leads to “that”. They have an extraordinary early memory, far better than we ever imagined (Perris, Myers & Clifton, 1990).

This early intelligence is best defined by the concept of expectancies of action sequences (Beebe & Lachmann, 2002). Moment-to-moment, infants anticipate the sequences between their own actions and those of their partner: in time (rhythm, pausing, tempo), in space (intrusion, approach/avoid), in affect (facial and vocal), and their own proprioception and arousal. Based on expectancies of how things go, this intelligence is used to represent in a presymbolic way the nature of these early interactions. Eventually toward the end of the first year, infants begin to be able to represent in a more symbolic form. A symbol (here, a word) has an arbitrary relationship to its referent. Symbolic capacity is not fully achieved until 36 months.

Introduction to the film research

It is essential to place maternal intrusion and infant withdrawal within a broad range of early interactions, from positive ones, to disruptions and their repair (Beebe & Lachmann, 1994; Tronick, 1989), to derailed interactions without repair. Every dyad has access to the entire “positive–negative” range. Thus the question is not the presence of disruptions, but the balance between disruption and repair. Tronick (1989; Tronick & Cohn, 1989) has shown that, in successful mother-infant interactions, there are typical sequences of match-mismatch-rematch. In Tronick’s data, whenever a pair enters a mismatched state (for example, mother in smile, infant in neutral face), they return to a matched state (for example, both positive face) within 2 seconds. Tronick calls this “interactive repair”. Furthermore, the more likely that mismatches are repaired, the more likely that the infant is securely attached at 12 months.

Many of the films described below show disruption without repair. Even when the balance does tip toward a prevalence of negative interactions without repair, it is important to remember that both the mother and the infant are motivated to attach (as well as having a broad range of other motivations: Lichtenberg, 1989). Even in these very derailed interactions, the mother is often desperate to reach her baby. It is this very desperation that often escalates maternal intrusion–infant withdrawal patterns out of control.

Facial mirroring

In the facial mirroring interactions, we found a significant lack of exact matching of engagement level between mother and infant. Engagement level is measured by degree of orientation to the partner, gaze on/off the partner, and degree of negative to positive facial expression. Instead, the partners are primarily moving in the same affective direction, rising or falling together on the scale. Stern (1985) would call this "matching the gradient", and Werner (1948) would suggest that mother and infant are matching the "dynamic-vectorial quality" of behavior.

In this film which beautifully illustrates facial mirroring, watching the two faces together, at several moments each rises at the same moment, mouth opening wide, head going up, even though the facial expression is not identical. The mother seems to synchronize these moments with her rhythm of swinging the infant's hands in and out. There are brief moments when the infant looks away but rapidly re-engages. The baby looks down, re-regulates its arousal, comes right back to her, and then they have both have wonderful, big, open gape smiles. Facial affect ranges from high positive to neutral for the infant, and high to low positive for the mother.

Chase and Dodge

In “chase and dodge” interactions mother and infant may briefly engage each other but with each engagement the mother “looms” in to the baby as the baby attempts to disengage. The statistical analysis of this interaction shows predictable sequences. When the mother looms, the baby moves his body and/or head back, down and away (a “dodge”). Once the baby has dodged, the mother follows in the direction in which the baby has just moved (a “chase”). The mother's following, in turn, influences the baby to turn away more. Thus the regulation remains bi-directional. Each partner keeps the sequence going, and both are very active. We have called this interaction "chase-and-dodge" but it could as well be called "dodge-and-chase". The infant's withdrawal elicits the mother's intrusion, and the mother's intrusion influences the infant's withdrawal. By the end of such an engagement the infant begins to go limp, an “inhibition of responsivity,” so that the dodging behavior gives way to a shutdown (Beebe & Stern, 1977). In the chase and dodge interaction, the problem for the infant is specifically in the spatial dimension, approach-avoid. There is little facial or vocal behavior.

