

The Pilot: “The President of the United States of the Self”

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Pilot: Introduction

In 2009 Albert Pessa went to the Democratic Republic of the Congo to work as a psychotherapist with victims of sexual violence, and with people who were kidnapped as children to be soldiers in militias where they were forced to commit unspeakable acts of violence. His two weeks in the Congo were filmed by Djo Munga, who created a documentary film of the experience called, “State of Mind” (available through Icaus Films). Those who witnessed Pessa’s work were a collection of counselors, ministers and government officials, such as judges, who were working every day with the millions of victims of extreme violence. This group of local Congolese workers was so impressed with Pessa’s work and his approach that in February, 2010, many of these same witnesses came to Pessa's home town of Boston in order to set up a plan to train hundreds of Congolese relief workers to train in his methods. The method, which he developed along with his wife, Diane Boyden Pessa, is called the Pessa Boyden System of Psychomotor (PBSP) psychotherapy. Those of us who had trained with Pessa long enough to become certified as Trainers and Supervisors in PBSP were also invited to attend.

Like any such group, we came up with a mission statement to guide our organizational efforts. The mission statement was: “To develop the ‘pilot’ and increase individuals’ capacity for establishing ownership of their life and their story, thereby strengthening their sense of hope, self-determination, and social and economic productivity, and a sense of meaning.” Since, as one participant put it, “The entire country is like a giant trauma ward of a hospital,” (I’m going by my own memory of the event.) it was hoped that our efforts would help improve the pilot function of the whole country.

When I left this meeting in 2009 I was struck by the need for reflection on Pessa’s concepts embodied in the metaphor of the pilot. Unfortunately, the project of training PBSP practitioners in the Congo collapsed, as the funding for the project was pulled, and

the project was never developed. Out of my very fond memories and deep respect for the remarkable people, religious workers, organizers and some governmental people, working every day with countless numbers of sexually abused women (the Congo is known as the “rape capital” of the world) and kidnapped child soldiers, my desire to reflect on the nature of the pilot is in honor of the Congolese workers and my memory of them from this meeting. What follows are some of my thoughts and elaborations on Albert Pessó’s notion of the pilot.

The pilot concept is using a metaphor of an actual pilot. Just as an airline pilot is in charge of the airplane’s operation, the personal pilot is in charge of the operation of the self. The pilot, as Pessó frequently puts it, “is the president of the united states of the self.” The pilot is the experience of one’s self as the ultimate seat of the conscious executive function of our self. In my experience as a therapist and trainer of psychotherapy, the metaphor of the “pilot” is readily understood by everyone. However, in spite of the fact that people seem to readily identify their pilot experiences, when it comes to explaining the metaphor things become very complex. As you will see, the simple metaphor of a pilot incorporates a whole host of developmental and clinical ideas, as well as current understandings of how the brain works. What follows are some general theoretical thoughts I’ve had in relation to the pilot metaphor. In the background of my thoughts will be the actual clinical situation of doing psychotherapy and the relationship of the pilot metaphor to my current understanding of the biological substrate of what we know of the brain.

General Introduction

As the neurological researcher, David Redish (2012) puts it, “We are very complex decision-making machines...” (p.9). This presents a challenge for me in

attempting to “unpack” the metaphor of the pilot to describe that part of us that makes decisions and owns those decisions as our decisions. To describe and explain this function means to describe almost the entirety of who we are. From Redish’s point of view the brain is a decision-making machine and to describe and explain this process is really to describe and explain our brain functioning as a whole. This explaining the current understanding of how the human brain functions is an order I will only fulfill minimally. Nevertheless, as you will see, a large part of my viewpoint is that there is much more to the pilot than making decisions. I have come to think that an even more crucial aspect of our functioning described in the pilot metaphor is the idea of the “ownership of the self.” The experience of “I made a decision, is comprised of two experiences at once, inextricably woven together. There is the experience of making (and carrying out) a decision, and there is the experience that “I” made that decision. While making decisions is an important part of the experience of self-ownership, it is not the only factor. I would place imagination, and the ability to be conscious of our feelings, at the core of the pilot experience of self-ownership.

