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## **The Rooting of the Mind in the Body: New Links Between Attachment Theory and Psychoanalytic Thought**

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## THE ROOTING OF THE MIND IN THE BODY: NEW LINKS BETWEEN ATTACHMENT THEORY AND PSYCHOANALYTIC THOUGHT

The relationship between psychoanalysis and attachment theory is complex indeed. A brief review of the psychoanalytic literature as it concerns attachment theory and research, and of the attachment literature as it pertains to psychoanalytic ideas, demonstrates an increasing interest in attachment theory within psychoanalysis. Some of the difficulties that attachment theory faces in relation to psychoanalytic ideas are traced to its links to the now dated cognitive science of the 1960s and 1970s. Today, however, a second-generation cognitive neuroscience seeks neurobiologically plausible accounts in which links with brain and body are seen as shaping mind and consciousness, which increasingly are seen as “embodied,” as emerging from or serving the needs of a physical being located in a specific time, place, and social context. This idea has also been at the core of much psychoanalytic thinking, which has historically affirmed the rootedness of symbolic thought in sensory, emotional, and enacted experience with objects. Now neurobiological advances supporting the concept of embodied cognition offer an opportunity to forge powerful links between the hitherto separate domains of attachment theory and psychoanalysis. Speculations about the nature of language are presented that emphasize the origin of internal working models (and of representations in general) in early sensorimotor and emotional experiences with a caregiver. It is argued that language and symbolic thought may be phylogenetically and ontogenetically embodied, built on a foundation of gestures and actions, and are thus profoundly influenced by the experience of early physical interaction with the primary object. Finally, the clinical and research implications of these ideas are discussed.

**I**t has been widely held by psychoanalysts that there is something wrong with attachment theory. Following the publication of John Bowlby’s “Grief and Mourning in Infancy and Early Childhood”

(1960), leading psychoanalytic developmentalists were quick to point to the limitations of attachment theory—its mechanistic, nondynamic quality and its misrepresentation of psychoanalytic ideas (Freud 1960; Schur 1960; Spitz 1960). Opposition to attachment theory for once united the warring factions of the British Psychoanalytical Society (Grosskruth 1986), and many major figures contributed to this opposition (e.g., Engel 1971; Hanley 1978; Kernberg 1976; Rochlin 1971; Roiphe 1976).

The common theme of these critiques has been that by requiring that theoretical constructs be measurable and focusing on observable behavior rather than on drives and unconscious fantasy, attachment theory drastically reduces the explanatory power of psychoanalytic observations and misses the point of its theory. Attachment theorists could have taken issue with some of the criticisms, but were also perhaps spurred to address the issue and have certainly helped to bridge much of the original gulf. For example, Bretherton's work on internal working models (1987, 1995) shows that internal symbolic processes are not ignored or underemphasized in attachment theory. Similarly, Kernberg's criticism (1976) that Bowlby did not take account of the internal world and neglected "instincts as intrapsychic developments and internalized object relations as major structural organizers of psychic reality" (p. 121) was perhaps an overstated criticism, particularly in light of Bowlby's own emphasis on constructs such as the internal working model (1969, chap. 17) and his translation of the psychoanalytic concept of the internal world into the terms of "environmental and organismic models" (p. 82). Psychoanalytic critiques of attachment theory have at times been based on misapprehension, even prejudice, by writers poorly informed about the empirical observations this body of ideas has generated.

The same criticism can be applied equally well to representations of psychoanalytic ideas in early attachment theory. Bowlby maintained

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a blinkered attitude to psychoanalysis. Probably hurt by the hostile psychoanalytic reaction to attachment theory, his generalizations on the psychoanalytic model bear the hallmarks of straw figures (see, e.g., Bowlby 1973, chap. 22; 1980b, p. 310). Thus, just as psychoanalysts tended to misread attachment theory and find it wanting in depth and explanatory power, so Bowlby and other attachment theorists selectively focused on the weakest aspects of psychoanalytic thought. There have of course always been major figures who have consistently bucked this trend (Bretherton 1987; Eagle 1995, 1997; Emde 1999; Hauser 2002; Holmes 1993, 1998; Lichtenberg 1989; Main 1997, 2000; Shane, Shane, and Gales 1997; Slade 2000). The relationship between the two disciplines deserves to be reexamined in the light of changes in both, and new developments in other relevant fields, in recent decades.

### THE CHANGED STATUS OF ATTACHMENT THEORY

The status of attachment theory within psychoanalysis seems to have changed over the last twenty years. A simple bibliometric study offers evidence of this. Between 1970 and 1974, Bowlby was cited in about eight articles per year in the psychoanalytic journals included on the PEP CD-ROM. This figure increased steadily to twenty-nine in the final period (1995–2000). And with this increase in interest has come a change of tone in the commentaries on Bowlby's work. The definitive review of the first volume of *Attachment and Loss*, by George Engel in the *International Journal of Psychoanalysis* (1971), was thorough but extremely negative: "despite Bowlby's inexact treatment of psychoanalytic theory and the logical fallacies that follow, and his misapplication of general systems theory, this is still an important book for psychoanalysts. . . . Unfortunately Bowlby fails as an expositor, leaving the reader the task of identifying what has germinal value for psychoanalysis" (p. 193). Gregory Rochlin (1971) was even more dismissive: "The enormous difficulties encountered in attempting to understand the nature of a child's earliest relationships, especially with his mother, are never better illustrated than by Bowlby's efforts. His relinquishing of Freud for Melanie Klein's theories of infant psychology years ago furthered his disappointment. His recent turning to studies of primates and control systems in the hope that this will be a

more rewarding direction may content him but it will disappoint his reader. Bowlby can convince only if one grants his broad suppositions, is willing to overlook the important distinctions between infants and young primates, and accepts the notion that circuitry between living organisms and robots have little to distinguish them” (p. 506).

Ten years later, when volume 3 of the trilogy appeared, the reviews were more respectful and interested. Sol Altschul (1984), reviewing for *JAPA*, while still uneasy about Bowlby’s alternative terminology, accepted that “Bowlby has contributed much to our views of the child’s relationships and the profound effects that loss and separation have on the child’s welfare and development as well as the importance of attachment behavior throughout life” (p. 218). In the *Psychoanalytic Quarterly*, Isidor Bernstein (1981) concluded that “in sum, this is a scholarly work that has much of value for all interested in the effects of loss on all family members” (p. 422). In their appraisal of Bowlby’s work, Pearl King and Eric Rayner (1993) commented on the book’s importance in discrediting the cruel belief that children do not mourn. It may seem to us implausible that psychoanalysts could ever have doubted that children mourn. Yet, less than a decade before the publication of volume 3, Humberto Nagera in a much-quoted paper expressed the surprising view that “mourning as defined by Freud (1917) and as observed in the adult is not possible until the detachment from parental figures has taken place in adolescence” (Nagera 1970, p. 362).

Perhaps the rise of the relational approach in the U.S. over the past two decades has helped attachment theory find increasing acceptance. Sandra Buechler (1997), reviewing a 1995 volume on the clinical implications of attachment research, titled her review “Attachment Theory as a Secure Base for Psychoanalytic Explorations.” The review draws out twelve points of contact between relational psychoanalytic theory and attachment theory; among them are that both theories see emotional problems as the result of interference with an innate potential for inter-relatedness, consider the recognition of patterns of relating as crucial for diagnosis and treatment, and view the meaning of behavior in terms of its interpersonal function. Yet despite the more positive tone of these reviews, reservations remain and sometimes dominate evaluations of Bowlby’s contributions. Michael Brearley (1995), reviewing Jeremy Holmes’s *John Bowlby and Attachment Theory*, writes that “Bowlby’s maps are those of the researcher showing broad geological formations on a continental scale, while analysts, in their daily work at least, are con-

cerned with the detail of the lived human life and need maps of a different projection, of built-up areas. . . . Bowlby conveys an impression of human nature as rather more benign than the experience of most analysts would suggest, and of the therapeutic relationships as less prone to perverse and destructive attitudes” (p. 1072). Five years earlier Karen Gilmore (1990), writing about Bowlby’s last attachment book, *A Secure Base* (1988) strikes a similar note: “To this reader, Bowlby’s own contribution is obscured by these comparisons [with psychoanalytic theory], since his theory offers neither an alternative metapsychology nor a true developmental psychology; moreover, it fails to address the pivotal role of conflict in mental life, the cornerstone of psychoanalytic theory” (p. 496).

These critiques highlight a real and fundamental disparity between attachment theory and psychoanalytic ideas. Attachment theory is limited from a psychoanalytic perspective in that it sidesteps sexuality; sees aggression as secondary to more fundamental motivations; arguably offers mechanistic models of conflict; is moot on unconscious fantasy; is reductionistic in its focus on a handful of empirical paradigms (e.g., the Strange Situation and the Adult Attachment Interview) that provide broad classifications that lose the subtlety and detail of the original material; and offers a limited framework for clinical work. Given Bowlby’s concerns with unconscious defenses against memories of traumatic separation and loss, and the detailed work of other attachment theorists on other defenses that unconsciously structure the developing personality and capacities for relating, it would be wrong to claim that attachment theory does not concern itself with “the dynamic unconscious.” There is, however, little attention paid by attachment theorists to the qualitative differences between conscious, preconscious, and unconscious experience, and the psychic contents that are assumed to be most formatively defended against are focused not on drives and their derivatives and ensuing conflicts but on the development of the self and the self in relation to another.

