

---

**DYADICALLY EXPANDED STATES OF  
CONSCIOUSNESS AND THE PROCESS OF  
THERAPEUTIC CHANGE**

---

**EDWARD Z. TRONICK**

*Child Development Unit, Children's Hospital, Harvard Medical School and Process of  
Change Study Group, Boston, Massachusetts*

**MEMBERS OF THE CHANGE PROCESS STUDY GROUP:**

**NADIA BRUSCHWEILER-STERN**

**ALEXANDRA M. HARRISON**

**KARLEN LYONS-RUTH**

**ALEXANDER C. MORGAN**

**JEREMY P. NAHUM**

**LOUIS SANDER**

**DANIEL N. STERN**

*Process of Change Study Group, Boston, Massachusetts*

**ABSTRACT:** This paper addresses an intersubjective issue that arises out of our model of therapeutic change: Why do humans so strongly seek states of emotional connectedness and intersubjectivity and why does the failure to achieve connectedness have such a damaging effect on the mental health of the infant? A hypothesis is offered—the Dyadic Expansion of Consciousness Hypothesis—as an attempt to explain these phenomena. This hypothesis is based on the Mutual Regulation Model (MRM) of infant–adult interaction. The MRM describes the microregulatory social-emotional process of communication that generates (or fails to generate) dyadic intersubjective states of shared consciousness. In particular, the Dyadic Consciousness hypothesis argues that each individual, in one case the infant and mother or in another the patient and the therapist, is a self-organizing system that creates his or her own states of consciousness (states of brain organization), which can be expanded into more coherent and complex states in collaboration with another self-organizing system. Critically understanding how the mutual regulation of affect functions to create dyadic states of consciousness also can help us understand what produces change in the therapeutic process.

**RESUMEN:** Este ensayo trata de un asunto intersubjetivo que sale de nuestro modelo de cambio terapéutico: ¿por qué los humanos tan fuertemente buscan estados de conexión emocional e intersubjetividad y por qué el fracaso en alcanzar tal conexión tiene un efecto tan dañino en la salud mental del infante? Se ofrece una hipótesis, la Hipótesis de Expansión del Estado de Conciencia en forma de Díada, como un intento de explicar estos fenómenos. Esta hipótesis está basada en el Modelo de Regulación Mutua (MRM) de la interacción infante-adulto. (Tronick, 1989). El MRM describe el proceso de comunicación socio-

---

Paper presented to the Sixth World Congress of the World Association for Infant Mental Health, July 25–28, 1996, Tampere, Finland, as part of the symposium entitled *Interventions that Effect Change in Psychotherapy: A Model Based on Infant Research*, organized by the Process of Change Study Group, Boston. Direct correspondence to: Edward Z. Tronick, Ph.D., Child Development Unit, Children's Hospital, 300 Longwood Ave., Boston, MA 02115.

emocional y micro-regulatorio que genera (o no genera) estados de conciencia intersubjetivos y en forma de díadas, compartidos. En particular, la hipótesis de los Estados de Conciencia en forma de Díada sostiene que cada individuo, en un caso el infante y la madre, o en otro, el paciente y el terapeuta, es un sistema de propia organización que crea sus propios estados de conciencia (estados de organización cerebral), los cuales pueden ser expandidos a estados más coherentes y complejos, en colaboración con otro sistema de propia organización. Si entendemos críticamente cómo la regulación mutua del afecto funciona para crear estados de conciencia en forma de díadas, esto nos puede ayudar a comprender qué es lo que produce cambio en el proceso terapéutico.