There is an oft cited dictum for public speaking that goes first “tell them what you’re going to tell them, then, tell them, then tell them what you’ve told them.” My goal in this section is to give you a birds-eye view of what I’m going to be telling you. To this end, the metaphor of the pilot is describing a complex set of dynamic processes. This means the pilot is not a piece of anatomy, like an arm or leg, or even a specific structure of the brain. The pilot system only functions in ongoing psychobiological systems, working in concert together, in the same way a movie is only a movie when the individual picture frames are displayed on a screen in a constant movement of one frame after another in a properly unfolding sequence. This is a quality that the neurologist, Michael Gazzaniga (2011) calls “emergent” (pp.124f). As Gazzaniga puts it, “Emergence doesn’t just apply to physics. It applies to all organized system: cities emerge out of

bricks, Beatlemania out of what? Calling a property emergent does not explain it or how it came to be, but rather puts it on the appropriate level to describe more adequately what is going on” (p.125). For example, traffic patterns in a big city cannot be fruitfully analyzed by studying how a car’s headlights work. We have to look at what level of the phenomenon we are looking at to determine what is relevant. As a psychotherapist, it may not do me any good whatsoever in dealing with a patient who is dealing with traumatic abuse to have a detailed knowledge of what is happening to sodium levels in the synaptic junctures of the brain’s neurons. It’s entirely possible, in fact I think it happens all the time, that someone with virtually no knowledge of how the brain works may be very helpful in helping a traumatized person.

My point here is to highlight that what Pessoa is describing in the metaphor of a pilot emerges, and is part and parcel with, a whole host of very complex brain processes and cannot be thought of as simply arising from a single brain structure. And while the activity of psychotherapy may not be served well by the explanatory concepts of neuronal research, I think we are on safer ground at least to show how psychotherapeutic theories (theories that give us guiding maps about how psychotherapy works), are possibly related to the biological substrate level of brain functioning. In David Redish’s book, The mind within the brain: how we make decisions and how those decisions go wrong, he helpfully defines a decision operationally as an action. All decisions result in an action, whether it be how our digestive track handles a piece of food or how we decide to set up a retirement account. Thinking of decisions as actions helps us to integrate the many layers of systems involved in our experience of decision-making and the related experience of feeling ourselves to be “in charge” of our lives. With this working definition of a decision being an action, Redish outlines three different, interpenetrating levels of brain functions that are part of our decision-making capability. These three arenas are reflexes, emotions, including the the Pavlovian action-selection systems, and deliberation. While I won’t be giving a simple re-presentation of his book, this outline has helped to organize

my thinking and will pop up from time to time. I'd like to emphasize that all three of these arenas, reflexes, emotional action-selection system, and deliberation, are all decision-making systems. These categories also are very compatible with the three movement systems of the body that Pessó identifies as reflexive, emotional, and conscious voluntary movement systems.

What I'll be developing starts with Pessó's notion of describing the pilot function as emerging out of what he calls the ego. The first section will be devoted to elaborating on what I think Pessó means by the ego. After the ego is in place (which is largely correlated to what Redish calls the emotional, Pavlovian action-selection system, or what Van der Kolk (2014) calls "the emotional brain"), I'll be in a better position to describe the pilot function proper, as an emergent property of the ego system. For Pessó, the pilot "system" is comprised of a self-reflective consciousness of emotions and deliberative decision-making and a sense of ownership of those functions. Ownership of our decisions amounts to owning our "self," which I've come to believe requires a sense of "authorship" of our own story, which in turn is a product of imagination.

The Pilot: "the highest order of ego processes"

Albert Pessó (1991) defines the pilot as, "The designation of the highest order of ego processes, the aspect with which the therapist makes an alliance. In touch with both affective and cognitive content, but often unaware of soul energies expressed in the body, the pilot functions as the coordinating and choice-making center of the personality" (p. 292). Since the pilot is understood to be the highest ego processes, let me first say what is meant by ego.

For those of you familiar with Freud, Pessó's ego is similar. The ego encompasses all of those mental functions that help us form an interactive boundary line between what is "me" and "not me." The ego is the psychological equivalent of our skin.

To make an analogy, perhaps the most basic building block of all living entities is the cell. All cells have a membrane which differentiates the interior milieu of the cell from the outside environment. In order for the cell to stay alive the internal milieu has to be maintained within a very narrow range of a whole host of biochemical processes. Temperature would be one prominent example of the many processes that must be maintained within a narrow range.

Just like a single cell, to be human means that we must have a similar psychological line of demarcation between what we consider to be the inside of ourselves and the outside of ourselves. The ego is that set of psychobiological functions which serves the function of first, demarcating the line between what is “me” and what is “not me,” or the outside world; and secondly, maintaining the needed relationship between me and the outside world. In short, the ego is collection of regulatory systems that both marks our sense of self as an individual different from everything else, and maintains the relationship we need to keep with the outside world from which our being springs.