The particular angle of the head orientation as the person looks away from his partner, or in ethological terms the nature of the “cut-off act”, is informative. The usual way of looking away for adults as well as mothers and infants is to look directly down or directly horizontally to the side, so that split-second access to the vis-a-vis and the

partner's face is maintained. When the cutoff act is oblique (for example down and side-horizontal); or extreme horizontal to 90 degrees, tucked into the chin; or horizontal and arching back and up, instant re-access to the partner is compromised, so that the nature of the cut-off compromises the ongoing regulation of the engagement. Obviously the mother has the greater range of control, but the infant has a remarkable influence. The mother could stop the chase and dodge process by sitting back, pausing, waiting for the infant to return. This response can, however, be taught, as illustrated in the case below. For his part, the infant can have literal veto power over the mother's attempt to visually engage him. The baby's power is to "say no" with his body. An extreme form of "no" is to shut down, go limp, become motionless.

Approach to mother-infant treatment

This film illustrates the chase and dodge pattern in a mother-infant treatment case, Dan and Linda (Cohen & Beebe, 2002). The mother was seen in an ongoing psychoanalytically oriented psychotherapy, and I consulted to the parent-infant interaction. In our method of parent-infant therapy (Beebe, 2003), the mothers receive the same evaluation as the research subjects: a split screen, face-to-face filming with mother-infant (father-infant) and stranger-infant. A week or two later a 2-hour "video-feedback" consultation with the parent(s) follows, in which we look at the videotape together. We try to identify moments which went well, and moments which did not. I teach the parent to be a "baby-watcher", and show how each partner affects the other. I encourage associations to the parent's own childhood upbringing. Together we try to link the "stories" of the presenting complaints, the video interaction, and the childhood history. Often the parent can immediately grasp key aspects of what is problematic. In some instances the treatment can be brief, that is two or three cycles of filming and video feedback, or in other cases the treatment may go on for several years.

When the mother brings a difficult transference to the baby, her capacity to observe her effect on the baby is often disrupted. For all of us, it is not easy to observe

our own nonverbal behaviors, and a difficult transference compounds the problem. In the Dan and Linda case below, the mother's transference to the baby is that the baby does not love her and shows her up as an inadequate mother. She herself feels that she has nothing to give. The mother can usually put into words what the baby is doing that is troublesome, such as "my baby doesn't look at me." But she often cannot observe, much less verbalize, how she affects the baby. Linda and Dan were involved in extensive chase and dodge sequences, but Linda could not see the consequences of her own behavior, that she was pushing the baby out of the interaction. When a mother is desperate to reach her infant, it is counter-intuitive to pull back and wait.

Translating research into treatment: Chase and dodge in the case of Dan and Linda

Linda had been depressed as an adolescent and was very depressed during the pregnancy (Cohen & Beebe, 2002). After Dan was born she did not want to live. She began psychotherapy with Dr. Cohen when Dan was 2 months old. When Dan was 5 months, Linda brought him to see Dr. Cohen on the advice of the pediatrician, who was worried that Dan had no social smile. Dr. Cohen then brought the family to me when Dan was 5 1/2 months.

The film begins with a brief glance at Linda by Dan, who then rapidly averts gaze. In the whole interaction he rarely gives her more than a split second glance. When he looks, he has a remarkable deep frown, or a strong surprise expression with raised eyebrows. At first Linda plays a clap hands game to get Dan's attention. Dan is continuously involved in self-regulatory activity, fingering his clothing, or kicking intensely. This is a baby who is over aroused, over-stimulated. Whenever Dan looks away, Linda calls him, goes into his face and strokes his cheek, gently tugs on his hand, and asks him to "give her a kiss". These are Linda's efforts to get Dan to look at her, but they occur just when Dan is trying to regulate his arousal down. So they get into trouble at precisely that point, and Dan looks away for longer and longer. Linda then moves into very high arousal, intrusive games. She plays a "goody, goody, goody" game going right

into the baby's stomach, over and over. For some babies this game would be fine, but for Dan, who has already begun to shut down, it's over-stimulating. Dan hangs his head down limp as she goes over and over into his stomach.

