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Brain Science, Emotional Trauma, and The God Who is With Us ~ Pre-Conference Reading

(Also known as the first 42 pages of Part II: The Processing Pathway for Painful[1] Experiences and the Definition of Psychological Trauma

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I. Pre-introduction: The purpose of this "pre-introduction" is to provide a summary of the developmental neuropsychology and other foundational concepts that are necessary for understanding this discussion of psychological trauma and the processing pathway for painful experiences.[2]

Psychological/spiritual maturity skills: As a person develops physically, she encounters many physical skills that she must master in order to thrive physically. For example, she must learn to coordinate her feet and legs and trunk in the complex skills of walking and running; she must learn to coordinate the movements of her fingers and thumbs in the many complex skills of manipulating objects with her hands; she must learn to coordinate the movements of her teeth, tongue, lips, and vocal cords in the complex skill of talking;...etc. These are physical skills that you learn during the process of physical development – skills that you learn as you grow in physical maturity. Mastering these physical skills is an important part of maturing physically. Similarly, as a person develops psychologically/spiritually, she encounters many psychological/spiritual skills that she must master in order to thrive psychologically/spiritually. For example, she must learn to handle painful emotions – to stay with painful emotions, to think and behave appropriately while feeling painful emotions, and to get back to joy from painful emotions; she must learn to be aware of and care for her own needs; she must learn to be aware of and care for the needs of others;...etc. These are psychological/spiritual skills that you learn during the process of psychological/spiritual development – skills that you learn as you grow in psychological/spiritual maturity. Mastering these psychological/spiritual skills is an important part of maturing psychologically/spiritually.

When checking to see whether this theory fits your experience, it is important to remember that the subjective experience of using most of these skills is more like the subjective experience of walking than the subjective experience of doing long division. You can be aware of and understand these skills with your logical, analytical, linguistic left hemisphere neurological circuits; but the actual skill is not learned by or carried in your left prefrontal cortex, and

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[1] Although this essay focuses on how we process painful experiences, the processing pathway discussed here is actually the processing pathway for all experiences.

[2] Many of these concepts are discussed in much more detail in the THRIVE conferences and THRIVE training material. For additional information regarding THRIVE conferences and THRIVE training material, visit the THRIVE website at www.thrivetoday.org.

therefore does not *feel, subjectively*, like a logical, analytical, language-based skill.[3] You can have a logical, analytical, language-based understanding of walking, but this left hemisphere understanding is not what actually enables you to walk. The subjective experience of most of these psychological/spiritual maturity skills is very similar. You can be aware of them and understand them with your logical, analytical, linguistic left hemisphere circuits, but the actual skills are not learned by, or carried in, your left prefrontal cortex. In fact, most of the time we use these skills so smoothly and intuitively that our logical, analytical, linguistic left hemisphere is hardly even aware of them.

When checking to see whether this theory fits your experience, it is also important to remember that we learn some of the most important psychological/spiritual maturity skills very early in childhood, so that we do not have any conscious autobiographical memory of the actual learning process. This is another way that these maturity skills are more like walking than long division – you have conscious autobiographical memory for learning how to do long division, but not for learning how to walk.

Biological/psychological/spiritual capacity: As described in Part I, when we refer to the capacity of a physical system, we are referring to "how much can it hold?" or "how much can it carry?" The capacity of a bucket refers to how much liquid it can hold before overflowing, the capacity of a bridge refers to how much weight can travel across it before it collapses, and the capacity of an electrical circuit refers to how much current it can carry before blowing a fuse or burning out components. And when we refer to biological/psychological/spiritual capacity, we are referring to the capacity of the person's biological brain, non-biological mind, and spirit – we are referring to how much biological, psychological, and spiritual intensity a person can handle before some part of his combined brain-mind-spirit system "blows a fuse" and begins to malfunction or disconnect.

Factors that could contribute to strong *biological brain capacity* would include appropriate organization of the brain resulting from healthy neurological development, balanced body chemistry resulting from regular exercise and a healthy diet, absence of injury or disease, and genetic strengths, such as high intelligence and strong emotional processing hardware; and biological stressors that could contribute to the overall load on the system would include things like lack of sleep, hunger, physical pain, any illness or injury that affects the brain, and intoxication with any chemical that impairs brain function. Factors that could contribute to strong *mind capacity* would include healthy psychological development, strong psychological maturity skills, a rich store of accurate and coherent knowledge, and relational connection to a supportive community; and psychological stressors that could contribute to the overall load on the system would include things like negative emotions, such as fear and shame, intense psychological stressors, such as complex decisions where errors result in costly consequences, and traumatic memories that are currently active. Factors that could contribute to strong *spiritual capacity* would include synchronization with Jesus, the indwelling presence of the Holy Spirit, a rich store of spiritual truth, and relational connection to a spiritual community; and spiritual stressors that could contribute to the overall load on the system would include things like truth-based guilt from unconfessed sin, spiritual alienation from persistent willful disobedience, and harassment from demonic spirits.

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[3] For those of you who are already familiar with the five levels of brain function, yes, these are left prefrontal cortex level 5 circuits and left prefrontal cortex level 5 skills.

A very important point to remember is that each component of the brain-mind-spirit system affects the others. For example, if you are sleep deprived, malnourished, and intoxicated, these biological factors will also affect your mind and spirit. If your psychological development was dysfunctional, you have poor psychological maturity skills, and you are anxious and confused, these psychological mind factors will affect your biological brain and your spirit. If you do not have Jesus living in your heart, you are carrying truth-based guilt from unconfessed sin, and you are being harassed by demonic spirits, these spiritual factors will affect your brain and mind. At times it can be helpful to talk about the different parts of the brain-mind-spirit system separately, but even as we discuss the different parts it is important to remember that these parts have been synthesized into a profoundly integrated, interrelated, interconnected system.

It is also interesting and important to note that capacity and skills are interconnected. For example, psychological/spiritual maturity skills are most effectively learned by observing and practicing in the context of consistent, attuned relational connection with parents who already have good psychological/spiritual maturity skills. This very same process and context is simultaneously one of the most important ingredients for healthy neurological and psychological development, both of which contribute to strong capacity. But the connection is even closer than this. When you learn to walk, your biological brain records this new skill by making changes in the organization and specific connections of its neurological circuits. Similarly, when you learn psychological/spiritual maturity skills, at least some aspects of these new skills are recorded in the circuits of your biological brain – changes in your biological brain correspond to, reflect, and record your new maturity skills. And the circuits that correspond to strong maturity skills also seem to be healthy, well organized, well balanced circuits that are a part of healthy neurological and psychological development.

Putting all the pieces together: strong psychological/spiritual maturity skills are directly reflected in strong, well organized, well balanced brain circuits; these strong, well organized, well balanced brain circuits are a part of healthy neurological and psychological development; and the strong, well organized, well balanced brain circuits corresponding to healthy development contribute to strong brain-mind-spirit capacity. Furthermore, one important set of psychological/spiritual maturity skills has to do with knowing how to handle intense and painful situations, so these maturity skills will very directly contribute to increased capacity.

The larger, most important point here is that the brain-mind-spirit system is profoundly interconnected and interrelated, and that most of the concepts regarding the brain-mind-spirit system are also profoundly interconnected and interrelated. Another way to put this is: “When dealing with something as complex, integrated, and interconnected as the brain-mind-spirit system, it is good to be humble and to remember that the boundaries between many of our conceptual distinctions are fuzzy.”

Involuntary capacity vs voluntary capacity: As I have been working on this material regarding psychological trauma and the pain processing pathway, I have found it helpful to make a distinction between what I call *involuntary capacity* and what I call *voluntary capacity*. Since involuntary capacity primarily involves the physical limitations in the biological brain, and voluntary capacity primarily involves limitations of will and courage in the mind and spirit, I sometimes refer to involuntary capacity as biological brain capacity, and to voluntary capacity as

mind/spirit capacity.[4]

With respect to involuntary capacity, the most important point is that you are *not* consciously aware of the limitations of your involuntary capacity, and you do *not* make conscious, voluntary choices about what happens when you exceed your involuntary capacity. For example, one aspect of involuntary capacity has to do with whether or not you are able to "load" the content from a given *painful event* into your normal conscious awareness at the time of the original experience. As described earlier, all of the level 2 neurological circuits are below the cortex, and this means that they are *involuntary* and *non-conscious*. When you encounter an intensely painful event, these *subcortical, unconscious, involuntary* level 2 circuits also happen to be the neurological circuits that assess "Does this experience exceed the capacity limit?" And if the experience does exceed your involuntary capacity, these are the circuits that implement dissociative disconnection by routing the content to an alternative neurological pathway, as opposed to allowing it into your normal conscious awareness.[5] Therefore, all of these processes will also be *involuntary* and *non-conscious*.

So, if you are on a jungle patrol in Viet Nam, and the guy immediately in front of you is blown to pieces by a land mine, if this experience exceeds your level 2 involuntary capacity you will be unable retain it in your normal conscious awareness. You will *not* be consciously aware of your level 2 brain capacity limits, you will *not* be consciously aware of the level 2 neurological circuits routing the content to an alternative pathway, and you will *not* be making any voluntary choice to refuse the experience; but regardless of your courage or choices, your brain will refuse to allow this content into the usual processing pathway, and you will therefore be unable to retain the experience in your normal conscious awareness. You will experience a "blackout" covering some portion of the event, and then "come too" some minutes later – maybe half way back to camp, with your friend's arms and legs hanging out of your back pack. Memory for this experience will be stored as dissociated memory, it will come forward as a "flashback" whenever triggering stimuli are powerful enough to overcome the dissociative barriers, and as long as this content continues to exceed your involuntary capacity, you will have blackouts for these flashbacks as the overwhelming content is once again shunted to an alternative pathway and once again stored as dissociated memory.

Another aspect of involuntary capacity has to do with whether or not you are able to "load" the content from a given *traumatic memory* into your normal conscious awareness. When you try to bring a traumatic memory into your conscious awareness, these same *subcortical, unconscious, involuntary* level 2 circuits are the neurological circuits that assess "Does this memory exceed the capacity limit?" And if the memory content does exceed your involuntary capacity, these are the circuits that implement dissociative disconnection by routing the content to an alternative neurological pathway, as opposed to allowing it into your normal conscious awareness.

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[4] Although involuntary capacity is also affected by the mind and spirit, and voluntary capacity is also affected by the biological brain, involuntary capacity *primarily* involves physical limitations in the biological brain, and voluntary capacity *primarily* involves limitations of will and courage in the mind and spirit. As already noted, the brain-mind-spirit system is so complex, integrated, and interconnected that the boundaries between many conceptual distinctions are fuzzy.

[5] This is my current hypothesis for how level 2 circuits implement dissociative disconnection. For additional discussion of involuntary capacity, the alternative processing pathway, and level 2 dissociative disconnection, see Part VI: Special Subjects.

Therefore, both the capacity assessment and the actual dissociative disconnection are also *involuntary* and *non-conscious*. So, if you are in a therapy session, and you are trying to work on the Viet Nam memory of your friend being blow up, *but this content still exceeds your level 2 involuntary capacity*, then you will be unable to bring it into your normal conscious awareness. You will *not* be consciously aware of your level 2 brain capacity limits, you will *not* be consciously aware of the level 2 neurological circuits implementing dissociative disconnection by routing the content to an alternative pathway, and you will *not* be making any voluntary choice to refuse the memory; but regardless of your best intentions, earnest desires, and courageous choices to try to remember this event, your brain will simply refuse to "load" the memory into your normal[6] conscious awareness.

In contrast to involuntary brain capacity, when we are dealing with voluntary mind/spirit capacity we *are* consciously aware of the limitations of our capacity, and we *do* make conscious, voluntary choices about what happens when we exceed our capacity. For example, when you are in a ministry session working on a traumatic memory, you are consciously aware of feeling depleted as the painful, difficult work continues, and you are consciously aware of the choice "Do I keep going, or is it time to quit?" If you are working on an intensely painful memory, and resolution is not coming quickly, you will be especially aware of the overall accumulated load of suffering,[7] and you will be especially aware of how hard it is to stay with the memory. If you eventually decide "I've had enough for today," you will then end this particular attempt to process the memory by making conscious, voluntary choices to use various tools to shut the memory down.

An analogy to our brain-mind-spirit system that includes both involuntary and voluntary capacity would be an electrical system that includes *your hand* bridging the gap between two parts of the circuit. *Involuntary* capacity would be "How much current can the circuit carry before one of the electrical components burns out?" whereas *voluntary* capacity would be "How much current can the circuit carry before you pull your hand away?" As the current is steadily increased, the electrical flow can be shut down either by your choice to pull your hand away, or by some other part of the circuit burning out. And just as with our brain-mind-spirit system, in most situations, the current will exceed voluntary capacity and you will pull your hand away before the current exceeds involuntary capacity and burns out some other part of the circuit.

Involuntary capacity, dissociative phenomena, circuit-breakers, and house fires: If I turn on the microwave without noticing that the air conditioner is running and that Charlotte is also using the vacuum cleaner, the circuit breaker pops, the lights go out, and everything shuts down. How frustrating! I have to stop what I'm doing, go down to the basement, and reset the circuit breaker. This is certainly a hassle, and I might even be tempted to just pull those irritating circuit breakers right out of the system. But then I remember what happened before circuit breakers.

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[6] As mentioned above, when triggering stimuli are sufficiently powerful to overcome the dissociative barriers, memories that you are not able to load into your normal conscious awareness will be a part of *abnormal* conscious awareness in the context of flashbacks, and as long as the content continues to exceed your involuntary capacity, you will have blackouts for these flashbacks as the overwhelming content is once again shunted to an alternative pathway and the content is once again stored as dissociated memories.

[7] For an especially rigorous and powerful formulation of the overall accumulated load of stress and suffering, see Appendix A for a description of the concept of "total area under the curve."

Before circuit breakers,[8] when the electrical current exceeded the capacity of the wiring, the wires just got hot. And then turned red. And then started to smoke. And then started fires inside the walls of your house.

So let's think about this for a minute: the lights go off and I have to run down to the basement to reset the circuit breaker, or my house burns down? I don't know....This is a really hard one....Could you give me some more time?

Okay, I take it back. Those little circuit breakers are a *wonderful* design feature, and I'll leave them right where they belong.

When working with extreme trauma, blackouts, flashbacks, and other dissociative phenomena, it often seems that dissociation makes the emotional healing process more complicated, and at times we can become frustrated or impatient with this additional difficulty. When dealing with the additional challenges caused by dissociation, it's important to remember that this fascinating phenomena prevents much greater damage that would be caused by allowing the person to be totally overwhelmed by pain exceeding the involuntary capacity of his brain/mind/spirit system.