The ego accomplishes these functions through what is widely referred to these days as affect regulation, which I will talk more about later. Most basically, we have to take in what we need to live, and keep out and/or eliminate that which would do us harm. There is a constant flow of input and output. When we allow ourselves to be nurtured we have to open up and take in (in PBSP theory, this is called receptivity). This is true on a literal, material level, as when we take in food and air, and it is true on a psychological level, as when we take in love, support, recognition and so on. In short, we live in psychobiological systems. While it is true that human beings develop from the state of absolute dependence as infants to relative independence as adults we *are never* self sufficient beings; we are always a part of larger systems. In the psychotherapeutic setting omnipotence is a problem defined as living in an illusion of self-sufficiency.

Another way to say this is to say that the ego is a social construction, using the materials

of our biology along with our memories of interactions with the larger world. Thus, human development goes from the infant state, with absolute dependence on care-givers to regulate the system of inputs and outputs, to adulthood, with an ability to take responsibility for the system of inputs and outputs. For example, both infants and adults need to eat and thus both infants and adults are dependent on larger systems (of which we are a part) to provide us with food. Even as an adult I am dependent on farmers, transportation systems, grocery stores, etc., to provide me with food. The difference between infancy and adulthood is more accurately thought of as the degree of *responsibility* for managing the systems of regulation between inside and outside than it is a difference between dependency and independence. For example, we don't hold a toddler responsible for crossing a busy intersection because we recognize that the toddler has not developed the skill to manage that feat safely. Adults we hold responsible for getting across the street on their own, which may include, if necessary, *asking* for assistance. If a child is hungry, the adults in that child's world are responsible for seeing that the child is fed. If an adult is hungry, it is the adult's responsibility to procure food. Both adult and child need food. The difference is the *ability* to be *responsible* for attaining the food. All this means that the mature ego system is a psychobiological system by which the human being *owns* and maintains the necessary means to meet his or her needs to stay alive, both individually and as a species.

Once I was eating breakfast with a friend. Two young women were seated at a table across from me, one of them with a newborn baby, perhaps a month old. The baby became fussy and after a few moments the mother started reaching into her bag for a bottle. This made a little bit of sound; the sound of opening the bag and rummaging around inside. The baby calmed down. The mother smiled at her baby and said to her companion, "She recognizes already that I'm going to feed her." This interaction is a very precise example of ego formation. The baby is distressed and expresses her distress. The mother accurately reads the cause of the baby's distress and begins to remedy the

distressful situation. The baby *calms down* before she is even fed because she has had enough experience, that is, has learned, that the sounds indicate that her communication has been received and turns off her distress signals anticipating that gratification is about to happen.

In PBSP theory, Pessó has identified this sequence as energy - action - interaction - internalization of meaning (or, the development of a map). The energy was the baby's distress. In this way, the brain is like the thermostat in your house. In cold weather, when the temperature falls below a certain level the thermostat sends an electronic signal to the furnace to turn on and produce heat. When the set point is reached, it sends another signal to the furnace to turn off. The baby's distress is like an energy welling up in the baby. This energy results in an action, the baby cries. This action, hopefully, serves as a signal, or communication, "something is wrong, please fix it." This leads to an interaction. The mother hears the message. Because both mother and baby have been through this sequence before, and both hold the sequence in memory, the mother accurately ascertains that the baby is saying it is hungry (versus cold, wet, lonely, etc.) and begins to make the moves to fix the situation. This sequence has happened enough times that the baby has internalized the meanings of the sounds (the sounds have a meaning) and predicts a satisfying outcome and thereby calms down.

The ego is comprised of perhaps hundreds of thousands of memory bits of energy - action - interaction - meanings sequences that guide our behavior in the world. With human beings, a good portion of these maps (meanings) are memory images of interactions around how to get along with the human community of which we are a part. As the evolutionary psychologist, Robert Wright (1994) puts it, "The evolution of the human being has consisted largely of adaptation to one another" (p.27).

In the beginning of human life, our parents, or those who are serving as are parents, *are* our egos. Anyone who has been in charge of toddler (a baby that has achieved the capacity to walk) recognizes the fact that if such a child is left unsupervised

for even 10 seconds it could unknowingly put itself in a life-threatening situation. When parents talk about “baby proofing” their house they’re meaning that they have arranged their house so that it is possible to leave their toddler unsupervised for longer than 10 seconds without risking the toddler’s life. It doesn’t take but a few seconds for a toddler to do something like stick a knife in an electrical outlet, or drink some deadly poison under the kitchen sink. The parents are *in charge of* managing the child’s interaction with the world, which means managing the needed inputs and outputs to maintain the (psychobiological) self.