The intervention, initiated by me and continued in the treatment with Dr. Cohen, was to help Linda to slow down, to not try so hard, to teach her that “less is more” with this baby. I drew for her Field’s finding that infants look away to facilitate re-regulation of heart rate, to help her feel less rejected when Dan looked away. We talked about how hard it was to wait for him to reorient to her; that she was worried he never would. I suggested that she try to engage him with her voice and her face, for a while, instead of her hands, which were more stimulating. Dr. Cohen and Linda worked on Linda’s relationship with her own mother, gradually coming to realize ways in which Linda had felt starved for affection from her mother. She was now trying to get that affection from Dan.

By the filming when Dan is 9 months old, Linda sits back more. She asks, "Where are we?" indicating more ability to see the situation from the baby’s point of view. She pursues Dan less. While Dan looks away, Linda has a disappointed expression, which turns into a sad and angry expression. But she does actually wait. This is a big accomplishment. Twice Dan actually looks and smiles briefly at Linda, rewarding her patience. A lot of work will be needed, but they are doing slightly better (Cohen & Beebe, 2002).

Vocal rhythm coordination

The study of 82 mother–infant pairs by Jaffe, Beebe, Feldstein, Crown and Jasnow (2001; Beebe, Jaffe, Lachmann, Feldstein & Crown, 2000) used vocal rhythm coordination at 4 months to predict attachment at 1 year. Vocal rhythm coordination can range from very loose to very tight. This study found that when vocal rhythm coordination between mother and infant is in the mid-range, each “tracking” the other's rhythms but not extremely tightly, the infants were classified as secure attachment by the

Ainsworth separation-reunion test at 1 year. When mother and infant were both very tightly coordinated, which we termed “vigilant high trackers,” the infants were classified as insecure-disorganized attachment or insecure-anxious-resistant. If the infant was very loosely coordinated with the stranger, that infant was classified as insecure-avoidant at a year.

The infant does not have to be looking at the mother in order to engage in vocal rhythm coordination. In those mother–infant treatment pairs where the infant is gaze avoidant, teaching the mother to do vocal rhythm coordination is an excellent intervention to help the mother and infant engage.

Building on the vocal rhythm data, we conceptualize a model of interaction with a balance between self and interactive regulation, where the midrange provides the optimal flexibility to go back and forth between self and interactive regulation. (Beebe & Lachmann, 2002; Beebe & McCrorie, 2004). If the person is a vigilant high tracker, some access to self-regulation is sacrificed. If the person is preoccupied with the partner, the ability to sense and use one’s inner states may be compromised. Or, at the other extreme, if interactive regulation is disrupted, the person may become preoccupied with self-regulation on his own, sacrificing the engagement. The treatment infant Dan illustrates a sacrifice of engagement, and instead managing his arousal on his own. His mother cannot help Dan to manage his arousal because she is so over-stimulating. In the midrange optimal balance, one can monitor the partner, influence and be influenced by the partner, and at the same time have access to one’s own state and use it in balance with interactive regulation.

Conclusion

Early interaction patterns are represented presymbolically. The infant forms expectancies of how these interactions go, whether they are positive or negative. They organize the infant’s brain, and they set a trajectory for development (which can nevertheless transform).

The facial mirroring and the vocal rhythm coordination films illustrate the range of optimal attention and arousal, and shared interest. In this range disruption and repair can occur. In contrast, the chase and dodge, mutually escalating overarousal, and oral teasing patterns illustrate early “conflict” (Slavin, 2000). The interactions do not repair, and mother and infant have conflicting agenda. The mother’s agenda seems to be an increasingly desperate attempt to reach the infant at any cost. The infant’s agenda increasingly becomes one of escape.