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### CHANGES IN PSYCHOANALYTIC IDEAS

Notwithstanding these continuing reservations, the move toward greater interest in attachment theory by psychoanalysts is striking. Psychoanalysis has become more pluralistic and accepting of differences, and this could of itself have led to greater acceptance. However, the change probably reflects a number of shifts in psychoanalytic thinking.

1. There may be an increasing acceptance by psychoanalysts of the formative nature of the child's social environment. This is perhaps because psychoanalysis deals more than ever before with those who have experienced serious deprivation (see, e.g., Downey 2000; Spurlock 1970). We are therefore increasingly confronted by the psychological consequences of disturbed or abusive parenting much more common in such conditions.

2. Concern with the actual social environment from psychoanalysts was also driven by an increasing interest in infant development as a legitimate way of explaining differences in adult behavior. While not uncontroversial (see, e.g., Green 2000; Wolff 1996), the emergence of neuroscientific data over the past decade from both animal and human work (e.g., Francis et al. 2003; Meaney and Szyf 2005; Parker and Nelson 2005; Teicher et al. 2002), demonstrating the profound impact of early experience on brain development, and in turn directly on social and emotional development, highlighted the common interests of psychoanalysts and attachment theorists in infant-parent relationships and the emergence of emotion regulation (Coates 1998; Stern 1995; Tronick 2004).

3. More specifically, a range of psychoanalytic orientations, particularly in self psychology (e.g., Shane, Shane, and Gates 1997) and the British Independent Group (Fairbairn 1952), have opted for an implicitly dialectical (Hegelian) model of self development. The mother's mirroring function naturally links to Ainsworth's concept of maternal sensitivity (Ainsworth, Bell, and Stayton 1971). A deeper appreciation of the contribution of the attachment relationship to the creation of an "agentive self" was probably encouraged by the increasing acceptance of Bion's description of the emergence of thinking capacity within the infant-mother interaction (1962). We have tried to show how psychoanalytic theories of thinking, as well as affect regulation and self development, can in fact be empirically demonstrated through research on parent-infant interaction, the attachment narratives of adults (including those with personality disorders), and longitudinal research tracing the links between them (see, e.g., Fonagy et al. 2002).

4. As the object relations model moved to replace ego psychology as a dominant international psychoanalytic paradigm, so the attachment theory emphasis on an autonomous need for a relationship came to be embraced by a majority.

5. The acceptance of a general systems (von Bertalanffy 1968) or schema theory (Piaget 1967) view of relationship representation,

strongly favored by Bowlby (1980a), has been gradual in psychoanalysis. Its implicit acceptance followed powerful conceptual advances by Joseph Sandler (Sandler and Rosenblatt 1962) and Edith Jacobson (1964), and more recently by Mardi Horowitz (1992), Joseph Weiss (Weiss et al. 1986), and Daniel Stern (1985).

6. We have already touched on the relationship context of the emergence of mental functions such as emotion regulation, the capacity for symbolization, and empathy. Starting with the work of René Spitz (1965), and continuing with Robert Emde (1988a,b), Louis Sander (1987), Edward Tronick (2001), and Karlen Lyons-Ruth (Lyons-Ruth and Jacobovitz 1999) in the U.S. and Donald Meltzer (1975), Frances Tustin (1981), Anne Alvarez (1992), and Peter Hobson (2002) in the U.K., the notion that psychic functions reflect the complexity of internalized primary object relationships gained general acceptance. This notion, although present in Bowlby's theory, was also energetically pursued by Alan Sroufe (1996), Inge Bretherton (1991), and Mary Main (1991). Related to this is our own work on mentalization (Fonagy et al. 2002) that potentially links attachment theory to classical psychoanalytic notions such as linking (*Bindung*) (Freud 1900), the depressive position (Klein et al. 1946), alpha function (Bion 1962), some of the suggestions of the École Psychosomatique de Paris concerning the thinking of psychosomatic patients (Marty 1990), and the distinction between belief and knowledge elaborated by Ronald Britton (1995).

7. A further powerful force bringing modern psychoanalysis and attachment theory closer, particularly in the United States, has been the increased emphasis on hermeneutics in the conceptualization of both psychoanalytic theory and the aim of the psychoanalytic process. In the work of some writers, such as Donald Spence (1984) and to a lesser extent Roy Schafer (1992), narrative truth and coherence of meaning became a legitimate goal of treatment. This suggestion for a realignment has had its critics (e.g., Fonagy 1982; Sass and Woolfolk 1988). But, subtly, the hermeneutics theme became prominent in psychoanalysis as an implicit part of a number of changes of emphasis in clinical thinking over the past few decades (see Holmes 1998). For example, the move away from focusing on repression and toward an emphasis on vertical splits in clinical accounts suggests that it may be the continuity of consciousness rather than the recovery of the repressed that is established through psychoanalytic therapy (Segal 1982; Steiner 1994). A focus on the "here-and-now" transference and

skepticism about uncovering a repressed actual pathogenic past (Sandler and Sandler 1984) also creates more common ground with attachment theory, in which coherence of narrative is the hallmark of security of attachment (Main 2000).

8. The psychoanalytic theory of motivation has undergone a considerable shift in the postwar years. The move from drives as the central concept of motivation to affect as the primary motivator has been accepted in most object relations clinical accounts (Akhtar 1992; Kernberg 1982; Kohut 1982; Sandler 1989). Attachment theory also moved from being concerned principally with physical proximity of the caregiver to a fundamental concern with the regulation of emotional states (Slade 2000; Sroufe 1996). In this context Sandler made a particularly integrative contribution in the late 1960s and early 1970s by placing the “background of safety” at the center of the psychoanalytic theory of motivation (Sandler 1960). In a late paper Sandler (1995) made an explicit link between his concept and Bowlby’s secure base principle.

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9. The emphasis on real current experience (including this aspect of the relationship with the analyst), interwoven with the exploration of fantasy, is a noticeable shift in our understanding of the curative processes in therapy. Perhaps classically Hans Loewald (1960), but also Donald Winnicott (1962) and even earlier Sandor Ferenczi (1922), illuminated our understanding of the mutative aspects of new experiences provided by therapy. This of course was always an aspect of Bowlby’s position (1988).

10. Related to this is the growing interest in measures based on attachment theory among psychoanalysts who have pioneered the path of empirical research in our field. Stuart Hauser (Allen, Hauser, and Borman-Spurrell 1996; Hauser 2002, 2004) and Otto Kernberg (Clarkin et al. 2004a,b) are good examples of eminent psychoanalytic scholars whose theoretical horizons stretch considerably beyond attachment theory, yet who have moved closer to attachment ideas in order to benefit from a unique combination of psychometric discipline and sensitivity to dynamic unconscious issues.

11. From our point of view a less welcome change that has facilitated the increased acceptability of attachment ideas is a reduced emphasis on infantile sexuality as the predominant explanation of psychological disturbance. A quantitative search of the psychoanalytic database demonstrates that both sexual terms (such as names

for anatomical parts) and psychosexual theoretical concepts are today used significantly less frequently in psychoanalytic explanations than they were three decades ago (Fonagy and Target in press). Thus, for example, the oedipus complex is often seen metaphorically and conceptually rather than literally. Psychoanalysis to some measure has been desexualized (Green 1995; Stein 1998a,b). While bringing psychoanalysis closer to attachment theory, the metaphoric reworking of psychosexually focused formulations alongside the reduced emphasis on drive states risks diminishing what is uniquely valuable in the psychoanalytic approach. We have tried elsewhere to show that psychosexuality can have a unique place even in an attachment-based theory of self development (Fonagy and Target in press)

### EPISTEMOLOGICAL ISSUES

Notwithstanding the more positive view of attachment theory among psychoanalysts, whether this was driven by pluralism or shifts within the implicit core of psychoanalytic thinking, attachment theory has not become one of the many schools of psychoanalysis and is not, for example, covered in the training program of the British Psychoanalytical Society.

Bowlby was, as we have said, dissatisfied with much of analytic theory. Primarily this was because psychoanalysis did not use what he saw as logically relevant and productive scientific discoveries. But this, as King and Rayner (1993) have pointed out, “carried little weight with many psychoanalysts who were exclusively devoted to the clinical one-to-one context” (p. 1827). There was also evidently too much that was new in his approach: psychoanalysts considered him “not really one of us” (Anthony Storr, *The Lancet*, February 1990). The issue is not whether Bowlby’s ideas fit the current predominantly clinical mode of psychoanalytic writing. It is evident they do not. It seems to us that Bowlby’s status as being either inside or outside psychoanalysis depends more on the value we attach to extraclinical information in sculpting and testing clinical and developmental theory within psychoanalysis. Bowlby is “one of us” if we consider that psychoanalysts should allow room in their thinking for knowledge deriving from systematic observation of infant development, for a sociobiological orientation, for epidemiology, for neuroscientific research findings, and for the clinical implications of all of these.

