

# The Developing Mind

How Relationships and the Brain  
Interact to Shape Who We Are

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## C H A P T E R 3

# Attachment

### THE ATTACHMENT SYSTEM

"Attachment" is an inborn system in the brain that evolves in ways that influence and organize motivational, emotional, and memory processes with respect to significant caregiving figures. The attachment system motivates an infant to seek proximity to parents (and other primary caregivers) and to establish communication with them. At the most basic evolutionary level, this behavioral system improves the chances of the infant's survival. At the level of the mind, attachment establishes an interpersonal relationship that helps the immature brain use the mature functions of the parent's brain to organize its own processes. The emotional transactions of secure attachment involve a parent's emotionally sensitive responses to a child's signals, which can serve to amplify the child's positive emotional states and to modulate negative states. In particular, the aid parents can give in reducing uncomfortable emotions, such as fear, anxiety, or sadness, enables children to be soothed and gives them a haven of safety when they are upset. Repeated experiences become encoded in implicit memory as expectations and then as mental models or schemata of attachment, which serve to help the child feel an internal sense of what John Bowlby called a "secure base" in the world.

Studies of attachment have revealed that the patterning or organization of attachment relationships during infancy is associated with characteristic processes of emotional regulation, social relatedness, access to autobiographical memory, and the development of self-reflection and narrative. In 1995, Mary Main summarized the following principles:

1. The earliest attachments are usually formed by the age of seven months.
2. Nearly all infants become attached.
3. Attachments are formed to only a few persons.
4. These "selective attachments" appear to be derived from social interactions with the attachment figures.
5. They lead to specific organizational changes in an infant's behavior and brain function.

Qualitative terms describing the nature of the attachment are utilized: Attachments are seen as "secure" or "insecure," with a variety of descriptions within these two broad categories.

The attachment system serves multiple functions. For an infant, activation of the attachment system involves the seeking of proximity. Proximity seeking allows an infant to be protected from harm, starvation, unfavorable temperature changes, disasters, attacks from others, and separation from the group. For these reasons, the attachment system is highly responsive to indications of danger. The internal experience of an activated attachment system is thus often associated with the sensation of anxiety or fear and can be initiated by frightening experiences of various kinds, as well as by a threat of separation from the attachment figure.

Attachment relationships thus serve a vital function in providing the infant with protection from dangers of many kinds. These relationships are crucial in organizing not only ongoing experience, but the neuronal growth of the developing brain. In other words, these salient emotional relationships have a direct affect on the development of the domains of mental functioning that serve as our conceptual anchor points: memory, narrative, emotion, representations, and states of mind. In this way, attachment relationships may serve to create the central foundation from which the mind develops. Insecure attachment may serve as a significant risk factor in the development of psychopathology.<sup>10</sup> Secure attachment, in contrast, appears to confer a form of emotional resilience."

Although attachment behavior is seen primarily in children, adults continue to manifest attachment throughout the lifespan.<sup>12</sup> Especially under times of stress, an adult will monitor the whereabouts of a few selected "attachment figures" and seek them out as sources of comfort, advice, and strength. For adults, such attachment figures may be mentors, close friends, or romantic partners.

## HUMAN COMMUNICATION AND STATES OF MIND

A thirty-year-old woman sits quietly in the chair in her therapist's office. She looks puzzled as her therapist repeats his question: "How was your visit with your mother last weekend?" She bites her lip, looks away, and gazes down toward the floor, saying nothing. She reaches up and covers her eyes with her arm. Her breathing becomes more rapid and shallow. She taps her foot nervously on the floor. Silence. The therapist's heart begins to accelerate. He finds himself looking down at the floor and notices his own foot tapping. The therapist's own state of mind is revealed in nonverbal signals: facial expression, eye gaze, bodily motion, tone of voice, and the timing of verbal signals (whether fast, slow, in response to other comments, or the like). His voice is low in volume, and he slowly says, "Oh . . . it was a hard weekend." His head feels as if it is about to burst. "HORRIBLE!" the woman suddenly exclaims. The pressure in the therapist's head dissipates with a sense of relief. The muscles in his own face begin to relax from their drawn, tightened state as hers also relax. The patient's body becomes less tense. "Horrible . . . , she moans, now with tears in her eyes.

As this therapist and patient illustrate, engaging in direct communication is more than just understanding or even perceiving the signals—both verbal and nonverbal—sent between two people. For "full" emotional communication, one person needs to allow his state of mind to be influenced by that of the other.<sup>13</sup> In this example, the therapist's sensitivity to the patient's array of signals allows his own state to become aligned with that of the patient. The sense that his head is "about to burst," followed by the release of pressure, shows how the patient's shifts from bewilderment to rage to sadness is experienced by the therapist. This shift in his own state may be a part of the internal process that makes him aware of the often subtle and rapid nonverbal signals sent in this direct form of emotional communication. The alignment of the therapist's state allows him to have an experience as close as possible to what the patient's subjective world is like at that moment. Sensitivity to signals allows for the therapist's internal response in his own state, which permits an awareness of his perceptions of the patient's experience. In addition to yielding important experiential information for the therapist, such an alignment permits a nonverbal form of communication to the

patient that she is being "understood" in the deepest sense. Her state directly influences his; she is "feeling felt" by another person. This attunement of states forms the nonverbal basis of collaborative, contingent communication." The capacity to achieve this attuned form of communication, sometimes called "affect attunement,"<sup>15</sup> is dependent on an individual's sensitivity to signals. Parental sensitivity to signals is the essence of secure attachments<sup>16</sup> and can inform us about how two people's "being" with each other permits emotional communication and a sense of connection to be established at any age. In these transactions, the brain of one person and that of another are influencing each other in a form of "co-regulation."

This chapter examines the developmental evidence from attachment research demonstrating the importance of this co-regulating contingent communication and the attunement of states of mind in secure attachment relationships. This is the fundamental way in which the brain activity of one person directly influences the activity of the other. Collaborative communication allows minds to "connect" with each other. During childhood, such human connections allow for the creation of brain connections that are vital for the development of a child's capacity for self-regulation.<sup>18</sup> Studies reveal that such relationship experiences are grounded in *patterns of communication*. We will review how the infant's mind develops within these emotional relationships, in order to understand the research-based views of what forms of interpersonal experience facilitate the development of psychological resilience and emotional well-being.

One essential message is that the developing mind uses the states of an attachment figure in order to help organize the functioning of its own states. The momentary alignment of states is dependent upon parental sensitivity to the child's signals and allows the mind of the child both to regulate itself in the moment and to develop regulatory capacities that can be utilized in the future.<sup>19</sup> The sensitivity to signals and attunement between child and parent, or between patient and therapist, involves the intermittent alignment of states of mind. As two individuals' states are brought into alignment, a form of what we can call "mental state resonance" can occur, in which each person's state both influences and is influenced by that of the other. There are moments in which people also need to be alone and not in alignment; an attuned other knows when to "back off" and stop the alignment process. Intimate relationships involve this circular dance of attuned communication in which there are alternating moments of engaged alignment and distanced autonomy. At the root of such

attunement is the capacity to read the signals (often nonverbal) that indicate the need for engagement or disengagement.<sup>20</sup>

As we shall see, states of mind involve various aspects of brain activity. The flow of energy and of information are both fundamental components of a state of mind. In this way, *attuned communication involves the resonance of energy and information*. For the nonverbal infant, this intimate, collaborative communication is without words. This need for nonverbal attunement persists throughout life. Within adult relationships of all sorts, words can come to dominate the form of information being shared, and this can lead to a different form of representational resonance. Such a verbal exchange may feel quite empty if it is devoid of the more primary aspects of each person's internal states.<sup>21</sup> Infant attachment studies remind us of the crucial importance of nonverbal communication in all forms of human relationships.

## ASSESSING ATTACHMENT

### Attachment Theory

When children develop secure attachments to parents, these allow them to go out into the world to explore and develop relationships with others." Initially, children seek proximity to their attachment figures which gives them a sense of security. Being near parents can help provide a soothing safe haven, especially when children are upset. As they grow, children internalize their relationships with attachment figures; this gives them the ability to develop a schema or mental model of security called a "secure base." It is postulated that children can use a form of remembering called "evocative" memory by the age of eighteen months to bring an image of an attachment figure forward in their minds, which helps to comfort them.<sup>23</sup> Children carry those to whom they are attached inside of them, in the form of multisensory images (faces, voices, smell, taste, touch), a mental representation of the relationship with them, and the sense that they can be with them if this is needed.

An "internal working model of attachment" is a form of mental model or schema.<sup>24</sup> As described in Chapter 2, the formation of mental models is a fundamental way in which implicit memory allows the mind to create generalizations and summaries of past experiences. These models are then used to bias present cognition for more rapid analysis of an ongoing perception, and also to help the mind

anticipate what events are likely to happen next. In this way, forming mental models is the essential manner in which the brain learns from the past and then directly influences the present and shapes future actions.

Attachment studies examine the active nature of both children's and parents' mental models of attachment relationships. How can such learned, implicit models be assessed? Models exert their effects on an array of observable phenomena, including overt behavior, interpersonal communication, emotional regulation, autobiographical memory, and narrative processes. For example, these models directly influence how a parent interacts with a child. Parental expectations, perceptions, and behavior interact with the inborn temperamental features of the child in determining what the exact nature of the parent-child transaction will be like. Attachment research has shown that parents' expectations and patterns of relating are profoundly influenced by their own attachment history and attitudes in the present, as revealed in what Main has termed their "state of mind with respect to attachment."<sup>25</sup>

In the middle of the twentieth century, a British psychoanalyst and psychiatrist, John Bowlby, turned to animal behavior studies to enrich the traditional analytic views of child development.<sup>26</sup> Bowlby wrote about attachment, separation, and loss in ways that powerfully influenced such practices as the establishment of primary care-givers in orphanages and in pediatric hospital wards. His idea was simple and powerful: The nature of an infant's attachment to the parent (or other primary caregiver) will become internalized as a working model of attachment. If this model represents security, the baby will be able to explore the world and to separate and mature in a healthy way. If the attachment relationship is problematic, the internal working model of attachment will not give the infant a sense of a secure base, and the development of normal behaviors (such as play, exploration, and social interactions) will be impaired. Of course, if circumstances change, a securely attached infant or young child can become insecurely attached, and an insecure attachment can become secure.

### **Infant Attachment Research: The Strange Situation**

Mary Ainsworth, a professor of developmental psychology at the University of Virginia, collaborated with Bowlby at the Tavistock

Clinic in the 1950s.<sup>27</sup> As a psychologist, she was interested in developing a research measure that would be a quantifiable instrument capable of assessing the security of attachment. Her idea was this: to study mother-infant interactions over the first year of life, and then to do something that would enable observers to access and classify the proposed internalized working model of attachment. Her Baltimore study<sup>28</sup> did just that and has been replicated hundreds of times since then by other researchers throughout the world. In this study, after a year of observations in the home, each mother-infant pair or dyad was brought to a laboratory setting. At various times in the twenty-minute procedure, the infant stayed with the mother, with the mother and a stranger, with only the stranger, and then alone for up to three minutes. The idea was (and still is) that separating a one-year-old from her attachment figure within a strange environment and at times with a stranger should activate the infant's attachment system. One should then be able to study the infant's response at separation and at reunion. The most useful assessments came at the reunion episode of this paradigm.

What Ainsworth found in her initial landmark study was that infants' behavior at reunion fell into specific patterns of responding.<sup>29</sup> Each of these patterns corresponded in a statistically significant way to the independently performed home observation ratings for the year prior to the laboratory assessment. This lab measure is called the Ainsworth or Infant Strange Situation.<sup>30</sup> The initial study classified three distinct attachment patterns. Now we also use a fourth, developed by Mary Main and Judith Solomon,<sup>31</sup> which helps further define the nature of some infants' behavior.

At the time of reunion, the infant's response to the mother's return is coded for the way he seeks proximity to the mother, the ease with which he can be soothed, and the rapidity of his return to play. The idea is that an infant who has developed an internal working model of a secure attachment will be able to use the parent to soothe himself quickly and return to his childhood task of exploration and play. If the infant has an insecure attachment model, then the return of the parent will not facilitate such an emotional regulatory function or allow the child to use the parent to return to playing.