Negative interactions are just as co-constructed as positive ones. Each person's stream of behavior can be predicted by that of the partner. Each person makes moment-by-moment adjustments to the partner’s behavior. Although they are negative, the interactions such as chase and dodge and mutually escalating overarousal are complex, rapid, highly charged, mutually responsive *engagements*. Each partner remains intimately related to the other through the temporal structure of split second reciprocal contingencies, even though the infant's responsivity is in the withdrawal mode. Therefore to describe the infant as avoiding, withdrawing, or disengaging is misleading. It is too static a picture. Nor is it accurate to call the mother simply intruding or impinging, since each of her moves is so responsive to that of the baby. They are both co-constructing highly negative, highly charged engagements.

[Sidebars]

[sidebar 1]Mutually escalating over-arousal and high vocal rhythm coordination in a disorganized attachment pair

The film of Amos illustrates an infant and mother who both coordinate vocal and motoric rhythms in the range of vigilant high tracking. In addition, this pair illustrates the pattern of mutually escalating overarousal. Each one escalates the ante, as the infant builds to a frantic distress, may scream, and in this example, finally throws up. In an escalating overarousal pattern, even after extreme distress signals from the infant, such as ninety degree head aversion, arching away, inhibiting reactivity and going limp, or screaming, the mother keeps going. My hypothesis is that she keeps going because she is desperate to reach the baby, and she has some specific transference to the baby, such as for example, the baby has to give her contact to validate her own goodness. Both mother and infant become increasing upset, and each has the opposite agenda. As the infant escalates distress, and “no” signals of avoidance and moving away, the mother keeps “upping the ante” and trying to get the infant to return, to look, to respond.. To each increment of infant distress, the mother increases her own attempt to engage, and vice versa. They have a mutually spiraling process of escalating overarousal.

Amos is physiologically overaroused and beginning to disorganize. Amos is getting very upset, crying and flailing. The mother just keeps going. She also seems to be trying to take the baby’s high negative arousal and “ride” it into a positive state, flashing big smiles at the baby. Amos is now becoming even more upset. Most mothers would back off at this point. She keeps going. By the end of the end of the interaction the baby is, sobbing and writhing and throwing up.

[sidebar 2]Oral teasing and the disturbance of infant self-regulation

In this interaction illustrating maternal “oral teasing”, the baby is continuously

fussing. For the last ten minutes the mother has been taking her finger in and out of the baby's mouth. The mother pulls the finger out, and the infant pulls it back in. Over and over. This is just a small section of the film. Immediately following the interaction with his mother, I play with the infant. At first he is beautifully responsive. He almost seems like a different baby. He greets me with a huge open “gape smile”. Eventually he gets upset, presumably because he has been upset in the interaction with the mother for the previous ten minutes. I match the cry rhythm, and I match the breathing. He backs right off the crying and calms down. It is very dramatic. This is an example of facilitating the down-regulation of a distressed baby, rather than participating in escalating overarousal. Extensive offering of the mother’s finger can potentially disturb the infant’s ability to find his own ways of regulating himself. Presumably the mother brings her own anxiety about whether the infant can soothe himself. Teasing with the finger potentially disturbs the infant’s sense of agency. Maternal teasing may reflect the mother’s ambivalence about whether she can (or wants to, or “should”) provide the soothing for the infant.

[sidebar 3] Pulling the child into the parent’s agenda: 12 months

“Pulling the child into the parent’s agenda”

This 12- month old little girl and her mother present for treatment with the child’s symptom of severe temper tantrums. I present a microanalysis of the first minute of the videotaped interaction. As the film opens, the child is looking away from the mother. The mother has a bunny rabbit. She calls to the child and says, “Ready?”, while the child is looking away. Mother senses that the child is not interested in the bunny rabbit so she takes a music box. This music box is one that pops up, so that it demands attention. As mother winds the box until it pops up, she has a big surprise face. The little girl also shows a big surprise face at the moment the box pops up, and says “Wow”, and they both laugh together. Then the girl immediately looks away. She takes a slinky toy and gets

involved in playing with it, jiggling it back and forth. The little girl is clearly involved with the slinky toy. Then the mother says, "Ready? Let's do it again." Mother takes the music box. The child looks at it the moment that the box pops up, without smiling, and immediately goes back to the slinky toy. Mother now goes back to the music box. She again winds the music box until it pops up. This time the child laughs briefly— they both laugh together, but immediately the child looks down and sobers. At this moment we see a fascinating behavior that recurred over and over in later parts of this same interaction. It is a "smile-aversion" in which the child goes up into positive facial expressiveness, but immediately loses it, sobering and looking away. It is a disturbance of positive affect in which the child cannot sustain the positive arousal.