The claim here is that the key difference between attachment theory and psychoanalysis is not to be looked for at the level of substantive assertions concerning infancy, childhood, or adult relationships. Elsewhere we have tried to show (Fonagy 2001) that there is sufficient overlap between mainstream psychoanalytic models and attachment theory for the latter to be considered psychoanalytic. The incompatibility between attachment theory and psychoanalysis is more at the level of epistemic assumptions than of content. While Bowlby placed himself in a position to be forced to change with the development of knowledge in neighboring sciences (Bowlby 1979, 1981), psychoanalysis, for good or ill, has (at least in the past) isolated itself from such ongoing feedback, except when clinical experience challenges its presuppositions.<sup>1</sup> Bowlby's epistemic position brings obligations with it. Bowlby's theory was based on the cognitive developmental science of twenty-five years ago and needs revisiting. Some core assumptions of psychoanalysis have markedly changed, diminishing somewhat the incongruence between attachment theory and psychoanalysis. Perhaps more urgently, advances in the sciences to which Bowlby's ideas are coupled dictate a reconsideration of the points of contact between attachment theory and psychoanalysis; that is the subject of this essay. We will review the advances in cognitive science and show that reconsideration is necessary principally because these "new ideas" turn out to be far from new within a psychoanalytic context.

### **COGNITIVE SCIENCE IN THE 1960s**

Attachment theorists lean on cognitive science, but the cognitive science currently used by most attachment theorists is an outdated one. A brief overview of the history of cognitive psychology may be helpful at this point. The psychology that influenced Bowlby (and has guided attachment theory ever since) emerged some fifty years ago as a reaction to the excesses of behaviorism. Although Bowlby was

<sup>1</sup>An astute reviewer pointed out that this should not be thought to apply to all psychoanalytic authors and mentioned numerous distinguished colleagues by name whose work offers clear evidence that they consistently paid attention to advances in the neurosciences, psychiatry, and psychology. Sadly, the very fact that it is possible to attempt to list such contributors supports our point, namely, that retaining the link between psychoanalytic scholarship and advances in neighboring scientific disciplines is a notable characteristic in our field rather than something to be absolutely assumed about all contributors.

frequently accused of being a behaviorist, his contribution was the forging of a link between psychoanalysis and an antibehaviorist cognitive psychology.

The emergent realization of the 1960s was that a science of mind could be created to deal with aspects of human function outside the realm of behavioral explanation, aspects such as speech and language, thinking and problem solving. Cognitive psychology—the term was coined by Ulric Neisser in 1967—concerned itself with a description of mental structures that could be inferred on the basis of experimental observations. The epistemological links to a positivist behavioral science were overriding, but conceptually the new field conquered the territory forbidden to behaviorists: inner mental events. This was achieved by adopting a powerful metaphor of the mind as an information-processing mechanism. Implicitly, the brain was hardware and the mind software. The software could be studied independently, in a non-reductionist way, by broadly applying a general systems theory framework to it (von Bertalanffy 1968). The powerful metaphor separating brain and mind into hardware and software processes (Gardner 1985; Winograd and Flores 1986) permitted cognitive scientists to generate models of information processing and then seek confirmation of the accuracy of these models through experiments, computer simulations, and electrophysiological or (more recently) magnetic resonance brain studies. Computational models in cognitive science assume that cognitive processes are rule-based manipulations of symbols representing the external environment (Newell 1991). Experimental cognitive psychology establishes correspondence between performance (behavior) and the hypothetical constructs of mental mechanisms. Computer simulation studies explore the possible internal characteristics of these mechanisms and their coherence (Johnson-Laird 1983). This general information theory model was the promising bridge to science that Bowlby chose in his mission to rescue psychoanalysis, but analysts appropriately saw it as in many ways dehumanizing, clinically irrelevant, and incompatible with some fundamental psychoanalytic ideas.

Bowlby, particularly in the last volume of his trilogy (1980a), and the attachment theorists who followed him explicitly linked his motivational theory to this computer metaphor, then the dominant paradigm in cognitive science. Thus, a central concept of attachment theory is the Internal Working Model (IWM), a representation of the self in metaphorical conversation with the other (Bretherton and Munholland

1999); the tone of the conversation is determined by information-processing biases built up from expectations rooted in past experience. As Steele (2003) has pointed out, the concept is linked closely to Sandler's model of role-responsiveness (1976). The child comes to be able to use this representational system to predict the other's attitude or behavior in relation to the self in a given situation. Secure attachment is the firm expectation of distress being met by comforting. But beyond this, because secure attachment facilitates the emergence of psychic structures linked to emotion, the entire representational system is likely to be more stable and coherent with a history of generally secure attachment experiences. Attachment theorists, as they came to focus more on manifestations of the attachment system in older children and adults, sought to measure attachment as manifested in drawings (Main and Cassidy 1988) and narratives (Main 2000), rather than in proximity-seeking behavior. This was heralded as the "move of attachment theory to the level of representations" (Main, Kaplan, and Cassidy 1985). Current research work on the IWM as a representational structure has to a large extent been driven by the emergence of the Adult Attachment Interview technique (Cassidy and Shaver 1999; George, Kaplan, and Main 1985; Main, Kaplan, and Cassidy 1985). The AAI elicits representations of self and attachment figures, as well as implicit strategies for regulating emotional arousal. Thus, a schema-oriented general systems model of the internal world—most consistent with the information processing metaphor—remains at the core of the attachment theory model.

### **EMERGING CRITICISMS OF THE COMPUTER ANALOGY**

Major shortcomings of the computer analogy approach to studying subjectivity are well recognized in cognitive psychology but less so among psychoanalysts and attachment theorists. This may have a bearing on the wariness with which attachment theory is still regarded by psychoanalysts. First, as Bruner (1990) pointed out, the initial concern of cognitive psychologists with meaning was obscured by an ever increasing focus on the details of a formalist and functionalist model of mind. In the cognitive science computer metaphor, meaning is introduced by the programmer, but in human cognition it is the hardware underlying sensations, actions, and feelings that generates meaning. Second, models of information processing link various hypothetical processes (modules)

with arrows that in reality are heuristic devices, and we do not know whether it makes sense to model the functioning of mind in terms of distinct and divisible systems. Third, consciousness—and, in particular, emotionally invested cognitions—turned out to be quite difficult to explore experimentally. Its study generated an empirical database that sometimes appeared to lack relevance, generalizability, and face validity. Fourth, the predominant computer model, which created an artificial explanatory gap between mind as a process and brain as a mechanism, unsurprisingly fitted poorly with emerging knowledge about how the brain works. Fifth, traditional cognitive science fails to explain how we progress developmentally from having a theory of another's mind to experiencing another's intention in a way that generates a reaction to it; this has been called the mind-mind problem (Jackendoff 1987).

The model of mind assumed by attachment theorists is consistent with the important discoveries of the first generation of cognitive psychology, but this approach has been supplanted by a number of recent formulations collectively called “embodied cognition” or “enactive mind.” Features of this new approach include (1) the increasing use of introspection as a research method; (2) a keen interest in the understanding of emotion as organizer as well as motivator of behavior; (3) rapidly advancing brain imaging technology that has made cognitive neuropsychology into a brain as well as a mental science and led to increasingly functional cognitive accounts; and (4) a move away from reified laboratory studies toward an interest in ecological approaches to cognition. The focus has shifted from what are in effect disembodied abstractions (e.g., algorithms in a digital computer) to embodied cognition in which the meanings of things in the environment are formed from experiences of acting on them. These changes in cognitive science are of course all in the direction of increasing its relevance to psychoanalytic theoreticians and clinicians and imply changes for attachment theory. If these developments are followed up, if attachment theory changes along the path dictated by changing cognitive science, a conceptual integration of attachment theory into a psychoanalytic frame of reference becomes more likely.

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### **EMBODIMENT IN PSYCHOANALYSIS**

The increased possibility of such an integration is due to the fact that the idea of embodied cognition is hardly new to psychoanalysis and is

arguably one of its fundamental assumptions. The whole idea of the mind comprehensively expressing itself exclusively through bodily referents was there in Freud's aphorism "The ego . . . is first and foremost a body-ego" (1923, pp. 26–27).