In light of this additional discussion, the "electrical system that includes your hand" analogy above should actually read: "*Involuntary* capacity would be 'How much current can the circuit carry *before the circuit breaker pops*?'" and "As the current is steadily increased, the electrical flow can be shut down either by your choice to pull your hand away, *or by the circuit breaker popping (**before** some other component burns out).*"

Five levels of function within the emotional/social processing system: Our bodies are very complex and contain a number of different organ systems that work together, such as the nervous system, the cardiovascular system, the respiratory system, and the gastro-intestinal system. Each of these organ systems are also complex, and are composed of different parts that work together. For example, the gastrointestinal system is composed of the mouth, teeth, tongue, esophagus, stomach, liver, gallbladder, pancreas, small intestines, large intestines, etc, and these parts all work together to process incoming food and outgoing waste. Similarly, our brains are very complex and contain a number of different neurological systems that work together; and just as with the organ systems in the body, these neurological systems are complex and are composed of different parts that work together. One of the most important and complex systems in the brain is the system that handles emotions and social interactions, and this emotional/social processing system is composed of many different parts, such as the basal ganglia, the thalamus, the amygdala, the cingulate cortex, the right-sided prefrontal cortex, and the left sided prefrontal cortex.

Some who study this emotional/social processing system like to organize it into five levels, with level 1 including the basal ganglia and the thalamus, level 2 including the amygdala, level 3 including the right-sided cingulate cortex, level 4 including the right-sided prefrontal cortex, and level 5 including the left-sided prefrontal cortex. NOTE: The most important thing here is to keep track of the functions performed at each of the 5 different levels. Some people, like myself, find it helpful to have specific names for the neurological structures that contribute to each level.

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[8] Actually, primitive devices called fuses came before circuit breakers, but many of the younger readers won't remember this. If we are going to be historically accurate, it was before *fuses* that electrical overload frequently resulted in house fires.

My experience is that knowing the neurological structures provides additional reference points that help keep me oriented as I try to understand and integrate the large amount of material presented at the THRIVE conferences. However, my guess is that most readers just being introduced to this material will be best served by letting go of the brain structures for now (conserve your brain power for keeping track of the functions performed at each level).

Why five *levels*?: One might ask "Why the hierarchical structure of five *levels*, as opposed to five *components* that work together as equal team members? There are several reasons for this. One is that the brain structures contributing to the lower levels are more primitive than the brain structures contributing to the higher levels. The basal ganglia, thalamus, and amygdala contributing to levels 1 and 2 are in the primitive core of the brain, below the cortex; the cingulate cortex contributing to level 3 is a cortical structure, and more advanced than the subcortical structures in the core of the brain, but still primitive in comparison to the cortex towards the front of the brain; and the right and left prefrontal cortices contributing to levels 4 and 5 are the most advanced structures in the brain.

A second reason, related to the first, is that all functions performed by subcortical structures are unconscious and involuntary, which means that all level 1 and level 2 functions are unconscious and involuntary. In contrast, many functions performed by cortical structures are conscious and voluntary, and observations regarding levels 3, 4, and 5 reveal that many of their functions are conscious and voluntary.

A third reason is that the availability of both structure and function progresses from the lower levels to the higher levels, with the lower level structures and functions becoming available earlier. Both the structures and functions for levels 1 and 2 are already available at birth. The cingulate cortex structure for level 3 is ready at birth, but it cannot perform its functions until it has been trained. In the ideal scenario we receive much of our level 3 training during infancy, but often parts of our level 3 training are not completed until later in life. The right and left prefrontal cortex structures for levels 4 and 5 are not even available until well into childhood, and like level 3, levels 4 and 5 cannot perform their functions until they have been trained. Training for levels 4 and 5 cannot begin until the structures become available in childhood, and level 4 and 5 training usually continues throughout life.

A fourth reason to arrange the levels hierarchically is that one's journey through the pain processing pathway progresses from the lower levels to the higher levels as the emotional and social information from a new experience is passed forward/upward.[9] As described below, processing of painful experiences begins at levels 1 and 2, and then progresses forwards/upwards through levels 3, 4, and 5.

A fifth reason to arrange the levels hierarchically is that desynchronization and "shutdown" progress from higher levels to lower levels as a person becomes increasingly overwhelmed. If the overall load of a situation begins to overwhelm your involuntary capacity, certain parts of

[9] Some authors talk about new information being passed "forward" because the neurological structures contributing to the lower levels of brain function are physically more towards the back of the brain, and new information is literally passed forward as it moves from being processed at lower levels to being processed at higher levels. Other authors talk about new information, and/or the journey through the pain processing pathway, as moving "upward," as figurative language corresponding to moving from being processed at lower levels of brain function to being processed at higher levels.

your brain will function with increasing difficulty, and then eventually shut down completely. When this dysfunction and shutdown occurs, it starts at level 5, and then progresses downwards to level 3.[10]

Summary of functions that relate to the pain processing pathway: Each of the 5 levels of the emotional/social processing system carries out many different functions, but for the purposes of this document I will summarize only the functions that relate to the pain processing pathway.[11]

Level 1: Level 1 contains the neurological circuitry that moderates attachment (bonding) to other people. At any given moment, activity in your level 1 circuits determines whether you are operating from a foundation of secure attachment, dismissive attachment, distracted attachment, or disorganized attachment. Level 1 attachment circuits also initiate the emotional experience of joy when we perceive that someone is glad to be with us.

Level 2: Level 2 contains the neurological circuitry that moderates connection to an experience. If an experience moderately exceeds our involuntary capacity, one set of level 2 neurological mechanisms cause emotional disconnection. If an experience more severely exceeds our involuntary capacity, a second set of level 2 neurological mechanisms cause complete dissociative disconnection by routing the content through an alternative processing pathway. When this happens the experience is completely disconnected from our normal conscious awareness and from our conscious autobiographical memory.

Level 3: Level 3 contains the neurological circuitry that moderates relational connection to others. The level 3 right-sided cingulate cortex is the part of our brain that our mind uses to maintain attuned relational connection to the Lord and/or others in our community, *even during painful experiences;* and when we experience a negative emotion that is beyond the ability of our level 3 skills, and we therefore temporarily become non-relational and lose joy, the level 3 cingulate cortex is the part of our brain that our mind uses to re-establish attuned relational connection. For those of your familiar with Dr. Wilder's teaching, this is where "returning to joy" comes in, because once our level 3 circuits have re-established attuned relational connection our level 1 attachment circuits re-establish joy.

Level 4: Level 4 contains the neurological circuitry that helps us hold onto our true hearts as the source of discernment and choices, even when we are dealing with difficult situations.[12] The level 4 right prefrontal cortex is the part of the brain that the mind uses to discern "How

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[10] Note that the sub-cortical, involuntary, and non-conscious functions at levels 1 and 2 never shut down. As discussed below, if a painful situation or traumatic memory becomes profoundly overwhelming, level 2 will employ non-conscious neurological mechanisms to cause disconnection from our emotions and normal conscious awareness, but the sub-cortical, involuntary, and non-conscious functions at levels 1 and 2 continue even after this disconnection from our emotions and normal conscious awareness has occurred.

[11] The emotional/social processing system is immensely complex, and this material developed for use by lay readers has therefore been dramatically simplified. Even within the subset of functions related to the pain processing pathway, I am including only the one or two most important functions.

[12] In THRIVE material, when Dr. Wilder talks about maintaining our true hearts as the source of discernment and choices, he uses the phrase: "Knowing who I am, and what it's like me to do in this situation."

do I handle this situation? How can I navigate this situation *in a way that I will be satisfied with after it's all over*?" Level 4 also contains the neurological circuitry that calms the brain down – after the source of distress has been resolved, these level 4 circuits take the brain from the subjective experience of feeling negative emotions to the subjective experience of feeling peaceful/calm.

Level 5: Level 5 contains the neurological circuitry that helps us "make sense" out of our experiences and that helps us interpret the meaning of our experiences. The level 5 left prefrontal cortex is the logical, analytical, linguistic part of the brain that the mind uses to come up with explanations, models, paradigms, and worldviews. The level 5 prefrontal cortex is the part of the brain that the mind uses to build an autobiographical narrative that tells the story of our experience. One of the most important functions of level 5 is to *interpret the meaning of the experience with respect to ourselves*, with the final product of this level 5 process being *cognitive beliefs* regarding the meaning of the experience with respect to ourselves.

Right hemisphere emotions, left hemisphere emotions, and other emotional experiences: As we discuss the pain processing pathway it will be very helpful to understand the difference between right hemisphere primal emotions, emotional experiences at level 4, emotional experiences at level 5, and left hemisphere cognition-driven emotions. One of the most important reasons to understand these distinctions, when helping a person through her pain processing journey, is that distressing experiences from each of these different categories require different kinds of interventions.

Right hemisphere,[13] primal, non-cognitive emotions: When we encounter and then move through an experience, each wave of new information first enters the emotional/social processing system at levels 1 and 2, and as this information is processed, activity in these primitive, rapid response, right-sided neurological structures generate/initiate emotions.[14] These right-sided emotions are generated so quickly that they feel instantaneous; they are generated by involuntary neurological activity, so we do not experience any sense of choice regarding whether or not we will feel these emotions; and they are generated by nonconscious neurological activity, so we are not consciously aware of the underlying processes that produce them. These fast, involuntary, unconsciously driven, right-sided emotions are *not* produced by cognitive beliefs, but rather occur before we have even begun to formulate cognitive interpretations regarding the new information. After right-sided emotions have come forward into your conscious awareness, your left-sided language circuits can try to get words to match the feelings, but you will never be able to get words that truly fit the

[13] It would be more precise to refer to these emotions as "right-hemisphere *dominant*" emotions, as opposed to "right-hemisphere" emotions, because at levels 1, 2, and 3 there is actually involvement of the thalamus, basal ganglia, amygdala, and cingulate cortex on both sides of the brain. The right sided neurological circuits are *dominant* in the production of "right-sided" emotions, with the degree of dominance increasing steadily as you go from level 1 to level 3, but the left-sided circuits are also involved. However, for the purposes of this simplified discussion we will refer to these emotions as simply "right-hemisphere," or "right-sided" emotions.

[14] Initiated as part of very rapid responses from levels 1 and 2, right-sided emotions can also receive contributions from levels 3 and 4 as they move forward through the emotional/social processing system. For example, joy originates in the attachment circuits at level 1, but then level 4 circuits amplify the intensity of the joy as it travels forward through the social/emotional processing system.

fundamentally non-verbal, non-cognitive right-sided emotions.[15]

For example, if you step out into an intersection, and then realize that you have just stepped in front of a truck that you had not seen,[16] you will experience an immediate wave of visceral fear that washes through your body, and you will respond with immediate, reflex, involuntary behavioral responses (such as screaming and attempting to dive out of the way). These primal, visceral, immediate, right-sided emotional and behavioral responses will already be unfolding before your left hemisphere even begins putting together its language-based cognitive formulation or generating the subsequent cognition-based emotions. By the time the wave of right-sided fear has already washed through you, and you are screaming and trying to dive out of the way, your left hemisphere will still be working on: "There's a truck barreling down on me, and I don't think the driver even sees me. I'm going to get hit by a truck and be seriously injured. This is really, really going to hurt. I don't like pain, and I'm terrified of emergency rooms," and will just be beginning to generate left-sided emotions based on these cognitions. In fact, researchers can actually observe physiological reactions and the initiation of escape behavior, that correspond to the almost instantaneous subjective experience of feeling right-sided fear, and that occur *before you have formulated left hemisphere cognitions or begun to produce left-sided emotions*.

Being involuntary, non-cognitive, and almost instantaneous, right-sided emotions feel especially core and primal.

The positive right-sided emotion is joy, and the basic negative right-sided emotions are fear, anger, disgust, sadness, shame, and hopeless despair. Dr. Wilder refers to these as the "big six" basic negative right-sided emotions, and you can combine these basic emotions to get a wide variety of complex right-sided emotions. For example, when I was working in the emergency room, a farmer was brought in who had gotten his leg caught in a corn auger. His leg was horribly mangled, with details that I don't even want to include here, and when I saw it I experienced the complex right-sided emotion of horror – a combination of the right-sided emotions of disgust, fear, and sadness – involuntary, non-cognitive disgust in response to the bloody mess of mangled skin, muscle, bone, etc; involuntary, non-cognitive fear in response to seeing such a huge, life threatening wound; and involuntary, non-cognitive sadness in response to seeing another person hurt so badly.

A few additional comments regarding joy, and also each of the "big six" negative emotions:

Joy: When you look at someone's face, and you can see from his expression and from the sparkle in his eyes that he likes you and that he is glad to be with you, the level 1

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[15] As described below, information from the experiences that produce right-sided emotions will eventually travel across to the left side, left-hemisphere circuits will generate language-based cognitions to interpret the experiences, and then these cognitions will travel back to emotion generating circuits where left-sided, cognition-based emotions are generated. If you observe very carefully, and pull the pieces apart, you will find that the *words* you come up with will usually *exactly match* the cognition-based left-sided emotions, but that you will never be able to get words that truly, fully, adequately express the fundamentally non-verbal, non-cognitive right-sided emotions.

[16] You would have heard it coming if you had not been wearing head phones and listening to loud music.

attachment circuits in your emotional/social processing system will respond with joy. A warm, wonderful feeling bubbles up in your heart, you are glad to be alive, and you are especially glad to be with the person who is glad to be with you. As with all right-hemisphere emotions, this joy response wells up inside you very quickly, it is not voluntarily, you are not consciously aware of the underlying processes that produce it,[17] and it is not caused by cognitive beliefs.

Fear: When you perceive threat from immediate physical danger, the level 2 amygdala circuits in your emotional/social processing system will respond with the well known fight or flight reflex. Your amygdala circuits make an extremely fast determination regarding whether you are likely to succeed in fighting off the threat, or whether running away would be a better plan. In situations where fight makes no sense and flight makes a lot of sense, such as the approaching truck in the example above, your level 2 amygdala circuits then respond with right-hemisphere fear as part of the "flight" response.[18] As with all right-hemisphere emotions, right-hemisphere fear is a primal, visceral, involuntary, extremely fast emotional response, it is not driven by cognitive beliefs, and we are not consciously aware of the processes that produce it.

Anger[19]: As just described above, when you perceive threat from immediate physical danger, the level 2 amygdala circuits in your emotional/social processing system will respond with the well known fight or flight reflex. Your amygdala circuits make an extremely fast determination regarding whether fighting or fleeing would be the better plan, and in situations where it makes sense to fight the threat, your level 2 amygdala circuits then respond with right-hemisphere anger as part of the "fight" response.[20] As

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[17] If you understand these principles and watch for it, you can easily observe that the emotional response of joy comes as a result of perceiving that someone is glad to be with you, but you cannot consciously perceive the underlying sub-cortical, non-conscious, level 1 processes that actually produce the response.