In the first years of life ego formation is largely a matter of the baby’s brain internalizing the already developed ego of the parents. Pessó has called this process “ego wrapping“. This process of internalizing the parent’s ego, as Alan Schore emphasizes over and over again in his writings, is a psychobiological relationship. For example, Schore writes that “the brain’s major self-regulatory systems are located in the orbital pre-frontal areas of the right hemisphere that undergo an anatomical maturation in postnatal periods of mammalian development. The *experience-dependent* maturation of this affect regulatory system is thus directly related to the origin of the self“ (2012, p. 58, emphasis added). What Schore is saying here is that the brain structures occupying the orbital pre-frontal areas of the right brain only mature with experience!

Ever since Darwin it is a commonplace observation to note that human beings are unique in the animal kingdom in the length of time that human young are dependent on their parents and their community. The price we pay for our superior brain power is the fact that we are literally born half-baked. To accommodate giving birth to a more fully developed brain, the pelvis of the human female would have to be so big that she would not be able to walk upright nor insure that her internal organs above the pelvis would not fall to the ground. This means that the quality of care given to us by our first care-givers is as important to our developing ego as the conditions of the womb are to the developing fetus. Neurological research is now very clear on the point that the brain structures of the

right orbital (behind the eyes) pre-frontal cortices are responsible for the regulation of emotionally-based behavior. This region of the brain, Schore is saying, only develops with interactional experience. This is why I've been careful to use Schore's language that the development of the ego is psychobiological; it is both a psychological and biological development at once.

Taken as a whole, all this means that what PBSP calls the ego is that collection of memory images, many of which are pre-verbally learned, of patterns, or *mental representations*, that form a comprehensive mapping of emotional "rules" that guide our behavior in how to get along in the world; that is, knowing what is safe to take in and what needs for kept out. For example, if I walk into a room and see somebody I know, how should I behave? If it was somebody I had a friendly conversation with a couple of days ago, I might walk up and extend my hand for a handshake. If it's one of a certain collection of friends I have, I'd walk up and give them a hug. With another collection of friends I know that they are uneasy with hugs and even though I've known them for years, I give them a handshake or maybe just a nod of my head. With someone else, a salesperson, let's say, when they approach me with an extended hand and an unwarranted sense of warmth, I might shake their hand and forgo the warm smile until I know what they are about. All of these types behaviors are learned and run on automatic as part of our emotional regulation systems (the ego). They are complex behaviors but nevertheless have a quality that Pessio (and Ledoux) called, "See-do." We don't usually consciously think through how to behave, we just "behave" in an emotionally learned, automatic way. Perhaps this will be made clearer if I delve into the topic of emotions.

Emotional Systems: the auto pilot

I am using the term "emotion" after Antonio Damasio's (2010, 1999, 1994) definition, which is the following: emotion refers to the physiological response of the

body-brain to the environment which can often be observed in others as a bodily reaction, such as when a person's eyes get big when he sees a piece of food he has been craving. "Feeling" Damasio defines as our internal experience of the emotion. The person might report, "I was really excited when I saw that piece of cake." Most of our emotional life never makes it to the point of a conscious feeling. Damasio (1999, p. 43ff) illustrates this with a case of patient he was working with. The patient, whom he calls David, had brain damage in the area of his brain that processes new learning. The damage was severe enough that David had no short term memory. If you met David, he would have an amiable conversation with you. If you left the room and came back he would have no conscious memory of who you were. Damasio noticed a pattern to David's behaviors which made him set up an experiment with David. The experiment was to have David spend time with three different people. One was designated the "bad guy," another, "the good guy," and another, "the neutral guy." The good guy did fun tasks with David and praised him a lot. The bad guy administered an intelligence test for monkeys that was tedious and boring and never said anything nice to him. The neutral guy maintained a tone in between these two poles. After spending a number of hours with each person, David was shown a photo book which included pictures of all three "guys" (the bad guy was what Damasio described as an "attractive woman") plus some other random pictures. When David was first asked if he knew any of the people pictured, he of course said no. When he was asked if there were any of the people he would go to if he needed a friend, he picked the good guy. Damasio reported that one day he was walking down the hall with David when the "bad guy" came walking toward the two of them from the other direction. David moved to the side of the hall to give the bad guy as much space as possible. When Damasio asked him why he did that, he said he didn't know why, he just felt like it. You can see why Damasio (1999) says that we should, "...view emotion as an embodiment of the logic of survival" (p.42). David's emotions had been "trained" by his experience, without his knowing it.