The Strange Situation classifications (see Table 2, right side) at one year of age have been associated with numerous findings as children grow into adolescence, such as emotional maturity, peer relationships, and academic performance.<sup>32</sup> These correlations suggest that patterns of relating between parent and child have significant

**TABLE 2. AAI Classifications and Corresponding Patterns of Infant Strange Situation Behavior**

Adult state of mind with respect to attachment	Infant Strange Situation behavior
<p><u>Secure/autonomous (F)</u> Coherent, collaborative discourse. Valuing of attachment, but seems objective regarding any particular event/relationship. Description and evaluation of attachment-related experiences is consistent, whether experiences are favorable or unfavorable. Discourse does not notably violate any of Grice's maxims.</p>	<p><u>Secure (B)</u> Explores room and toys with interest in crying by the second separation. Obvious preference for parent over stranger. Greets parent actively, usually initiating physical contact. Usually some contact maintaining by second reunion, but then settles and returns to play.</p>
<p><u>Dismissing (Ds)</u> Not coherent. Dismissing of attachment-related experiences and relationships. Normalizing ("excellent, very normal mother"), with generalized representations of history unsupported or actively contradicted by episodes recounted, thus violating Grice's maxim of quality. Transcripts also tend to be excessively brief, violating the maxim of quantity.</p>	<p><u>Avoidant (A)</u> Fails to cry on separation from parent. Actively avoids and ignores parent on reunion (i.e., by moving away, turning away, or leaning out of arms when picked up). Little or no proximity or contact seeking, no distress, and no anger. Response to parent appears unemotional. Focuses on toys or environment throughout procedure.</p>
<p><u>Preoccupied (E)</u> Not coherent. Preoccupied with or by past attachment relationships/experiences, speaker appears angry, passive, or fearful. Sentences often long, grammatically entangled, or filled with vague usages ("dadadada," "and that"), thus violating Grice's maxims of manner and relevance. Transcripts often excessively long, violating the maxim of quantity.</p>	<p><u>Resistant or ambivalent (C)</u> May be wary or distressed even prior to separation, with little exploration. Preoccupied with parent throughout procedure, may seem angry or passive. Fails to settle and take comfort in parent on reunion, and usually continues to focus on parent and cry. Fails to return to exploration after reunion.</p>
<p><u>Unresolved/disorganized (U/d)</u> During discussions of loss or abuse, individual shows striking lapse in the monitoring of reasoning or discourse. For example, individual may briefly indicate a belief that a dead person is still alive in the physical sense, or that this person was killed by a childhood thought. Individual may lapse into prolonged silence or eulogistic speech. The speaker will ordinarily otherwise fit Ds, E, or F categories.</p>	<p><u>Disorganized/disoriented (D)</u> The infant displays disorganized and/or monitoring disoriented behaviors in the parent's presence, suggesting a temporary collapse of behavioral strategies. For example, the infant may freeze with a trance-like expression, hands in air; may rise at parent's entrance, then fall prone and huddled on the floor; or may cling while crying hard and leaning away with gaze averted. Infant will ordinarily otherwise fit A, B, or C categories</p>

*Note.* From Hesse (1999). Copyright 1999 by the Guilford Press. Reprinted by permission. Descriptions of the adult attachment classification system are summarized from Main, Kaplan, and Cassidy (1985) and from Main and Goldwyn (1984, 1998). Descriptions of infant A, B, and C categories are summarized from Ainsworth, Blehar, Waters, and Wall (1978), and the description of the infant D category is summarized from Main and Solomon (1990).

influences later in life. Since most of these children have continued to have the same parents, these correlations by themselves only support, but do not prove, some views that the first year of life is a critical period of development.<sup>33</sup> Parents and other caregivers continue to influence us throughout childhood. Bowlby's term "internal working model of attachment" was coined in order to emphasize the manipulable working nature of the attachment system.<sup>34</sup> Patterns established early in life have a major impact on functioning, but the individual's experiences continue to influence the internal model of attachment. This suggests that new relationship experiences have the potential to move individuals toward a more secure state of mind with respect to attachment. Intervention studies support the idea that a relationship-based treatment focus can enable proper development to occur. It may at first seem artificial to reduce complex behavior into segmented, distinct categories. But research must often try to cluster subjects into groups in order to find statistically meaningful patterns. These groupings are general patterns, and a given individual or relationship may reveal elements of several classifications. Nevertheless, this way of thinking scientifically about organizational forms can inform us greatly about global patterns of behavior. Longitudinal attachment studies, which follow parents and infants as they grow throughout the lifespan, require such classifications and have yielded some fascinating and powerful findings useful in understanding the nature of human experience.<sup>36</sup> As we review the specific attachment categories, keep in mind that a given individual may experience a number of elements from each classification. The manner in which an individual has come to integrate a coherent model across numerous experiences may in fact be at the heart of how attachment experiences shape the integrating functions that create a coherent mind.<sup>37</sup>

## A Brief Overview of Infant

### Attachment Classifications

Parents who are emotionally available, perceptive, and responsive to their infants' needs and mental states—that is, those who are sensitive to their children's signals—have infants who are most often "securely" attached. These children seek proximity and quickly return to play in the Strange Situation. The Strange Situation activates the attachment system; this leads a child to engage in proximity-seeking behavior, which is then terminated after contact with the

figure to whom the child has a secure attachment.<sup>38</sup> In low-risk, nonclinical populations, security of attachment to mothers is found in about fifty-five to sixty-five percent of infants.<sup>39</sup>

Parents who are emotionally unavailable, imperceptive, rejecting, and unresponsive are associated with "avoidantly" attached infants. These babies seem to ignore the return of their parents in the Strange Situation. Their attentional- and representational state is a "deactivating" one, which leads to an external behavior that minimizes proximity seeking.<sup>40</sup> In low-risk samples, twenty to thirty per-cent of infants are found to be avoidantly attached to their mothers.

Those parents who are inconsistently available, perceptive, and responsive, and who tend to intrude their own states of mind onto those of their children, tend to have children who have "resistant" or "ambivalent" attachments. These infants seem anxious, are not easily soothed, and do not readily return to play in the Strange Situation at the time of reunion. In this case, there is an "overactivation" of the attachment system, in which a child's attentional/representational state leads to external proximity-seeking behavior that is *not* terminated by contact with the parent. In other words, the relationship with the parent is not able to turn the attachment behavior "off" after reunion, and the child remains with an overactivating or maximizing strategy toward attachment filled with a sense of anxiety. In nonclinical, low-risk populations, five to fifteen percent of infants display this type of attachment to their mothers.

Finally, parents who show frightened, frightening, or disoriented communications during the first year of life tend to have infants who Main and Solomon identified as "disorganized/disoriented" in their attachments." During the Strange Situation, such an infant appears disorganized and disoriented during the return of the parent; for example, some have been observed turning in circles, approaching and then avoiding the parent, or entering a trance-like state of "freezing" or stillness.<sup>43</sup> Dyads falling into this attachment category are also given a best-fitting alternative primary classification of one of the prior three organized forms of attachment; for this reason, the sum of all of the percentages reported here is over one hundred. In nonclinical populations, disorganized attachments are found in twenty to forty percent of infants studied. In parentally maltreated infants, disorganized attachment is found in as many as eighty percent.<sup>44</sup>

For each of these classification categories of the Strange Situation, attachment theory suggests that the pattern of communication between parent and child has shaped the way the child's attachment system has adapted to the experiences with the attachment figure. In

this way, the genetically preprogrammed, inborn attachment system has been shaped by experience. This adaptation produces characteristic organizational changes in the way the child's mind develops. This can be seen as a fundamental way in which the mind and patterns of communication of the adult directly shape the organization of the developing child's brain.

In particular, these patterns of brain function—these states of mind—become activated within the context of a specific relationship. One child can have distinct attachment strategies for each parent. In this manner, we can propose that the interpersonal relationship directly shapes the neurobiological state of the infant's brain within interactions with each caregiver. These states create an attentional and representational set of activations that are thought to minimize distress, regulate behavior, and help the child organize the self.<sup>45</sup> The activation of a particular state in the presence of a particular care-giver is an adaptive process. As we'll see below, both secure attachment and the "organized forms" of insecure attachment (avoidant and ambivalent) reveal effective modes of adaptation. In contrast, Main and Hesse have proposed that the nonorganized form of attachment (disorganized/disoriented) reveals that the infant has been presented with an unsolvable problem or "paradoxical injunction"<sup>46</sup> in which the parent, being the source of fear and disorientation, makes an organized, effective adaptive state impossible to achieve.<sup>47</sup>

### **Adult Attachment: Moving to the Level of Mental Representations**

By pursuing the question of why parents act in such distinctly different patterns with their children, Mary Main—a graduate student working with Mary Ainsworth just following her original attachment studies in Baltimore, and presently a professor at the University of California at Berkeley—was able to move the field of attachment beyond the study of infant behavior and into the representational level of analysis.<sup>48</sup> Main, with her students Carol George and Nancy Kaplan, asked the parents in her attachment studies about their recollections of their own childhood experiences.<sup>49</sup> What they founds that a parent's pattern of narrating the "story" of her early family life within the semistructured setting of an adult interview could be correlated with the Strange Situation classification of that parent's child. In this manner, Main began what is now a powerfully rewarding set of investigations by creating a research instrument called the

Adult Attachment Interview (AAI).<sup>50</sup> Studies using the AAI are being carried out throughout the world.<sup>51</sup>

The AAI is a narrative assessment of an adult's "state of mind with respect to attachment," which reflects a particular organizational pattern or engrained state of mind at individual at the time of the interview.<sup>52</sup> The method of analysis of assessing an adult's state of mind with respect to attachment was developed by Mary Main and Ruth Goldwyn (then a visiting and graduate student from London) in the early 1980s. Its robust correlation with that adult's relationship with his offspring suggests that such a stance is in fact quite tenacious in the person's life.<sup>53</sup> Furthermore, attempts to correlate the AAI with features of an adult's personality have not revealed any significant associations.<sup>54</sup> This demonstrates that some of the measures of personality found in behavioral genetics to have a large degree of heritability are not associated with AAI findings; it therefore supports the notion that the AAI is measuring some feature of the adult derived primarily from the individual's experiences. Recent results from carefully performed longitudinal studies using Main and Goldwyn's analysis of the AAI in fact have now found that secure versus insecure childhood attachment status as observed in Ainsworth's Strange Situation can often predict later adult attachment findings." Though all indications point to a primary role of experiential factors (including childhood attachment and more recent relationship experiences in certain AAI results as discussed), Main has noted that the possible contributions of genetic factors will need to be further examined in future studies that utilize standard behavioral genetics approaches, such as twin and adoption studies.<sup>57</sup>

The strength of the AAI's correlations with the Strange Situation results has been reinforced by a number of findings suggesting that it is measuring some feature of the subject that is robust, persists across time, and is independent of other variables. These psychometric properties of this instrument include that the AAI is stable with repeated assessments across a one-month to four-year period<sup>59</sup>; unrelated to most measures of intelligence<sup>60</sup>; and unrelated to both long- and short-term memory, social desirability, or interviewer style.<sup>61</sup> The AAI is even more predictive of the Strange Situation results than it is predictive of direct research observations of parenting behavior available at the present time. van IJzendoorn has termed this a "transmission gap"<sup>62</sup>—a finding that has yet to be fully understood. However, it reinforces the notion that the AAI is assessing some fundamental mental process of the parent. All of these findings suggest that under-

standing the processes underlying the AAI, including memory, social communication, and some integrating process creating coherence of mind, will enable us to explore more fully the interpersonal nature of the development of the mind.

The AAI is a semistructured autobiographical narrative in which an adult, or sometimes a teenager (usually a parent or parent-to-be), is asked a series of questions about her own childhood.<sup>63</sup> These questions include versions of the following: What were growing up and the person's early relationship with each parent like? What was the experience of being separated, upset, threatened, or fearful? Was there an experience of loss, and, if so, what was the impact on the individual and the whole family? How did the person's relationship with her parents change over time? How have all of these things shaped the development into adulthood of the individual's personality and parenting approach?

The AAI narrative is a subjective account of the recollections of the individual. It does not claim to be an exact accounting of what occurred in the past. The method of interview analysis developed by Main and Goldwyn begins with an examination of the elements of the recalled and inferred experiences with parents, and each of the speaker's parents is ultimately scored for the extent to which the rater concludes that he or she was loving, rejecting, involving/role reversing, neglecting when present, and pressuring to achieve.<sup>64</sup> However, the most critical aspects of the process of interview analysis rest upon the speaker's ways of presenting and evaluating his history. It is here that the AAI offers a unique perspective on the relationships among attachment, memory, and narrative.