[18] Two of the most straightforward data points indicating that right-sided fear is produced by level 2 amygdala circuits are provided by animal studies demonstrating that direct amygdala stimulation produces immediate, intense fear reactions, and animal research demonstrating that damage to the amygdala blocks fear reactions. For additional discussion of the evidence supporting the amygdala as the source of right-sided fear, see Davis, Michael, "Neurobiology of fear responses: The role of the amygdala," *The Journal of Neuropsychiatry and Clinical Neurosciences*. 1997, Vol. 9, pages 382-402.

[19] Dr. Schore discusses two different types of aggression, one being the emotionally "cold" aggression seen in a predator stalking prey, that is based on parasympathetic stimulation; and the second being emotionally "hot" aggression that is seen in the defensive fight response, and that is based on sympathetic stimulation. The anger described and discussed here is the emotion associated with the sympathetic, "hot," defensive "fight" response aggression. For additional discussion regarding these two types of aggression, see Schore, Allen N., *Affect Dysregulation and Disorders of the Self*. (New York, NY: W.W. Norton & Company), 2003, pages 211& 212

[20] Right-sided anger is neurologically more complex than fear, and also involves circuits other than the level 2 amygdala circuits, but case studies and research indicate that the amygdala is one of the contributors. For example, there is an extensively documented human case study in which seizure activity in the amygdala directly corresponded to sudden, intense episodes of "fight or flight" anger; and direct electrical stimulation to this same area consistently produced the same sudden, intense anger. For a detailed discussion of this case study, see Mark, Vernon H., & Ervin, Frank R. *Violence & the Brain*.

with all right-hemisphere emotions, right-sided anger is a primal, visceral, involuntary, non-conscious, extremely fast emotional response, and it is not driven by cognitive beliefs.

For example, when I am out walking, and a small dog rushes out of someone's yard, barking and baring its teeth, I experience an immediate wave of visceral anger[21] that washes through my body, and I respond with immediate, reflex, involuntary behavioral responses (such as whirling to face the threat, crouching in a fighting posture, reaching my hands out towards the threat, with my fingers ready to grab, and baring my teeth in an angry expression). These primal, visceral, immediate, right-sided emotional and behavioral responses will already be unfolding before my left hemisphere even begins putting together its language-based cognitive formulation or generating the subsequent cognition-based emotions. By the time the wave of right-sided anger has already washed through me, and I have already whirled to face the dog and crouched to prepare for a fight, my left hemisphere will still be working on: "There's a small dog attacking me, and I don't think it's on a chain that will stop it before it gets here. How dare you attack me and frighten me, you obnoxious little rat! If you actually try to bite me, I'll grab you by the neck and shake you till your teeth rattle! Maybe I'll body slam you on the side walk, and then leave you on the porch of your family, who are so rude as to let their dog attack pedestrians,...etc," and will just be beginning to generate left-sided emotions based on these cognitions. As with fear, researchers can actually observe physiological reactions and the initiation of "fight" behavior, that correspond to the almost instantaneous subjective experience of feeling right-sided anger, and that occur ***before*** *you have formulated left hemisphere cognitions or begun to produce left-sided emotions*.

There is also a second flavor, or variety, of right-sided anger. The level 2 amygdala circuits also happen to be responsible for identifying things you want, and then motivating you to go after them. When something thwarts your attempt to obtain the thing you want and have been pursuing, level 2 responds with a burst of right-sided anger/frustration. As mentioned above, if you try to get language to match right-sided emotions, you will never be able to get words to adequately express the fundamentally non-verbal, non-cognitive feelings, but the functional content of this right-sided anger/frustration would be something like: "Get out of my way!" or "Push harder – make it move!"

As with all right-hemisphere emotions, right-hemisphere anger is a primal, visceral, involuntary, extremely fast emotional response, it is not driven by cognitive beliefs, and we are not consciously aware of the processes that produce it.

Another interesting aspect of right-sided anger is that it is always "clean" with respect to judgment and contempt, since judgment and contempt are *produced by* underlying left-sided judgmental and contemptuous thoughts, and therefore can never occur without these underlying left-sided cognitions. Right sided anger can be *associated with* left-sided phenomena, including left-sided judgment and contempt, but the right-sided anger

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(New York, NY: Harper & Row) 1970, pages 97-108.

[21] I also experience some right-sided fear, but if a *small* dog threatens me, my primary response is anger.

itself is inherently "clean," or neutral, with respect to judgment and contempt.

Sadness: When you lose someone or something you are attached to, your level 1 attachment circuits will produce the right-hemisphere emotion and physical reactions of sadness.[22] My experience of learning about our first miscarriage provides a good example of right-sided sadness. Charlotte and I had gone in for the 3 month visit that is a routine part of prenatal care in our OB/Gyn's practice. An ultrasound is not usually part of the 3 month visit, but at the end of our appointment, Dr. Warner said "the ultrasound room is open – if you want, we can just take a quick peek." As soon as Dr. Warner began rubbing the ultrasound probe on Charlotte's abdomen, we could see our child on the screen. Even as early as 12 weeks, we could easily make out the head, rib-cage, arms, and legs of a small body. We could count the ribs, and could even see fingers and toes on our child's hands and feet. Charlotte and I were excitedly pointing, and exclaiming about the many details so clearly visible on the screen, when Dr. Warner said "What's concerning me is that I can't find a heart beat."

Even as she was finishing her sentence, I realized that she had been going back and forth through the rib cage for the last several minutes, and a beating heart would have been easy and obvious to see. Instantly, before my left-hemisphere had gone through any logical analysis, or formulated any language based cognitions, the intuitive processes in my right hemisphere correctly perceived that our child had died. The moment my intuitive right hemisphere realized our child was gone, a wave of sadness washed through me, and along with feeling the subjective emotion of sadness, my facial expression fell (from the happy excitement of a moment before to an expression of sadness), tears sprung into my eyes, I felt tightness in my throat and chest, and my whole body suddenly felt heavy.

These primal, visceral, immediate, right-sided emotional/body responses were already unfolding before my left hemisphere had even begun to put together a language-based cognitive formulation, or to generate the subsequent cognition-based emotions. By the time the wave of right-sided sadness had already washed through me, and I was feeling tightness in my throat, heaviness in my body, and had tears in my eyes, my left hemisphere was still working on: "Our child has died – our child is gone. We're not pregnant anymore. We've been thinking about what it will be like to have a child with us this coming Christmas – I guess that won't be happening after all....etc," and was just beginning to generate left-sided emotions based on these cognitions.

As with all right-hemisphere emotions, right-hemisphere sadness is a primal, visceral, involuntary, extremely fast emotional response, it is not driven by cognitive beliefs, and we are not consciously aware of the processes that produce it.

Disgust: As mentioned above, the level 2 amygdala circuits help you identify things that you want, and then provide emotional responses (various forms of desire, such as hunger and thirst) that motivate you to pursue them. These same level 2 amygdala circuits also

[22] I am not aware of research support for this level 1 origin of sadness, but some of the prominent neuropsychology theorists include sadness as one of the right-sided basic emotions, and this is my hypothesis regarding its neurological origin. If you are aware of research support for this proposed theory, please contact me at drkarl@kclehman.com.

help you identify things that are bad for you – things you do *not* want – and then provide an emotional response that motivates you to avoid them. When you encounter something that looks, smells, or tastes foul, your level 2 amygdala circuits will produce the right-sided emotion and physical reactions of disgust.

For example, let's say you are on a camping trip, you are sitting around the campfire after dinner, and you are deeply engrossed in a good book. As you are eagerly reading, totally absorbed in discovering whether the hero dies a noble death or is rescued at the last minute, you reach over to pick up the remaining piece of a sandwich that you had temporarily set down on a rock next to you. Just as the sandwich fragment is about to enter your mouth, you smell a foul odor, and see that you have accidentally picked up a dead mouse that your pet dog discovered in the woods and lovingly laid on top of your sandwich. The moment you see and smell the rotting, maggot-covered mouse, an immediate wave of visceral disgust will wash through your body, and you will respond with immediate, reflex, involuntary behavioral responses, such as jerking your head back and turning your face away from the disgusting smell and sight, as you simultaneously fling the foul carcass away from you, and grimace with the classic disgust grimace (if you imagined the dead mouse in enough detail, you probably did the disgust grimace as you were reading this example). If you actually put it in your mouth before realizing what it is, your disgust reactions will also include gagging, compulsive, repeated "spitting it out," a wave of nausea, and maybe even retching.

These primal, visceral, immediate, right-sided emotional and behavioral responses will already be unfolding before your left hemisphere even begins putting together its language-based cognitive formulation or generating the subsequent cognition-based emotions. By the time the wave of right-sided disgust has already washed through you, and you have already grimaced, jerked your head back, and flung the dead mouse into the bushes, your left hemisphere will still be working on: "This is soooo disgusting! I can't believe I almost put that thing in my mouth! I could have had a dead mouse with *maggots* in my mouth! Ugh! Yuck! Gross, gross, gross, gross, gross! Just *thinking* about it almost makes me puke!...etc," and will just be beginning to generate left-sided emotions based on these cognitions.

As with all right-hemisphere emotions, right-hemisphere disgust is a primal, visceral, involuntary, extremely fast emotional response, it is not driven by cognitive beliefs, and we are not consciously aware of the processes that produce it.

Right-sided shame/mis-attunement pain/anti-joy: When you are wanting and anticipating a positive relational connection, and especially wanting and anticipating the other person to *understand you, share your feelings, and be glad to be with you*, but then the relational connection unexpectedly goes badly, your level 1 attachment circuits produce a sudden, miserable, right-sided emotional response. For example, let's say you have been thinking about your wife this afternoon, and especially thinking about all the ways in which she is a wonderful partner. The more you think about how much you appreciate her, the more you feel affection for her, the more you want to be with her, and the more you want to do something special for her. You finally decide to go out and put together an extra special surprise – you spend an hour finding a pair of earrings you think she will especially like, you pick up a pint of her favorite ice cream, and you have the

florist put together an arrangement with her favorite flowers. As you come up the porch and ring the bell, you are imagining and anticipating her surprise and pleasure, and you are especially looking forward to the big "I love you and I'm glad to be with you" smile, hug, and kiss that you are expecting to receive when she opens the door and sees the flowers.

But what if you have completely forgotten about the early dinner date that had been planned for this same evening, and your wife has been wondering where on earth you went, going back and forth between being frightened that something may have happened to you and angry that you forgot about your plans to have the Johnson's over for an early dinner? When she meets you at the door, instead of a hug, a kiss, and an affectionate "You are such a wonderful husband! Thank you for the flowers. Maybe I should change into lingerie...?" You get a frustrated "Where have you been?! Didn't you remember we had an early dinner date planned for this evening? I had to get everything ready without your help. We've all been here, waiting for you, for the last 30 minutes, and now the food is cold!"

Unless your internal experience is completely dominated by more powerful triggered emotions, such as fear of her anger, you will feel a miserable sinking feeling as your relational expectations collide with the unpleasant reality of a frustrated wife who is *not* glad to be with you. The excited look of anticipation on your face will crumple into an expression of crestfallen disappointment (if you were a kid, your friends would think you were about to start crying), and your internal feeling of excited anticipation will collapse into a sickening, "ugh," heavy feeling in the pit of your stomach. As with all right-hemisphere emotions, this unpleasant wave of relational disappointment pain will feel instantaneous and involuntary, you will not be consciously aware of the underlying processes that produce it, and it will not be caused by cognitive beliefs.

Some authors use the word "shame" for this right-sided emotion, but I think this causes confusion, since most people use the word "shame" to refer to the left-sided emotion caused by "I'm bad" cognitive beliefs. Instead, I use the terms **right-sided shame**, **mis-attunement pain**, or **anti-joy**. I do not know who originally came up with the term "mis-attunement pain," but it is excellent with respect to accuracy, although obscure to the average lay-reader. As described below, the positive relational experience of attunement includes having somebody understand you, share your feelings, and be glad to be with you. Mis-attunement pain refers to how this negative right-sided emotion is produced when you are wanting and expecting the positive experience of attunement, but then instead run into mis-attunement. I came up with the term "*anti*-joy" as I thought about how joy is produced by feeling like somebody understands you, shares your feelings, and is glad to be with you, and then realized that mis-attunement pain (or *anti*-joy) is produced by the *opposite* experience – mis-attunement pain/anti-joy is the bad feeling you get when someone does *not* understand you, does *not* share your feelings, *and is* ***not*** *glad to be with you*.

I think "*Right-sided* shame" is also a helpful term, in that it clearly differentiates this negative right-sided emotion from the more commonly understood left-sided, "I'm bad" shame; and it also acknowledges that the two are usually connected, since relational tangles that cause right-sided shame will usually also trigger left-sided, "I'm bad" shame.

In fact, in my own experience, mis-attunement so consistently triggered left-sided, "I'm bad" shame that I was not even able to perceive the existence of right-sided shame until I had received a lot of healing for left-sided shame memories. I can still remember the first time I perceived right-sided shame as a separate entity. I was in the middle of a painful mis-attunement experience with Charlotte, and I actually paused to figure out what was going on because something felt so different. We had experienced similar relational expectation collisions many times in the past, and these previous episodes of mis-attunement had always triggered "I'm bad" left-sided shame. My triggering had become increasingly clear as we worked to understand and resolve these previous relational expectation collisions, and we had even been able to talk explicitly about how my triggered shame contributed to these situations being so difficult.

However, on this occasion I realized that I was feeling some kind of unpleasant emotion, but I was *not* feeling triggered, and I was *not* feeling any sense of "I'm bad" shame. I remember thinking something along the lines of: "Wait a minute. This is the part of the story where I feel triggered, and where I feel that I'm bad and shameful. What's happening here? I'm feeling something, but I don't know what it is." Eventually, I realized that I was simply feeling clean, right-sided mis-attunement pain, *without contamination from triggered "I'm bad" shame*. I remember thinking: "Oh, wow! This must be what they're talking about. This must be what they mean when they talk about mis-attunement pain!" I had never previously been able to perceive the mis-attunement pain as a separate entity because it had always been mixed in with the more powerful, triggered, "I'm bad" shame. If you watch carefully, and get triggered left-sided emotions out of the way, you can certainly observe right-sided shame/mis-attunement pain/anti-joy in your own experience.