RÉSUMÉ: Cet article étudie le problème intersubjectif qui ressort de notre modèle de changement thérapeutique: pourquoi les êtres humains recherchent-ils si fortement des états de communion émotionnelle et d'intersubjectivité; et pourquoi l'échec à parvenir à la communion a-t-il un effet si préjudiciable sur la santé mentale du bébé? Une hypothèse est formulée—l'Hypothèse d'Expansion Dyadique de la Conscience—pour tenter d'expliquer ces phénomènes. Cette hypothèse est basée sur le Modèle de Réglement Mutuel (Mutual Regulation Model en anglais, abrégé MRM) de l'interaction bébé-adulte (Tronick, 1989). Le MRM décrit le processus de communication socio-émotionnel micro-régulateur qui génère (ou y échoue) des états de communion dyadique intersubjective partagée. Plus particulièrement, l'Hypothèse de Conscience Dyadique établie que chaque individu, dans un cas le bébé et sa mère et dans un autre cas le patient et le thérapeute, est un système s'organisant de lui-même qui crée ses propres états de conscience (états d'organisation du cerveau) qui peuvent être développés en des états plus cohérents et complexes en collaboration avec un autre système s'organisant de lui-même. La compréhension critique de la manière dont le règlement mutuel de l'affect fonctionne pour créer des états de conscience dyadique peut aussi nous aider à comprendre ce qui produit des changements dans le processus thérapeutique.

ZUSAMMENFASSUNG: Diese Arbeit bespricht ein intersubjektives Thema, das wegen unseres Modells der therapeutischen Veränderung bedeutsam geworden ist: Warum suchen Menschen so heftig Zustände emotionaler Verbundenheit und Intersubjektivität und warum hat ein Versagen diese Verbundenheit zu erreichen einen derart vernichtenden Effekt auf die seelische Gesundheit des Kleinkinds? Wir bieten eine Hypothese an—die "Hypothese der diadischen Erweiterung des Bewußtseins"—als einen Versuch dieses Phänomens zu erklären. Diese Hypothese basiert auf dem "gegenseitigen Regulationsmodell (GRM)" der Kleinkind-Erwachseneninteraktion (Tronick, 1989). Das GRM beschreibt den mikroregulatorischen, sozial-emotionalen Prozeß der Kommunikation, die einen diadischen, intersubjektiven Zustand von gemeinsamen Bewußtsein erzeugt (oder eben nicht erzeugt). Insbesondere behauptet die "Hypothese der diadischen Erweiterung des Bewußtseins", daß jedes Individuum, in einem Fall das Kleinkind und die Mutter, oder in einem anderen Fall der Patient und der Therapeut, ein selbst-organisierendes System ist, das seinen Zustand der Bewußtheit (Zustand der Gehirnorganisation) erzeugt, der zu mehr kohärenten und komplexeren Zuständen durch die Zusammenarbeit mit einem anderen selbst-organisierenden System erweitert werden kann. Ein kritisches Verständnis, wie die gegenseitige Regulation von Gefühlen funktioniert, wenn sie diadische Zustände der Bewußtheit erzeugt, kann uns im Verstehen der Faktoren, die eine therapeutische Veränderung erzeugen, helfen.

抄録: この論文は、治療の変化に関するわれわれのモデルから派生する間主観的問題について論じる。情緒的につながった状態と間主観性を人間は何故かくも強烈に求めるのか? また、つながりを持ってない事が何故あれ程乳幼児の精神衛生にとって有害なのか? そうした現象の説明としてここに論ずるのが、意識の二者間拡大仮説である。この仮説は、乳児・大人相互交流の、相互調整モデル(MRM)に基づいている(Tronick, 1989)。MRMは、コミュニケーションにおけるミクロのレベルでの社会・情緒的調整プロセスを描くが、このプロセスが、二者間の共有された意識の間主観的状态を生み出している(あるいは生み出せないでいる)。二者間意識仮説は、各個人、つまり、乳児と母親、あるいは、患者と治療者は、自己をオーガナイズするように働くシステムであり、それが各自の意識状態(脳のオーガナイゼーションの状態)を創造するが、それは、自己をオーガナイズするように働く他のシステムとの共同作業により、より一貫し、より複雑な状態へと拡大しうる、と主張する。また、二者間意識状態の創造に際し、情動機能の相互調整がいかに機能するかを鑑識眼を持って理解することは、治療過程で何が変化を生むのかの理解にも役に立つ。

Why do humans so strongly seek states of emotional connectedness and intersubjectivity and why does the failure to achieve connectedness have such a damaging effect on the mental health of the infant? The primary aim of this paper is to offer an hypothesis, the Dyadic Expansion of Consciousness Hypothesis as an attempt to explain these phenomena. The Dyadic Consciousness hypothesis states that each individual, in this case the infant and mother or the patient and the therapist, is a self-organizing system that creates his or her own states of consciousness (states of brain organization), which can be expanded into more coherent and complex states in collaboration with another self-organizing system. This hypothesis is based on my Mutual Regulation Model (MRM) of infant–adult interaction (Tronick, 1989). The MRM describes the micro-regulatory social-emotional process (from “moving along” to “now moments” to “moments of meeting,” (see Stern this issue) of communication which generates (or fails to generate) dyadic states of consciousness.