The AAI narrative is classified through an extensive review of the interview transcript; the rater examines elements of the described experiences from the past, as well as the pattern of communication between the interviewer and the subject.<sup>65</sup> In the discourse, and indeed in our daily conversations, how we talk with people reflects our internal processes and our response to the social situation of a conversation with another person. The analysis leads to ratings of what is called the current "state of mind with respect to attachment." Domains of this state of mind include the overall coherence of the transcript, idealization of parent, insistence on lack of recall, involved/involving (preoccupying) anger, passivity or vagueness of discourse, fear of loss, dismissing derogation, metacognitive monitoring, and overall coherence of mind. In some individuals there is some disorganization or disorientation in reasoning or discourse when

focusing on the topic of loss (of a family member by death) or abuse; this is assessed by scales for unresolved loss and/or trauma.<sup>66</sup>

The final classification, ascertained after several in-depth readings of the transcript, is based on examination of the numerically determined profiles across the domains of mental states with respect to attachment, together with directions for classifying the speaker's current state of mind (determined by the discourse analysis). This interview has a tremendous capacity to bring out subtle aspects of autobiographical narratives. Subjects are often amazed at how this forty-five- to ninety-minute interview with a stranger can bring out such personally meaningful and often previously unrealized aspects of their early histories. As a parallel to the Strange Situation, the AAI also places a subject in an unusual setting in which "the unconscious is surprised" by the discussion of such intimate attachment issues, early memories, and reflections on how these experiences have shaped the adult's development and parenting behavior.<sup>67</sup>

As Erik Hesse has suggested, the AAI requires that the subject perform the dual tasks of collaborative communication and searching for memories.<sup>68</sup> The search for memories of one's own childhood and the challenge of maintaining normal discourse—including respecting Grice's four maxims of discourse, pertaining to quality, quantity, relation, and manner—can lead to characteristic violations, which are seen as types of incoherences in the narrative process.<sup>69</sup> These maxims form a core feature of the AAI assessment: "1) Quality—be truthful, and, have evidence for what you say; 2) quantity—be succinct, yet complete; 3) relation—be relevant or perspicacious, presenting what has to be said so that it is plainly understood; and 4) manner—be clear and orderly."<sup>70</sup> According to Main and Goldwyn, optimal discourse can be succinctly described as "truthful and collaborative," and they conceptualize violations of Grice's maxims as having to do with (internal) consistency (quality) versus collaboration with the interviewer or interview process (quantity, relation, and manner).<sup>71</sup> Assessment of the AAI examines how a subject's state of mind at the time of the interview facilitates or impedes the ability to carry out a truthful/collaborative discourse while simultaneously conducting autobiographical reflection.

The ways in which the narrative reflects such a process is encoded in the scale assessing the overall coherence of the transcript. With the addition of the other elements that examine features of the narrative process, an overall "coherence-of-mind" rating is achieved, which assesses the global state of mind with respect to attachment. It is important to note that generally this adult stance represents an

overarching state of mind toward attachment—not the attachment to each of the adult's parents. In contrast to a child's Strange Situation classification, an adult receives a single "state-of-mind" classification, not a relationship-specific category. Hesse has described an emerging "cannot classify" category—revealed in about five to ten percent of low-risk samples—which may reveal those individuals who are unable to attain such a unifying overall stance toward attachment. As we'll explore in detail in the last chapter of this book, the capacity to integrate various elements of mental functioning, including autobiographical memory and social communication, can be viewed as a fundamental integrating process with which the mind creates coherence across its various states and mental processes.

The AAI results in an interviewee's being assigned a classification (see Table 2, left side, for a listing of these classifications) that tends to correspond to the quality of her infant's attachment to her in sixty-five to eighty-five percent of cases.<sup>73</sup> These percentages are actually statistically quite meaningful, even though there is no one hundred percent predictability.<sup>74</sup> In fact, of all available measures—including intellectual functioning, personality assessments, and socio-economic factors—the AAI is the most robust predictor of how infants become attached to their parents."

The AAI has been administered to parents at various ages of a child: five years after the Strange Situation, which is performed when the infant is one year of age; at the same time as the Strange Situation; and during pregnancy, with the Strange Situation performed when the infant reaches the first birthday.<sup>76</sup> In each of these contexts, the AAI has a robust association with the specific classification of the infant-parent attachment. This means that the AAI findings are strong, seem to be stable across time, and have predictive power even before an infant is born. The parent's narrative processes are not merely some reaction to the infant's temperamental characteristics or a function of the parent-child relationship. Recent studies are now becoming available in which children who have received Strange Situation classifications as infants are being administered the AAI in late adolescence. In the majority of these studies, the anticipated findings are now being realized, in that the Strange Situation results generally predict, about two decades later the AAI classifications for the now grown children. Some deviations from these predictions seem to be related to adverse life events, such as trauma and loss during the later years of childhood and adolescence."

An infant's attachment is specific to each parent and corresponds

with each parent's AAI classification in a largely independent manner.<sup>79</sup> This parent specificity also suggests that the adult-infant correlations are not merely determined by genetic or other features of the child alone, but are a function of the history of parent-child interactions. Having differing attachment statuses dependent on the state of mind with respect to attachment of each parent (or other caregiver) is an important factor in understanding the development of these attachment patterns. Also, the four prebirth research studies support the idea that the AAI is measuring some variable of a parent, not just some reaction of the parent to a feature of the child's inborn characteristics, such as temperament.<sup>80</sup> Overall, these findings support the view of childhood attachment as relationship-based.<sup>81</sup>

Temperament may play some role in eliciting particular reactions from parents, but it is not the major variable in determining attachment behavior within the child-parent relationship.<sup>82</sup> The temperament and genetically determined features of the parent certainly play a role in overt behavior. Some studies of parenting behavior suggest a strong genetic influence on particular patterns of emotional availability, for example.<sup>83</sup> As noted earlier, future studies of infant attachment and of the AAI will need to specifically examine the genetic contribution to these different patterns of attachment. Studies of identical twins raised apart and of adoptive children, not available to date, will be helpful in exploring the role of genetic factors in attachment. At this point, the findings from attachment studies support the notion of child attachment as the result of a relationship, not of a feature of the child alone.

If a child has a different attachment pattern with different caregivers, how does this affect the child's future adult attachment status? The most dominant experiences—for example, those with a primary caregiver—may be those that tend to exert the most influence on the adult's narrative and attachment status.<sup>84</sup> Research correlations between Strange Situation status with later AAI classification are based on the infant's primary attachment relationship, most often with the mother. One notion is that different attachment models may be activated in the future, depending on the social situation."

Certain child-parent pairs may evoke specific patterns of relating from the parent, which may lead to different attachment classifications for different offspring of the same parent. These variations may explain why the AAI does not have one hundred percent predictability to the Strange Situation.<sup>86</sup> It also raises the important issue of how the AAI may change with life experiences, such as the establishment of new forms of emotional relationships in parenting,

romance, friendship, or psychotherapy.<sup>87</sup> In this way, relationships may evoke different patterns of relating in each of us. The states of mind we experience, including the mental models activated in response to communication patterns with others, can in turn shape the manner in which we establish new relationships. We can find ourselves with a very different experience of the self and the self with others within different relationship contexts.

These social-context-dependent changes reflect the capacity of the mind to adapt to new situations. However, attachment research and clinical experience suggest the existence of some tenacious process that maintains similar characteristics of the individual over time. Some of these traits can be seen as elements of implicit memory: mental models of the self and others, behavioral response patterns, and emotional reactions. As an individual reflects on the self across time, these characteristic traits can be seen within the autobiographical narrative process within the AAI. Main's term "state of mind with respect to attachment," refers to an engrained, temporally stable, self-organizing mental state.<sup>88</sup> This is not a transient, randomly activated state; rather, from repeated experiences with caregivers, it has become a characteristic self-defining state—or "trait"—of that individual. We will explore the notion of self-defining states of mind later in the book.

We will now review in more detail the findings from attachment research with both children and adults, in order to explore these topics more fully. A complete review of this fascinating and important area of research is beyond the scope of this chapter, but such surveys are available in a number of helpful references.<sup>89</sup> Attachment research provides us with a set of rigorously collected data about human communication and mental coherence, which, as noted earlier, can teach us important principles about how the mind develops within interpersonal relationships. In the detailed discussions that follow, we will explore the implications of this important work for understanding developmental processes, as well as the functioning of the human mind.

### **ATTACHMENT, MIND, AND PSYCHOPATHOLOGY**

Experiences throughout life shape the functioning of the mind. Those that occur in the early years may set the stage for continued transactions with the world, which then reinforce those mental functions.

Longitudinal research on attachment suggests that certain early relationship experiences promote emotional well-being, social competence, cognitive functioning, and resilience in the face of adversity." However, because development is a process, older children, adolescents, and adults may be able to continue to grow and change despite suboptimal early life experiences.

Insecure attachment is not equivalent to mental disorder, but rather creates a risk of psychological and social dysfunction. For example, social competence in those with avoidant attachments is severely compromised. Avoidantly attached children have been found to be controlling and disliked by their peers.<sup>92</sup> Disorganized/disoriented attachments are sometimes associated with dissociative symptomatology, which, if such individuals are exposed to overwhelming experiences later in life, may make them prone to developing posttraumatic stress disorder.<sup>93</sup> Persons in this group also have deficits in attention and the regulation of emotion and behavioral impulses.<sup>94</sup> Intervention studies that offer young children the opportunity to develop secure attachments with their caregivers have yielded positive outcomes in terms of the development of emotional, social, and cognitive competence.<sup>95</sup>

For example, if an infant does not receive predictable, warm, and emotionally available communication from care givers he may adapt by avoiding dependence on others in the future.<sup>96</sup> If his caregiver's behavior does not undergo a favorable change, or if other secure attachments do not predominate, this adaptation may make him withdraw from others' attempts to establish close, warm relationships with him. At five, ten, or twenty years of age, such an individual may be experienced by others as "aloof." Some might interpret such a trait as constitutional rather than as adaptive to the past environment. Of note is that recent studies of rats have found that maternal deprivation is associated with social behavioral problems, which are ameliorated by serotonin medications.<sup>97</sup> These findings support the notion that early attachment experiences directly affect the development of the brain.<sup>98</sup> The fact that the behavioral problems return after cessation of these medications also supports the view that these brain changes are engrained within the neural pathways regulating basic functions, such as behavior, emotional regulation, and social relations.<sup>99</sup> Furthermore, such findings remind us that an individual's favorable response to a medication does not deem the dysfunction as "due to genetics, not experience." Early experience shapes the structure and function of the brain. This reveals the fundamental way in which gene expression is determined by experience."

As Brodsky and Lombroso have noted, "The fact is that neither genetics nor environmental theories have led to a fundamental understanding of the etiologies of the vast majority of psychiatric disorders. If we have learned anything from recent studies, it is that a delicate interplay exists between nature and nurture." In addressing the consistent finding that even in studies of inherited disorders with identical twins the concordance is rarely complete, they go on to state, "These results suggest that although genetic factors may provide [the] underlying diathesis or vulnerability for a disorder, environmental factors play a critical role in the ultimate expression of symptoms." Environmental factors play a crucial role in the establishment of synaptic connections after birth.<sup>102</sup> For the infant and young child, attachment relationships are the major environmental factors that shape the development of the brain during its period of maximal growth. Therefore, caregivers are the architects of the way in which experience influences the unfolding of genetically preprogrammed but experience-dependent brain development. Genetic potential is expressed within the setting of social experiences, which directly influence how neurons connect to one another. Human connections create neuronal connections.

One example of risk for emotional disturbances is seen in the experience of children who experience trauma at an early age.<sup>103</sup> Allan Schore addresses a relevant aspect of the neurobiology of this situation: "Although the critical period overproduction of synapses is genetically driven, the pruning and maintenance of synaptic connections [are] environmentally driven. This clearly implies that the developmental overpruning of a corticolimbic system that contains a genetically encoded underproduction of synapses represents a scenario for high risk conditions."<sup>104</sup> "Developmental overpruning" refers to a toxic effect of overwhelming stress on the young brain: The release of stress hormones leads to excessive death of neurons in the crucial pathways involving the neocortex and limbic system—the areas responsible for emotional regulation.<sup>105</sup> Children who may have a "genetically encoded underproduction of synapses" may be at especially high risk if exposed to overwhelming stress. In this way, we can see how experience and genetics interact in the development of risk for future disorder. Such risk is ultimately expressed within the neural connections of the brain.

An individual's personality is created from the continual interaction of genetically determined constitutional features and experiential exchanges with the environment, especially the social environment.<sup>106</sup> Vulnerability to dysfunction emerges from this interaction—not from

genes and experience in isolation from each other. If the capacity of the mind to adapt remains into adulthood, then the emotional relationships we have throughout life may be seen as the medium in which further development can be fostered: These attachment relationships and other forms of close, emotionally involving interpersonal connections may serve to allow synaptic connections to continue to be altered, even into adulthood.

But how "plastic" is the brain? How open is the brain to further development beyond the early years of life? Which circuits remain capable of establishing new connections, and which are relatively "fixed" after certain early periods of development? These are open questions in neuroscience.<sup>107</sup> For some individuals who have experienced suboptimal attachment experiences, the brain may remain open to further growth and development. For others, early life histories of absence of any attachment experience (as in severe neglect) or the experience of overwhelming trauma (as in physical, sexual, or emotional abuse) may markedly alter the neurobiological structure of the brain in ways that are difficult if not impossible to repair.<sup>108</sup> The questions that need to be asked are these: How can such experiences be prevented? And, if they have already occurred, how can lasting improvement in these individuals possibly be achieved? A major theme of attachment research and effective treatment studies is that intervention via the medium of the attachment relationship is the most productive approach to creating lasting and meaningful results. Attachment research suggests a direction for how relationships can foster healthy brain function and growth: through contingent, collaborative communication that involves sensitivity to signals, reflection on the importance of mental states, and the nonverbal attunement of states of mind.<sup>109</sup>

Research at present into the relationship of attachment to psychopathology suggests a number of findings.<sup>10</sup> A meta-analysis of AAI studies conducted by van IJzendoorn and Bakermans-Kranenburg indicates that insecure attachment appears to be associated with a higher incidence of psychiatric disturbance, including anxiety and mood disorders. A study conducted by Carlo Schuengel and his colleagues suggests that the presence of an unresolved loss in a parent who has a primary insecure state of mind with respect to attachment leads to a less optimal outcome for children than does the presence of unresolved loss in a parent who has a primary secure status.<sup>11</sup> Adult security of attachment therefore appears to convey a form of resilience—at least for offspring—even in the face of trauma or loss.