Right-sided hopeless despair/"shutdown" response: The last basic right-hemisphere emotion is right-sided hopeless despair, which I also call the "shutdown" response. When you encounter a problem, neurological circuits in your right-hemisphere make an assessment with respect to whether you should attempt some kind of solution, or whether it would be better to just turn things off and wait for something to change. If your right hemisphere intuitive assessment concludes that there is no useful response worth attempting, neurological circuits in your social/emotional processing system initiate the emotional and physical response of right-sided hopeless despair. You experience the subjective emotion of right-sided hopeless despair, your mental and physical energies collapse (as if someone had just removed your batteries), you lose all motivation or initiative regarding any kind of response, and you feel like flopping onto the ground.

I use the term "right-sided" hopeless despair to distinguish this right-hemisphere emotional and physical response from the more commonly understood left-sided version, which is *inherently* based on hopeless despair cognitions, such as: "This situation is hopeless – it's bad (fill in the blank regarding the details), it's never going to change, and there's nothing I can do about it." At some level, there is also a conclusion and decision along the lines of "Letting myself sink into hopeless despair will hurt less than continuing to hope and then being disappointed. If I focus my energy on accepting the inevitable, it won't hurt as bad when it gets here. I quit, and choose hopeless despair." In fact, I am always careful to use "*right-sided* hopeless despair," and actually prefer "shutdown response," because I think "hopeless despair" is a misleading and confusing term. My

perception is that the right-sided hopeless despair/shutdown response *does not actually include any **meaning** of hopelessness or despair*. It is mostly a visceral, body-based, pragmatic response designed to conserve resources. As mentioned above, if you try to find language to match right-sided emotions, you will never be able to get words to truly, adequately express the fundamentally non-verbal, non-cognitive feelings. I find this to be especially true for right-sided hopeless despair. If I were forced to use words to express the functional content of right-sided hopeless despair, I would come up with something like: "There are no response options available that would actually be helpful, so the best plan is to turn things off and wait for something to change. If something changes, we can turn things back on when a useful response actually becomes available."

The following analogy might be helpful: Let's say you are fishing on a large lake, but your motor dies so that you are stranded out on the lake as night falls. You hope someone will eventually come looking for you, but since you have never used your boat at night, you don't have any lights. As you sit there in the dark, you remember that you have a flashlight in your tackle box. At first you wave it around frantically, trying to see if there is anyone else nearby and trying to signal for help. Then you realize that any other boat out at night would have lights, and you decide to turn off your flashlight *to save the batteries*. You are not turning off your light because you believe that it's hopeless or are feeling despair, but rather because you realize that it is absolutely pointless to leave it on when you know there are no other boats nearby. You turn off your flashlight to save the batteries. If something changes – if you hear or see any indication of another boat nearby – you will turn it back on because it would actually do some good.

As with shame, it is difficult to perceive true right-sided hopeless despair because it is almost always mixed with left-sided hopeless despair – any situation that activates right-sided hopeless despair usually also triggers left-sided, cognition based hopeless despair. This has been so true in my own experience that I can't think of any examples where I have been able to perceive right-sided hopeless despair as a separate entity, and I think this extremely common association between the right-sided shutdown response and left-sided hopeless despair is the reason various authors have used the term "hopeless despair" to describe this right-sided emotional response.

It is also important to realize that this right-sided hopeless despair/shutdown is *not* the same thing as the disconnection of emotions and conscious awareness that level 2 circuits mediate if a situation overwhelms your involuntary capacity. With the disconnection response, your emotions and conscious awareness disconnect, but you will continue to attempt solutions in your dissociated, disconnected state. With the hopeless despair/shutdown response, your emotions and conscious awareness remain connected, but you shut down any attempts to respond to the situation. Of course, these two responses can occur simultaneously, in which case your emotions and conscious awareness disconnect, and you also shut down any attempts to respond to the situation.

As with all right-hemisphere emotions, right-hemisphere hopeless despair is a primal, visceral, involuntary, fast[23] emotional response, it is not driven by cognitive beliefs, and

[23] Questions with respect to timing for right-sided hopeless despair are interesting, since my perception is that you usually come to hopeless despair gradually, as you try and fail and try and fail, and

we are not consciously aware of the processes that produce it.

When you encounter a painful situation that generates negative right-sided emotions, and you are able to *optimally* complete level 3 processing tasks, you will *maintain* continuous attuned relational connection and the corresponding relational connection joy, even as you simultaneously feel the distressing emotions. If you temporarily lose attuned relational connection and relational connection joy, but are able to *adequately* complete level 3 processing tasks, you will be able to *re-establish* attuned relational connection and relational connection joy, even as you continue to experience the negative emotions. However, if you lose relational connection and relational connection joy, but are unable to restore them, then you will need an intervention that specifically addresses your inability to successfully complete this level 3 processing task. As will be described below, when you are unable to re-establish attuned relational connection and relational connection joy, the intervention you need is for somebody to reach out to you by initiating attunement, and then join you in your distress by sharing the negative emotions in a state of mutual mind.

Emotional experiences at level 4 (satisfaction and inadequacy): When you encounter a painful situation and successfully complete level 4 processing tasks, you are able to navigate the situation in a way that feels satisfying. If you are unable to find a satisfactory way to navigate the situation, you will feel inadequate. *Feeling* satisfied and *feeling* inadequate are emotional experiences.

These emotional experiences of satisfaction and inadequacy are different from right-sided emotions or left-sided emotions. When you are unable to find a satisfying way to navigate a painful situation, and are therefore stuck in a feeling of inadequacy, you need an intervention that specifically addresses your inability to successfully complete level 4 processing tasks. As will be described below, when you are unable to find a satisfying way to navigate a difficult situation, the intervention you need is for somebody to *model* a satisfying solution.

Emotional experiences at level 5 (confusion and understanding): When you encounter a painful situation and successfully complete level 5 processing tasks, you are able to make sense out of the situation. If you are unable to make sense out of the situation, you feel confused. We don't usually think of understanding and confusion as emotional experiences, but they are. Understanding – having the pieces fit together, and realizing "Oh! I get it! I understand now!" *feels* good, and this subjective good feeling is the emotional component of the experience of understanding. Confusion *feels* bad, and this subjective bad feeling is the emotional component of the experience of confusion.

These emotional experiences of understanding and confusion are different from right-sided emotions or left-sided emotions. When you are unable to make sense out of a painful situation, and are therefore stuck in confusion, you need an intervention that specifically addresses your inability to successfully complete level 5 processing tasks. As will be described below, when you are unable to make sense out of a painful situation, the

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then eventually conclude that the situation is hopeless. As this is happening, both your right-hemisphere intuitive non-cognitive processes and your left-hemisphere logical cognition-based processes are making assessments regarding hope vs hopelessness. Nevertheless, my perception is that the right-sided hopeless despair/shutdown response is fast, once your right-sided intuitive processes finally come to the conclusion that you have no responses worth attempting.

intervention you need is for somebody to perceive where you are confused, and then provide an explanation that leads from your place of confusion to an accurate understanding.

Left hemisphere, cognition-driven emotions: As we begin discussing left-hemisphere emotions, let me first re-cap regarding right-hemisphere emotions. As described above, when we encounter and then move through a new experience, each wave of new information first enters the emotional/social processing system at levels 1 and 2, and as this information is processed, activity in these primitive, rapid response, right-sided neurological structures generates/initiates emotions. Initiated as part of very rapid responses from levels 1 and 2, right-sided emotions can also receive contributions from levels 3 and 4 as they move forward through the emotional/social processing system. Right-sided emotions are generated so quickly that they feel instantaneous; they are generated by involuntary neurological activity, so we do not experience any sense of choice regarding whether or not we will feel these emotions; and they are generated by nonconscious neurological activity, so we are not consciously aware of the underlying processes that produce them. These fast, involuntary, unconsciously driven, right-sided emotions are *not* produced by cognitive beliefs, but rather occur before we have even begun to formulate cognitive interpretations regarding the new information.

After traveling all the way forward on the right side, each wave of new information then crosses over to the left side; left-hemisphere circuits generate language-based cognitions that "make sense" out of the experiences, and that interpret the meaning of the experiences with respect to ourselves; and *cognitive beliefs regarding meaning with respect to ourselves* then travel back to left-sided emotion generating circuits,[24] where *left-sided, cognition-based* emotions are produced.

Many aspects of the subjective experience of left-sided emotions are identical/very similar to the subjective experience of the corresponding right-sided emotions. For example, left-sided fear includes many of the same specific components of physical arousal as right-sided fear, and left-sided anger includes many of the same specific components of physical arousal as right-sided anger. But there are also differences. For example, the subjective experience of left-sided "I'm bad" shame always includes embarrassment and feeling like you want to look away and/or hide, whereas the subjective experience of right-sided shame (mis-attunement pain) does not include these. The subjective experience of left-sided "you're bad" judgmental anger also *feels* different than the subjective experience of right-sided anger, and the subjective experience of left-sided meaning-based hopeless despair *feels* different than the subjective experience of right-sided hopeless despair (the shutdown response).[25]

The most important difference between right-sided emotions and left-sided emotions is that left-sided emotions are caused by cognitions, based on cognitions, driven by cognitions, and

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[24] My current understanding is that these circuits that generate left-sided emotions are the neurological circuits in the left hemisphere that correspond to the circuits that generate right-sided emotions in the right hemisphere. For example, the cingulate cortex on the left contributes to left-sided emotions, and the cingulate cortex on the right contributes to right-sided emotions.

[25] I am having trouble finding words to describe exactly how they feel different, but if you are able to untangle these right-sided emotions from their corresponding left-sided emotions, you can *feel* the difference.

intimately woven together with *cognition-based meaning*. For example, left-sided shame is caused by, based on, driven by, and intimately woven together with some form of the *cognition-based meaning*: "I am bad." You cannot have left-sided shame without some form of the cognition-based meaning "I am bad," and left-sided shame will *always* include this cognition-based meaning. Similarly, left-sided hopeless despair is caused by, based on, driven by, and intimately woven together with some form of the *cognition-based meaning*: "It's hopeless. This situation is going to turn out badly, and there's nothing I can do about it. I might as well give up trying to solve the problem, and instead focus my attention on accepting the inevitable." You cannot have left-sided hopeless despair without some form of the cognition-based meaning "It's hopeless...etc," and left-sided hopeless despair will *always* include this cognition-based meaning.

One of the most important implications of left-sided emotions being cognition-based and cognition-driven is that we are more *consciously aware* of the processes involved, and we have more opportunity for *voluntary choice* with respect to the processes involved. The circuits that actually generate the emotions are still non-conscious and involuntary. Therefore, just as with right-sided emotions, we are not consciously aware of the neurological processes that produce the actual emotions, and we do not perceive choice regarding whether or not we will feel a left-sided emotion associated with a given cognition, *but we do have conscious awareness and voluntary choices with respect to the* ***cognitions***. If you are aware of these principles and practice careful self-observation, you can learn to consciously perceive the level 5 cognitions – the cognitive beliefs – that drive your left-sided emotions. Furthermore, you can learn to make choices with respect to these cognitions.

For example, let's say you feel intense anxiety the week before each quarterly performance review, even though your supervisor likes your work and has never been angry with you. If you pay careful attention to the thoughts that feel true when you are experiencing the anxiety, you might notice thoughts such as "I'm never good enough. No matter how hard I work, he's going to yell at me." And once you recognize these thoughts, you can make choices with respect to how you respond to them. You can shut down the triggered negative cognitions and associated anxiety by choosing to engage in activities that will intensely focus your attention elsewhere. You can choose to indulge in related negative cognitions and emotions, such as self pity or bitterness. You can choose to manage the triggered cognitions and anxiety by applying various cognitive therapy techniques, such as challenging the negative cognitions with verifiable opposing information (in this case, the fact that your past performance reviews have always been positive, and that your supervisor has never been angry with you). You can challenge the triggered cognitions and anxiety by choosing to focus on corrective scriptures, such as "Don't worry about anything; instead, pray about everything. Tell God what you need, and thank Him for all He has done."[26] You can choose to focus on the triggered cognitions and emotions, and then work with Jesus to resolve the underlying unresolved traumatic memories of your perfectionist father being dissatisfied and angry with you, even when you did your best.

Two of the most important, foundational principles for both cognitive therapy and Theophostic-based therapy/ministry are that cognitive beliefs create and drive emotions, and

[26] *Holy Bible: New Living Translation.* 1997, (Wheaton, IL: Tyndale House Publishers), Philippians 4:6.

that modifying the underlying cognitive beliefs will result in modifying the associated emotions. In case you have not already made this connection, left-sided emotional phenomena are the domain in which these theoretical principles apply – ***left-sided*** *emotions are created and driven by cognitive beliefs, and modifying the underlying cognitive beliefs will modify the associated* ***left-sided*** *emotions*. To provide a Theophostic-based example: if you were molested as a child, and have the distorted belief "I made him do it – I'm bad and dirty" associated with your childhood abuse memories, this distorted, negative belief will drive left-sided shame. You will feel this shame whenever these memories are triggered, and the distorted, negative beliefs are therefore active; and if the Lord enters these memories and replaces "I'm dirty" with "It wasn't my fault," the left-sided shame will resolve.

Left-sided emotions are therefore also the domain in which interventions based on these principles are effective. Cognitive therapy interventions are all about becoming consciously aware of the dysfunctional cognitions that drive our dysfunctional emotions, and all about learning to make better choices regarding how to deal with these dysfunctional cognitions. These interventions work for dysfunctional *left-sided* emotions. Theophostic-based therapy/ministry is all about finding the underlying distorted cognitions that drive dysfunctional emotions, finding the underlying traumatic memories that are the original source of the distorted cognitions, and then permanently resolving the distorted cognitions and associated dysfunctional emotions as part of resolving the underlying traumatic memories. These interventions work for dysfunctional *left-sided* emotions.

In contrast to left-sided emotional phenomena, the principles from cognitive therapy and Theophostic-based therapy/ministry *do not fit the data when working with* ***right-sided*** *emotions*, and interventions based on these principles *do not work for resolving problems with dysfunctional* ***right-sided*** *emotions*.

Part of the challenge with respect to perceiving right-sided emotions and left-sided emotions as two separate phenomena is that they usually occur together. In actual experience, our left hemispheres usually generate corresponding left-sided emotions within seconds (or even less) of our right hemispheres generating right-sided emotions. Unless you are very self aware, know exactly what to look for, and have practiced making these observations, you will experience the right-sided emotions and left-sided emotions as jumbled together into one subjective emotional experience. For example, if you encounter a situation that generates the right sided hopeless despair/shutdown response, this same situation will usually also trigger left sided hopeless despair, and so left-side hopeless despair cognitions and emotions will usually follow within seconds of the right-sided shutdown response. The right-sided shutdown response will usually be so tangled in with the left-sided cognitions and emotions that you will perceive only a single "hopeless despair" emotional response.