Critically, understanding how the mutual regulation of affect functions to create dyadic states of consciousness also can help understand what produces change in the therapeutic process. Like many others, I believe that the therapeutic process involves “something more” than interpretation as the sole modality of therapeutic change (see Lyons-Ruth, this issue). It is my view that by understanding the mother–infant interaction we can gain insight into what this “something more” may be in the therapeutic interaction. The issue of therapeutic change will be dealt with after first presenting the theory of mutual regulation and the hypothesis of dyadic states of consciousness.

To highlight the critical importance of social connectedness and mutual regulation, let us begin by asking what happens when infant–mother social connectedness is broken and the process of mutual regulation is disrupted? To evaluate this hypothesis I created the Face-to-Face Still-Face Paradigm (Tronick, Als, Adamson, Wise, & Brazelton, 1978; (see also Carpenter, Tecce, Stechler, & Freidman, 1973). In this experiment, the mother is instructed not to engage in her normal interactive behavior. She faces the infant but remains unresponsive. The effect on the infant is dramatic. Infants almost immediately detect the change and attempt to solicit the mother’s attention. Failing to elicit her response, most infants turn away only to look back at her again. This solicitation cycle may be repeated many times. But when the attempts fail, infants withdraw, lose postural control and self-comfort in the response to their failure to repair the interaction. The disengagement is profound even with this short break of intersubjectivity. The response of infants reminds one of the withdrawal of Harlow’s isolated monkeys or of the infants in institutions observed by Spitz and Bowlby, and what we have now seen in Romania. The Still-faced-mother is an experimental model of emotional neglect and the denial of intersubjectivity, what Modell (this issue) has referred to as the “dead mother syndrome” (i.e., it precludes the creation of a dyadic states of consciousness).

What accounts for this dramatic effect? Up until now I, like others, simply assumed that the motivation to establish emotional connectedness or intersubjectivity was an inherent characteristic of all humans. The rationale advanced referred to the evolution of our species as a social species, to our use of language and the collaborative nature of meaning making, and to (object) relational theories of the formation of attachments and the self. However, while these rationales (i.e., we seek connectedness because we are built that way) are reasonable they assume the very phenomenon that begs for explanation. What experience makes connected so powerful a force in our lives? (Note: the reader may actually choose their favorite term because there is a vast vagueness associated with many terms—connectedness, intersubjectivity, social contact, attunement, emotional synchrony, reciprocity, attachment—that for the moment need not be dealt with). The Dyadic Expansion of Consciousness offers a way out of this conundrum of assuming what we really would like to explain by invoking concepts from systems theory.

Before presenting this hypothesis, let me develop an analogy between affective regulation

and the infant's regulation of homeostatic states. Homeostatic states are a long way from states of consciousness but the process of regulating homeostatic states and of creating dyadic states of consciousness share one critical feature—both kinds of states are regulated dyadically. Claude Bernard's first precept was that the maintenance of milieu interior was the organism's primary task. When an infant is not in homeostatic balance (e.g., her core body temperature is low) she must devote all of her temperature regulatory capacity to try to reinstate normal homeostatic balance. However, Bernard failed to appreciate a critical feature of the homeostatic regulatory process for humans. For humans, the maintenance of homeostasis is a dyadic collaborative process. Infants must collaborate with others to successfully regulate their physiological homeostatic states. Of course, the infant is a bounded organism and obviously the adult is external to the infant's (anatomical) boundaries. Nonetheless, the adult is part of the infant's homeostatic regulatory system; as much a part as any internal regulatory process.