So the little girl looks down, sobers, and goes back to playing with the slinky toy. While she's playing with the slinky toy, the mother says, "Talk to Mommy, talk to Mommy, talk to Mommy." Whereas more generally a mother would comment on the child's focus, with something like "oh what a nice little slinky toy," instead this mother is asking the child to come into her own focus. Finally, the child takes the music box and starts playing with it. The child has joined the mother's focus of attention, rather than the mother joining the child's focus of attention. Perhaps we can say that the mother has "seduced" the child into her own agenda, and child has finally complied.

But the instant that the child takes the music box, the mother goes to the bunny. While the little girl is now absorbed in the music box, the mother says, "Bunny, bunny, bunny." The child is still interested in the music box, looking down at the box. Mother now takes the bunny and moves it right into the child's belly. The child half shrieks, half laughs – mother laughs at the same time, and then the child looks down and goes back to the music box. Now the mother takes the bunny again, and prepares to interest her daughter in it. And so on.

By continually attempting to move the baby into her agenda, this mother disturbs her daughter's initiative. When she succeeds in moving the child into her own focus of

attention, she rewards the child with high positive affect. We can imagine how the child may have become angry. But for her part, the mother tells a complicated story of how she feels she must “entertain” her daughter constantly, based on difficulties in her own childhood. The microanalysis reveals the interactive details of the mutual difficulties, and a psychodynamic approach reveals the mother’s own history and expectancies that feed into the current difficulty. Both approaches will be necessary for the treatment (see Beebe, 2003; Cohen & Beebe, 2002).

REFERENCES

- Badalamenti, A., & Langs, R. (1992). An empirical investigation of human dyadic systems in the time and frequency domains. *Behavioral Science, 36*(2), 100–114.
- Beebe, B. (2003). Brief mother-infant treatment using psychoanalytically informed video microanalysis. *Infant Mental Health Journal, 24*(1), 24-52.
- Beebe, B., Jaffe, J., & Lachmann, F. (1992). A dyadic systems view of communication. In N. Skolnick & S. Warshaw (Eds.), *Relational views of psychoanalysis* (pp. 61–81). Hillsdale, NJ: Analytic Press.
- Beebe, B., Jaffe, J., Lachmann, F., Feldstein, S. & Crown, C.(2000). Systems models in development and psychoanalysis. *Infant Mental Health Journal, 21*(1), 99–122.
- Beebe, B., & Lachmann, F. (1988). The contribution of mother-infant mutual influence to the origins of self- and object representations. *Psychoanalytic Psychology, 5*(4), 304–337.
- Beebe, B., & Lachmann, F. (1994). Representation and internalization in infancy: Three principles of salience. *Psychoanalytic Psychology, 11*(2), 127–165.
- Beebe, B., & Lachmann, F. (2002). *Infant research and adult treatment: co-constructing interactions*. Hillsdale, NJ: The Analytic Press.
- Beebe, B., Lachmann, F., & Jaffe, J. (1997). Mother-infant interaction structures and presymbolic self and object representations. *Psychoanalytic Dialogues, 7*(2), 133–182.