For those who are just learning to identify right-side emotions and left-sided emotions as separate, different phenomena, it can be easier to perceive cognition-based left-sided emotions in situations where emotions are generated directly from cognitions, with no right-sided emotions occurring before the cognition-based left-side emotions are generated. For example, let's pretend that you're on a plane, sitting quietly in your seat. The flight attendant has just brought you orange juice, and you're reading a good novel. There is no immediate danger threatening you, and therefore your right-sided danger system is quiet. Then the pilot comes over the intercom and says: "I am very sorry to inform you that the maintenance crew forgot to fill our left-side fuel tank before we took off. Unfortunately, we are now flying over

500 miles of wilderness mountains, and will run out of fuel before we reach an area where we could attempt an emergency landing. We will have to crash land in the mountains, and the chances of survival are almost zero. I wanted to let you know so that you could call your families and say 'goodbye.'"

There is no immediate physical danger, so your level 2 amygdala "fight or flight" circuits will not produce right-sided fear. However, even though nothing has changed with respect to your physical surroundings – you are still sitting in the same seat in the same climate controlled airplane cabin, with your orange juice in one hand and your novel in the other – your cognition-based left-sided emotional system will produce intense fear *based on, caused by*, and *driven by* cognitive beliefs. In spite of the complete absence of danger in your immediate surroundings, you will experience steadily increasing fear as your left hemisphere generates cognitive beliefs along the lines of "In the next couple hours, I will be in a plane crash. The captain just said there is almost no chance of survival, so I will probably die instantly in the crash, or die a slow, horrible death due to injuries from the crash. This is going to be terrifying and painful...etc," Furthermore, your cognition-based left-sided fear will promptly resolve if the captain comes back on the intercom with: "Very good news folks! I will be able to safely land the plane on the flat surface provided by a large frozen lake that we have just located within range of our fuel supply." Once again, you will experience a dramatic change in emotions caused entirely by changes in your cognitive beliefs. Situations like this hypothetical example, where your emotional changes are based solely on changes in your cognitive beliefs, are the best place to practice learning to recognize the subjective experience of left-sided emotions.

In most everyday life situations, there is no need to separate right-sided emotions and left-sided emotions; however, understanding the difference is helpful when working with traumatic memories. As will be discussed below, unresolved right-sided emotions indicate a different problem with respect to the pain processing pathway than dysfunctional left-sided emotions, and these two different problems require different interventions. When a person experiences negative left-sided emotions based on distorted cognitive beliefs, he needs somebody to help him set up the conditions necessary to correct the distorted cognitive beliefs that have resulted from flawed level 5 processing.

Summary regarding information flow with respect to emotions: When we encounter and then move through an experience, each wave of new information first enters the emotional/social processing system at levels 1 and 2, and as this information is processed, activity in these right-sided neurological circuits generates/initiates right-sided emotions. These right-sided emotions then join the information that is passing forward to the higher levels. As the waves of information pass forward and upward through the emotional/social processing system, neurological circuits in levels 3 and 4 also make contributions to some of the right-sided emotions. After traveling all the way forward to the level 4 prefrontal cortex on the *right* side, the waves of new information, including the right-sided emotions, pass across to the level 5 *left* prefrontal cortex. As mentioned in the summary of the five levels, one of the most important functions of level 5 is to generate cognitive beliefs that interpret the meaning of the experience with respect to ourselves. These level 5 cognitive beliefs then travel backwards and downwards to left-sided neurological circuits where left-sided, cognition-based emotions are generated. After being generated by these left-sided circuits, the left-sided emotions then cross over to the right hemisphere, where they join the more recent waves of new information that are then passing

forward to levels 3 and 4 on the right side.

Additional comments regarding flow of information and brain level activity: This essay is especially talking about the processing of painful experiences, but all experiences, both painful and pleasant, are actually processed through this same system and through this same pathway. Every moment of every day, the emotional/social processing system receives a steady flow of information from both the external environment and from internal stimuli. In fact, waves of new information move forward through the emotional/social processing system *multiple times each second*. Higher levels of brain function are not "off line" as you are processing new information at the lower levels, but rather are busy processing previous waves of information, and are waiting for the next wave of new information to arrive. The higher levels of the processing system may have trouble functioning optimally if they are getting waves of information that have not been successfully processed at lower levels, but they do not go "off line" while waiting for lower levels to send fully processed material.

For example, if you are in a difficult situation and level 4 has not yet been able to successfully complete its processing tasks, then instead of including the perception that you are able to handle the situation, and the accompanying sense of satisfaction, the information being passed to level 5 will contain the perception that you do not know how to handle the situation, and the accompanying feeling of inadequacy. Level 5 will have difficulty functioning optimally with this information, but it will continue to process the information that gets passed forward to it, doing the best it can with what it gets.

Synchronization vs desynchronization: Synchronization has to do with timing, coordination, and cooperation. For example, in the action movies, the members of the special mission team always synchronize their watches so that they can precisely coordinate the different specific actions that each member of the team is supposed to accomplish. If you have watched any of the *Mission Impossible* movies, you will appreciate how the precise synchronization and coordination between the different team members is extremely important for the success of the mission. Each team member accomplishes a specific task that would have very little effect on its own, but when all of the pieces are combined in a precisely synchronized and coordinated package, they accomplish missions that would otherwise be impossible. This precise synchronization and coordination is an important part of the larger cooperation, or teamwork, that makes special mission teams so effective. If even *one* of the team members failed to synchronize with the rest of the team, the whole mission would fall apart in a hurry.

Sports teams provide another excellent example of synchronization. To be successful, the individual players must cooperate as a team, and one of the most important functions of the coach is to help coordinate and synchronize the efforts of the individual players. Championship teams always display high levels of carefully timed coordination and cooperation that allow them to use complex strategies as a group. As any coach, athlete, or sports fan will tell you, mediocre athletes who coordinate their play in a carefully synchronized team effort can beat desynchronized superstars, where each supposed "team" member is focusing only on his individual performance.

***Inter*personal brain synchronization:** *Inter*personal brain synchronization is brain synchronization between two or more people – synchronization between two or more different brains. For example, if I listen while you're talking, and then you listen while I'm

talking, we are socially and behaviorally synchronized. In contrast, we are *not* synchronized if we both talk at the same time. If Charlotte has been away for the weekend at a women's retreat, we are both looking forward to reconnecting, she comes in the door with an energetic greeting "Hi sweetheart. I'm home!," and I respond with "I missed you so much" and an affectionate embrace, we are emotionally, socially, and behaviorally synchronized. In contrast, we are *not* synchronized if I go to bed early with the flu while Charlotte stays up to work on a project, and then she comes into the bedroom with an energetic "Hey, I'm done with my project!" just as I have finally gotten to sleep.[27] The coordination between the members of special mission teams and sports teams mentioned above are also examples of interpersonal synchronization. Musicians provide one of the best examples of interpersonal synchronization vs desynchronization. In a well-trained orchestra with a skilled conductor, a large number of musicians can play together in a very complex way, with different individuals playing different parts, and some individuals playing softly while others play loudly, *but if they are synchronized you get beautiful music*. However, if these same musicians all play at the same time and are *not* synchronized, you get incredibly unpleasant chaotic noise.

And if people are emotionally, socially, or behaviorally synchronized in some way, then their brains are also synchronized in some way. Because of the incredibly intimate brain/mind connection, you cannot have your minds emotionally, socially, or behaviorally synchronized without also having your biological brains synchronized, and you cannot have your brains synchronized without also having your minds emotionally, socially, or behaviorally synchronized in some way. Not only does this make sense in light of the intimate brain/mind connection, but you can also demonstrate interpersonal brain/mind synchronization in the lab. The emotional/social processing systems in our brains contain elaborate neurological machinery for synchronizing with other brains, and neuropsychologists can actually demonstrate that as you synchronize with another person emotionally, socially, and behaviorally, the chemical and electrical activity in your brain synchronizes with the chemical and electrical activity in her brain.[28]

***Intra*personal brain synchronization:** *Intra*personal brain synchronization is synchronization within yourself – synchronization between the different parts of your brain. Just as a basketball team functions best when the five different players are cooperating and synchronized in a coordinated team effort, your brain and mind function best when the five different levels of your emotional/social processing system are cooperating and synchronized in a coordinated team effort. When the five levels are synchronized, your brain and mind work as they were designed to work. And just as the function of a basketball team progressively deteriorates as the different players become increasingly desynchronized from

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[27] I want to thank Jim Wilder and Chris Coursey for these two excellent examples of synchronization vs desynchronization. For a much more detailed discussion of synchronization and desynchronization, see *Thriving*, by Dr. E. James Wilder & Chris Coursey (as of 3/2007 this book is still in process, but the first chapter can be obtained at http://www.lifemodel.org/download.php?type=article&rn=32).

[28] One of the most fascinating developments regarding the synchronization of our biological brains has been the discovery of "mirror neurons" – nerve cells in our pre-motor cortices that seem to be especially involved with the interpersonal synchronization of our physical behavior and emotions. For a recent review regarding mirror neurons, see Iacoboni, Marco, "Face to face: The neural basis of social mirroring and empathy," *Psychiatric Annals*, April 2007, Vol. 37, No. 4, pages 236-241.

each other, the function of your brain and mind progressively deteriorates as the different levels become increasingly desynchronized from each other.

Interpersonal attunement and mutual mind: Interpersonal attunement is a special form of interpersonal brain/mind synchronization. When I am attuning to you, I *want* to perceive and understand your internal experience, and I focus my attention on you, with my mind and brain especially focused on your facial expressions and all other nonverbal signals that will help me to perceive your internal experience. As I do this, it is helpful for the logical analytical circuits on the left side of my brain to understand what I am trying to do, but intuitive circuits on the right side of my brain, *especially designed for just this kind of emotional and social perception*, are much more important.

When I am attuning to you I am also seeking to perceive and understand your internal experience *so that I can share it with you and join you in it*. This is an inherent, necessary part of attunement. I am not trying to understand your internal experience so that I can figure out the best way to manage or manipulate you,[29] but rather so that I can share it with you and join you in it. And when I do this – when I try to perceive your internal experience with the goal of attunement – emotional resonance will result in at least some degree of experiencing the same emotional state. Since we all have memories for the same universally encountered emotional experiences, if I see you experiencing one of these emotional states, resonance with your experience will at least partially activate my memories of feeling the same emotional state. As this resonance triggering activates my memories, I will also feel the same subjective emotional state. In addition to this resonance memory phenomena, there are special nerve cells called *mirror neurons* that seem to be specially designed to help us both *perceive* and *share* the emotional experiences we see on the face of another person.[30] Part of my empathy, part of my synchronization with you, part of my emotional resonance with you, part of my *attunement* to you will be to share the same emotional experience you are feeling. I may not experience the emotional state with the same intensity, but I will have some subjective experience of the same emotional state.

Another necessary component of attunement is being glad to be with the person. This has never been mentioned in any of the professional literature I have read regarding attunement, but my perception is that attunement is inherently about caring for the other person, and must always include *being glad to be with the person you are attuning to.* You can be feeling the same emotions at the same time and in the same place, but if you are not glad to be with the other person, then it is not really about caring for her, and therefore not really attunement. You can even be intentionally focusing on the other person, correctly understanding her, sharing her emotions, and trying to communicate that you are with her, but if you are not truly glad to be with her, then your relational initiative is not really about caring for her. You may *appear* to be attuning, but you are actually using *pseudo*-attunement to manage the other person in some

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[29] For example, a card player will try to perceive your internal experience in order to tell whether or not you are bluffing, a politician will try to perceive your internal experience in order to figure out what he can say to get your support, and a car salesman will try to perceive your internal experience in order to tell how much discount he needs to offer in order to close the deal.

[30] For a recent summary discussion of this fascinating mirror neuron system, see Iacoboni, Marco, "Face to face: The neural basis of social mirroring and empathy," *Psychiatric Annals*, April 2007, Vol. 37, No. 4, pages 236-241.

way.[31] Again, my perception is that true attunement is inherently about caring for the other person, and that it must always include being glad to be with the person you are attuning to.

Furthermore, the goal of attunement is not just for me to perceive your internal experience, share your internal experience, join you in your internal experience, and be glad to be with you, but also for *you to be aware of and feel* this attunement. In fact, the *most important* goal of attunement is for you to *feel felt* – for you to be aware of and *feel* that I see, understand, and care about your internal experience, for you to be aware of and *feel* that I am sharing your internal experience, for you to be aware of and *feel* that I am joining you in your internal experience, and for you to be aware of and *feel* that I am glad to be with you. Therefore, when I am attuning to you I am also trying to communicate that I understand your internal experience, that I am sharing it with you, that I am joining you in it, and that I am glad to be with you. If I am successful and attunement occurs, you will perceive that I see you and correctly understand your internal emotional experience, that I care about your experience, that I am sharing your emotional state, that I am joining you in your emotional experience, and that I am glad to be with you; *and you will have the subjective experience of* ***feeling*** *that I am* ***with*** *you*.

When attunement – this special form of interpersonal synchronization – occurs, our brains and minds are functionally linked as our synchronized brains affect each other biologically and as our synchronized minds affect each other psychologically. "Mutual mind" refers not only to feeling the same emotion, but also to how we are actually sharing a *functionally joined brain/mind experience*.

So what happens if we get together and I am feeling excited and happy, but you are feeling discouraged and sad? We can't have a mutual mind shared experience of being *both* excited and happy *and* discouraged and sad at the same time. If I attune to you, we have a mutual mind experience where we share *your* initial emotional state; whereas if you attune to me, we have a mutual mind experience where we share *my* initial emotional state. If we both have at least adult maturity, it will be easy and satisfying to "share" (we can go back and forth with respect to who "receives" the attunement).[32]

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[31] This is not necessarily always bad. For example, you might be working on a psychiatric ward, talking to a suicidal patient who is holding a razor blade to his throat. Even if you are tired, triggered, and *not* glad to be with this patient, an appropriate intervention may still be focusing on him, trying to understand his internal experience, sympathizing with his despair, and trying to communicate that you are with him. True attunement would be even more effective, since the other person can usually (always?) tell whether or not you are glad to be with him, but it would still be appropriate to use pseudo-attunement if it's all that you have to offer.

[32] Those familiar with Life Model and THRIVE teaching on maturity will appreciate additional thoughts regarding attunement and maturity: If I am at infant maturity, I want you to attune to me, and it feels very good when you attune to me, but it does not even occur to me that I should then also attune to you. If I am at child maturity, I want you to attune to me, it feels very good when you attune to me, and I can attune to you *after* you have attuned to me. If I am at adult maturity, I want you to attune to me, it feels very good when you attune to me, I am aware that it is just as important for me to attune to you as it is for you to attune to me, and I am okay attuning to you first as long as I also get cared for eventually. If I am at parent maturity and you are my child, I will find it satisfying to attune to you even if you don't attune to me. If I am at elder maturity, I will find it satisfying to attune to you even if you don't attune to me, regardless of whether or not you are one of my own children.