This finding is consistent with the general conclusions that attachment provides a framework for adaptation to life experiences: Security conveys resilience, whereas insecurity conveys risk. van IJzendoorn's meta-analysis indicated that in psychiatric populations, insecurity in the AAI is far more prevalent and security ("secure/ autonomous" status; see below) is far less prevalent than in the general population.<sup>12</sup> By itself, then, adult or child attachment classification is *not* synonymous with pathology, but should be viewed as an organizational component of the mind that provides flexibility and adaptability with security—or, in contrast, rigidity, uncertainty, or disorganization and disorientation with insecurity.

The essential issue here is how the pattern of communication with attachment figures has allowed the mind to maintain proximity to attachment figures and establish self-organizing processes.<sup>13</sup> In this manner, Main suggests that the "maintenance of a 'minimizing' (avoidant) or 'maximizing' (resistant) behavioral strategy is therefore likely eventually not only to become dependent on the control or manipulation of attention but also to necessitate overriding or altering aspects of memory, emotion, and awareness of surrounding conditions."<sup>14</sup> The finding that attachment history is correlated with a wide variety of mental processes central to the regulation of emotion and behavior may be understood by the examination of neuro-biological studies that implicate the same attachment experience-dependent (orbitofrontal) region in integrating these functions.<sup>15</sup> In this way, the link between insecurity of attachment and risk for psychopathology may be found within the brain regions that are both dependent upon patterns of communication early in life for proper development, and responsible for the regulation and integration of various processes (including attention, memory, perception, and emotion). Dysregulation of this central integrating process will undermine successful self-organization, which may produce various forms of disturbances in emotional regulation and lead to mental suffering.

## SECURE ATTACHMENTS

In the Strange Situation, securely attached one-year-old infants (classified as "B") seek proximity after separation, are quickly soothed, and return rapidly to play. In Ainsworth and her colleagues' home observations of secure parent-child dyads during the first year of life,

the parents were sensitive to the children's signals—emotionally available, perceptive, and effective at meeting the children's needs.<sup>16</sup> One could say that these parents were "tuned in" to the infants' emotional state of mind." Peter Fonagy and colleagues have described this ability as a product of the adults' "reflective function," in which parents are able to reflect (using words) on the role of states of mind in influencing feelings, perceptions, intentions, beliefs, and behaviors.<sup>118</sup> For this reason, reflective function has been proposed to be at the heart of many secure attachments, especially when the parent has had a difficult early life. The nonverbal component of this reflective ability can be seen in the capacity for affect attunement as seen in these dyads, in which the emotional expression of each member of a pair is contingent with that of the other.<sup>19</sup> Attunement involves the alignment of states of mind in moments of engagement, during which affect is communicated with facial expression, vocalizations, body gestures, and eye contact. This attunement does not occur for every interaction.<sup>120</sup> Rather, it is frequently present during intense moments of communication between infant and caregiver.<sup>121</sup>

Healthy attunement therefore involves the parents sensitivity to the child's signals and the collaborative, contingent communication that evokes what has been described earlier as a "resonance" between two people's states of mind: the mutual influence of each person's state on that of the other. Such attunement involves disengagement at moments when alignment is not called for and reengagement when both individuals are receptive to state-to-state connection. The states being aligned are indeed psychobiological states of brain activity.<sup>122</sup> Each individual becomes involved in a mutual co-regulation of resonating states.<sup>23</sup>

In emotional relationships of many sorts—including romance, close friendships, psychotherapy, and student–teacher relationships — there may be aspects of attachment present in which there are the basic elements of seeking proximity, using the other as a safe haven to help soothe oneself when upset, and internalizing the other person as a mental image providing a sense of a secure base.<sup>124</sup> These later forms of attachment can be established in the same manner that allows a secure attachment to develop in childhood. For the first two, "symmetrical" forms of relationship—friendship and romance—each member of the dyad demonstrates consistent, predictable, sensitive, perceptive, and effective communication. In therapist–patient and teacher–student relationships—which like parent–child relationships, are "asymmetric"—the sensitivity to signals is the primary

responsibility of the former individual, who serves as the sole "attachment figure" providing a safe haven and secure base for the other. The capacity of an individual to reflect upon the mental state of another person may be an essential ingredient in many forms of close, emotionally engaging relationships. This reflection on mental states is more than a conceptual ability; it permits the two individuals' minds to enter a form of resonance in which each is able to "feel felt" by the other. This intense and intimate form of connection is manifested both in words and in the nonverbal aspects of communication: facial expressions, eye contact, tone of voice, bodily movement, and timing of responses. This type of communication is what reveals attunement of states of mind.

The verbal component of communication can encompass many issues. Communication that is about the content of the other person's mind—such as "memory talk" or the elaborative style of discourse that focuses on the perceptions, memory, and imagination of another, as discussed in Chapter 2—enhances the mental processes of memory and self-reflection.<sup>125</sup> Intimate elaborative dialogues also focus on the other essential features of mental states: thoughts, feelings, intentions, beliefs, and perceptions. At the most basic level, therefore, secure attachments in both childhood and adulthood are established by two individuals' sharing a nonverbal focus on the energy flow (emotional states) and a verbal focus on the information-processing aspects (representational processes of memory and narrative) of mental life. The matter of the mind matters for secure attachments.

#### **ADULT SECURE/AUTONOMOUS STATE OF MIND WITH RESPECT TO ATTACHMENT: FREEDOM TO REFLECT**

Securely attached children tend to have parents who have an AAI classification of "secure/autonomous" present state of mind with respect to attachment (coded as "F"; think of "free").<sup>126</sup> A parent of a securely attached child stated,

"My mother was a very caring person, and I remember feeling very close. My mother used to ask me what happened during the day after I came home from school. I remember one day when I was very upset. She was a very busy person. I came in the room, and I remember her putting her books down, and she

went with me to my room so that we could talk in private. I don't remember exactly what she said, but I do remember how good she made me feel."

This portion of this adult's AAI narrative reveals a balanced perspective that is not overly idealizing. There is an ease of access to general autobiographical knowledge (e.g., the person's mother was caring and she felt close to her), and specific autobiographical details are provided to support these terms. This narrative segment reveals that there is general knowledge of what occurred and evidence for what is being said. The overall coherence of the narrative is very high and satisfies Grice's maxims of discourse. As Hesse has noted, such narratives reveal that an adult has the capacity to engage in collaborative and coherent discourse while simultaneously examining memories of attachment-related experiences.<sup>127</sup> Another aspect frequently found in these adults is the ability to reflect on mental processes within these narrative accounts.<sup>128</sup> Such a reflective function, in which the mind is able to represent other minds, reveals that the adult has what Fonagy and colleagues suggest is a "mentalizing" capacity.<sup>129</sup> This may be essential for a child's states of mind to be perceived and responded to by a parent.

Even though some narratives may contain descriptions of less-than-ideal parenting experiences, a coherence of mind is reflected in the flow of the narrative discourse; this coherence reveals an ease in talking objectively about the past and an ability to see parents as influential in the adult's development. The parent quoted above had this to say about her father:

"My father was very troubled by his being unemployed. For several years, I think that he was depressed. He wasn't very fun to be around. He'd go out looking for work, and when he didn't find any, he would yell at us. When I was young, I think that it was very upsetting to me. I didn't feel close to him. As I got much older, my mother helped me understand how painful his situation was for him, and for me. I had to deal with my anger with him before we could have the relationship we developed after my teen years. I think that my drive today is in part due to how difficult that period was for all of us."

These reflections on her relationships reveal an ability to balance positive and negative aspects of her experiences and to reflect on how they may have affected her during youth and then into adulthood.

Adults with a secure/autonomous state of mind may have a fluidity in their narratives, self-reflection, and access to memory. They may have a range of mental models of attachment relationships, which allows them to be flexible in their perceptions and plan of action. As Main has described, their attentional/representational state does not require a minimizing or maximizing strategy in addressing attachment-related issues.<sup>13</sup> Informal observations suggest that they can also be seen as having the ability both to enjoy and to modulate high levels of emotional intensity, and to experience rewarding emotional connections with others.

The narratives of secure/autonomous parents reveal that their internal working models of attachment are secure, that they acknowledge the importance of attachment relationships, and that they are free to live in the present. If their internal working models of attachment are secure, there is little "leftover business" that interferes with their narratives or, presumably, with their parenting approach to their children. There is a sense that secure/autonomous parents have life stories that allow them to live fully in the present, unimpaired by troubles from the past, denial in the present, or attachment-related worries about the future. The minds of such individuals can be described as having an organized and unimpaired flow of energy and information. We can propose that the coherence of narrative seen in this group of individuals may reflect a well-functioning ability to integrate aspects of the self over time—a subject we will explore in greater detail in Chapter 9.

An informal subset of secure/autonomous adults consists of those with an "earned"; secure/autonomous status.<sup>131</sup> These are individuals whose described experiences of childhood would have been likely to produce some form of insecure attachment (avoidant, ambivalent, or disorganized). However, the coherence of their transcripts reveals a fluidity in their narratives and a flexibility in their reflective capacity, such that their present state of mind with respect to attachment is rated as secure/autonomous. These individuals often appear, from impressions of the information contained within their AAI narratives, to have had a significant emotional relationship with a close friend, romantic partner, or therapist, which has allowed them to develop out of an insecure status and into a secure/autonomous AAI status. In studies comparing "earned" secure/autonomous, "continuous" secure/autonomous, and insecure parents, several findings emerge. One is that the attachment of children to parents in the "earned" and "continuous" secure/autonomous categories

appears to be indistinguishable.<sup>133</sup> When parent-child interactions were assessed, even under conditions of significant stress, these two groups were indistinguishable from each other. "Earned" secure/autonomous parents, however, reported more depressive symptomatology than the "continuous" secure/autonomous group, and as much as or more than the insecure group. Whether this finding is revealing the continuing effects of a history of suboptimal parenting, or whether these depressive states of mind are affecting the narrative process within the AAI to yield a more pessimistic set of recollections, has yet to be clarified.

In terms of our discussion of the flow of energy and information, these findings with the "earned" secure/autonomous adults may reflect a flow of knowledge about the self across time. Implicit elements from early life experiences are quickly activated in intense emotional relationships, such as those with children and spouses. If this "earned" category truly represents the emotional development of an individual from an insecure to a secure/autonomous state of mind with respect to attachment, then the narrative coherence within the AAI may reflect some important integrative process that enables parents to break the transgenerational passage of insecure attachment patterns.<sup>134</sup> Further studies of this population may be helpful in understanding the factors and mechanisms the mind can use to achieve a coherent integration of mind in the face of suboptimal attachment history.

### AVOIDANT ATTACHMENTS

In the Strange Situation, avoidantly attached ("A") one-year-old infants demonstrate no overt response to the return of their parents, who are likely to have a "dismissing" stance toward attachment (see below).<sup>135</sup> They continue to play and behave as if the parents didn't leave or return. Studies have revealed, however, a significant response by their nervous systems, as measured by heart rate changes.<sup>136</sup> Externally, to an observer, they appear avoidant of the parents' return.

Ainsworth and colleagues found that during the first year of life, these pairs were characterized by emotional distance and by neglectful and rejecting behavior on the part of the parents.<sup>137</sup> These parents appeared to be emotionally unavailable, relatively insensitive to their children's state of mind, imperceptive of their children's

needs for help, and not effective at meeting those needs once perceived. Later studies would show that such parents demonstrated low degrees of affect attunement; language expression independent of facial emotions; and difficulty in relating to their children at the children's level of development in various situations, such as problem-solving tasks.<sup>138</sup>

The view of such a child's internal working model of attachment is that the parent has never been useful at meeting his emotional needs and is not attuned to his state of mind; therefore, behaviorally, it serves no purpose to seek the parent upon reunion. Connecting or emotionally joining in an avoidantly attached pair is limited, keeping parent and child relatively isolated compared to a securely attached dyad. In this manner, the organized adaptive strategy is to have an attentional/representational state that minimizes proximity seeking, reduces expectations, and shapes other attachment-related behaviors and mental processes accordingly.