What is meant by the idea that temperature regulation is a dyadic process? While Bernard did not see it, successful regulation of the core body temperature cannot be accomplished solely by the infant. While the infant has mechanisms to regulate temperature on her own by, for example, changing her posture and increasing her activity level, these processes will eventually fail depending on the surrounding conditions. But her temperature can also be regulated externally by her caretaker, for example by being held in ventral contact with the caretaker's body. These processes, internal and external, are functionally equivalent processes for regulating the infant's temperature. The internal and external mechanisms form a single system made up of two component systems (i.e., infant and mother)—a dyadic system. Moreover, these regulatory processes involve communication among different components of this dyadic system. Internally generated adjustments are guided by central and peripheral nervous system mechanisms, which respond to signals from central and peripheral sites. Changes in the holding patterns of caretakers are guided by active (e.g., crying) and passive (e.g., color changes) signals from the infant. Thus the infant's physiological state is always in some part dyadically regulated with the caregiver an external component of the infant's regulatory system.

Moving onto the question of the regulation of emotional states of the infant, we find that the infant's emotional states are also regulated dyadically. The principal components are the infant's central nervous system (e.g., limbic sites) and the behaviors it organizes and controls (e.g., facial and vocal emotional displays) and the caregiver's regulatory input (e.g., facial expressions, touches, gestures). The dyadic emotional regulatory system is guided by communication between internal and external components (i.e., infant and caregiver). The following interactive sequence illustrates this emotional regulatory process.

A 6-month-old infant and his mother are playing a game and the mother leans in to nuzzle the baby. The infant takes hold of the mother's hair and when she pulls away he does not let go. In pain, the mother responds with an angry facial expression and vocalization. The infant immediately sobers and brings his hand up to his face in a defensive move. The mother pulls back, pauses, and then slowly approaches the infant again. The infant drops his hands and they resume their normal exchange.

This interaction illustrates several critical features of mother–infant interaction. First, the infant appreciates the meaning of the affective displays of the mother. The infant does not simply imitate the maternal response, but reacts in a manner that is appropriate to the implicit meaning of the display (e.g., maternal expressions of anger mean “duck, something bad is about to happen” versus maternal joy “smile back and stay connected”). Second, these differential infant reactions communicate to the mother his evaluation of the state of the interaction with well-organized emotional displays of his own. Unlike more classical assumptions about emotions, the infant's emotions are in no way “disorganized” or “disorganizing.” Rather, they are exquisite configurations of face, voice, gaze, posture, and gesture (Weinberg & Tronick,

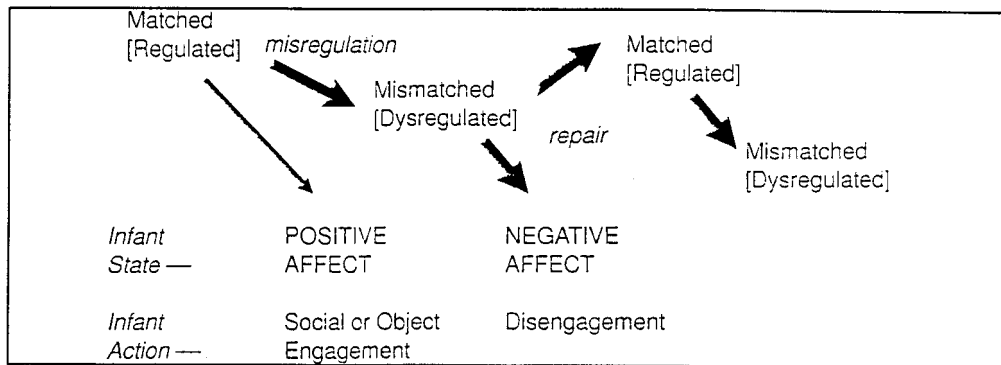


FIGURE 1.

1994). Moreover, as contrasted to the view that the infant has only a functioning reptilian brain (limbic system), which is only arousing, the infant's affective behavior makes it obvious that whatever brain mechanisms (limbic or cortical) the infant does have operating they are adequate to organize and inhibit responsiveness. Third, the mother and the infant are active participants in the interaction. It is a mutually regulated process. Thus the infant's emotional reaction is determined by maternal emotional displays and the infant's implicit understanding of those emotional displays. This is the process of mutual regulation—the capacity of each of the interactants, to appreciate the meaning of the affective displays of their partner, and to scaffold their partner's actions so that they can achieve their goals.