The level 3 cingulate cortex is the part of your brain that your mind/spirit uses to mediate attuned relational connection.

Attachment: Emotional attachment, or bonding, is one of the most important phenomena in our emotional and social experience. Emotional attachment/bonding is the deep, enduring emotional connection between ourselves and specific people that we know and that are important to us. The level 1 circuits situated deep in the core of our brain are the neurological circuits that our mind/spirit uses to mediate attachment. These level 1 attachment circuits are present at birth, and immediately embrace the task of bonding to our primary caregivers. All children internalize their attachment experiences with their parents (primary care-givers), and these internalized parental attachments then serve as the foundation for all future relationships.

When our attachments/bonds are joy based, we want to be near the people we are attached to, and we go to them for comfort and protection in times of distress.

One way to get an intuitive feel for attachment is to think about the similarities and differences between your relationships with the fuel pumps at your local gas station and your relationships with your closest family and friends. You're familiar with the fuel pumps at your local gas station. You get something from them and depend on them. You visit and interact with them on a regular basis. Similarly, you are familiar with your parents, your siblings, your spouse, your children, and your closest friends. You get something from them and depend on them. You visit and interact with them on a regular basis.

However, there is no emotional attachment in your relationship with the fuel pumps or the gas station. Your relationship with the fuel pumps is purely utilitarian, with no emotional connection. You do *not* experience an especially intense joy when you see these *particular* pumps. After you have been on vacation, traveling on interstate 80 from Chicago to New York and relating to fuel pumps that are strangers, you don't come back to your local station and greet your old friends with "I'm so glad to see you! I missed you so much!" And you would *not* be sad or upset if you lost these *particular* pumps. If you drove up tomorrow and the familiar BP pumps had been replaced by Shell pumps, you wouldn't feel any sense of loss or distress (as long as the prices stayed the same). If the whole station had been torn down and was being replaced by a grocery store, your only distress would be in finding another gas station with comparable prices and that was also conveniently close. If your next-door neighbor suggested: "Don't worry about the station at Oakton and Dodge. They're putting up a new station that will be even closer – right at Main and Ridge," you would transfer your business to the new station without the least bit of emotional distress.

In contrast, there is deep, enduring, powerful emotional attachment in your relationships with your parents, siblings, spouse, children, and closest friends. You *do* experience an especially intense joy when you see these *particular* people. When you are away from home for several weeks on a business trip, you experience small flashes of joy when strangers greet you with a smile, but this is not the same as being with your closest friends and family. The longer you are away, the more you miss them; and when you finally come back home, you *do* greet your friends, your spouse, and your children with "I am *so* glad to see you! I missed you *so much*!" And you *would* be sad and upset if you lost these *particular* people. If your closest friend was dying of cancer, you would probably not respond with "Oh well, I can always find another best friend after Sarah dies." If you got a phone call tomorrow telling you that your husband and children

had just died in a car accident, it would rock your world. You would experience such intense grief and distress that it would be difficult for you to function, and you would think she was insane if your next-door neighbor suggested: "Don't worry about your family. There are kids across the street that you can play with, and I have a friend about your age who's looking for a date."

You do get utilitarian benefits from your close personal relationships, but these utilitarian benefits are much less important than the emotional connection. For example, it is nice to have your husband wash the dishes, mow the lawn, and maintain the car, but these utilitarian benefits are much less important than the deep, enduring, profound emotional connection at the heart of your relationship with your husband.

Level 1 attachment vs level 3 attuned relational connection: Some who have read early drafts of this essay have asked: "What's the difference between level 1 mediating attachment, and level 3 mediating relational connection? They sound like the same thing to me." Your level 1 circuits mediate the *deep, enduring* emotional bonds of attachment, that are *relatively stable over time,* and that exist between people with *ongoing, long term relationships*. For example, the deep, enduring emotional bonds of attachment develop between you and your parents throughout the course of your childhood. You can have a painful argument with your parents that results in months of difficulty relating to them, but this temporary conflict will have no noticeable effect on the underlying, longstanding attachment that forms the foundation of your relationship. And you can move to another state, and only visit your parents for a week each year over Christmas, but these long separations will have little affect on the underlying, longstanding attachment that forms the foundation of your relationship.

In contrast, your level 3 circuits mediate attuned relational connection, which is a very important phenomena, but a phenomena that *often changes dramatically from one minute to the next*. For example, let's say your wife gets home at 7:00 p.m. after a long day of work. You might start the evening with 25 minutes of strong attuned relational connection as you serve her dinner and empathize with her about a difficult encounter she had with her supervisor this afternoon. But then you suddenly lose attunement when she makes a comment that triggers an unresolved traumatic memory, and this is followed by suffering through 37 minutes of misattunement as you mistakenly transfer the thoughts and emotions from the unresolved memory onto her. You might then return to attuned relational connection over the next 43 minutes as she helps you work with Jesus to find and resolve the underlying memory that is the true source of your negative thoughts and emotions. In the course of an evening you can establish attunement, lose attunement, experience painful misattunement, and then re-establish attunement – all between 7:00 and 8:45 (you still have time to finish the dishes and get through a few chapters of the book you have been reading together).

Furthermore, whereas the deep, enduring bonds of attachment only grow between people with ongoing, long term relationships, attuned relational connection can occur between people who have been married for 27 years and between people who have known each other for less than five minutes. For example, you can be walking through the park and see a child fall and scrape her knees. Even though you have never met this kid before, you can pick her up and help her brush herself off. If she's four years old, frightened, and crying, you can establish attuned relational connection fairly easily: "Are you okay?" She nods yes, but she's still crying, and still looks frightened. Your mirror neurons spontaneously produce a mild reflection of her fear on your

face, and you comment: "Boy, I bet falling like that and scraping your knees scared you a bit, didn't it?" She nods some more, and cries some more. You continue with: "When I was four, I got scared and cried when I fell and scraped my knees. It's okay to cry a little bit when you get scared like that. I'll just stay here with you for a few minutes until you're okay." She nods some more, cries for another few seconds, and then begins to quiet down. In a minute or two she flashes you a shy smile, says "I'm okay now," and then runs off without thinking to thank you. Even though you had never seen her before, you may never see her again, and she may not even remember the event two weeks later, you were able to establish attuned relational connection in the course of this brief encounter.

Different forms of attachment (sometimes referred to as different attachment "styles"):

Secure attachment: Secure attachment is established by repeated experiences of having your parents attune to you (see you, understand you, share your emotions, join you in your experience, be glad to be with you), and respond appropriately to the unique situations you bring to them. In a relationship with secure attachment, you *feel* seen, understood, felt, loved, connected, and relationally safe. You feel safe to share your heart with vulnerability and transparency, with the expectation that the other person will see you, understand you, attune to you, and respond appropriately to what you share. In a relationship with secure attachment, you are aware that conflict can arise, but you are confident that problems can be resolved. You have a deep, subjective, intuitive *feeling* that the relationship is safe and stable. In a relationship with secure attachment, you have a deep, subjective sense of security that emotional connection and attunement will be available when you need them.

If your parents do *not* consistently attune to you and respond appropriately to you, then instead of developing secure attachment you will develop one or more of the forms of insecure attachment.

Dismissive attachment: Dismissive attachment is established by repeated experiences of having your parents ignore you, reject you, dismiss the importance of emotional connection, or disparage the importance of emotional connection. For example, if you are growing up in an emotional desert of being persistently ignored and/or rejected, you can come to the self-protective conclusion: "If I can't get it, it won't hurt so bad if I don't need it or want it." You then try to teach yourself, both consciously and unconsciously, to not need or want emotional connection. In most cases, you develop dismissive attachment because your parents have predominantly dismissive attachment. If this is the case, they will make it much easier for you to adopt this same form of attachment. In addition to ignoring and/or rejecting your attempts to connect with them, they will model dismissive attachment by appearing not to need or want emotional connection – they won't initiate emotional intimacy, they won't ask for it, and they won't express distress at not having it. Sometimes they will make it even easier by explicitly dismissing and/or disparaging the importance of emotional connection, with comments such as: "Don't come cryin' to me. If I came home crying, my father would whip me till I stopped. If you're gonna cry, go to your room till you're done," or "What do you want a hug for? Only sissies and fagots need hugs." Or they might pick up a book such as *Raising an Emotionally Intelligent Child*, and comment "All that touchy-feely therapy crap is just a waste of time and money."

In a relationship with dismissive attachment, you do *not* feel felt, seen, understood, or

connected. You have the sense that if you share your heart with vulnerability and transparency, the other person will ignore or disparage your attempt to initiate emotional intimacy (as opposed to see you, understand you, attune to you, and respond appropriately to what you share). In a relationship with dismissive attachment, you have a deep, subjective, intuitive *feeling* that emotional intimacy is not seen as important, and that your needs for relational connection will be ignored or disparaged.

Distracted attachment: Distracted attachment is established by repeated experiences of having your parents be unpredictable with respect to relational, emotional connection. On some occasions when you come to them with the need and desire for emotional connection, they see you, understand you, share your emotions, join you in your experience, want to be with you, and respond appropriately to the situation you are bringing to them. However, on other occasions when you come to them with the need and desire for emotional connection, they are distracted and emotionally unavailable. In these situations, they might pretend to be with you and attune to you, but you can tell that they are not fully present – you can tell that they are not really attuning to you, and they do not respond with what you need for the unique situation you are bringing to them.

In a relationship with distracted attachment, you know what you are looking for and you know that it's possible, but on any given occasion you don't know whether or not you will get the attuned emotional connection that you need. In a relationship with distracted attachment, you never know what you are going to get – you cannot *depend* on the person for attuned connection. In a relationship with distracted attachment, you have a deep, subjective sense of insecurity regarding whether attuned emotional connection will be available when you need it.

One especially noticeable phenomena in people with distracted attachment is that they live in a state of chronic anxiety about relationships, and are preoccupied with getting more attuned relational connection. Our relationship with food can provide an analogy to help us understand this aspect of distracted attachment. If adequate food is always available at meal times, you eat until you are satisfied when you sit down for breakfast, lunch, and dinner, and then you don't worry about food between meals. Food does not take up space except when you are hungry. You don't walk around all day thinking and worrying about food. In contrast, research and case studies indicate a very different pattern for people who have had an experience where food was chronically inadequate or inconsistent. If you never know what to expect with respect to food, and sometimes go hungry for extended periods, then you will think and worry about food all the time. You will begin to worry about food immediately after finishing a good meal – *even while you are still fully satisfied from the meal you just ate, you will start to think and worry about the next meal* ***because you don't know whether or not it will be in place when you need it***.[33] As mentioned above, people with distracted attachment have a deep, subjective sense of insecurity regarding when they will get their next "meal" with respect to attuned relational connection. They are therefore chronically anxious about relationships, and preoccupied with getting more attuned relational connection.

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[33] For a poignant example of this "distracted attachment" with respect to food, see the story of WWII orphans included on page one of Linn, Dennis; Linn, Sheila Fabricant-Linn; and Linn, Matthew, *Sleeping with Bread* (Mahwah, N.J.: Paulist Press), 1995.

Disorganized attachment: Disorganized attachment is established by repeated experiences of a primary care-giver doing things that are overwhelming, frightening, and chaotic – experiences where the primary care-giver that you want to go to for comfort and safety is actually the source of your distress. When this happens, you *simultaneously* experience *both* an intense attachment drive to be with the person who is your primary care-giver *and* an intense self protection drive to get away from this same person as the source of your distress. In a relationship with disorganized attachment, you feel that you need to be with the person, *and* that you need to get away from the person. You feel that something terrible will happen if you leave the person, *and* that something terrible will happen if you stay with them. In a relationship with disorganized attachment, you feel that you must stay with the person to be okay, *and* you know the person is unsafe and will hurt you. In any experience or memory that includes the disorganized attachment dilemma (the person you need to comfort and protect you is the source of your distress), in addition to feeling fearful you will also feel profoundly confused and disorganized.

Note: It is important to understand that you can experience different forms of attachment as you relate to different people. For example, you can have a secure attachment to your mother and a dismissive attachment to your father. If this is the case, when you interact with your mother you will relate to her from a foundation of secure attachment, but when you interact with your father you will relate from a foundation of dismissive attachment. You can also have more than one form of attachment with the same person. For example, you can have a secure attachment to your mother when she is not triggered, but a distracted attachment to your mother when she is triggered to an anxious, emotionally absent place; and you can have a secure attachment to your father when he is sober, but a disorganized attachment to your father when he is intoxicated and violent. If this is the case, when your mother is not triggered you will relate to her from a foundation of secure attachment, but when she becomes triggered and emotionally absent you will shift to distracted attachment; and when your father is sober you will relate to him from a foundation of secure attachment, but when he gets drunk you will shift to disorganized attachment.

The underlying principle here is that your brain/mind will come up with more complex, customized attachment style combinations to fit any patterns that are consistent enough to be useful. For example, if your Dad almost always relates to you in one particular way your brain/mind will develop a single most appropriate attachment style and then apply this set of "most effective responses" all the time. However, if your Dad is usually a life-giving resource when he is sober, but usually dangerous when he is drunk, this is a pattern that is consistent enough to be useful. In this situation it would be more adaptive to develop two different sets of responses, one for sober and one for drunk, so that you could benefit from the life-giving connection when he is sober but avoid harm when he is drunk. In contrast to this adaptive response that your brain/mind actually would implement, think about how things would turn out if you had only one set of responses available: if your only response is "try to be with Dad," you would benefit from positive resources when he is sober but get beaten up when he is drunk; on the other hand, if your only response is "try to avoid Dad," you would benefit by escaping harm when he is drunk but then miss valuable resources when he is sober.

Immanuel thoughts regarding attachment: Jesus is *always* with you, and His Immanuel presence provides the perfect conditions for building secure attachment. You can turn to Him and have complete confidence that He will be there, and that He will see you, understand you,

care about you, share your emotions, join you in your experience, be glad to be with you, and respond appropriately to the unique situations you are bringing to Him. If you do not yet have secure attachment with Jesus, perceiving the Lord's presence and connecting with Him will provide the perfect conditions for building secure attachment. If you already have a secure attachment with Jesus, then you can turn to Him for comfort, support, and attunement at any time, regarding any problem that you might encounter.

Relational connection joy: According to Dr. Allen Schore, Dr. Daniel Siegel, Dr. E. James Wilder, and others, one of the earliest and most important sources of joy is the infant seeing "I think you're wonderful and I'm glad to be with you" in the expression on her mother's[34] smiling face. In fact, this expression on the mother's face causes the infant's brain to release high levels of endorphins, and these endorphins contribute to the intensely positive joy experience by directly stimulating the infant's subcortical reward centers.[35] This intensely positive experience, repeated many times during infancy, builds the joy foundation for the person's life.