In an avoidantly attached dyad, the parent is significantly lacking in the ability to conceptualize the mind of the child.<sup>140</sup> This lack may be evident in the inability of the parent, and then of the child, to reflect on the mental states of others or of the self. Some individuals may have a sense of disconnection of which they may be quite unaware. This sense of distance from others, and from the self, may dominate their experiences. It may also be apparent in how they describe their awareness of their own emotions. Informal observations suggest that they tend to engage in dry, logical, analytic thinking that lacks a sensory or intuitive component. As we'll see below in the discussion of adults classified as dismissing with the AAI, there is also a characteristic lack of richness and depth in the autobiographical narrative and self-reflections.<sup>141</sup>

As described at the beginning of this chapter, and as Bowlby proposed many years ago,<sup>142</sup> like other ground-living primate infants, human infants have an inborn, genetically determined motivational system that drives them to become attached to their caregivers. Although infants become attached to their caregivers whether or not those caregivers are sensitive and responsive, attachment thrives especially on predictable, sensitive, attuned communication in which a parent shows an interest in and aligns states of mind with those of a child. Shared states allow for the amplification of positive emotional states and the reduction of negative states in secure attachments. If primary caregivers do not offer these elements of secure attachment, then the child must adapt to suboptimal interactions. In

avoidantly attached children, such experiences seem to shape expectations and produce an organized adaptation involving a behavioral response that minimizes frustration: the children act as if the parents never left and show no outward signs of needing the parents. At the same time, the physiological studies of avoidantly attached children and their dismissing parents clearly demonstrate that the internal value placed on attachment has remained intact and intense, however.<sup>143</sup> The behavioral adaptation in infants, and the cognitive adaptations in older children and adults (paucity of autobiographical memory and narrative, beliefs in the unimportance of relationships in development and in life), are in contrast to the continued internal and nonconscious importance placed on attachment.

**ADULT DISMISSING STATE OF MIND  
WITH RESPECT TO ATTACHMENT:  
MEMORIES FROM AN EMOTIONAL DESERT**

"My parents were very helpful to me growing up. They gave me excellent experiences with classes in school and outside of the regular curriculum. I was able to learn a foreign language and to play two instruments proficiently. [In response to a query about her relationship with her parents from early on, she stated:] My parents were very generous people. My father was very, very funny, and he taught me the importance of a good sense of humor. My mother was very neat, and she taught me the benefits of organization. Overall, my family was very good. [When asked for specific memories of her childhood, she stated:] I have very fond memories of my childhood. I don't remember specific experiences, but I do know that we had a very good family life. There were a lot of good times."

This adult repeatedly insisted that she did not recall specific childhood experiences. She also stated, "I believe in hard work and finding your own way in life. I am raising my children to achieve what I was a little to: independence and stick-to-it-ness."

This excerpt from an AAI narrative shows the individual's lack of interpersonal connections from her childhood development. Adults with this type of narrative often have the unique feature of insisting that they do not recall their childhoods. Their general descriptors are not supported by specific memories, and hence their transcripts have an incoherence defined by violations to Grice's maxim of quality

(consistency) of discourse. Their responses are also generally excessively brief, violating Grice's maxim of quantity. For example, in response to a question about the mother-child *relationship*, they may state, "My mother was good. I cannot remember anything she did to support that word. I just think she was good, that's all." Often the implied sense in the interview is that there was not much emotional connection between parent and child. There are also reported examples of subjects' describing rejecting or neglecting behaviors on the part of the parents to support positive general statements offered about them. Overall, these narratives suggest that the mentalizing processes of the interviewees and their primary attachment figures may have been minimal.<sup>144</sup> The parent-child interaction appears to have had a suboptimal quality and quantity of mutual sharing of reflections on the mental states of others.

The internal working model of attachment in a "dismissing" (coded as "Ds") adult is thought to resemble that of an avoidantly attached child: "My parent is rejecting, and I cannot expect any emotional comfort or connection from this parent, so I will live on my own as an adaptation." This is a mental adaptation, not a conscious, deliberate choice on the part of the young infant. If a parent has shown little attunement to a child's internal state, the child will experience a world that remains emotionally isolated from that of the parent. The child's sense of self also remains fundamentally separate from that of the parent.

The narrative of past experiences quoted above has an underlying theme: "Life was good. I learned important things from my parents. I want my children to learn to be independent too." This person's account does not actually address the question about the quality of her relationship with her parents. Her past is summarized positively in terms of the products her parents gave her not their connection to or communication with her. As noted earlier, another feature the narrative is the person's insistence on her inability to recall details of her childhood. This amnesia seems to include a period way beyond five years of age (the time when most of us begin to have ease of access to explicit autobiographical memory). Her "blockage" of memory for her childhood experiences includes most of her adolescent years as well. We can view these findings as suggestive of the possibility that autoethic consciousness may be quite underdeveloped in dismissing individuals, at least for childhood events.

Dismissing adults' insistence that they do not recall their child-

hood is often robust. Main and Goldwyn are cautious, however, in their interpretation of this insistence on lack of recall, since it could also be that it serves to block discourse. This lack of recall should not be misinterpreted as a blocked memory of some trauma. Attachment studies suggest that this lack of recall is associated with the neglecting, rejecting, and emotionally disconnected pattern of relationships seen in avoidant attachments, rather than with some form of trauma-induced blockage as might be seen with physical or sexual abuse.<sup>145</sup> Studies also suggest that other aspects of personal knowledge, such as which television shows were popular or what major world events occurred at particular times in the subjects' lives are normally present.<sup>146</sup> In other words, noetic consciousness appears to have developed normally in these individuals.

The emotional distance and rejection that dominate avoidant relationships create a kind of low-affect environment. It is particularly interesting that preliminary findings from the prospective, longitudinal Minnesota Parent–Child Project suggest that avoidantly attached children reveal dissociative symptoms throughout childhood, which seem to remit as adulthood approaches.<sup>147</sup> This project is an ongoing study examining adaptation in an "at-risk" sample of over 150 children and their families, who have been followed since the late 1970s (before the births of the children). These children were considered to be at high risk for poor adaptational outcome due to poverty conditions and other factors, such as the youth of the mothers. In general, the findings from this study support the view that interpersonal relationships shape the way the mind develops. Specifically, the relationships that lead to avoidant attachments appear to foster a dis-association among, or disavowal of, elements of mental life.<sup>148</sup> For example, the need for emotional connection is repeatedly met with frustration within the interpersonal matrix of avoidantly attached dyads.

Why would such an emotional climate produce a lack of access to explicit autobiographical details of family life? Are these events encoded, but is access then blocked? Is there some different process of encoding in avoidantly attached children and in adults with dismissing states of mind with respect to attachment? Could it be that the lack of emotion does not allow the relationship experiences to be encoded as "value-laden" memories, which are then more likely to be recalled? Do these families not engage in the sorts of elaborative discussions that would develop the contents of the children's memories and imaginations more fully and enable them to express these

more readily? The answers to these questions are open for investigation.

These questions suggest a number of possible routes to the lack of recall and lack of autobiographical narrative richness seen in dismissing and avoidant attachments. If future studies confirm their validity, then they may also point the way to what approaches might be useful to enable reflection to develop in these individuals' lives: emotionally involving, elaborative, and contingent communication with others. As noted briefly earlier, and as we'll explore in the chapters ahead, the region of the brain most central to attachment also appears to be the primary mediator of auto-noetic consciousness. This right orbitofrontal region serves the vital integrative function of coordinating social communication, empathic attunement, emotional regulation, registration of bodily state, stimulus appraisal (the establishment of value and meaning of representations), and auto-noetic consciousness.<sup>149</sup> These exciting convergent findings suggest a preliminary view of how early emotional relationships shape self-knowledge and the capacity to integrate a coherent state of mind with respect to attachment.

The assessment of AAI narratives examines how specific explicit recollections correspond with generalized autobiographical themes and descriptions. In this way, the rater is able to uncover inconsistencies among the subjects' episodic recall, their semantic knowledge, and the themes of their life stories. Life narratives are not merely accumulations of autobiographical detail, but are driven by both explicit memory and implicit recollections of repeated experiences. We've discussed in Chapter 2 how the themes of life stories may be created by generalizations of the past (such as mental models), as well as by nonconscious wishes for, and fantasies of, what could have been a more desired past. This reconstructive aspect of memory can have strategically adaptive functions in creating a narrative sense of self that can serve to reduce anxiety about the actually lived past.<sup>150</sup> The "minimizing" strategy of the avoidant or dismissing stance may produce very specific adaptations of the access to and focus of auto-noetic consciousness. As we'll see next, the "maximizing" strategy of the ambivalent or preoccupied stance may also produce characteristic patterns of auto-noetic consciousness in which there is a blurring of past, present, and future representations during the AAI. Because auto-noesis permits mental time travel, it can involve quite distinct dimensions of the experience of recollection during the challenging setting of the AAI.

Autobiographical memory can be conceptualized as being organized into three categories of recollection: general periods, general knowledge, and specific events.<sup>151</sup> We can first think of our past in general periods, such as "when I was in high school." Next, we may have general autobiographical knowledge, such as the view that "I was good at basketball." Finally, we may recall specific events from our past, such as "when I was at that last game in basketball during my junior year in high school." AAI narratives show that dismissing adults appear to lack recall for the details of specific relationship-related events in their lives.

This finding may be understood by viewing Wheeler, Stuss, and Tulving's notion of auto-noetic consciousness as distinct from autobiographical memory.<sup>152</sup> In particular, this distinction focuses on auto-noesis as the mind's ability to perform mental time travel as described in Chapter 2. Within the focus of auto-noetic awareness is the sense of the self in the personally experienced past. Memory for general periods or general knowledge of events in one's past can exist as a part of autobiographical memory, but may be experienced only within noetic consciousness: We may know that a past event occurred, but we do not have a sense of ourselves in the past. This factual knowledge of even personal past events is recalled as a semantic (factual) recollection, rather than as part of the episodic process of mental time travel. In episodic recall, the self as experienced is represented in memory. The finding that differing brain structures support auto-noetic versus noetic recollection suggests that those with dismissing states of mind with respect to attachment may in fact be utilizing differing neurological mechanisms in their narrative recounting. Most individuals look to the left when recalling autobiographical memories, a process thought to activate right-hemisphere circuits predominantly.<sup>153</sup> Do those with dismissing states of mind look to the right side during the AAI—suggestive of the activation of the left hemisphere, where semantic recall is thought to be mediated? Main and Hesse are currently examining the answer to this question both with respect to the AAI and with respect to a self-visualization task conducted at Berkeley.<sup>154</sup>

But some of those with dismissing states of mind insist on complete lack of recall for personal events in their lives. Not only do they appear not to recall themselves in the past; they do not seem even to recall the facts of experiences. Beyond mere auto-noetic impairments, there appears to be a blockage in recall or impaired encoding of facts about relationship-related experiences. To attempt to understand this

insistence on lack of recall, we can look toward the general studies of memory and emotion, which suggest that emotionally charged experiences are more likely to be remembered.<sup>155</sup> The parts of the brain responsible for assigning priorities to incoming engrams, including the amygdala and orbitofrontal cortex, probably mediate this "red-flagging" of experiences as being value-laden, emotionally meaningful and therefore memorable.<sup>156</sup> Emotional experiences are more likely to be remembered in the long term, suggesting that the cortical consolidation process selects these memories above others for entry into permanent storage. This may be the way in which our life stories come to contain emotionally meaningful themes and corresponding supportive details.<sup>157</sup>

Could it be that in avoidantly attached children, the lack of emotional involvement keeps the amygdala, orbitofrontal cortex, and other appraisal centers from labeling relationship-related experiences as worthy of recall? In one study, ten-year-olds who were found to be avoidantly attached to their primary caregivers at one year of age were also found to have a unique and marked paucity of autobiographical narrative detail. "They would say things like "I don't know what to say about my life," or "I live at home with my brother; that's about it." Their dismissing parents had this same quality of minimal elaboration of their life stories, especially as these pertained to relationships with other people.

If parents are uninterested in reflecting or unable to reflect upon their children's minds, then we can hypothesize that they may also provide less elaboration via memory talk and co-construction of narrative, both of which appear to be important in making memories accessible. With these diminished mentalizing or reflective functions (thinking about the subjective experience of one's own or another's mind), narrativization, autobiographical memory, and emotional connections with others, it may well be that these individuals' subjective experience of life lacks a certain vitality shared by those in the other attachment groups. Overall, self-awareness and auto-noetic consciousness itself may differ as a reflection of these differences in developmental experience.

Avoidant or dismissing attachment can be conceptualized as involving restrictions in the flow of energy and information through the mind. Acquired from emotionally distant communication patterns, this pattern of attachment organizes the mind to reduce access to emotional experience and information in memory. These restrictions impair the mind's ability to develop an integrated sense of the self across time

in relationship to others. The view of the self is limited to nonemotional domains, which are seen as quite independent of the influence of interpersonal relationships. Although one can certainly argue that this is just an "adaptation" to prior experience and not an impairment in mental functioning, an organization of the mind that excludes emotion and interpersonal relationships is quite inflexible. If one believes that emotion and relationships play an important role in determining meaning and mental health throughout the lifespan, then such a restrictive approach to living in the world can be seen as an impairment to the healthy functioning of the mind.

### AMBIVALENT ATTACHMENTS

The second form of insecure attachment is called "resistant" or "ambivalent" ("C"). I prefer to use the term "ambivalent," because it denotes the mixed and anxious feelings often associated with this form of relationship. During the Strange Situation, ambivalently attached infants return to their parents upon reunion, but are not easily soothed and do not quickly return to play. They cry, show relief, then cry again; they appear difficult to console.