In the classic paper "The Nature and Function of Phantasy," Susan Isaacs (1943) writes: "The first mental processes, the psychic representatives of bodily impulses and feelings, i.e. of libidinal and destructive instincts, are to be regarded as the earliest beginning of phantasies. In the mental development of the infant, however, phantasy soon becomes also a means of defence against anxieties, a means of inhibiting and controlling instinctual urges and an expression of reparative wishes as well. . . . All impulses, all feelings, all modes of defence are experienced in phantasies which give them mental life and show their direction and purpose" (p. 82). Thus Isaacs, anticipating recent developments in cognitive science, suggests that symbolic thought emerges out of a multilayered sensory emotional and enacted experience with the primary object. Bodily experiences for Isaacs are determining of defenses as well as of representations of libidinal and aggressive drives. Crucially, the infant's bodily based fantasies are seen as shaping the representations, as well as being given shape by them.

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In Isaacs's view, wishes and representations are experienced as impulses toward (or memories of) bodily actions: "when the child shows his desire for his mother's breast, he experiences this desire as a specific phantasy—'I want to suck the nipple'. If desire is very intense (perhaps on account of anxiety), he is likely to feel: 'I want to eat her all up'" (p. 82). The wished impulse is felt as completed action, as fulfilling itself. Throughout this key paper, Isaacs emphasizes that mental experience (the wish) "does not stop at mere picture but carries him on to what he is, in detail, going to do with the desired object" (p. 83). In particular, Isaacs places emphasis on how introjection and projection are based on the fantasized action of moving things inside or outside the body and, by implication, it is the (fantasized but experienced) actions that give meaning to mental maneuvers. The process of symbol formation and what she calls reality thinking is inherently bound up with the unconscious fantasies associated with that which is represented, which will always be in terms of bodily action or interaction. Presciently, she notes how language use continues to reflect underlying action-oriented fantasies: "reality-thinking cannot operate without concurrent and supporting unconscious phantasies. E.g. we continue to

‘take things in’ with our ears, to ‘devour’ with our eyes, to ‘read, mark, learn and inwardly digest’ throughout life” (p. 94). Ultimately, every aspect of the functioning of the ego is seen as arising from a specific form of unconscious fantasy.

Isaacs was perhaps most explicit in her emphasis on the embodiment of cognition, but the implicit theory of cognition of most psychoanalytic writings is rooted in the notion of embodiment. Thus, Phyllis Greenacre (1960), writing about the development of her work on anxiety, noted that the erotization of the function of thinking is a possible sequel of early trauma. Ten years earlier, Willi Hoffer (1950), writing about the development of the body ego, linked the beginning of ego formation—including perceptual activity, motor control, the functioning of memory, reality testing and the synthetic function of the ego—to aspects of the bodily functions of the infant. For example, the function of memory is linked to finger sucking.

The ideas suggested in this paper represent a development of a scholarly tradition going back to these and other classical contributions to psychoanalysis. The suggestions that follow cover similar territory, but with linguistics rather than psychoanalysis as a starting point. Yet the rootedness of mental structures in early sensory and affective experience is perhaps most evident in the psychoanalytic encounter and is arguably at the heart of psychoanalytic clinical work. We would like to link this psychoanalytic tradition with an emerging new approach to the study of human cognition, with clear implications for how we conceive of attachment relationships and for the theoretical framework in which we do so.

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### THE SECOND GENERATION OF COGNITIVE SCIENCE

As noted above, there are limitations to the model of mind assumed by attachment theorists, and cognitive science has responded to these with a number of recent theoretical developments under the rubrics *embodied cognition*, *enactive mind*, or *second-generation cognitive science*.<sup>2</sup>

The second generation of cognitive science differs from the first primarily in seeking accounts that are neurologically plausible, in

<sup>2</sup>A very accessible introduction to these ideas can be found in a chapter contributed by Ami Klin and Warren Jones to a book edited by Linda Mayes, Mary Target, and Peter Fonagy to celebrate the renewal of interest in an empirically rooted developmental psychoanalysis (Klin and Jones 2007).

addition to being consistent with observed behavior (Lakoff and Johnson 1999; Varela, Thompson, and Rosch 1991). In contrast to the 1980s model of the mind as an abstract, symbol-generating system, the mind is increasingly seen by cognitive scientists as embodied (Clark 1997, 1999; Thompson and Varela 2001; Varela, Thompson, and Rosch 1991). Thus, any separation between cognition and physical manifestations at the level of brain, bodily sensations, or actions is an artifact of the cognitivists' computer metaphor, which implies that cognitive processes can be independent of the body, just as software exists more or less independent of hardware. In general, it is the link of brain and body that generates mind and consciousness. Emotion, mood, and motivation act in concert with cognition, primed by evolution to ensure the survival of the person as a whole. Meaning is acquired because cognition is embodied action (Clark 1999). "Cognition depends upon the experiences that come from having a body with various sensorimotor capacities," and "perception and action are fundamentally inseparable in lived cognition" (Varela, Thompson, and Rosch 1991, p. 173). This emphasis on "core consciousness" as the foundation of our basic sense of self, which is seen as emerging at the interface between bodily signals and signals from the outside world, brings cognitive science and psychoanalysis into close alignment (see also Damasio 2003).

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A second aspect of the embodiment approach in cognitive science is the emphasis on the sense of having an extended self. This connects a perception of self with one's environment, culture, and history. Moving from the physical experience of being in and part of a world, the template extends to incorporate the construction of an autobiography and engagement with historical cultural narratives. Psychoanalysis in its most classical formulations in Freud (see, e.g., Freud 1913) and in the work of Ferenczi (1930) and Róheim (1949) did not shrink from such conceptual leaps. The increasing recognition of the embodiment of mind faces us with real questions about the sociobiological context of highly conflicted attachment-related thoughts and feelings and how these might map onto pervasive unconscious anxieties in both adults and infants evident in the clinical situation but largely ignored by traditional attachment research. For example, the work of Hrdy (2000) helped us understand that a critical precondition of the mother's capacity to bond with her infant is the availability of social support, "alloparents." This is rooted in biology, as the physical resources required for survival of both the mother and her newborn exceed the resources that

she is physically capable of generating. Thus, one of the least comprehensible forms that human destructiveness can take, maternal infanticide, is rational and more common when family support is unavailable to the mother of the newborn. Only if she kills her infant to save herself do her genes have a chance of surviving to the next generation, through having another baby in a more supportive context. To understand phenomena like this we have to see the mother's biological self as extending to her social environment. The importance of social support acquires biological as well as unconscious meaning and significance beyond the availability of a sustaining environment. In this sense, of course, second-generation cognitive science recognizes that while the survival of the physical body motivates the emergence of mind, the physical limits of the body do not accurately define the individual's consciousness.

The mind is experienced as extending both in time and place into the social world, into culture and history. It is recognized that we cannot dissociate our social understanding from the social experiences that led to the emergence of that understanding (Hobson 2002). In the approach outlined by Hobson we see how babies, exposed to repeated social interactive experiences, develop mental representations of that individualized social world that enable them to cobble together an ever more complex social cognitive apparatus. This in turn creates the possibility for increasingly complex social experiences in an iterative process of social cognitive growth. Thought or cognition is then the mental traces left by these recursive experiences (Varela, Thompson, and Rosch 1991).

Finally, the understanding of others through what we have called the Interpersonal Interpretive Function (IIF; Fonagy 2003), which helps individuals anticipate the purposes and intentions of intimate others, turns out at root to be not an abstract cognitive capacity but rather an emotional experience linked to the perception of others through what analysts have described as identification and projective identification; in cognitive science it is referred to as simulation theory. A recent neuroimaging study illustrates the intriguing nature of this process (Singer et al. 2004). Using fMRI, researchers assessed brain activity in volunteers while they experienced painful stimulation and compared it to the activity elicited when they observed their partner receiving the same stimulus. In the experiment the participant is administered mild electric shocks while in the fMRI scanner. Predictably, this is

associated with activation at specific sites in the brain. Surprisingly, two of the six areas of the brain involved in the experience of pain to the self were also activated when a loved one was exposed to the same painful event, but not when a stranger was subjected to similar treatment. Activity in anterior insula (AI) and rostral anterior cingulate cortex (ACC) was common to the “self” and “other” conditions, suggesting that the affective component of pain alone, and not its sensory representation, provides the neural substrate for empathetic experience. Crucially, AI and ACC activation correlated with individual empathy scores. Intriguingly, the same area of the brain is activated when an individual experiences social rejection. In a study involving a social game, subjects who believed themselves to have been rejected by their fellow players manifested ACC activation to the extent that they felt rejected in the game (Eisenberger, Lieberman, and Williams 2003). Of course, feeling for people and being sensitive to their rejection are two sides of the same coin of Freud’s classical models of narcissism (Freud 1914).

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The way we experience thoughts, including attachment-related thoughts and the cognitive structures that underpin them, may be seen as linked to physical aspects of early infantile experience. Since the mind never, properly speaking, separates from the body, the very nature of thought will be influenced by characteristics of the primary object relation. The substantive shift in the embodied cognition approach is that mental representations as described in computational models of the mind may be seen as proxies for the actions that generated them and for which they stand (Lakoff and Johnson 1999; Thelen and Smith 1994; Varela, Thompson, and Rosch 1991). The origin of symbolic representation is thought to be in biologically significant actions tied to survival and adaptation. Such actions are steeped in somatosensory experiences and salience, and are perceptually guided. The symbol is a proxy for these elements of the action. Thus, implicit in the use of a symbolic representation is the history of bodily and social experience of actions related to the symbol (Fónagy 2000).