Even though we aren't brain damaged like David, the example serves to illustrate how it is possible to have an "unconscious" emotion, that is, how the emotion can dictate our behavior even when we aren't aware of it. I will delve into Damasio's model a bit further to explain what I mean by "unconscious emotion."

If we think of the ego as a psychobiological entity that is like our skin, where a homeostatic balance of the "internal" milieu has to be maintained, then it follows that our brains would have to keep track of our internal milieu. This monitoring system of the internal milieu Damasio (1999, 2010) called the "proto-self." To understand the proto-self, think of a monitor screen that has represented on it all of the important processes of your body that keep you alive. This would include things like your oxygen level in your blood stream, the degree of pressure a movement exerts on your joints, etc. I don't know how many hundreds of thousands of processes the brain monitors, but when you think of all the systems of the, body, circulatory, muscular-skeleton, hormonal, brain chemistry, and so on, you can imagine how massively complex a comprehensive monitoring system would be. But this monitoring system is what Damasio is calling the proto-self.

It is not enough for survival just to monitor our well-being. Every living thing has some way, reflexes if nothing else, to adjust to conditions that create impossible situations in the internal milieu. According to Damasio, this is accomplished through the mechanisms of what he calls the "core-self." The core-self can be thought of as a stage, as in a theatre stage. Permanently placed on this stage is the monitor system of the proto-self. As we live, as we move and exist in the world, the impact of all interactions with the outside world are registered on the monitors of the proto-self. An emotion is the outcome of how an event impacted the proto-self on the inner stage of the core self. It's important to note that an "event" can be an interaction with the outside world (I hit my toe on a rock) or an internal event (I become hungry.) All such events are represented on the stage of the core-self and the representations are stored in memory. Thus, the fussy, hungry baby becomes calm, and even happy, when she hears her mother preparing to feed

her because the action-interaction sequence between the baby and mother has occurred enough times that the baby can image, or make a mental representation of, the blissful satisfaction of being fed. Here, the experience/feeling of “happiness,” expressed in the baby’s smile and happy gurgle, is the result of an image of a future satisfaction. This image equals the feeling that we see as happiness on the baby’s face when she smiles in pleasure at hearing her mother prepare food for her. The tremendous power of the core-self is its ability to respond to memory images, or mental representations.

Let’s say I’m not sure whether or not I left the electric burner of my stove on. I’m about to reach out and touch the burner to see if it is hot or not. In a fraction of a second, this future planned action of touching the burner on my stove is played as a kind of movie on the stage of the core-self. All my memory banks about doing such an action are brought up and I do the action on my inner stage first to see what happens to the meters on the monitors of the proto-self. In my memory is a time, maybe a time when I was 3, when I touched a burner and was burned. This remembering when I was burned and feeling a quick flash of a fear emotion at the idea of touching a burner are the same. The fear emotion about touching a burner that could be hot is a mental representation of the predicted outcome. Whether or not I actually consciously remember the event of being burned at age 3, is not relevant. The quick emotional response of fear of being burned may be all that is left of the event in my conscious/aware mind. In this way, all emotions can accurately be thought of as “body memories.” To carry my example through to its conclusion, this feeling of fear happens in a flash and instead of touching the burner, I open my hand and hold it above the burner to see if I can detect any heat coming off of it. It’s very possible that I never consciously experience the fear emotion in this sequence. In fact, with most everyday actions it is more the norm that I don’t feel the emotions, but the emotions dictate my behavior nevertheless. Our emotional system is a way of making a decision about how to act.

What I’ve been calling the ego includes the total of all organized emotional based

memory images of how to negotiate my living in my world. Most of these memory images are complex images of energy-action-interaction-meaning that most often operate in an “automatic,” “see-do” way. I’ve come to call this our “auto-pilot” system. David Redish (2013) calls this the “Pavlovian action-selection system” (p.65) because the learning of emotionally based actions is trained along the lines of Pavlov’s classical conditioning mechanisms.