In their home observations during the first year of life, Ainsworth and colleagues found that the parents in these dyads were inconsistently available, sensitive, perceptive, and effective.<sup>159</sup> Such a parent would have moments of intrusiveness that appeared to be emotional invasions into the parent's state of mind. These were generally not hostile in nature; a parent might suddenly grab a happily playing child and shower him with excited hugs and kisses without warning, disrupting the child's focus of attention and state of mind. That is, the parent would try to be connected, but in a way that was not contingent to the child's communication. In ambivalently attached dyads, the parents' emotions and mental states appear to interfere repeatedly with the ability to consistently and accurately perceive those of their infants. As a result, the infants remain uncertain whether their own emotional states and hence needs will be attuned to and satisfied. Sometimes they will, sometimes they won't. As Mary Main has suggested, this leads to an attentional/representational state that "maximizes" a focus on the attachment system.<sup>160</sup> Mental state resonance or alignment does occur in these dyads, but is unpredictably available and is at times dominated by the parents' intrusion of their own states onto those of the children.

Each of us goes through cycles of needing connection with others and needing to be left alone. These natural oscillations between an external focus with communication to others and an internal focus with periods of solitude are part of what sensitive caregivers perceive in the changing states of their children. Knowing when to go toward a child (or adult) in an effort to communicate, versus knowing when to "back off" and give emotional space to another person, is a fundamental part of attunement. In ambivalent attachments, there appears to be a significant inconsistency in the parents' ability to perceive and respect these natural cycles.

How do parents create an ambivalent attachment strategy in their children? Examination of AAI findings (see below) reveals that "preoccupied" parents have significant intrusions within their own narratives of elements of the past that shape their experience in the present. Is there anyone for whom the past *doesn't* shape the present? Of course not; our minds are always automatically comparing past experiences with present perceptions as we anticipate the next moment in time. This comparing process is a natural outcome of the interplay among memory, perception, and consciousness, and defines the mind as an "anticipation machine." However, the states that children evoke in us as parents create challenges beyond merely cognitively comparing forms of representations and matching our expectations. These parental states of mind are in fact responses to the child's behavior, some might argue. But are they contingent? The issue is that with parents with a preoccupied stance toward attachment, their responses to the AAI and to their children's behavior dominated by their entanglements with their own past. Their responses to the external world are shaped intermittently by their internal mental processes, which are independent of the signals sent by their children.

In this way, an ambivalently attached child experiences inconsistent parental sensitivity and has a degree of distress that is not reliably soothed by the parent. Unlike the avoidantly attached child, who learns to dismiss the mental state of the parent and develops a deactivating strategy, and ambivalent attachment forces the child to be more preoccupied with her own distress, and to maximize her attention to the (unpredictable) attachment relationship.

One way of conceptualizing this finding is seen in Aitkin and Trevarthen's discussion of intersubjectivity. In this view, attuned communication has an initial phase during the first few months in which there is a direct form of contingent communication between

infant and caregiver. This is called "primary intersubjectivity." By about nine months, the infant's increasingly complex representational capacities allow for the development of an internal image of the parent, which Aitken and Trevarthen call a "virtual other." This is "secondary intersubjectivity," in that now the infant (like the parent since the beginning of their relationship) has the filtering process of perceiving the other person and representing those perceptions in the secondary process of a "virtual other" representation. This intermediate step is the normal way in which the mind connects the memory of past experiences with ongoing perceptions. Beyond the first half year of life, we each have a set of "virtual others," which are continually evoked during interactions with other people. If past attachments have been filled with uncertainty and intrusion, then the virtual other—the internal representation of the attachment figure—may interfere with the ability to clearly perceive others' bids for connection. The individual may (mis)perceive others' behaviors in light of a virtual other that creates caution and uncertainty.

Daniel Stern has described in detail the ways in which such interactions become represented and generalized in the infant's mind.<sup>163</sup> These generalizations form the building blocks of the internal working models. As Main has clarified Bowlby's original meaning, parenting that generates multiple contradictory models of attachment creates a sense of insecurity.<sup>164</sup> In the Strange Situation, the child is not easily soothed by the return of a parent who, in this particular setting, may be acting in a perfectly attuned and comforting manner. The past, encoded within the child's memory, directly shapes both the implicit mental models and the "evocative memory" that creates the image of the virtual other in the child's mind during interactions. As Main has noted, insecure attachment is generated by multiple "incoherent" models of attachment.<sup>165</sup> We can propose that these processes are state-dependent and can be activated in certain mood states (such as feeling threatened) or within interactions with specific people. The virtual other can be so dominant in an individual's mind that an actual other has little chance of being directly and accurately perceived. Informal observations suggest that for the child of such a person, the sense of being "unseen" or "absent" may fill many interactions and create a sense of a "false self." The result is that this attachment history shapes the child's perceptions and expectations of the world, others, and the self in the direction of ambivalence.

The ambivalently attached child has learned that his own mental state may be intruded upon by the parent in unpredictable

ways. The flow of energy and information within the child will be unpredictably disrupted rather than predictably enhanced by communication with the parent. Nevertheless, the developing child needs to have the attachment figure psychologically accessible in order to feel secure. Ironically the ambivalently attached child is left with an internal sense of uncertainty, which gives him an even more urgent and continuing need for comfort from external interactions. In this way, the unpredictable and intrusive patterns of communication have established ambivalence in the child's self-regulatory capacities. Combined with the parent's own continuing preoccupations and inconsistent sensitivity to the child's signals, the dance of (mis)attuned communication in such a dyad continues to reinforce the intense, inconsistent, and intrusive nature of the alignment of states of mind.

**ADULT PREOCCUPIED STATE OF MIND  
WITH RESPECT TO ATTACHMENT:  
INTRUSION OF THE PAST UPON  
THE PRESENT**

"We were a close-knit family. We used to play all the time, have fun, walk around. There were never any times when things became too loud, or sometimes they would. But it was OK. One time we went to Disneyland with my uncle. It was a lot of fun. But last week my parents took my brother's kids there and they didn't even call us. Why they do this, I don't know. It doesn't bother me now, but it does. I mean it did. I think. I wish they would stop favoring him over me; but I'm through caring about it, I'm through with the whole thing. When will it stop?"

The person just quoted was responding to the direct request, "Tell me about your family from your earliest memories." Her account reveals an adult with an AAI classification of "preoccupied" (coded as "E"; think of "entangled") state of mind with respect to attachment.<sup>166</sup> The narrative indicates that the past is emerging into this adult's present. The response to the question about early memories begins to include issues about current relationships that contain overt hostility, fear, and passivity. According to Main and Goldwyn, the linguistic analysis reveals the violation of the discourse maxims of quantity, manner, and relevance: the narrative is not succinct and

does not directly address the interviewer's queries. Individuals like this woman have easy access to a flood of memories of their childhood, which begin to blend with the reality (directly stated or not) that their past childhood experiences with their parents still actively and profoundly influence their lives in the present.

Preoccupied adults' contradictory models of attachment include concerns that their attachment figures may or may not be able to meet their needs. There is simultaneously a powerful wish for closeness and at times a disabling fear of losing it. This preoccupied state is filled with emotional turmoil centering around attachment-related issues. Mental models of relationships will bias present perceptions and expectations, as we have seen, in such a way that these persons may create their own worst nightmare of uncertainty in their relationships with others, including their own children. The inconsistent emotional availability and intrusiveness of these adults can be seen as resulting from their preoccupation with previous attachments. Using Aitken and Trevarthen's model of the virtual other, I would propose that one way of conceptualizing this preoccupation is that the virtual other of an adult's attachment figure is so dominant that it distorts the parent's ability to perceive the child directly. In this way, the child may be repeatedly seen through the filter of the parent's preoccupations with the dominant virtual other, and thus may be at risk of developing a sense of inauthenticity within the parent-child relationship. As noted above, such a process may encourage the development of a sense of a "false self" in the child. In this manner, both parent and child become filled with representations of the self and of the other that interfere with contingent, collaborative communication. Their inner worlds may each be dominated by intrusive emotional concerns ("Am I loved enough? Will I be abandoned?"), which will be activated within a variety of relationships.

A parent's emotional turmoil and preoccupations with the past and with his own mental state can create repeated patterns of inconsistent attunements with his child. Preoccupations with the past dominating the parenting pattern may also repeatedly lead to an adult's relating to a child as if the child were a mirror of himself at an earlier age. In this way, entanglements with his own childhood intrude on the way he relates to his child. This may be especially true in one particular subcategory of this adult classification, preoccupied/overwhelmed by trauma," in which the AAI reveals frequent references to past traumatic experiences.<sup>168</sup> Though these repeated references are not disoriented, they do reveal that the adult continues to have the trauma intrude upon his narrative discourse.

In ambivalently attached children and their preoccupied parents, mental models of the self with others are full of leaky boundaries between past and present. The adults' experience becomes influenced by activations of models of insecure attachment from their own childhoods. As perception and emotional meaning are established through the filter of this uncertainty, a self-fulfilling prophecy is created: New relationships are again experienced as inconsistent and unreliable. Emotional joining or connecting is a longed-for but inconsistently achieved goal in the minds of ambivalently attached individuals.

A parent's preoccupation with her own past—for example, how she felt abandoned by her mother or how her father was disappointed in her—can continually intrude itself onto her present perceptions. Being with a child can produce the most intense entanglements with these images and ideas from the past within the parent's mind. The parent enters an old state of mind and can become filled with sensations of fear, rejection, disappointment, or anger, which color her experiences with her own child. The parent often remains unaware of how disabling this preoccupation with the past is to her functioning as an effective parent in the present.

In memory terms, such parents are being "primed" to recall their childhood experiences in two fundamental ways. Priming is a normal part of memory, in which elements become more likely to be retrieved following certain contextual cues.<sup>169</sup> For preoccupied parents, the context of being with children who may share some of the features of their own childhoods (for example, shyness or being rejected by the mother) creates a context in which the parents begin to relive their own childhood struggles. Marital difficulties can also evoke emotional states that tend to reinstate old memories. For example, a father may feel a sense of rejection because of his wife's possibly distant, emotionless pattern of relating, which then creates a mental state within him that resembles the rejected, frustrated state of mind of his youth. His wife's interest in a child may also evoke a sense of rejection resembling the feeling of the birth of a sibling in the father's own childhood history.

"State-dependent" memory is a term referring to the way in which events encoded in particular mental states will be more likely to be recalled if a person is in a similar state in the future.<sup>170</sup> This normal feature of memory is prominent throughout life and is particularly relevant to how being a parent can induce states resembling those of one's youth. This happens in everyone, regardless of attachment history. But how these memories are experienced may vary con-

siderably with attachment history. For example, preoccupied parents may be flooded with emotional and behavioral responses within implicit memory. They may begin to remember, both explicitly and implicitly, particular aspects of memories from their own childhoods as they raise their children through the various stages of development. Explicit recollections may return in the form of facts about child-rearing or other autobiographical events, or general knowledge from the past. Implicit recall may take the form of many components of "personality," including learned behavioral responses, emotional reactions, mental models, attitudes and beliefs, perceptual images, and possibly internal bodily sensations. The activation of implicit memory by itself does not involve a sense of recollection. When situations activate implicit memories without their explicit counterparts, parents merely act, feel, perceive, or sense in the here-and-now. These implicit recollections are not usually subject to a process of self-reflection, as in "Why am I doing this or feeling this way?" Individuals may sense these experiences as just defining who they are.

There is a direct connection between how past experiences have shaped implicit memory and how they are reactivated in the setting of being with a child. If parents do not recognize this link, then they are at risk of enacting, without conscious awareness, learned behaviors and emotional responses that will dominate their actions and create their children's attachment experiences. If these implicit memories are of healthy forms of relating, then the outcome will be a secure attachment. If instead the parents had less than optimal experiences, without self-reflective work they may be at risk of passing on either imitated patterns or adaptations to these relationships, which will keep their children from experiencing a dependable emotional closeness (which secure attachments require).

Preoccupied attachment can be described as reflecting an impairment in the flow of information and energy in attachment-related contexts. The intrusion of information (memory) from the past into present situations impair an adult's ability to have contingent, collaborative communication with a child. We can propose here that one mechanism by which this intrusion of memory influences social communication is within the integrating circuits of the orbitofrontal region, described earlier. As auto-noetic consciousness mediates the mind's ability to travel through time—to experience the self in the past, present, and future—then the settings of the AAI, emotional relationships, or ongoing parenting experiences may evoke attachment-related contexts that activate the orbitofrontal cortex's retrieval of auto-noetic representations. For the preoccupied state of mind,

auto-noetic awareness then evokes a range of intense mental representations that slip easily into this state of roving among past, present, and future preoccupations. This may be how the characteristic AAI pattern is created.