Attachment immediately takes center stage once we recognize the physical origins of thought. Human thinking is better characterized as governed not by logical rules but by the internalization of action sequences and analogies (Johnson-Laird 1983). It has been suggested that all thinking depends on nonconscious metaphors. Much of this work is based in the study of semantics and language use. Lakoff and

his colleagues (Lakoff 1987, 1997; Lakoff and Johnson 1999; Lakoff and Turner 1989) have pointed out that metaphors are not simply linguistic expressions; rather, they reflect underlying conceptual mappings. For instance, Lakoff maintains that metaphoric descriptions of close relationships (e.g., “our relationship has arrived at a dead end,” “our marriage is on the rocks,” or “we are going through a rough patch”) all derive from the single underlying conceptual metaphor that “a relationship is a journey”—movement through life with another person. Lakoff claims that these conceptual metaphors are a key part of the architecture of mental life.

Other linguists agree. According to Ivan Fónagy (2000), “Metaphors are not merely convenient economies for expressing our knowledge; rather, they *are* our knowledge and understanding of a particular phenomenon in question” (p. 680). “In their mode of operation, metaphors rely on preconceptual and magical thinking, and often show traces of myths” (p. 679). The power of metaphors, and their limitations, lie in their connection with and dependence on an underlying, basic set of embodied affective categories and inferential schemes such as the infant’s experience of warmth at the breast of the mother and the manner in which contingent interaction with her has created a sense of self-mastery and well-being (Fonagy in press; Fonagy et al. 2002).

## ATTACHMENT AND EMBODIED COGNITION

Thus, Bowlby’s internal working model mechanism may be seen as prototypical of a now discredited disembodied information-processing approach (Lindsay and Norman 1977). By repudiating the theory of instincts, attachment theory avoided dealing with how bodily sensations and experiences could become symbolic tools. The suggestion is that effective interpersonal interaction requires intuitive and over-learned reactions that are inadequately modeled by traditional cognitive psychology. Embodied cognition makes the evolutionary adaptive function of cognition the main focus of study. Bowlby’s original ideas were also guided by Darwinian principles, but his theory forged an alliance with cognitive science, with surprisingly few and increasingly weak links to evolutionary biology toward the last third of his work. Attachment theorists have been far too concerned to demonstrate the universality of three or four patterns of mother-infant attachment across cultures. The same criticism could be made of the universalistic claims

of some aspects of psychoanalytic theory. The more fundamental question is what the evolutionary purpose of attachment might be and how this purpose is achieved in different cultural contexts. This allows cultural differences to be comprehensible within a model that is still universal. It was left to Jay Belsky (1999) and others to update attachment theory with modern evolutionary biology. We now see insecure patterns of attachment as adaptations that maximize the chances of the infant's survival to reproductive maturity despite adverse child-rearing conditions. Carrying on crying when comforted may bring vital resources when individual attention is a rare commodity. Bowlby was right that it is not the hunger and nurturance that provides the evolutionary key. The drive for the process of bonding is the experience of the infant's body (his movements) as allowing him to control the caregiver's responses (Watson 2001). This is primarily a physical, sensorimotor experience. Bowlby (1969) argues that the mind is never totally free of its primordial generating forces. In this sense, attachment theory may be closer in spirit to the emerging neuroscience approach of embodied cognition than to traditional cognitive psychology. Attachment theory turns out to be more firmly embedded in the interface of bodily and environmental contexts than was the cognitive science of the 1970s. Cognitive neuroscience, psychoanalysis, and an updated attachment theory can come together in the foregrounding of feeling and the confluence of thought, bodily states, and action.

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Had Bowlby been able to seek his inspiration from the cognitive science of the late 1990s, he would probably not have viewed attachment experiences as generating an abstract system of expectations, or as separate from the body and the world. Attachment security could be seen not as an "expectation," but as a group of properties of experience (such as a feeling of emotional reassurance in the presence of a particular person) that emerge from and serve the needs of a person in a specific time, place, and social context. Expectations are disembodied abstractions (like algorithms in a digital computer). In contrast to this, attachment as an "embodied cognition" would be based on the meanings of things in the environment, meanings formed from experiences of acting on them. Expectations apply to everything, yet we know that some things in the environment are inherently more important because they can be acted upon. Attachment and the breast must be more closely connected than Bowlby assumed. The baby acts on the mother and her breast. The breast would be seen to mean for a baby an accumula-

tion of all his experiences of doing things to it and it doing things to him. In this vein, attachment experience has more to do with the basic dispositional *affect* state of security—or safety, as our mentor Joseph Sandler (1960, 1995) described it—than with the epistemic state of expectation; that affect state is the key organizer of interpersonal relationships in infancy and beyond. The intuitive and overlearned reactions required for effective relating are inadequately modeled using concepts from traditional cognitive psychology (e.g., schemata, expectations, cognitive distortions).

Thus, attachment behaviors (actions) lie at the origin of attachment representations, and these symbolic representations contain within them vestiges of sensations and predispositions that make the unconscious emergence of attachment experiences an immediate reality for most psychoanalytic patients in relation to their analyst. Engagement in an analytic process (as in any intimate relationship) is subjectively in part a physical experience that is described metaphorically as close, holding, containing, attuned, or just attached. These terms all indicate a physical sense of what it means to enter a psychologically trusting relationship. The experience of analytic intimacy would not have meaning without the backdrop of physical sensation evoked by the action language of metaphor. But the embodiment of thought has powerful implications for our understanding of every aspect of thinking in the context of attachment.

We suggest that advances in our understanding of the way affects organize the mind offer us the opportunity to create closer ties between the previously separate domains of psychoanalysis and attachment theory. We intend to illustrate this possibility with an admittedly speculative example of the application of the embodied cognition approach that highlights how the quality of attachment security might be studied through language, with the help of a focus on the body and physical action as the origin of all symbolic function. Advances in our understanding of the way metaphors might organize the mind offer us the opportunity to forge powerful links between psychoanalysis and attachment theory. Our example illustrates that if the implications of the embodiment of mind are taken into account, taking an attachment theory approach need not foreclose consideration of the centrality of unconscious mental experience.

## THE IMPLICATIONS OF EMBODIMENT FOR AN ACTION-ORIENTED THEORY OF COMMUNICATION AND THINKING

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Attachment research, in its alliance with an abstract, epistemically oriented cognitive science, underrated bodily experience and now needs to return more systematically to physical experiences of attachment, or at least the metaphoric twilight zone between the two, which psychoanalysis has long inhabited. This is not an argument for a neo-Reichian body-oriented psychotherapeutic perspective. Rather, we suggest that the way we experience cognitions (expectations, beliefs about others, etc.), including attachment-related cognitions and the cognitive structures that underpin them, is linked to physical aspects of early infantile experience. Perhaps more profoundly, since the mind never, properly speaking, separates from the body, the very nature of thought, the very nature of adult symbolic processes, will be influenced by characteristics of the primary object relation. This is completely compatible with the descriptions of the relationship between fantasy and symbolization offered by Isaacs and Greenacre and offers a layer of linguistic speculation to the developmental suggestions described in the psychoanalytic literature.

### ***Dual Coding of Language: Phonation***

Our starting point is with the source of Lakoff's conceptual mappings or metaphors. Where do Lakoff's conceptual metaphors come from? A helpful distinction drawn by Ivan Fónagy (1980, 1983) is based on an hypothesized duality of language as a coding system. In agreement with the structuralist linguistics of Ferdinand de Saussure, Fónagy accepts that the primary coding system in language arbitrarily connects signifiers (the sound of words) with the signified (the concept designated). Their substance completely vanished: "it is impossible that the sound, as a material element, belongs to language," declared de Saussure (1916, p. 164). Language ("langue" in Saussurean terms, or Grammar in Chomsky's nomenclature (1966), is the system which, following arbitrary conventions, creates and places into sequence expressively neutral "non-marked" speech sounds. So if it is all based on convention and arbitrary rules, is there room for the influence of affect and physical sensation that embodied cognition implies?

Well, according to Fónagy there is a second coding system in language that communicates affective content and gives depth to the

experience of language. The two levels are easy to illustrate. The Russian linguist Stern (see Vygotsky 1934, pp. 25–32) distinguished between the conventional (dictionary) meaning of a word and the far more personal or individual *sense* of words. Dictionary meaning is arbitrary, regulated by grammar, and reflects little except the history of communications within a culture. By contrast, the accumulation of individual experience is reflected in the *sense* of a word—experience lived during the course of its acquisition and initial use. The sense cannot be codified into a dictionary definition and represents the accumulation of physical (emotional, bodily) experiences in association with a specific idea or word.