As the infant builds a growing memory bank of attuned, "I'm glad to be with you" experiences, she internalizes the important "I'm glad to be with you" relationships in her life. This allows her to carry these relational connections with her, so that she can stand on a foundation of attuned, "I'm glad to be with you" relational connection, and the consequent relational connection joy, even when she is alone. When an infant receives optimal care, and her brain/mind/spirit system therefore develops as the Lord intended, she will carry with her a deep, stable, memory-anchored awareness that there are others who know her, love her, and are glad to be with her; and the corresponding relational connection joy will be the background, baseline, and foundation for every other aspect of her life.

It is important to understand that joy is also a psychological and spiritual phenomena, in addition to the biological phenomena produced by the neurological circuits at level 1 of the social/emotional processing system. For the purposes of this discussion we are *defining* joy as the biological, psychological, and spiritual experience produced when you are in attuned relational connection with another person, and you can perceive from the expression on the person's face that she is *glad to be with you*. Note also that this relational, right-hemisphere joy is not the same thing as pleasure, fun, or happiness. This relational, right-hemisphere joy can be *associated* with pleasure, fun, and happiness – people who are joyful are often also happy, having fun, and experiencing pleasure, and people who are happy, having fun, and experiencing pleasure are often also joyful – but joy is not the same thing as happiness, fun, or pleasure. I will often refer to this relational, right-hemisphere joy as "**relational connection joy,**" as a way to remind the reader that this joy is *inherently* connected to relationship, and that we are not using joy simply as a synonym for pleasure, fun, or happiness.

"Returning to joy"/re-establishing attuned relational connection/recovering the relational aspect of yourself: Developmental neuropsychologists tell us that the brain of an infant is a strange place, and one of the strangest things about this strange place is the striking lack of

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[34] This foundational infant bonding joy comes from the "I think you're wonderful and I'm glad to be with you" connection with both parents, but it is most powerful and most important with the primary care-giver, and the primary care-giver is usually the mother.

[35] Schore, Allen N., Ph.D. *Affect Dysregulation and Disorders of the Self*. (New York, NY: W.W. Norton & Company), 2003, page 10.

connection between many of the neurological circuits that are intimately connected in the properly developed adult brain. For example, the infant's brain starts out with minimal connections between the rest of the social/emotional processing system and the neurological circuits that generate each of the basic right-sided negative emotions. With respect to the rest of the social/emotional processing system, the circuits that generate each of the basic right-sided negative emotions are essentially neurological islands, *so that when the infant experiences one of the right-sided negative emotions, he is temporarily isolated on the corresponding neurological island.*

This neurology has profound implications, one of which is the following: when an infant at this stage of development encounters some painful experience that causes him to feel a negative emotion, and he is therefore isolated on the neurological island that generates the negative emotion in question, *he temporarily loses access to the neurological circuits that mediate attuned relational connection and relational connection joy*. When this happens, he loses all awareness that there are external others that know him, love him, and are glad to be with him. Instead of perceiving Mom's attunement and "glad to be with you," and feeling relational connection joy, the infant's conscious awareness is filled only with the painful emotion. The painful emotion is the only thing that lives or happens on its neurological island, and when the infant is isolated on this island, the painful emotion fills the whole screen of his conscious awareness.

Furthermore, when the infant loses access to the neurological circuits that mediate relational connection, he not only loses attuned relational connection and relational connection joy as emotional resources, but he also temporarily *loses the relational aspect of his self.* That is, the neurological circuits that mediate relational connection joy are the neurological circuits that mediate the relational aspect of his self, and *when he loses access to these circuits, he becomes an essentially non-relational being*. He will not be participating in attuned relational connection with its mutual mind or experiencing relational connection joy. He will be *neurologically unable* to think relationally towards others – he will not be interested in or concerned about what others are thinking or feeling, and he will certainly not be interested in or concerned about initiating attunement towards others. He will not even be thinking about others attuning to him, unless he actually sees them, right in front of him, appearing to understand him, sharing his negative emotions, joining him in his distress, and being glad to be with him (initiating and offering attunement).[36]

Losing access to your relational connection circuits is a really important concept, and since most of us can't remember these infant experiences of getting stranded on negative emotion neurological islands, I'd like to provide some adult life examples that will help you get a better feel for what this looks like. The experience of drowning provides one of the most dramatic examples. Everyone knows that you must be careful when trying to help someone who is drowning because he can pull you under in his frantic attempt to climb to the surface, and he will be completely oblivious to the fact that he is drowning you in the process. You never hear anyone say: "When you're trying to rescue a drowning person, make sure to tell him that you're his friend so that he won't pull you under," or "..., but you don't have to worry about this if the

[36] Even when you are alone on a neurological negative emotion island, you will still welcome and respond to someone else coming to you with attunement. In this respect, you are still a relational being, but aside from this remaining openness to connection, you become non-relational when you are isolated on one of the neurological islands that produce negative emotions.

person drowning is a close relative because no one will do this to his own family members." The reason for this universally accepted wisdom with respect to drowning victims is that a person overwhelmed by the suffocation and terror of drowning will usually lose access to his relational connection circuits to such an extreme degree that he will become *completely and totally non-relational*. When this happens, self-preservation is the only thing left on the screen. The only awareness he will have with respect to anyone else in the water is that they are floating objects he can climb onto.

I experienced this "completely and totally non-relational" phenomena first hand when I almost drowned as an eight year old. I was a good swimmer, and could usually take care of myself in water without any difficulty, but on this occasion I was being pulled down by an undercurrent. I could see the surface, but I couldn't get to it no matter how hard I tried, and as the sense of suffocation steadily increased, fear became panic, and panic quickly grew into the most desperate, overwhelming terror I have ever experienced in my life. At this point self-preservation definitely filled the whole screen for me. My brother was with me, struggling with the same dangerous current, and my father was on the shore, watching both his sons fighting for their lives; but I was not grateful for their presence, I did not perceive them as sources of joy, I did not feel connected to them or even feel the desire for connection, and I was not concerned about what they were thinking or feeling. In fact, I had forgotten they even existed. The ONLY thing on my screen was suffocation and terror. If I had bumped into my brother, I'm sure I would have pulled him under in an attempt to climb his body to the surface.

I've never heard anybody describe this, but if you *were* able to maintain access to your relational connection circuits while drowning it might look like this: Even as you are feeling intense suffocation and terror, you would be able to hold onto the awareness that there are others that know you and love you. You would still feel terror and the intense pain of suffocation, but you would *also* be able to hold onto the truth that the Lord, your family, and your friends love you, and you would be able to *feel* the value of these relational connections. Furthermore, if there are others in the water with you, you will *feel* grateful for their presence and you will *feel* concern for their safety. You will still have a desperate desire for them to help you, but you will *also* be aware of them as people, *feel* concern for their safety, and be careful not to grab onto them in ways that would cause them to drown.

The dramatic scenario of drowning illustrates the phenomena with particular clarity, but it is also important to realize that we can lose access to our relational connection circuits in much more mundane situations. This is especially true when relatively mild painful emotions are not *directly* causing us to lose access to our relational connection circuits, but rather *indirectly* cause this problem by triggering traumatic memories whose unresolved content includes loss of relational connection. For example, at one point in the seminar we did two months ago in California Charlotte and I lost synchronization between the PowerPoint slides she was running and the lecture content I was presenting, and this triggered memories of being a child with dyslexia in first grade, where I would "mess up" in front of the class on a regular basis. I suddenly felt off balance, anxious, embarrassed, and especially vulnerable to making mistakes that might cause the audience to laugh at me or become angry with me. And even though the vulnerability, anxiety, and embarrassment I felt in front of the audience in California were only of mild-moderate intensity, I lost access to my relational connection circuits *because the* ***underlying memories*** *included loss of access to my relational connection circuits*. To the extent that I was blended with the first grade memory content, I experienced impaired access to my relational connection circuits in the present.

To the extent that I had become non-relational, it was all about making the pain stop in the present and protecting myself from similar pain in the future. My perception was that Charlotte had become confused regarding which slide should be on the screen because she had lost her place in the notes due to lack of attention. It *felt* true that the problem was her fault, it *felt* true that I would have done a better job had I been running the PowerPoints, it felt true that there was no excuse for her lapse in attention, and it felt true that applying pain would be an acceptable part of the solution. It felt reasonable to point my displeasure at her to motivate maximum effort for getting back on track, and it felt reasonable to apply additional displeasure so that she would be motivated to pay closer attention in the future. I was *not* aware of her as another person. I did *not* feel glad to be with her. I did *not* feel that I was connected to her or that I had any desire to be connected to her. I did *not* perceive her presence as a source of joy, but rather as a problem to be solved or a resource to be used. I did *not* have any awareness of her true heart, and I did *not* feel any concern regarding what she might be thinking or feeling.[37]

Note: When I lose access to my relational connection circuits, I do not just spontaneously become as clearly and explicitly aware of these thoughts and feelings as I am describing here. However, if I stop and carefully examined my thoughts and feelings, this is what I find. Similarly, when you lose access to your relational connection circuits, if you stop and carefully examine your mental content, this is the kind of stuff you will find.

Note also that it's not about knowing what I *ought* to think and feel towards Charlotte, it's not about knowing how I *ought* to act towards Charlotte, and it's not about being aware of the kind of consequences that might ensue should I act on my hurtful, non-relational impulses. All of these protective, higher level brain functions were still at least partially on line for me (for example, they were on line enough to enable me to make good choices regarding my outward behavior). Rather, loss of my relational connection circuits is about the thoughts, emotions, attitudes, and impulses towards other people that come forward *spontaneously* and *involuntarily*, and that *feel* true.

Later in this same presentation I was talking about losing access to relational connection circuits, and it occurred to me that I could use this very recent relational tangle as an example. I noted the synchronization difficulty that had occurred 15 minutes previous, I pointed out the irritated, judgmental edge to my voice as I was interacting with Charlotte to regain coordination between lecture and slides, and then I described the internal thoughts and emotions I had been experiencing, all of which provided examples of what it looks like when you lose access to your relational connection circuits. At this point my relational connection circuits were still mostly off line, and I still felt more frustration and irritation than appreciation, but it was important for Charlotte, the audience, and myself that I take some time to deliberately focus on and name the specific ways in which Charlotte was doing an excellent job in her role as support staff, and I chose to do this. Among other things, I noted the high quality of the PowerPoint slides Charlotte had spent many, many hours putting together, and I noted the difficulty of maintaining constant focus with respect to cues for hundreds and hundreds of slides over 16+ hours of lecture content.

By the time I got done naming all of these reasons I should appreciate Charlotte, they had begun

[37] Actually, I *was* concerned about what she was thinking and feeling, in a totally non-relational sort of way. I wanted her to be feeling enough pain to provide adequate motivation, and I hoped she was thinking: "Boy, this really hurts – I'll make sure to never let this happen again!"

to *feel* true, indicating that my relational connection circuits were back on line. Once I had recovered the relational aspect of my self, I was aware of Charlotte as a person, I was aware of her heart, I perceived her presence as a source of joy, I *felt* connected to her, I *wanted* to be connected to her, and I could *feel* concern for how she was doing; *and all this came forth spontaneously, without my having to specifically think about it or work on it.* I still felt my anxiety and vulnerability, I still believed (erroneously)[38] that the problem had resulted from a loss of focus on her part, and I still wanted to resolve the underlying issues so that this same problem would not happen again, but I *also* felt relational and felt spontaneous concern for Charlotte. My spontaneous, involuntary response was now to *feel* concern for her, and to want to resolve the underlying issues in a considerate, gentle way that would avoid hurting her.

Getting back to the infant with the neurologically immature brain: At this early stage of development, with the neurological circuits isolated as just described, the infant is unable to feel negative emotions and access her relational circuits at the same time. For this to change, the infant's brain needs to be trained, so that neurological bridges will develop between the circuits that generate negative emotions and the circuits that mediate relational connection. The infant needs to learn the right-hemisphere, *psychological/spiritual maturity skill* of being able to feel negative emotions and maintain the relational aspect of her self at the same time, and the mind/spirit process of learning this skill will correspond to the brain process of growing and strengthening neurological connections between the circuits that generate negative emotions and the circuits that mediate relational connection.

So how does this brain training and skill learning occur? As just described, before this brain training and skill learning has occurred, experiencing a negative emotion causes the infant to lose access to her relational connection circuits, and this corresponds to losing the relational aspect of her self, losing attuned relational connection, and losing relational connection joy. When this happens, the infant needs to regain access to her relational connection circuits, she needs to re-establish attuned relational connection, she needs to return to relational connection joy,[39] she needs to recover the relational aspect of her self,[40] and she will need someone to help her do this.

Fortunately, the Lord seems to have designed us so that all of this will happen smoothly and easily within the normal parent-child interactions of secure attachment. In the context of secure

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[38] Part of the irony of this whole episode is that the problem had actually *not* been caused by Charlotte losing focus. She had been carefully following her copy of my lecture notes, *but I had made a number of extemporaneous changes to the presentation*, making it impossible for her to figure out which slides should be on the screen.

[39] *Returning* to joy" refers to returning to the original baseline of relational connection joy, after having temporarily lost this due to being isolated in negative emotion circuits. However, "returning to joy" does *not* imply leaving the negative emotion, in the way "returning to Pittsburgh" assumes that you *leave* Chicago and *end up* in Pittsburgh. The core phenomena that drives this brain training and skill learning, and the corresponding neurological development, is returning to the original baseline of relational connection joy *while also remaining in the negative emotion*. Note also that "returning to joy" is a good phrase for the *training phase*, but not for the final maturity skill, which is the ability to *maintain* joy.

[40] Note that regaining access to your relational connection circuits, re-establishing attuned relational connection, returning to relational connection joy, and recovering the relational aspect of your self always, inherently, go together *because these are all different aspects of the exact same process*.

attachment, when an infant encounters a painful situation and is feeling a negative emotion, one of her parents will see and understand her pain, and then initiate attunement by sharing the infant's negative emotion, joining the infant in her negative emotion, and being glad to be with her. When the parent comes into the infant's experience of the negative emotion in this way – finding her and joining her on her negative emotion neurological island – the infant is able to re-establish relational connection *even as she is still in the negative emotion*. The infant responds to her parent's attunement initiative, regains access to her relational connection circuits, recovers the relational aspect of her self, and re-establishes mutual mind connection. And as she is re-establishing mutual mind attuned connection and sharing her negative emotions with her parent – as she is *feeling* seen, understood, validated, cared for, and emotionally connected *while still in the negative emotions* – she is also receiving the "I'm glad to be with you" message, and thereby re-establishing the joy experience of being glad to be with her parent who is glad to be with her.