The orbitofrontal region also specifically mediates the perception of emotional signals and social cognition. The dual tasks of the AAI" (as described by Hesse)—to carry out collaborative and coherent discourse while searching for memory—may be particularly challenging to the orbitofrontal region in insecure states of mind with respect to attachment. For the preoccupied state, such a challenge may lead to a flood of episodic representations, which can be postulated to impair the emotional perception and social cognition functions of this same region. Furthermore, within the context of parenting, such flooding may also impair the capacity of the orbitofrontal region to mediate sensitivity to the child's signals, to achieve attuned communication, and to regulate emotional states within the parent—the processes that ordinarily allow a child to achieve consistent and predictable social referencing. In an ambivalently attached dyad, these processes, in which the child looks to the parent's often nonverbal responses to "know how to feel,"<sup>12</sup> are inconsistently useful in helping the child learn to regulate her own internal states. These transactions may be at the core of the inconsistency and intrusiveness of the ambivalently attached child's experience with the preoccupied parent.

In such a dyad, the energy arousal often associated with the flooding of intense emotional states onto interpersonal interactions can be seen as an impairment in the flow of energy both within the mind of the parent and in its interactions with other minds. The intrusion of mental representations from the past will also influence the direct perception and representation of the child's signals. Patterns of the flow of energy and information from past experiences intrude onto the natural collaborative flow of the preoccupied state of mind interacting in the present with other minds.

### **DISORGANIZED/DISORIENTED ATTACHMENTS**

After reunion following separations, a one-and-a-half-year-old girl would seek her father's attention and get on his lap, but continued to cry and did not return readily to play. This behavior was quite distinct

from her secure attachment to her mother, in which she sought proximity and then was easily soothed and then returned to exploration in the room. Unfortunately, the Strange Situation for this young girl and her father revealed more than these elements of an ambivalent attachment. When he returned to the room, she first got up from playing and moved toward the wall, away from him; then she seemed to walk toward him, but with her gaze focused in the opposite direction from where she was walking. Main and Solomon classified this type of approach-avoidance during the Strange Situation with a parent as disorganized/disoriented ("D"), with a primary or best-fitting alternative classification of ambivalently attached.<sup>13</sup>

During the reunion in the Strange Situation, an infant with a disorganized/disoriented attachment ("D") frequently exhibits chaotic and/or disoriented behavior.<sup>14</sup> Examples of this may include first going toward the mother or father and then backing away. In more severe cases, children may go in circles, fall down, enter trance-like states of "freezing," or avert their gaze and rock back and forth. In the first year of life, these dyads are characterized by unusual forms of communication from the caregiver. This communication has the quality of a "paradoxical intuition."<sup>15</sup> "Come here and go away" is a mild version of this conflictual communication. These communications present a child with an unsolvable and problematic situation. Main and Hesse have proposed that these dyadic interactions involving parental frightened, disoriented, or frightening behaviors toward the infant are inherently disorganizing.<sup>176</sup> They are disruptive to an organized strategy because the infant cannot make sense of the internally generated and confusing parental responses. Furthermore, the child cannot use the parent to become soothed or oriented, because the parent is in fact the source of the fear or disorientation. There is no organized adaptation available for the child. The internal state of mind is thought to lack internal coherence, because the attachment system is such that the caregiver is intended to confer safety to the child. Hesse has pointed out that disorganized attachment is seen in many situations that do not involve abuse in which parents exhibit frightened, dissociated, or disoriented behavior.<sup>177</sup>

At another extreme, however, are children who experience physical, sexual, or emotional abuse who also develop disorganized/disoriented attachments. In one clinical study of these high-risk, parentally maltreated infants, disorganized attachment was found in about eighty percent; in another study, in the context of home intervention, the incidence was fifty-five percent.<sup>18</sup> In this setting, a child

experiences fear or terror of the attachment figure, not just loss of the ability in the moment to use the attachment figure as an orienting and soothing haven of safety. When this parent returns, the infant experiences a bind in which the feeling of fear cannot be modulated by the very source of that fear. Without the option to fight or flee, stuck between approach and avoidance,<sup>19</sup> the infant can only "freeze" into a trance-like stillness, which may be the beginnings of a tendency toward clinical dissociation—the phenomena in which consciousness, states of mind, and information processing become fragmented.<sup>180</sup> The parental behavior of either abuse (frightening) or sudden shifts into mental states independent of the child's signals (frightened or disoriented) are thought to be the mediators of disorganized/disoriented attachment.<sup>181</sup>

Children with disorganized/disoriented attachment have been found to have the most difficulty later in life with emotional, social, and cognitive impairments.<sup>182</sup> These children also have the highest likelihood of having clinical difficulties in the future,<sup>183</sup> including affect regulation problems, social difficulties, attentional problems, and (as suggested just above) dissociative symptomatology. Unlike the other forms of insecure attachment, which are "organized" approaches to the pattern of parental communication, this form of insecure attachment appears to involve significant problems in the development of a coherent mind. The sudden shifts in these children's states of mind yield incoherence in their cognitive, emotional, and behavioral functioning. Their social interactions become impaired. Studies have found that these children become hostile and aggressive with their peers. They tend to develop a controlling style of interaction that makes social relationships difficult. These peer interactions in the school-age child often occur when the child is having continuing difficulties in the home environment that engender unsolvable paradoxes or overwhelming feelings without solution. Disorganized attachment has been associated with serious family dysfunction, such as impaired ability to negotiate conflicts, chronic and severe maternal depression, child maltreatment, and parental controlling, helpless, and coercive behaviors.<sup>184</sup> As the children develop and continue to have such experiences, the recursive aspect of mental development suggests that they will reinforce the very incoherence that is creating their difficulties. Disorienting relationships create internal disorganization that in turn impairs future interactions with others, which disorganize the development of the mind still further.

In these dyadic situations, the child has the double trauma of experiencing terrifying events and the loss of a trusted attachment figure. Terrifying experiences that have occurred early in life, during the normal period of infantile amnesia (before explicit episodic memory is available), will be processed in only an implicit manner. If such experiences occur later in life, then the family denial and lack of memory talk can impair explicit recall after the traumatic event, which in turn may impair the consolidation process and prevent experiences from becoming a part of permanent explicit autobiographical (narrative) memory.<sup>185</sup> Instead, these events may remain in an unresolved, unconsolidated form. In this state, they may be more likely to influence implicit recollections automatically, creating elements of emotional behavioral, perceptual, and perhaps somatic reactions without conscious awareness of their origins.<sup>186</sup> The ability of the mind to integrate these aspects of memory is severely impaired in unresolved trauma and in disorganized/ disoriented attachments, leading to dissociative tendencies and incoherence of mind.

**ADULT UNRESOLVED/DISORGANIZED STATE  
OF MIND WITH RESPECT TO ATTACHMENT:  
INCOHERENT LIFE STORIES AND ABRUPT  
SHIFTS IN STATES OF MIND**

In Main and Goldwyn's adult attachment studies, episodes of marked disorganization and disorientation in reasoning or discourse during attempted discussions of loss or abuse in the AAI lead to assignment of the transcript to unresolved/disorganized status. As Main and Hesse first discovered, unresolved parents tend to have infants whose Strange Situation behavior is disorganized. A meta-analysis conducted by van IJzendoorn has shown that across a full set of existing studies, a child with a disorganized attachment (D) indeed often has a parent with an AAI classification of "unresolved" trauma or grief/disorganized (coded as "U/d").<sup>188</sup> As with the child classification, the adult is also given a primary, best-fitting alternative adult classification (F, Ds, or E; see Table 2, left side).

An example of disorientation or disorganization during an interview includes an individual's referring to a deceased person as if she was still alive (loss) or becoming confused and disoriented when discussing fearful experiences with a parent (trauma).<sup>189</sup> Examples of

narrative findings *not* classified as unresolved would be a person's crying during the interview or stating that the subject matter is too painful and he does not wish to discuss the topic. These latter two examples reveal that the emotional pain of the loss or trauma can still be active and available to the person's conscious mind, but the person is not showing signs of discourse disorientation or disorganization. In this view, unresolved trauma or loss is defined as being reflected in a disruption in the representational processes necessary for coherent discourse.<sup>190</sup> We can propose that the mind's ability to integrate various aspects of representations within memory into a coherent whole is impaired in unresolved states. The orbitofrontal cortex can be hypothesized to be playing a central role in such impairments in integration.<sup>191</sup> Abrupt shifts in state of mind, intrusive "dissociated" elements of implicit and explicit memory, transient blockages in the capacity to carry out collaborative social communication, and difficulty maintaining a fluid flow in consciousness across these processes may be at the root of unresolved states of mind as assessed in the AAI.<sup>192</sup>

If one examines the incidence of loss or of trauma *alone* (and not the indicators of its lack of resolution), there is little statistical correlation with the disorganized attachment status of offspring or with any other developmental feature.<sup>93</sup> It appears that the AAI is uniquely eliciting this usually unstudied feature of unresolved loss, and that it is unresolved loss, not loss itself, which leads to disorganized infant response patterns. Lack of resolution of traumatic events or loss from the past directly affects emotional experience.<sup>94</sup> Hesse and Main have emphasized the role of unintegrated fear in the lapses in reasoning or discourse observed in the speaker.<sup>195</sup> Unresolved trauma or grief creates pain and suffering in both these individuals and their children; for this reason, helping people resolve trauma and grief is of vital importance for present and future generations. Failure to identify lack of resolution can permit dysfunction to continue across the generations within the devastating effects of disorganized attachment. Again, these children have a marked inability to regulate emotional responses and the flow of states of mind establishing a tendency toward dissociation, disruptive behaviors, impairments in attention and cognition, and compromised coping capacities, as well as a vulnerability toward posttraumatic stress disorder.<sup>196</sup>

It is clear that there may in fact be many individuals who do have unresolved grief or trauma, but whose AAI narratives may not reveal this as disorganization in discourse. It is assumed that the percentages

of subjects placed in the unresolved category may actually represent underestimates of the prevalence of lack of resolution. In spite of this unavoidable procedural limitation, the unresolved category has a robust correlation with the group of infants with disorganized/disoriented attachments.<sup>197</sup>

One father revealed a marked disorientation during discussions about his own father's alcoholism. This incoherence in his narrative suggests unresolved trauma. When asked about times when he may have felt threatened by his parents, he stated:

"I know I didn't like my mother's depression, but I don't think I felt threatened by it. She would be OK sometimes, other times not. I think I was mostly disappointed and sad. About my father, well, that is a different sort of thing. I try not to think about it much. He is always unpredictable, though I think he can control himself, though sometimes he can't, and I couldn't figure out when he would, so I don't, I mean I couldn't, know how to deal with him ... [twenty-second pause]. There were things that would happen ... [seventeen-second pause]. And they weren't very fun, I mean they were scary. Yes, I feel frightened. He is very big, and very threatening. Yes."

Note the use of the present tense to describe the past—a sign of disorientation. The incomplete sentences and prolonged pauses in speech are other signals of cognitive disorganization. During this part of the interview, something was happening in this father's mind that was incompletely processed and was impairing his usual ability to tell a coherent story while searching for memories.<sup>19</sup>

Disorganizedly attached children and their parents with unresolved trauma or grief each have the potential to activate incoherent, conflictual, or unstable mental models. Abrupt shifts in states of mind can occur within these individuals, leading to a disorganized form of behavior externally and to the experience of a dissociation in consciousness internally. AAI narratives such as the one above reveal breaks in the normal flow of communication—both in the extended pauses without explanation and in the incoherent content of discourse. Unresolved traumatic experiences or unresolved grief over loss of a loved one can be revealed through this disorganization in narrative flow.

A young infant attempting to make sense of the world, is particularly vulnerable to a parent who has abrupt shifts in his own state of mind. These state shifts are primarily functions of the internal

processes of unresolved trauma or grief, rather than directly contingent and hence predictable responses to the child's own behavior. The child's capacity to anticipate the parent's behavior is severely impaired and expectations, mediated via mental models, cannot be created in an organized manner. As the two individuals interact, the child's state attempts to align with the shifting sands of the parent's rapid changes. With these noncontingent shifts, the child's mind may be unable to develop smooth transitions and will continue to have abrupt and at times chaotic shifts in state, which are ordinarily seen primarily during the first year of life. States of mind begin to have significantly smoother transitions by the second year unless mitigating factors, such as frightening or conflictual parental responses, prevent this developmental milestone.<sup>198</sup> Furthermore, the child may begin to take on a disorganized state as a learned, engrained, repeated pattern of neuronal activations. The child learns to recreate the parent's incoherent behavior by attuning to the chaotic shifts in parental state.

Parental lack of resolution may explain the findings that, as Hesse and Main have hypothesized<sup>200</sup> and as several researchers have recently demonstrated,<sup>201</sup> these parents may behave with fear or fear-inducing actions that are conflictual and confusing.<sup>202</sup> Their children cannot incorporate an organized approach to this behavior. Parental lack of resolution of trauma or loss involving an attachment figure can produce future disorganization in these parents' minds as well as their actions. The conditions that elicit such shifts may include questions about the topic (as in the AAI), or relationship contexts that resemble those of the adults when they were children with their own attachment figures. Examples of the latter include many crucial moments in parenting, such as setting limits, tuning in to a child's distress, responding to a child's testing of limits, and negotiating bed-time and other separations. Hesse and van IJzendoorn have found that in a nonclinical sample of young adults, individuals whose parents had experienced the loss of a child or another loved one within two years of their own birth tended to have higher rates of "absorption," one element of dissociative reactions.<sup>203</sup> Loss in a caregiver around the time of raising an infant may be less likely to have been resolved at that time, and these findings support the view that such lack of resolution may contribute to the development of disorganized attachment and the tendency to dissociate.