I have argued that a critical event or unit of analysis for understanding mutual regulation is the process of reparation (see Fig. 1). The typical mother–infant interaction moves from coordinated (or synchronous) to miscoordinated states and back again over a wide affective range. The miscoordinated state is referred to as a miscommunication. Miscommunications are normal events. They occur when one of the partners fails to accurately appreciate the meaning of the other's emotional display and in turn reacts inappropriately. The interactive transition from a miscoordinated state to a coordinated state is an interactive repair. Given that the infant and mother are active regulators of the other's behavior, the process of reparation, also is a mutually regulated process. Each partner, infant and adult, signals their evaluation of the state of the interaction through their affective configurations. In turn, in response to their partner's signals each partner attempts to adjust their behavior to maintain a coordinated state or to repair a miscoordination (e.g., in the above example, the mother's anger display and the infant's defensive display is dyadically repaired as the mother pauses and the infant lowers his hand and looks at her). This process can be likened to the process of moving along in therapy (see Stern, this issue). Critically, successful reparations and the experience of coordinated states are associated with positive affective states, whereas interactive errors generate negative affective states (Tronick & Weinberg, 1998). Thus, the infant's affective experience is determined by a dyadic regulatory process.

Let me emphasize one aspect of the homeostatic and emotional examples before focusing on dyadic states of consciousness: in both examples, each participant must “come to know” the current state of the other if the regulation is to succeed. In the homeostatic example the mother must “come to know” that the infant is in a state of temperature imbalance. If she sees the “cold-infant” as merely irritable she may disregard the infant's communicative signals and leave the infant on her own, only to get even colder and more dysregulated. In the emotional example of the mother with an angry display, the mother must “come to know” that the infant's

emotional state is protective. If she sees the infant covering his eyes as playful, she might move in closer to the infant and produce even a greater upset. In either example, when one or the other interactants fails to accurately appreciate the state of the other—homeostatic or emotional—reparation of the state will fail.

What is so experientially powerful about the achievement or failure to achieve these affective dyadic states? It is my hypothesis that the social emotional exchanges of mothers and infants (and of all humans) has the potential for expanding each individual's state of consciousness with powerful experiential and development consequences. The hypothesis of the dyadic expansion of consciousness is derived from systems theory. A first principle of systems theory is that open biological systems, such as humans, function to incorporate and integrate increasing amounts of meaningful information into more coherent states. This process is paradoxical. On the one hand, more information is integrated into the system, making it more complex, while on the other hand, the increase in coherence results in a more organized state. This process is often thought of as a self-generated characteristic of open systems, that is, all systems are self-organizing. Indeed, systems are self-organizing, but in humans this process is just as importantly dyadic. It is a process involving two minds.

For example, take a 6-month-old in interaction with his mother. As we have seen, the infant is able to endogenously (self-)organize a coherent affective state. This state can be thought of as a state of consciousness (or for the materialists among you, a state of brain organization). This affective state of consciousness is manifest in the infant's affective configurations of face, body, gaze, and gesture. A self-organized state of consciousness incorporates a certain amount of information—perceptual input, motor output, representations, information feedback and feed forward, plans, intentions, reentry information, and much, much more. The limits of the infant's nervous system (e.g., speed of information processing, channel capacities of different sensory modalities, motor control limitations, etc.) place a constraint on the complexity of the state that the infant can self-generate. However, the complexity of the infant's state of consciousness is not solely dependent on processes endogenous to the infant. As an open system, the complexity of the infant's state is *expandable* with input from an external source—the caregiver.

The caregiver provides the infant with regulatory input, *scaffolding* in Bruner's (1975) terminology, but unlike Bruner, the scaffolding in this case is emotional not cognitive, which can expand the complexity and coherence of the infant's state of brain organization. Thus the expansion of the infant's state of consciousness emerges from the process of the mutual regulation of emotion. During an interaction, information about the infant's state of consciousness (e.g., intentions, affects, and arousal level) is conveyed through affective configurations that are apprehended—come to be known—by the mother. In response, the mother provides the infant with regulatory support that permits the infant to achieve a more complex level of brain organization.