A simple example (borrowed from Klin and Jones in press) will illustrate the distinction. The noun *mother* is adequately defined as “a woman who conceives, gives birth to, or raises and nurtures a child and holds a position of authority or responsibility in relation to him or her.” By contrast, the sense of the word depends entirely on the person’s actual and fantasied, probably mainly physical, experiences with a mother or motherlike figure, a combination of affects and sensations parts of which may be conscious while others remain outside awareness. Regardless of whether the sense of a concept is conscious, it is likely to be more influential in determining action in relation to “mother” than the dictionary meaning of the word. Klin and Jones contrast the computer semantics represented by the dictionary definition with the human semantics that map a person’s cumulative experience in terms of a unique set of sensations, feelings, and wishes linked to events involving the concept concerned. It is sense, as opposed to meaning, that is embodied and encoded through experiences of the physical body.

In line with the embodiment perspective of cognitive science, Fónagy (2000) claimed that many conceptual metaphors may be understood in terms of this second, embodied, physical-experience-based coding system built into language by its evolutionary history. This coding system perhaps reaches back to the origin of human language as gesture. This idea echoes George Herbert Mead’s phylogenetic propositions (1934) concerning the emergence of symbolic systems from gestures.<sup>3</sup> The communicative gesture is condensed action and is only partly performed; the intended action is hinted at. The action is

<sup>3</sup>Compare Susan Isaacs’s description (1943) of how in neurotic symptoms “ill people revert to a primitive pre-verbal language, and make use of sensations, postures, gestures and visceral processes to express emotions and unconscious wishes or beliefs, i.e. phantasies” (p. 84).

represented by communicative gesture in a more condensed form, according to the *pars pro toto* principle, by parts of the body, both conspicuous and mobile, such as the arms and hands (e.g., waving away), or by head movements (e.g., a rapid shake of the head to get rid of a thought) and facial mimicry (e.g., grimaces). The origin of symbolization is the moment when the gesture maker learned to anticipate the response of the other to his or her gesture (if he should wave his hand, this will mean to the other “go away”).

But hands and head were needed for other things. Fónagy speculates that at a certain point of evolution (probably more recently than previously thought) mental states came to be expressed by means of *vocal mimetics*—laryngeal and oral—and their audible products: tonal movements and sound-images. Some clear traces of this remain “fossilized” in language development. Across cultures, the preverbal child pointing to an object beyond his reach will frequently accompany the gesture with the vocalization “iii.” In making this sound he thrusts his tongue forward, as if using it to point and reach (Raffler-Engel 1972). In this way symbolic bodily gestures became vocal (e.g., inflected sounds, speechlike vocalizations), possibly to leave the hands and other parts of the body free for work, and gradually the symbolic communication system of human language evolved.

But the phylogenetic traces of the vocalization of bodily gestures can still be found in language. The distant preverbal past is still present in live speech. To convey emotional or attitudinal meaning, the second, firmly embodied coding system modifies or “distorts” the ideal (neutral) speech sounds generated by Grammar. The nature of the phonetic distortion will be dictated by the gestural content of the articulatory movement. Thus, while sequences of phonemes are generated according to essentially arbitrary rules, expressivity is a modification of the product, following iconic (*pars pro toto*) principles of similarity between the oral gesture and its bodily counterpart. Laryngeal and oral mimicry is an internal and condensed form of bodily gesture. Forwarding of the tongue in joy represents a symbolic approach, a friendly attitude (a sort of “coming to meet”). In speech that expresses joy, sounds will be distorted by a slightly exaggerated forwarding of the tongue. Pronouncing the word “Welcome!” with the tongue toward the front or the back of the mouth will express quite different degrees of sincerity. The receiver of the communication, outside of awareness, “decodes” the oral gesture of approach and interprets

the mood of the communicator to be friendly or less genuinely pleased at the encounter.

Pronunciation that evokes a feeling is distorted relative to standard grammatical pronunciation in the direction of depicting an expressive gesture (also called *iconicity*). Preconsciously, the sound heard evokes the physical gesture entailed in the creation of the sound. Oral gesturing plays a central role in the verbal expression of emotions and emotive attitudes. In tender speech, articulation is smooth, suggestive of a stroking movement; the transitions are more gradual, hinting at an even, gentle touch. The tongue is moved closer to the world outside in the expression of positive feelings, such as tenderness and joy, and withdrawn away from the object toward the back of the oral cavity in the expression of negative attitudes such as anger, hatred, or contempt. Oral mimicry is particularly striking in the case of the rolled apical /r/ pronounced in anger. The tongue, strongly erect, resists the pressure of outflowing air; deflected from its initial position it resumes the erect state four or five times as the phoneme is pronounced in anger, whereas in neutral speech it vibrates only twice. In gentle, loving speech the speech organs relax, in speech reflecting tension they tense, in anxious speech they tremble, and in angry speech the tongue moves forward in spasmodic movements that look like punching. Thus, phonation is embodied, the sound created by physical action that is unconsciously decoded as a gesture.

Similarly, intonation may have a shape that reminds the listener of a gesture. But we shall see that gestural language exists at all levels of language: phonetic, syntactic, and semantic rule transgressions are evocative because they are not products of a deficient output but are governed by a universal iconic apparatus of gestures or actions, of a primordial grammar that enables the speaker to express preconscious and unconscious mental contents. Fónagy maintains that this is a primary code for nonconscious communication and carries information that could not be conveyed by means of the conventional grammar of any language. Secondary messages generated by the primordial grammar are integrated into the primary grammatical message. The two messages, whose structural and semantic divergence represents a chronological distance of perhaps a hundred thousand years, constitute a dialectical unity that characterizes all natural languages.

Evidence for this elegant model comes from the universality of the metaphoric experience of sounds. How do we explain the fact that

adults and children, including the deaf, unanimously conceive the /r/ as a male and the /l/ as a female sound? Or why are sounds that have little or nothing in common, such as the vowel /i/, the liquid /l/ and the bilabial nasal /m/, are consistently associated with sweet taste? A partial answer to the first question may be that the rolled apical /r/ has an erectile character; the /l/ may be its polar opposite. The case of the sweet /i/, /l/, and /m/ may require a different embodied account: the sensation of lip closure linked with a simultaneous lowering of the uvula in the creation of an /m/, as well as the palatal glides /l/ and /j/, may activate infantile “procedural” memories (Clyman 1991) of physical experiences at the breast repressed or inadequately encoded and relegated to the realm of the unconscious. As Daniel Stern (1994) has pointed out, the total multimodal sensual event of feeding is probably experienced within a single sensory envelope. As a consequence, the original stimulus (lip contact) encapsulates within it the memory trace of sweet taste: the taste sensation associated with feeding. We envisage a cross-modal transfer, analogous to synesthesia, from the auditory/kinesthetic-interoceptive modality of sound creation to the visual experience of gross body movements, the modality of gestures (pretend actions).

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### **Clinical Illustration**

Sam, a boy of seven, came to analysis because he was underperforming and being bullied at school and because he could not separate from his mother, with whom he still shared a bed.<sup>4</sup> His mother suffered from severe and chronic depression but was devoted to Sam. At times, however, she found his dependent behavior intolerable and exposed him to the full force of her rage. Paradoxically, Sam seemed terrified lest his self-assertion be mistaken for anger and thus trigger his mother’s fury. He sought refuge in an infantile role and, in his early sessions, spoke with a baby voice and a pronounced lisp. He also frequently dribbled, expressed a strong wish to be a six-month-old baby girl, and depicted himself as a precariously positioned “rock-a-bye-baby.” As his fears of being abandoned were discussed, his babyishness, including his lisp, became less pronounced.

His lisp, however, returned dramatically one day, in a session he started by announcing, “We had a bad *dweam*.” In a fraught session, which included his running out of the consulting room when the possi-

<sup>4</sup>For a full clinical report on this case, see Fonagy, Moran, et al. (1993). The case was Peter Fonagy’s and was supervised by Anne-Marie Sandler.

bility of his anger with the analyst was raised, it emerged that in his dream he strangled and eventually killed a monkey. Empathizing with his wish to be a good boy who never got angry and who would rather strangle the part of himself that may be seen as mischievous, the analyst was able to raise with Sam his fear of death, of being murdered, and his wish to kill himself. As these topics were raised, his lisp completely disappeared. Eventually he revealed that his mother often called him “my little monkey.”

It is important to comment that throughout the session the analyst had no conscious awareness of Sam’s pronunciation or changes in it. Yet he sensed Sam’s retreat from his assertive, masculine self under the terror of potential attack both in the transference and in his primary object relationship. Only after the session, in the course of supervision, did he become aware of the distortion of Sam’s articulation, which involved the lowering of muscle tension and deliberate limpness of Sam’s speech musculature. What can this analysis teach the clinician? As we all do in relating to others, analysts sense (rather than know) their patient’s mood and judge the emotional tone (the atmosphere) of the session. The judgment of the analyst relies almost exclusively on the speech of the patient, as the patient’s facial expression remains by and large outside the analyst’s field of vision.