Parental confusion, internal conflict, intrusive emotional memories, rapid shifts in state of mind, overt trance states in response to

stress, and difficulty with their own and their children's affect regulation are some of the fear-inducing and confusing parental elements that may directly produce disorganized/disoriented attachment in the children. For example, with the father whose AAI was described above, abrupt shifts into dramatically different states of mind would often occur when he initially felt rejected, either by his wife or by his daughter. He described the experience as if something would then happen that activate a "crazy feeling"—as if "something was about to pop." He would sense a pressure in his head and a trembling in his arms. He would feel that he was going out of his mind, ready to explode, "receding from the world," and drawing away from people as if in a tunnel. At this moment he could no longer stop the process. He knew that his face looked enraged and tightly drawn, and that the muscles in his body were stiff. Sometimes he would hit his daughter. Sometimes he would squeeze her arm. Other times he would just yell at her, at the top of his lungs, filled with a rage he could not control.

The father tried to deny his repeated and sudden shifts into a frightening rageful state. He felt so ashamed of these outbursts that he did not engage in any repair process with his daughter during or after such terrifying interactions. These repeated discontinuities without repair in their communication produced a mental model in her of a confusing and unreliable relationship with her father. Her implicit memories of these frightening experiences might emerge as she grew older and be revealed as sudden shifts in her own state of mind, behavioral responses toward others, bursts of rage, or images of her enraged father. She might have the general sense that whenever she needed something, others might become irritated and betray her.

Such parental behaviors as these reflect parents' unresolved traumatic experiences from their own childhoods. How does this occur?

Traumatic experiences often involve a threat to the physical or psychological integrity of the victim.<sup>204</sup> If the traumatizing individual is someone in a position of trust, such as a parent, relative, friend, or teacher, then the sense of betrayal can play an important role in the meaning of the experience(s). As a child, the father described above was repeatedly subjected to the alcoholic outbursts of a drunk and angry father. His withdrawn mother was unavailable to protect him, and he was vulnerable to his father's unpredictable whims. The son learned that these sudden shifts in his father could be anticipated from the amount of alcohol the father had consumed. He would keep a vigilant eye on how much his father drank each night. If it

was too much, his father would pass out. If it were just a little, he would get berated. If it were "just the right amount," he would be at risk of being chased and beaten.

When this man grew up and had a daughter, and the daughter would insist on things being done her way (as children often do), he found it difficult to be flexible. Her irritation with him (also a normal childhood response) was felt by him as a rejection, and set off the patterns of abrupt shifts in his state of mind and the enraged reactions that established the disorganized pattern of attachment. What happened after that was a sign of an unresolved traumatic experience, which we can hypothesize involved the father's present experience with the intrusive elements of his past. The perception of his daughter's irritation with him induced a shift in his mental state. In memory terms, his present perception of her irritation was represented in his mind as a perceptual representation, or engram. This engram became linked with other representations connected with the perception of an irritated face. We can conceptualize these as part of the virtual other from his own childhood. For the father, these link-ages included the emotional representation of feeling rejected and the associated implicit memories from past experiences: behavioral impulses to flee, perceptual images of his enraged father or depressed mother, and bodily sensations of tension and perhaps pain. These linkages were made quickly and out of his awareness. He did not feel that he was recalling anything. As implicit memories, they were experienced in the here-and-now, as part of his present reality. These implicit processes created his subjective world and organized his internal experiences.

In those crucial moments in which his perception of his daughter's response initiated a cascade of implicit memory activations, he would become flooded with an emotional response that rapidly shifted his state of mind.<sup>205</sup> This sudden shift could be a sign of a discontinuous experience of the flow of consciousness—in other words, dissociation. At times, such a shift might appear as the entrance into a frozen, trance-like state of mind. At other times, this shift might reveal the sudden onset of explosive rage. The father described the sensation of feeling that he was going out of his mind, that he was about to explode. In this situation, he was overwhelmed with implicit memories and suddenly shifted into a childhood mental state filled with that old and all too familiar sense of rejection, fear, anger, and despair. His sense of impotence and disconnection was experienced as shame. His subsequent perception of his daughter's irritation

as anger at him induced a feeling of humiliation within himself. Before he could pull himself out of this avalanche, he would become enraged. In this altered, dissociated state, he would behave in a way terrifying to his daughter, which he would never ordinarily choose to do. He was, literally, out of control.

This father's repeated entry into these states of mind as a child had allowed these states to become engrained in his neural networks. These were dreaded states, filled with shame and humiliation—painful, despairing, imprisoning and terrifying. States of mind that are repeatedly activated can become traits of an individual.<sup>206</sup> The unresolved nature of this man's traumatic experiences placed him at risk of uncontrolled entry into these dreaded states. This disorganization in his internal experience was now directly shaping his interactions with his daughter, who in turn was beginning to experience the disorganization of her own internal world. Therapeutic work with this family would require an understanding of these rapid shifts in states and their connection to patterns of relationships from the past. If we can help those with unresolved trauma heal, then we can alter the cycle of intergenerational transmission of relationship disturbances—a cycle that produces and perpetuates devastating emotional suffering.

### **RUPTURE AND REPAIR**

Repeated and expectable patterns of interpersonal connection between a child and an attachment figure are necessary for proper development. There are always times of disconnection, which can be followed by repair and reconnection. In each of the forms of insecure attachment there is a problem with connection and repair. In the avoidantly attached dyad, connections are consistently infrequent and unsoothing; there is no repair. In the ambivalently attached dyad, connections are unpredictable and at times overwhelming and emotionally intrusive. There is inconsistent respect for the cycling of needs for interaction versus solitude. Repair in these situations may be overstimulating, such as an intrusive parent's wanting to reestablish a connection and not letting the infant avert his gaze as a means of regulating his level of arousal/distress. Parents who persist at trying to make direct contact or alignment when attunement actually calls for them to back away from such efforts will overwhelm their children and teach them that there is no reliable comfort in connection with the parents.

In a dyad with disorganized/disoriented attachment, interactions can be a source of overwhelming terror and despair, going well beyond misattunement or missed opportunity for connection or repair. In this case, the child is left in an overaroused state of distress without any comfort from the caregiver, who is in fact the source of distress. Disorganized attachment develops from repeated experiences in which the caregiver as sears frightened or frightening to the child. As Lyons-Ruth and Jacobowitz have recently observed, 'repair in such a dyad after these interactions does not occur. Often following such frightening encounters, the parent may be so disoriented or in denial that the child is not given the opportunity to experience repair. The child remains frozen, in a state of disconnection, and with the overwhelming feelings of terror that have created such a large and frightening distance between child and parent.'

### **REFLECTIONS: ATTACHMENT AND MENTAL HEALTH**

It is amazing that such a complex process as interpersonal communication and parent-child relationships can actually be understood in a fairly simple manner: Attachment at its core is based on parental sensitivity and responsiveness to the child's signals, which allow for collaborative parent-child communication. Contingent communication gives rise to secure attachment and is characterized by a collaborative give-and-take of signals between the members of the pair. Contingent communication relies on the alignment of internal experiences, or states of mind, between child and caregiver. This mutually sharing, mutually influencing set of interactions—this emotional attunement or mental state resonance—is the essence of healthy, secure attachment.

Suboptimal attachments arise with repeated patterns of non-contingent communication. A parent's communication and own internal states may be oblivious to the child's, as in avoidant attachment. In contrast, an ambivalently attached child experiences the parent's communication as inconsistently contingent; at times it is intrusive, and yet at other times there is an alignment of their internal states. If the parent is a source of disorientation or terror, the child will develop a disorganized/disoriented attachment. In such a dyad, not only is communication noncontingent, but the messages sent by the parent create an internal state of chaos and overwhelming fear of the parent within the child.

These characteristics of the relationship with a child are features that emerge in specific relation to each parent. Furthermore, a parent's "state of mind with respect to attachment" is the most powerful predictor of how the parent – child relationship will evolve. The narrative process of the AAI reveals characteristic ways in which parents' coherent or incoherent states of mind are associated with their secure or insecure attachment to their children, respectively. The AAI finding of an "earned" secure/autonomous status is an important point for our understanding of coherent functioning. In some cases, therapeutic and personal relationships appear to be able to move individuals from an incoherent to a more integrated functioning of the mind. The fact that these adults are capable of sensitive, attuned caregiving of their children, even under stress, suggests that this "earned" status is more than just being able to "talk the talk"; t h e y can also "walk the walk" of being e m o t i o n a l l y connected with their own children, despite not having such experiences in their own childhood.<sup>ds</sup> We may serve a vital role for this and future generations in enabling each other to achieve the more reflective, integrated functioning that facilitates secure attachments.

We c a n also propose that a transforming attuned relationship would involve the following, fundamental elements: contingent, collaborative communication; psychobiolo g i c a l state attunement; mutually shared interactions that involve the amplification of positive affective states and the reduction of negative ones; reflection on mental states; and the ensuing development of mental models of security that enable emotional modulation and positive expectancies for future interactions.

In those adults whose early life probably included a predominance of emotional neglect and rejection, a dismissing stance toward attachment may be found. These adults often have relationships with their children marked by avoidant attachments. Communication appears to have little sensitivity to signals or emotional attunement. The inner world of such adults seems to function with independence as its banner—living free from the entanglements of interpersonal intimacy, and perhaps from the emotional signals from their own bodies. Their narratives reflect this isolation, characterized by the specific finding of insisting that they do not recall their childhood experiences. Life is lived without a sense that the past or others contribute to the evolving nature of the self.

In those adults who probably experienced inconsistently available c a r e g i v i n g and intrusive emotional communication, there is a

preoccupied stance toward attachment filled with anxiety, uncertainty, and ambivalence. The children of these adults experience these preoccupied states as often impairing their parents' ability to perceive their needs consistently. Mental models of others may create a sense of caution about impending loss or intrusion from others. The result for the inner experience of these adults is to be perpetually overwhelmed by doubts and fears about relying upon others. Their AAI narratives are marked by intrusions of these past states upon their ability to focus clearly on the present. These narrative intrusions are reflections of the shifting emotional states that impair their ability to have consistent contingent communication with their own children. In this way, what they may have learned from inconsistent and intrusive experiences is laid down directly within their pattern of relating to others and within their own narrative process.

Finally, we have discussed how parental lack of resolution of trauma or loss has been demonstrated by attachment research to be a major factor associated with the most disturbed child form of attachment, disorganization/disoriented. Examining the nature of memory processes makes it possible to begin to address this basic question: What does lack of resolution truly mean for the functioning of the human mind? Answering this question is of pressing concern, given e /impairment that these adults and their offspring may come to experience. These parents appear to enter rapid shifts into states of mind that are terrifying to their children. In studies of posttraumatic stress disorder, those individuals who utilize dissociative mechanisms (entering into altered states of mind) during and after a trauma appear to be those most likely to suffer later disability.<sup>208</sup> Understanding how unresolved trauma or loss relates to the disassociation of various processes from one another, including explicit from implicit memory, is essential to gain insight into what later may become terrifying parental behaviors.

The individuals at greatest risk of developing significant psychiatric disturbances are those with disorganized/disoriented attachments and unresolved trauma or grief. From our conceptualization of the developing mind and mental health, these attachments involve the most profound disturbances in how the self is able to organize the information and modulate the energy of emotional states. At a most basic level, these individuals appear to have the most seriously impaired capacity to integrate coherence within the mind. They are not able to create a sense of unity and continuity of the self across the past, present, and future, or in the relationship of the self with

others. This impairment reveals itself in the emotional instability, social dysfunction, poor response to stress, and cognitive disorganization and disorientation that characterize both children and adults in this attachment grouping. As we've discussed, children with disorganized attachment tend to become controlling in their behaviors with others and may be hostile and aggressive with their peers. Disorganized attachment in children and unresolved/disoriented attachment in adults has been proposed by a number of authors to predispose these individuals to violent behavior.<sup>209</sup> Finding ways as a society to identify these high-risk individuals and help them to heal their unresolved trauma and repair the devastating effects of such chaotic attachment histories may enable us to help them develop more coherent internal function and more socially adaptive and rewarding interpersonal relationships.

The inability to integrate a sense of self and of the self with others across time may be due to the disorganization in a more fundamental self-organizational process. Studies of early trauma and neglect reveal that neural structure and function within the brain can be severely affected and lead to long-lasting and extensive effects on the brain's capacity to adapt to stress.<sup>210</sup> As we explore the nature of relationships, emotion, and representational processes in the next chapters, we will lay the groundwork for a more in-depth discussion of how the mind regulates its own functioning. It is clear that certain early experiences create a fundamental impairment in self-organization. At one extreme are dismissing or avoidant attachments, which reveal excessively restrictive processes. At the other are preoccupied or ambivalent attachments, which have intrusions of past elements onto the present. In unresolved or disorganized attachments, there is a primary difficulty in organizing the self, which leads both to internal flooding and to disruptions in interpersonal relationships.