Consider a somewhat concrete example. Gestural communication is a complex action somewhat beyond the nonself-sitting young infant's ability because the infant is not yet able to control his posture to “free” his arms for communicative purposes. However, the caregiver by giving the infant postural support in response to the infant's communicative expressions of frustration scaffolds the infant's ability to use gestural communication. The scaffolding “controls” the infant's head and frees the infant to control her arms and hands. Through this process of providing the regulatory input the now-sitting-infant's brain organization takes on a new and different organization with greater coherence and complexity, which is much beyond the infant's endogenous capacities to organize.

There is a critical and emergent property of this collaboration—the creation of a singular dyadic state of organization. This dyadic state organization has more components—the infant



and the mother—than the infant’s (or mother’s) own self-organized state. Thus, this dyadic system contains more information, is more complex and coherent than either the infant’s (or the mother’s) endogenous state of consciousness alone. When infant and mother mutually create this dyadic state—when they become components of a dyadic system—both fulfill the first principle of systems theory of gaining greater complexity and coherence. The gesturing mother-held-infant performs an action—gesturing—that is an emergent property of the dyadic system that would not, and could not occur unless the infant and mother were related to the other as components of a single dyadic system.

Creation of this dyadic system necessitates that the infant and mother apprehend elements of the other’s state of consciousness. If they did not, it would not be possible to create a dyadic state. For example, if the mother’s apprehension of an infant’s state of consciousness is that the infant intends to reach for a ball when in fact the infant intended to stroke her face a dyadic system will not be created. The two systems—infant and mother—will remain separate, uncoordinated, and disconnected. Thus, a principle governing the human dyadic system is that successful mutual regulation of social interactions requires a mutual mapping of (some of) the elements of the each partner’s state of consciousness into the other partner’s brain.

To restate the Dyadic Consciousness hypothesis, it is that each individual is a self-organizing system that creates its own states of consciousness—states of brain organization—which can be expanded into more coherent and complex states in collaboration with another self-organizing system. When the collaboration of two brains is successful each fulfills the system principle of increasing their coherence and complexity. The states of consciousness of the infant and of the mother are more inclusive and coherent at the moment when they form a dyadic state (a moment of meeting, see Stern this issue) because it incorporates elements of the state of consciousness of the other.

Thus, to return to the original question: What is it about connectedness that makes it so critical to human experience and to development? The answer suggested by the Dyadic Consciousness hypothesis is that the “fulfilling” of the first principal of systems theory is the unintended and unconscious force driving social engagement and with this fulfillment travels a powerful subjective effect on the interactants. At the moment when the dyadic system is created both partners experience an expansion of their own state of consciousness (brain organization). Their states’ of consciousness become dyadic and expand to incorporate elements of consciousness of the other in a new and more coherent form. At this moment of forming a dyadic state of consciousness, and for the duration of its existence, there must be something akin to a powerful experience of fulfillment as one paradoxically becomes larger than oneself. To rephrase Descartes, I interact, therefore I am.

Let me give another example of the experimental impact of breaking this dyadic consciousness. It is another Still-face experiment, but this time with a girl 30 months of age. At the start of the experiment we (Tronick, Weinberg, and Beehgly, unmentioned) have the mother playing normally with the little girl. After a few minutes of normal play we ask the mother to hold a Still-face and not respond to the little girl. As with 6 month olds, the effect is dramatic. The little girl detects the change in the mother’s state almost immediately. She begs the mother with an emotionally laden voice to play with her, to respond to her. She throws things and eventually hits the mother in an attempt to get her to respond. When the mother does resume her normal responding the little girl is still distressed and only with the most gentle and soothing approach by the mother is the interaction repaired. Thus, at 30 months we see again how powerful the effect of breaking and preventing the establishment of joint states of consciousness is on the child. These effects of preventing and breaking states of consciousness may play out in many typical situations. For example, the dyadic state of consciousness hypothesis suggests that the anxiety and fear at separation that emerges in the second half year of life is produced

by an experience of diminution—literally, a sense of becoming less coherently organized—when the caregiver leaves and is no longer present. A similar effect may account for the fear emergence of a fear of strangers.