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#### ***Dual Coding of Language: Action at a Semantic Level***

Unconscious sensitivity to oral mimicry (the gestures of the tongue and larynx) is just one example of the dual coding of language based on physical gesture. Fónagy demonstrated that at all levels of language, beyond the phonemic and the prosodic, including the semantic and syntactic, we can detect a form of visual thinking that could be a residue of gestural language. Fónagy and Lakoff, both linguists, claim that metaphors can express preconscious content through a visual language of gesture. Thus, “holding on to an idea” can suggest an image of the reflexive grip of the baby holding on to his mother, but we are not conscious of any such connection. Fónagy also emphasizes the inverse of this process, that by evoking through metaphor the mental action of, say, holding on to an idea, we might at a dynamically unconscious level reexperience some of the embodied safety of early secure infant-mother bonding. This then gives a metaphorical meaning to cognitive acts, perceived unconsciously at the level of the body. Fónagy claims that all abstract cognitive operations have a sense in which they also

unconsciously express physical action. Often it is the unconscious signification and not the conscious logical justification of the mental operation that provides the key motivation. What makes the act of holding on to an idea dynamically unconscious in Fónagy's view is that the person who wishes not to let go of a belief is defended against awareness of the extent to which this gives expression to a fear of losing the object. Fónagy does not suggest that this is invariably the case, either in the use of the metaphor or in the act of cognition (persisting in an idea) that expresses the metaphor. Nevertheless, he suggests that the existence of this gestural language coding system permits the expression of unconscious repudiated intent through the motivated use not just of language but of forms of thinking as well, via a nonconscious momentary reexperience of an infantile bodily state.

The claim of Lakoff and Fónagy, based on the embodiment notion seen both in cognitive neuroscience and in psychoanalysis, is that all mental acts are metaphorical and through metaphor have physical as well as abstract meanings. The action of the thought carries metaphoric unconscious meaning. When we "grasp an idea" we may experience a feeling of well-being or "goodness" because unconsciously we reunite with the primary object. When we "grope for a meaning" at the level of gesture we find empty space where a warm body should be, and the affect state generated is one of vacuum or emptiness. When we "seize on an idea" we in a real sense jump on top of it and thus feel excited and triumphant, like a toddler claiming omnipotent control. The mental act of "resistance" may not simply be counteracthexis or repression; rather, it may be an expressive gesture of pushing away something unwanted. As analysts we are aware of this when we feel hurt in the countertransference by our patients' "rejection" of our ideas. In fact all psychological mechanisms of defense can be seen as gestures, expressing meaning beyond the goal they aim at achieving. Denial entailed in a phrase such as "I can't see what you mean" expresses in the gestural language of metaphor a deliberate shutting of one's eyes to an aspect of physical reality. When John Steiner (1993) writes about a refuge in the mind that describes a particular type of pathological organization, he describes the mental act of a group of patients who huddle in uncomfortable mental positions to attain a sense of security, however illusory.

While all this suggests common ground between psychoanalysis and contemporary cognitive science regarding the influence of infantile

experience on cognition, we need to be mindful also of differences and incompatibilities. Because gestural language is procedural and based on implicit cognitions, it is invariably nonconscious. What is descriptively unconscious can become dynamically so when it is charged with the task of conveying ideas that are consciously unacceptable in a specific context. This nonconscious system rooted in infantile sensory experience has great potential to be used in this way. It is not that the system is there solely to re-present infantile experience; the gestural language can also communicate the affective tone of current experience. At certain times and in certain contexts, the meanings expressed by such means can represent a counterpoint to consciously intended meanings and thus be put to use by unconscious communication.

The suggestion of an unconscious gestural language existing embedded within a language system defined by social convention is inherently limited from a psychoanalytic standpoint in that it lacks the dynamic quality that consideration of conflict, wish, and fantasy offer. Two consequences follow. First, the model as outlined provides a representational process that is highly likely to have a role in communicating unconscious fantasy, because it is an intrinsically nonconscious process that becomes dynamic only when communications at the gestural level are in conflict with communications at the level of conscious content. In other words, the model has the potential of being relevant to psychoanalysis but is not a fully psychoanalytic model. Second, the model as presented does not explain how unconscious processes—e.g., infantile fantasies, childhood unconscious wishes, defenses—affect the emergence of this example of an embodied cognitive process. Thus, one may speculate about the possibility of more intimate connections to themes of central psychoanalytic concern, such as specific types of sensory experience (e.g., libidinal investment in erogenous zones), but these are neither explicit nor obvious. For example, it is highly likely that libidinal investments in body parts will modify the ways that sensorimotor experience is encoded (say, related to the mouth of an infant), but it is by no means clear how this might affect communication mediated by labial gestures, although there is a considerable amount of speculation about this (Fónagy 2000).

## CLINICAL IMPLICATIONS

### *The Embodiment of Attachment Styles in Language*

Of specific concern for attachment theorists are the mechanisms for creating continuity between infancy and adulthood. Longitudinal research in this area has yielded results that are staggering. Secure attachment in infancy is powerfully associated with adult attachment narratives, as accurate prediction across seventeen years of development has shown (Hamilton 2000; Waters et al. 2000; Weinfield, Sroufe, and Egeland 2000). Notwithstanding this remarkable continuity, particularly in the presence of negative life events, we should reconsider Bowlby's view that infant-mother and adult-adult relationships might be similar in quality because both are secure base relationships, and that mental representations of secure base experience can in large measure replace psychodynamic structures as mechanisms of developmental continuity and change. In light of the embodiment hypothesis, one could argue that patterns of attachment do not simply manifest in high-level abstract structures such as coherence of thought. Perhaps more markedly, experience in infancy manifests itself in the way we perform metaphorical, virtual actions on our thoughts and beliefs, or on mental life in general. Because abstract thought evolves from a bodily state, it should not surprise us that cognition inevitably retains a link to the physical (bodily) acts from which it originates at the level of unconscious meaning and metaphor.

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Let us take adult attachment narratives as an example. Attachment in adulthood consists of characteristic patterns of cognitions (Hesse and Main 1999; van IJzendoorn 1995). These do indeed, as has been suggested, originate in infancy. The current view links attachment insecurity to violations of Grice's conversational maxims (1975), which was Mary Main's brilliant and powerful discovery. The connection between "logic and conversation" in Grice and the experience of attuned care in infancy cannot be direct. While the transgenerational consistency of attachment is well demonstrated (Fonagy, Steele, et al. 1993), the reason why characteristics of the mother's narration and the infant's pattern of attachment should correlate is not well understood (van IJzendoorn 1995). While highly imaginative and intriguing work is under way specifying maternal behavior that disrupts the normal emergence of attachment behavior in the infant (see, e.g., Lyons-Ruth 2003), how infantile attachment patterns make their way into characteristic linguistic structures is more mysterious.

Based on the new emphasis on embodied cognition and the metaphoric underpinning of language, we suggest that the narrative structures that are characteristic of different patterns of insecure attachment (Main 2000) may reflect, at the level of metaphoric gestures, prototypical experiences of infancy, both secure and insecure. They are characteristic of infancy, however, in a visual metaphoric sense. An individual whose history of attachment is one of avoidance of the caregiver in a strange situation upon reunion is likely to become dismissive of attachment relationships in adulthood, as evidenced by the apparent carelessness with which he or she describes them. Yet there is far more to this than association by content, as often similarly structured dismissing narratives do not carry dismissive content. The constant is a barrenness of the narrative; an emptiness in relation to the mental world of the people who populate the individual's thoughts cannot fail to strike the rater. Phrases such as "I don't know," "I can't remember," "It was just normal," tend to crop up in response to questioning about early childhood experience. It is the attitude toward mental life, the derogation of thinking and feeling itself, that is most striking about dismissing adult attachment interviews. It is the embodied gestures expressed with thought that reveal insecurity. Inability to recall might characterize avoidant-dismissing attachment narratives not simply because of the psychic pain of remembering or the lack of value placed on past relationships. At the metaphoric level there is a physical gesture of reaching out and finding nothing substantive or particular, the experience of not being able to retrieve an idea—not being able to get hold of the feeling or thought from the past. The gesture of the dismissive thought is one of not needing and turning away—the very physical gesture of the avoidant infant upon reunion with the caregiver. The overvaluing of one's unsubstantiated thoughts and opinions is a hallmark of the narcissistic structure of idealization in one type of dismissive transcript (Ds1). Failing to resolve contradictions in a narrative (talking about one's mother as caring and then giving an example of obvious neglect) is a gesture of unconsciously preventing the connection of two things that belong together.

Similarly, the resistant pattern of attachment of infancy, characterized by an exaggeration of distress to ensure care, is linked in the Main and Goldwyn coding system (1991) to a preoccupied state of mind in relation to attachment usually involving anger or passivity. The common markers include unfinished, run-on, or entangled sentences. The

gesture that is expressed is one of needing to hold on, yet not being satisfied. Losing track of the interview question, rambling on to irrelevant topics, is a mental gesture that expresses a feeling of being lost or perhaps the very act of losing. Loss is also expressed at the gestural language level by both listener and speaker feeling lost in the narrative: "Sorry, I lost my thread. What was the question again?" Anger, aimed at involving the interviewer, is the hallmark of a subcategory of such interviews. At the level of mental gesture, the narrative hints at both hitting and pulling, not letting go, weaving a tangled web of complaint around the attachment figure, struggling and pushing away yet preventing the possibility of separation.