- Beebe, B., & McCrorie, E. (2004, in press). A model of love for the 21st century: Literature, infant research, adult romantic attachment, and psychoanalysis. *Psychoanalytic Inquiry*.
- Beebe, B., & Stern, D. (1977). Engagement–disengagement and early object experiences. In N. Freedman & S. Grand (Eds.), *Communicative structures and psychic structures* (pp. 35–55). New York: Plenum.
- Cohen, P., & Beebe, B. (2002). Video feedback with a depressed mother and her infant: A collaborative individual psychoanalytic and mother-infant treatment. *Journal of Infant, Child, and Adolescent Psychotherapy*, 2(3), 1-55.
- Feldstein, S., & Welkowitz, J. (1978). A chronography of conversation: In defense of an objective approach. In A. W. Siegman & S. Feldstein (Eds.), *Nonverbal behavior and communication* (pp. 329–377). Hillsdale, NJ: Lawrence Erlbaum.
- Field, T. (1981). Infant gaze aversion and heart rate during face-to-face interactions. *Infant Behavior and Development*, 4, 307–315.
- Fogel, A. (1992). Movement and communication in human infancy: The social dynamics of development. *Human Movement Science*, 11, 387–423.
- Fogel, A. (1993). Two principles of communication: Coregulation and framing. In J. Nadel & L. Camaioni (Eds.), New perspectives in early communicative development, (pp. 9-22). London: Routledge.
- Gianino, A., & Tronick, E. (1988). The mutual regulation model: The infant's self and interactive regulation coping and defense. In T. Field, P. McCabe & N. Schneiderman (Eds.), *Stress and coping* (pp. 47-68). Hillsdale, NJ: Erlbaum.
- Gentile, J. (1998). Listening for deep structure. *Contemporary Psychoanalysis*, 34 (1), 67–89.
- Jaffe, J., Beebe, B., Feldstein, S., Crown, C., & Jasnow, M. (2001). Rhythms of dialogue in early infancy. *Monographs of the society for research in child development*, 66(2 Serial No. 265).
- Jaffe, J., & Feldstein, S. (1970). Rhythms of dialogue. New York: Academic Press.
- Koulomzin, M., Beebe, B., Anderson, S., Jaffe, J., Feldstein, S., & Crown, C. (2002). Infant gaze, head, face, and self-touch at four months differentiate secure vs. avoidant attachment at one year: A microanalytic approach. *Attachment and human development*, 4(1), 3-24.

- Lichtenberg, J. (1989). Psychoanalysis and motivation. Hillsdale, NJ: The Analytic Press.
- Perris, E., Myers, N., & Clifton, R. (1990). Long-term memory for a single infancy experience. Child Development, *61*, 1796–1807.
- Sander, L. (1977). The regulation of exchange in the infant-caretaker system and some aspects of the context-content relationship. In M. Lewis & L. Rosenblum (Eds.), *Interaction, conversation, and the development of language* (pp. 133–156). New York: Wiley.
- Sander, L. (1995). Identity and the experience of specificity in a process of recognition. *Psychoanalytic Dialogues*, *5*, 579–593.
- Slavin, M. (2000). Hate, self-interest, and "good-enough" relating: An evolutionary-adaptive perspective. *Psychoanalytic Inquiry*, *20*, 441-461. Stern, D. (1971). A microanalysis of the mother-infant interaction. *Journal of the American Academy of Child Psychiatry*, *10*, 501–507.
- Stern, D. (1985). *The interpersonal world of the infant*. New York: Basic Books.
- Thomas, E. A. C., & Malone, T. W. (1979). On the dynamics of two-person interactions. *Psychological Review*, *86*(4), 331–360.
- Trevarthen, C. (1989). Development of early social interactions and the effective regulation of brain growth. In C. Von Euler, H. Forssberg & H. Langercrantz (Eds.), *Neurobiology of early infant behavior* (55 ed., pp. 191-216). New York: Stockton Press.
- Tronick, E. (1989). Emotions and emotional communication in infants. *American Psychologist*, *44* (2), 112–119.
- Tronick, E., & Cohn, J. (1989). Infant-mother face-to-face interaction: Age and gender differences in coordination and the occurrence of miscoordination. *Child Development*, *60*, 85-92.
- Warner, R. (1998). Spectral analysis of time-series data. New York: Guilford.
- Werner, H. (1948). *Comparative psychology of mental development*. New York: Harper and Row.