What happens to children when the establishment of dyadic states of consciousness is chronically denied? The effect of chronic denial is that the infant's normal development is arrested and distorted. The infant is deprived of the experience of expanding of his or her states of consciousness in collaboration with the mother (or others). An example of the many possible ways that dyadic states might fail to be formed is our work (Weinberg & Tronick, 1998) on the toxic effects of maternal depression on the infant's social, emotional, and cognitive functioning. From the perspective of mutual regulation, maternal depression disrupts the establishment of a dyadic infant–mother system and the normal experience of emotional reparation. But the Dyadic Consciousness hypothesis suggests a more venomous possibility.

Given that the infant's system functions to expand its complexity and coherence, one way open for the infant of the depressed mother to accomplish this expansion is to take on elements of the mother's state of consciousness. These elements will be negative—sad and hostile affect, withdrawal, and disengagement. However, by taking them on the infant and the mother may form a dyadic state of consciousness, but one that is negative at its core. Thus, in the service of becoming more complex and coherent, the infant incorporates depressive elements from the mother's state of consciousness. This dyadic state of consciousness contains painful elements, but its painfulness does not override the “need” for expansion. Critically, when the infant of the depressed mother comes to other relationships, the only way he or she has available for expanding the complexity and coherence of his or her states is by establishing dyadic states of consciousness around the depressive features that were first established with the mother. Thus one consequence of early dyadic history is often a debilitating attachment to negative relational experiences.

Thus, it is my hypothesis that the process of mutual regulation, at the level of social emotional exchanges and more critically at the level of states of consciousness, determines much of the emotional, social, and representational course of the infant. When the affective regulation of interactions goes well, development proceeds apace. Increasingly, complex tasks are approached, resolved and incorporated, not by the child alone, but by the child in collaboration with others. But as a consequence of their resolution, the child expands and becomes more coherent. When failure occurs development gets derailed and the child's complexity is limited or even reduced (i.e., the child may regress). The effect is in the child, but the failure is a joint failure. With continued failure and the structuring that goes on around that failure, affective disorders and pathology may result.

To return to the question of therapeutic change, there are several reasons for my belief that the process of mother–infant regulation can shed light on the process of change. First, the infant and young child are changing at an incredibly fast rate. And while some of the forces of change such as maturational forces are no longer available in the adult therapeutic setting, a major force leading to change is available: the social exchange that takes place between the patient and therapist. Second, the infant–mother exchange does not contain semantic knowledge or any elements of interpretation. It is made up only of emotional communication—procedural knowledge (see Lyons Ruth, this issue)—between the mother and the infant. This emotional communication may be the “something more” we are searching for in the therapeutic process. Of course, I recognize that the mother–infant interaction is asymmetrical, but so is the interaction of the therapist and the patient (see Morgan, this issue). Moreover, the mother brings her past into the interaction, whereas the infant is developing his or her past.

Thus, I believe that some guidance for an understanding what brings about change in the therapeutic process can be found in the mother–infant interaction. For the infant, connectedness



with the mother permits the infant to expand his or her state of consciousness. Dyadic expansion of consciousness is a powerful force for change. The infant's mind becomes more coherent and incorporates more information. And when a dyadic state of consciousness is achieved there is a restructuring and change of the infant's present and past mental organization. Analogously, in the therapeutic setting my hypothesis is that the therapist and the patient can also achieve these dyadic states. Dyadic states of consciousness between the patient and the therapist do not involve interpretation, although interpretation may aid in their creation. They are purely emotional and procedural (implicit). As such they are a force for change in the mental organization of the patient that is, the "something more" therapy.

More specifically, the hypothesis is that the patient and the therapist create dyadic states of consciousness. These states of consciousness emerge from the mutual regulation of affect between the patient and the therapist. When these dyadic states are achieved, the state of consciousness of the patient expands and changes. The patient has the experience of a unique shared dyadic state with the therapist. The state is specific and singular to their relationship, but its elements are incorporated into the patient's state of consciousness. The future relationship between the patient and the therapist will be changed from what it was because this new experience will be part of their connection (their moving along, see Stern this issue) in the future. Thus, the patient becomes capable of a qualitatively unique relationship with the therapist. From a subjective perspective, the patient experiences "something new, something expanded and something singular" with the therapist and this experience is incorporated into the patient's future exchanges with the therapist. (Note that because the process is achieved through mutual regulation, these moments will have the same effect on the therapists.)