Secure narratives have their own cognitive-gestural language. Grice's conversational maxims are all about ensuring that speaker and listener each know where they are in relation to the other, with no risk that they will disappear from each other's sight. Expectations are fulfilled. There is a satisfying sense of completion or roundedness to narrative at all its levels. Sentences are complete, they are simple, and they *hold* the listener's interest. The gesture is indeed one of secure holding, of knowing what is expected, and of the expected's happening and allowing itself to become known. At the same time, there is freedom for listeners to form their own associations and their own point of view, equivalent to the way in which an infant in a secure relationship can be seen to move freely between "refueling" with the parent and exploring the world, as Mahler (1968) so beautifully described.

There is no claim of innovation here. The aim of making these speculative points is not to create a rival coding scheme. In fact, the coding scheme seems to reflect an unconscious awareness on the part of its creators about how infantile attachment experience is reflected in adult narratives through the metaphoric structure of language. At that level, the experiences of infancy are depicted by the way we manipulate our minds to create mental gestures that recall the formative moments of the earliest years.

### ***The Language of Psychoanalysis***

Of course as psychoanalysts we have been using this language (sometimes with some embarrassment) since the beginning. Metaphorical aspects of the architecture of mental life are not new to us. Yet perhaps we do not often consciously consider the instinctual implications of these mental gestures. An unconscious aspect of all therapeutic inter-

change is how we manipulate our patients' thoughts and ideas. The act of linking together ideas in the course of the most superficial analytic work, at an unconscious level, may be experienced as joining parts of the self together. Asking patients to explore ideas, to find alternative meanings, and to look behind and elaborate the immediate association are mental actions with meaning at the level of gesture—for example, there is the implication of discarding, of throwing away as well as finding, in the action of finding hidden meaning. Irrespective of the content of our interpretation, the formal logical structure of our comments on our patients' thinking connects to deeply buried meanings pertaining to the bodily experiences of the first years of life, antedating language by months if not years. This happens in ways we neither understand nor can follow, no matter how hard we might try. Many have wondered at various times in the history of psychoanalysis how a purely language-based therapeutic process can possibly reach experiences that are so profoundly preverbal as not to be represented in autobiographical memory at all (Fónagy 1999). Our speculation here is that through the gestural language of metaphoric cognition we may activate deeply buried experiences, not necessarily closely tied to the material we appear to be discussing at the level of content.

How can this happen? Maybe this occurs not just through the content of our words. Fónagy elaborates his model far beyond the gestural language of metaphor. Prosodic expressions when looked at as melodic movements turn out also to be expressive because of the bodily states and movements of holding, pushing away, or even hitting that they invoke. "The content carried by prosodic features is non-conceptual. It reflects emotions and attitudes of varying complexity, the 'primal kernel' that is inaccessible to language" (Fónagy 2000, pp. 136–137). Even more deeply unconscious are syntactic structures that convey meaning by allusion to gesture and body state. The poetic device of enjambment (run-on lines) may be pressed into the service of many different meanings. A quantitative analysis of the occurrence of run-on lines in the work of a number of poets demonstrates how content-specific these structures are. It may serve to establish connections between mental objects. In the work of a specific poet (Rilke) the emergence of this structure is linked to a real lost love. In the conclusion of Andrew Marvell's "To His Coy Mistress," the last sentence runs across two lines: "Thus, though we cannot make our sun / Stand still, yet we will make him run." Here, because of the line break, at the prosodic

level the sun has been arrested, accomplishing a covert wishful denial of what must be reluctantly acknowledged at the conscious level (i.e., that time is fleeting and love will not last forever).

**Revisiting Psychoanalysis and Attachment**

We are suggesting that psychoanalysis and attachment theory can come together in the domain of embodied thought. A clinical and theoretical appreciation of embodied thinking goes back to the very origins of the former. Within psychoanalysis the awareness of embodied thinking has previously been focused on bodily actions connected with oral actions (sucking, biting, digesting, excreting); sexual actions (penetration, castration); aggressive actions (attacking, hitting, emptying, and so on). They are thus related to the instinctual behavior linked to the drives previously of greatest interest to psychoanalysts. Attachment theory of infancy can be helpful in decoding the unconscious meaning of some of the other formative experiences, experiences of intimacy and security, depicted in the gestural language discernible in the structures of thought. We are attached to ideas because by becoming attached to them we can reexperience the bodily qualities of early bonding. Embodied cognition allows for the expression of both libidinal feelings and attachment feelings, as well as a range of other unconscious concerns (relational concerns, self experience, and so on), through gesture, language, adherence to a belief, and so on, which gives expression to affect that is currently felt. This cognition and expression hints at the continuity of developmental structures at the unconscious level, but this continuity occurs not through linear causation but through evocative echoing of a current feeling state.

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Our attitudes to scientific theories may be as much unconscious expressions of infantile patterns, and as deeply colored by the embodiment of mind, as commonplace phrases or “gestures of thought” in the Adult Attachment Interview. Abstract thought and logic take us only so far in understanding the history of our science. Figurative and analogical structures of thought are helpful in understanding why we sometimes just cannot let go. If the attachment system is activated and we feel insecure at the bodily, core level, we have particular difficulties in allowing our minds to explore freely. We hold on ever more rigidly to beliefs and knowledge that we might in a different frame of mind be able to see as flawed, partial, or in need of revision.

## CONCLUSIONS

In this paper we have aimed to do more than offer a review of the relationship between psychoanalytic ideas and attachment theory. The key points we covered can be summarized as follows: (1) There was a fundamental concern on the part of psychoanalysts that Bowlby too rapidly moved away from the body and the unconscious mind, toward a narrowly defined relational construct, that of attachment. (2) In one sense they were right; following the *weltanschauung* of emerging cognitive science, Bowlby moved too hastily toward the abstract structures of mind without body, “software” independent of “hardware,” and thus presented attachment theory as too far separated from its roots in the emotional core of the human infant in states of distress. (3) Changes in cognitive science call for at least a partial review of some attachment ideas; in particular, the brain is now viewed as more continuous with the mind, which is seen as ever reflecting its bodily origin. We are increasingly aware that the brain is the organ of the mind and that disorders of the mind are also disorders of the brain. We see that attachment relationships have a unique brain representation, and that empathy or sensitivity depend on the effective functioning of specific brain centers. Considerable evidence is accumulating that disorders of the capacity to form relationships, in infants or adults, can be characterized meaningfully at the level of brain activation. (4) Nonetheless, showing that relationships can be specified at the level of brain activation in no sense explains the phenomena we are concerned with: the subjective experience of relationships. Yet the abandonment of a cognitive science that separated body and mind, in favor of one in which mind is seen as embodied, brings into relief aspects of subjectivity that traditional cognitivists and attachment theorists have missed but to which generations of psychoanalysts have been sensitive: primary process thought or metaphorical/concrete thinking. (5) The nature of thought and its intimate links with metaphor serve as an example of this physical instantiation. Metaphor is arguably based on a physical logic, the creation of new meaning through pointing to the physical symbol of gesture. (6) In addition to being understandable in terms of an underlying, nonconscious structure, metaphoric thought expresses dynamically unconscious ideas. (7) Attention to these unconscious meanings can shed light on the nature of relationships that are enacted through the use of language, not just at the level of linguistic metaphor, but also

through the metaphoric use of syntax, prosody, and phonation. (8) We wished to draw attention to the way style in speech, thought, and relationships may be determined by an underlying, unifying coding system of embodied images or procedural memories of experiences rooted in bodily experience. We have suggested that both styles of speech and cognitive structures themselves may be seen as examples of embodiment. This may be a fruitful area for the new generation of attachment researchers and clinical psychoanalysts to explore more fully in the context of studies of attachment-related narratives or language within the consulting room. (9) In agreement with classical psychoanalytic contributors, we have speculated that cognitive structures themselves may be seen as examples of embodiment. Mental manipulations or movements of thought can be metaphoric or unconsciously expressive of infantile experience, just like any product of mind. (10) A speculative application of these ideas is the consideration of the nature of scientific controversy in general and perhaps even the controversy that arose between attachment theory and psychoanalysis.

446 Attachment theory under the influence of neuroscience will perhaps now return to the body that psychoanalysis has never left. The two domains may move increasingly close to each other, and perhaps in a few years attachment theory will return to the fold of psychoanalytic ideas as psychoanalysis reestablishes its position as the premier neuroscience of subjectivity. But that is for the future. Our modest plea in this paper is that both as scientists and as clinicians we should try to remain aware of the unconscious significance we attach to the way we think, including the way we think about new ideas—including of course the ideas presented here.

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