Each time the infant feels a negative emotion, and then is helped to regain access to her relational connection circuits[41] *while still feeling the negative emotion*, neurons linking the negative emotion circuits to the relational connection circuits are activated. The very process of re-establishing attuned relational connection while still feeling the negative emotion is what activates the neurons that link across from the negative emotion circuits to the relational connection circuits, and each time these neurons are activated, the pathway connecting the two groups of circuits is reinforced. As the infant practices this exercise for each of the right-sided negative emotions, the bridging pathways grow stronger and stronger, until eventually there are strong and stable neurological pathways linking the neurological circuits for each of the negative right-sided emotions to the neurological circuits mediating relational connection. The development of these neurological pathways enables the infant's brain to activate the circuits for each of the right-sided negative emotions *without losing access to the relational connection circuits*, and these *brain training neurological changes* correspond to learning the psychological/spiritual *maturity skills* of being able to *maintain* attuned relational connection and relational connection joy *while experiencing each of the right-sided negative emotions*.

During practice, the infant is repeatedly *losing* access to the relational connection circuits because of getting isolated in the negative emotion circuits, and then *re-establishing* access to the relational connection circuits while remaining connected to the negative emotion circuits. The corresponding mind/spirit experience is repeatedly *losing* attuned relational connection and relational connection joy while feeling immersed in negative emotions, and then *re-establishing* attuned relational connection and relational connection joy while still feeling the negative emotions. However, after the maturity skills have been learned, and strong, stable neurological connections have been developed, the infant is able to *maintain* access to the relational connection circuits as she encounters painful experiences that cause negative emotion circuits to be activated. As long as the negative emotions do not exceed her skill and/or capacity, she will be able to move through painful experiences and feel negative emotions *while* ***maintaining*** *access to the relational connection circuits, and therefore also maintaining attuned relational connection, relational connection joy, and the relational aspect of her self.*

Once this brain training and maturity skill learning has been downloaded from the parent to the

[41] Again, regaining access to her relational connection circuits will *always, necessarily* also include re-establishing attuned relational connection, returning to relational connection joy, and recovering the relational aspect of herself *because these are all different aspects of the exact same process*.

infant, the infant will be able to maintain attuned relational connection and relational connection joy by herself. You will always appreciate another person attuned to you and glad to be with you – this will always be a source of encouragement and joy that will augment your capacity – but once you have learned the maturity skills of being able to maintain relational connection joy while experiencing each of the right-sided negative emotions, you will no longer need somebody else to initiate attunement and lead in the process of re-establishing relational connection joy each time you experience one of the right-sided negative emotions. Another way to say this is that you need an *external other* to *train* your brain and *teach* you these skills, but once this has been accomplished, you can maintain relational connection joy in the presence of distressing emotions, *even when you are alone – based on* ***internalized, remembered*** *attuned relational connection, and based on* ***internalized, remembered*** *brain training and maturity skills*.

When brain/mind/spirit development unfolds as it is supposed to, this brain training and skill learning occurs in the context of interactions between the infant and her primary caregivers, and it is complete by 18 months of age.

Unfortunately, what has just been described is the ideal scenario. In real life, some of us fail to master these maturity skills of being able to maintain attuned relational connection and relational connection joy in the presence of each of the distressing right-sided emotions. The most common reason for this is that our parents are not perfect. Each of our parents have a unique profile with respect to "maintain joy" maturity skills, with most parents having a mixture of right-sided negative emotions that they handle well and right-sided negative emotions that they handle with difficulty. Some parents also have right-sided negative emotions that they are not able to handle at all. *And if your parents have blind spots or weaknesses in their "maintain joy" maturity skills profile, they will pass these blind spots and weaknesses on to you*. That is, as you learn from your parents, the material you learn will include their blind spots and weaknesses – as you learn and download their skills, you will also "learn" and download their blind spots and weaknesses.

As will be discussed in much more detail below, being unable to maintain joy in the presence of intense right-sided negative emotions can be what causes *painful* experiences to become *traumatic* experiences that are then stored as *traumatic memories*. And when we try to resolve these traumatic memories, the first thing we need to help us get unstuck – the first thing we need for something new to happen – the first thing we need to be able to resolve the situation that we had not been able to handle on our own, is for someone with a better trained brain and stronger maturity skills to help us re-establish attuned relational connection and the corresponding relational connection joy.

Simultaneous joy and distress: The above discussion of re-establishing and/or maintaining relational connection joy brings up an interesting and important point: being able to feel relational connection joy and distressing emotions *at the same time* means that you can experience relational connection joy *even as you suffer*. To experience the positive, pleasant subjective state of feeling joy*ful*, you need to be at least mostly free of emotional and/or physical pain; but you can experience the "I'm glad to be with you" joy of attuned relational connection *even as you suffer*. Again, even when you are in a painful situation, if someone is attuned to you and glad to be with you, you can experience relational connection joy *even as you are still, simultaneously, experiencing physical pain and/or negative emotions.* For example, with each of our miscarriages Charlotte and I have grieved *together*. We have been very emotionally

connected and attuned to each other, we have been glad to be together, *and* we have grieved. As we were attuned to each other, glad to be together, *and* grieving, we experienced relational connection joy *even as we were both grieving*.

When I first encountered this part of the theory, it didn't seem to fit my experience because I didn't *recognize* the joy that was present in distressing situations. My spontaneous, intuitive response was: "I just don't see it." Part of resolving this difficulty has been coming to understand that there are two very different conditions in which we can experience joy: we can experience joy *without simultaneous distress*, in which case it is easy to see, and we can experience joy *in combination with simultaneous distress*, in which case it is much harder to see. A helpful analogy is to think about listening to two different instruments, such as a trumpet and a violin. If you hear a song being played by a violin alone, it is very easy to recognize the violin. However, if you hear a trumpet and violin playing the exact same melody together, it can be very difficult to recognize the violin (especially if the trumpet is playing loudly[42]).

Another part of resolving my "I just don't see it" difficulty has been finding creative approaches for detecting the presence of joy. Returning to our analogy of two instruments playing the exact same melody: If the trumpet is playing loudly, it will be difficult to hear or recognize the violin; and if you are musically inexperienced, it will even be difficult to tell whether the music is being produced by a single instrument, or whether several instruments are playing together. In this case, it will be easier to hear the violin if you start with the trumpet playing alone, and then add the violin. When you hear the violin join the trumpet, you can easily recognize that something is different. Even if you still have difficulty identifying that the second instrument is a violin, you will certainly realize that another instrument is also playing. The experience of feeling joy together with painful emotions is very similar. It can be difficult to recognize the subjective feeling of joy when you are experiencing intense negative emotions at the same time; however, it is much easier to recognize that something feels *different* when joy is added to painful emotions – it is much easier to notice the *difference* between how it feels when you are in a distressing situation *without* joy, and how it feels when you are in the same distressing situation *with* joy.

If you are in a distressing situation *without* joy, then, by definition, you are experiencing painful emotions *without* attuned relational connection to another person, *without* access to the relational aspect of yourself, *without* access to internalized, memory-based attuned relational connection or relational connection joy, and *without* perception of the Lord's attuned relational presence. This is an especially, uniquely miserable experience. And your subjective experience of this situation will change dramatically if someone comes and joins you, attunes to you, and is glad to be with you – your subjective experience of this situation will change dramatically, *even though you are still in the **same** painful situation and still feeling the **same** negative emotions*. You can perceive, subjectively, the recovery of the relational aspect of your being, and this feels better than being non-relational. You can perceive attuned relational connection, and this feels better than being alone. You can perceive that your companion is glad to be with you, and this feels good. Even though you are still in the same distressing situation, feeling the same negative emotions, it will definitely feel better to have recovered the relational aspect of your self, to have re-established attuned relational connection, and to have re-established relational connection joy. Even though you might still have difficulty recognizing "this is joy," you will certainly be able to

[42] As would be the case if the analogy is representing the experience of feeling joy in combination with intense negative emotions.

tell that something is different – that your overall experience has changed for the better.

Another way to summarize these last two points would be: "Joy alone feels different than joy + pain," and "Pain alone feels different than pain + joy."

Re-establishing joy, maintaining joy, and brain levels: Level 3 cingulate cortex is the part of the brain Mom's mind will use to reach out to her infant, initiate attunement, re-establish mutual mind connection, and communicate "I'm glad to be with you." Level 3 cingulate cortex is the part of the brain that Mom will use to teach her infant the psychological/spiritual maturity skills of re-establishing attuned relational connection and relational connection joy while feeling each of the distressing emotions. Level 3 cingulate cortex is the part of the brain the infant's mind will use to respond to Mom's attunement initiative, and to re-establish mutual mind connection and share her negative emotions with Mom; and then level 1 receives the "I'm glad to be with you" message and re-establishes relational connection joy.

Level 3 cingulate cortex is the part of the brain the infant will use to learn the psychological/spiritual maturity skills of maintaining attuned relational connection and relational connection joy while feeling each of the distressing emotions, and Level 3 cingulate cortex is the part of the brain we use to maintain attuned relational connection and relational connection joy through the brief encounters with negative emotions that we experience each day. When we work through more intense painful experiences and/or resolve traumatic memories, level 3 cingulate cortex is the part of the brain we use to regain access to our relational connection circuits, to re-establish attuned relational connection, and to recover the relational aspects of our selves, and then level 1 re-establishes relational connection joy.

Theory regarding joy, "returning to joy," and maintaining joy is difficult to validate: I don't want to just present interesting ideas for your amusement, I want you to *believe* what I am teaching you. Furthermore, I want you to *believe it so strongly that you actually begin to apply it in your lives*. For this to occur, you will need to convince yourselves that the theories I am presenting are consistent with your experience of the real world. As you set out to see whether or not these theories are consistent with your own observations, it is important to realize that this theory with respect to relational connection joy, "returning to joy," and maintaining joy is especially difficult to validate in our personal life experiences.

One reason for this is that the attuned relational connection/"I'm glad to be with you" joy foundation described here is established in infancy, *before the circuits for permanent autobiographical memory have come on line*. This means that we don't have conscious autobiographical memory for the process of building this foundation, and that we don't have conscious autobiographical memory for the specific attuned relational connections and "I'm glad to be with you" experiences that contribute to this foundation. We also usually complete the "maintain relational connection joy" brain training and maturity skill learning in infancy, before the circuits for permanent autobiographical memory have come on line. This means that we have no conscious autobiographical memory of what it was like before we had these skills, and that we have no conscious autobiographical memory for the process of learning these skills.

Another factor contributing to this difficulty is that the level 3 process of maintaining (or re-establishing) access to our relational connection circuits is an intuitive, *non-conscious*, right-sided phenomena. This means that *we cannot perceive or feel it happening*, and are therefore *not*

consciously aware of this phenomena as it occurs in our present experience.

A third factor contributing to this difficult is that we cannot feel our foundation of internalized attuned relational connection and relational connection joy when we are triggered to traumatic memories that include being unable to maintain joy or return to joy. Many of us are subtly triggered to this kind of implicit memory content much more often that we realize, and whenever we are triggered in this way much of this theory will appear to be inconsistent with our personal experience.

A fourth factor is that some people have never yet received a good foundation of attuned relational connection and "I'm glad to be with you" joy, and so large parts of this theory will not feel consistent with their life experiences.

A fifth factor is that Many of us have more holes in our brain training and maturity skills that we realize. When this results in parts of the theory *appearing* to be inconsistent with our experience, we can either conclude that the model is faulty or consider the humbling possibility that we have overestimated the strength and completeness of our maturity skills. The first option is certainly much less narcissistically mortifying.

In summary: We don't remember the process of laying down our relational connection joy foundations, the internalized attuned relational connections and "I'm glad to be with you" joy experiences that form the joy foundations for our lives are stored as *implicit memory* that we are *not consciously aware of,* we are not consciously aware of the right-sided processes that access this implicit memory material as the source of our baseline joy each day, most of us can't remember what it was like before obtaining our "maintain joy" skills, we can't remember the process of learning these skills, we are not able to consciously perceive the process of using these skills in the present, many of us are often triggered in ways that will cause our experience to appear inconsistent with this theory, and some have not yet received a foundation of relational connection joy, which will cause much of their experience to appear inconsistent with this theory. These factors present special challenges when it comes to testing/validating this theory in our personal life experiences.

So how did we come up with these theories anyway? The very short summary is: Many psychologists, psychiatrists, and developmental neurobiologists made many, many observations in a large number of case studies and experiments, and then some theorists, such as Dr. Schore, Dr. Siegel, Dr. Wilder, and myself put all of these pieces together to get the theory I have just summarized in a very simplified form. In light of the factors just discussed, accepting this theory requires a lot of faith in these clinicians, scientists, and theorists. In my perception, one of the strongest reasons to accept this theory regarding relational connection joy, "returning to joy," and maintaining joy is the strength of the larger theoretical framework that it contributes to (discussed in the remainder of this document). As I have carefully tested it over the last several years, the larger theoretical framework discussed here is consistent with the data from my personal experience, it is consistent with the data from my clinical experience, and it is consistent with the data from case studies and research in the professional literature. It has explained observations that no other theory has explained, and it has provided practical guidance that has resulted in successful resolution for situations that had previously remained stuck.

Even though it is quite complex, and not intuitively obvious from everyday experience due to the factors just discussed, I would encourage you consider this theory, and to watch for situations

where you can test it. In some ways, this theory about relational connection joy, returning to joy, and maintaining joy is much like our beliefs regarding germs and nuclear physics – we can't test germ theory or nuclear physics by direct observations in our every day lives, but we have come to believe these theories based on many observations of indirect evidence.[43] In my own experience, one of the best ways to test these theories is to watch for emotions where you are able to stay relational and maintain relational connection joy, watch for emotions where you are not able to stay relational and maintain relational connection joy, and then compare these different experiences. For example, I do a very good job of staying relational and maintaining relational connection joy with disgust and sadness, I do a mediocre job of staying relational and maintaining relational connection joy with shame and hopeless despair (after lots of healing work with these two emotions), and I still have a lot of difficulty staying relational and maintaining relational connection joy with fear and anger. I find some of the best evidence validating these theories when I carefully observe and think about the differences between my experiences with disgust and sadness, my experiences with shame and hopeless despair, and my experiences with fear and anger.

[43] Most of us are so familiar with germ theory that we don't realize how difficult it is to validate on the basis of every day experience. I came to appreciate this only when I read accounts from missionaries, describing the incredible difficulties they encountered when working with primitive tribal groups, and trying to convince them that diseases were caused by invisible animals that lived everywhere, including inside their bodies. Yeah, right! Tell me another one.