Were the changes restricted to the patient-therapist relationship, these changes would be of only limited importance. However, they are not restricted. The patient-therapist dyadic state of consciousness reorganizes aspects of the patient's state of consciousness of other relationships (i.e., the patient's implicit knowledge of how to relate, see Lyons-Ruth and the cases by Harrison, Brushweiler-Stern and Harrison, this issue). This restructuring again follows from the principles of system's theory. With the achievement by the patient (and therapist) of a more coherently organized and complex state of dyadic consciousness, old elements of consciousness need to be reintegrated into this new state of consciousness. The "something else with the therapist" becomes part of the patient's having to (re) experience "something else" (or the lack of "something else," or a different "something else") specific to their consciousness of past and current relationships with others. Thus, out of the change with the therapist, a therapeutic change is assembled in the patient.

In sum, this view of therapeutic change is based on the hypothesis that all humans are able to achieve dyadic states of consciousness, which emerge from affective mutual regulation. This process is most clearly seen in the mother-infant affective interchange. In the infant-parent interchange, achievement of dyadic states is a force for developmental change and for the development of states of consciousness in the infant that will become his or her implicit procedural knowledge of relationships that guide present ways of relating and representing the past. The process of mutual regulation also characterizes the therapeutic relationship. It is hypothesized that the achievement of dyadic states of consciousness between the therapist and the patient is "something more" that accounts for therapeutic change. However, in the therapy, as contrasted to the creation of the past in the infant, the change occurs primarily in the reintegration and reconfiguring of already extant states of consciousness for the patient. These changes are a consequence of the mutual creation by the therapist and the patient of new and unique dyadic states.

Indeed, to close with an additional speculative notion, I would hypothesize that the capacity to create dyadic states of consciousness with another, and the quality of those states, depends

in part on the history the individual had in creating these states early in development with his or her mother (and others). Thus, it is not simply the content (e.g., my mother always did x) of the past that (in part) determines current functioning, but the procedures of past mutual regulations (e.g., we always interacted this way) that affects current emotional and relational functioning. Moreover, this idea clarifies why therapy must contain “something more” other than interpretation. Interpretation was neither possible nor part of the earliest developmental stages of relationships. However, the early experience of mutual regulation nonetheless shapes much of the how the individual goes about currently relating (i.e., his or her implicit procedural knowledge). Thus, therapy must contain “something more” because only through experiencing and exploring this “something more” can one access the patient’s implicit knowledge about their earliest relationships in relation to their current relationships, that is, the specific and unique creative process of the mutual regulation of affect dyadic state creation. Thus, new therapeutic techniques for exploring and changing this implicit domain of representation need to be developed to modify and expand individual states of consciousness.

#### REFERENCES

- BRUNER, J.** (1975). From communication to language—a psychological perspective. *Cognition*, 3, 255–287.
- CARPENTER, G. C., TECCE, J. J., STECHLER, G., & FREIDMAN, S.** (1973). Differential visual behavior to human and humanoid faces in early infancy. *Merrill Palmer Quarterly*, 16, 91–108.
- TRONICK, E. Z.** (1989). Emotions and emotional communication in infants. *American Psychologist*, 44, 112–119.
- TRONICK, E. Z., ALS H., ADAMSON, L., WISE, S., & BRAZELTON, T. B.** (1978). The infant’s response to entrapment between contradictory messages in face-to-face interaction. *Journal of American Academy of Child Psychiatry*, 17, 1–13.
- WEINBERG, M. K., & TRONICK, E. Z.** (1994). Beyond the face: An empirical study of infant affective configurations of facial, vocal, gestural, and regulatory behaviors. *Child Development*, 65, 1495–1507.
- WEINBERG, K., & TRONICK, E. Z.** (1998). The impact of maternal psychiatric illness on infant development. *Journal of Clinical Psychiatry*, 59, 53–61.

Copyright of Infant Mental Health Journal is the property of Michigan Association of Infant Mental Health and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.