Albert Pessó (1999) has described much of what I’ve been talking about with the concepts of “stages and screens.” Think of a circus with multiple rings, or stages. First, there is the stage of the body. When the infant felt hungry this need was displayed first on the infant’s body, which includes, above all, a facial expression and a verbal expression (it cries) as well as the various ways its entire body is held. The second stage Pessó calls “the mind’s body.” The mind’s body (Damasio’s term is the “virtual body”) is a working space where the mental representations of the proto-self, which was that collection of monitors of the body’s internal milieu, are combined with all of our memories of past experiences that are relevant to the desired future action. It’s the work of the mind’s body to make predictions. Let’s say my house is on fire and I have a desire to walk through the flames to rescue an object in my bedroom. Before I act on that desire, that action is played out on the inner stage of my mind’s body. In this theatre, everything in my memory banks about completing such an action is entered into the simulated theatre. I then get a “reading” about a predicted outcome of such an action. The “reading” is literally my emotional response to the desired action. In this case, I’ll assume my reaction would be fear: fear of being burned and even of death. If the fear reaction is strong enough, it will override my desire to go into the blaze. But things can get complicated. Let’s say that the object I desire to save is a child. I might “calculate” that I might just have enough time to throw the child out the window before I would burn to death. In this case I might choose to override my fear response in order to attain a desired goal (to save the child). But my main point here is to indicate that every potential

decision, every potential action, is first run through the inner stage of the mind's body.

This process is made more complex by what Pessoa calls "the mind's eye." We have an actual eye that takes in reflected photons from the world around us. However, before we can actually see anything, what we are actually seeing has to be processed by our brains in such a way that we know what we are seeing. I don't have a reference for this, but I once heard a news report on Minnesota Public Radio that was related to this topic. The person being interviewed gave an example of someone growing up in a third world country who was born with cataracts so severe that he was blind from birth. At age 23 the cataracts were discovered and removed, but the patient never recovered his sight. This is because, unlike the emotional systems of the brain, which are very "plastic," the visual system has a crucial stage of development after which it can never be changed. Simply put, we have to know what we are seeing before we can see it. I have to know what a tree is before I can see an object as a tree. Apparently there are neuronal connections that have to be made in the brain between the actual eye and our mental representations of what the actual eye is seeing. The mental representations related to vision are what Pessoa is calling the "mind's eye." Thus, if I awaken in the night and look at the coat rack in my room and "see" an intruder in my bedroom, my mind's body reacts as if it's an intruder. The "movies" that are played on the inner screen of the mind's eye are then reacted to by the mind's body. In this way, when the infant in the restaurant smiled with delight when she heard her mother getting a bottle together, we could say that the infant "saw" in her mind's eye, the remembered experience of her body's fulfillment from previous experience and her mind's body reacted as if the fulfillment had already happened.

To summarize, our experience of the world comes through our brains' complex systems of mental representations, which Pessoa calls the stages and screens of the mind. The impact of these systems makes us highly adaptable. We are not chained to the world in simple stimulus - reflex responses. To be human on even the most basic level of

perceiving the world requires a certain amount of imagination, or an ability to use mental representations. The ego system is a complex system of memory images that allows us to interact with the world, which means to make decisions, that is, to take actions. We can even use these memory images to predict future outcomes in a way that allows us to plan for a future that is not yet present.

Attachment

From the point of view of doing psychotherapy, most of our ego systems of affect regulation that are dealt with are those pertaining to how we relate to other human beings. Human beings, to state the obvious, are group animals. A human being by herself in the wild is a very weak vulnerable creature. However, a group of human beings who know how to cooperate are very formidable. It is an obvious evolutionary advantage to be able to tell a group to go hide behind the rock by the bend in the river and another group will drive an elephant towards the rock and everyone can jump out and kill the elephant with spears and rocks. As Jared Diamond (1992) highlights, even sexuality in humans is way more than about mere reproduction. With humans, the only species that tends to seek privacy in copulation, sex is as much about forming an emotional bond. It, “takes a village” to raise a helpless human infant until it achieves a state of adulthood. According to Diamond, adult sexual experience is as much for the bonding it creates as it is for pure reproduction. There is a growing body of research and thought that much of our human brain power is geared, or hardwired, to achieve group cooperation. Dacher Keltner’s book, Born to be good (2009) is a summary of such research.

This means that a great deal of the regulatory system of the ego is devoted to living in a group and forming bonds within the group. It is this fact that brings us to the vast literature on what is called attachment. The whole realm of research and theorizing on the topic of attachment is huge and I will not spend much time summarizing it here.

Minneapolis, where I live, is home to one of the most massive empirical research projects on attachment ever undertaken. It is a longitudinal study where mother-infant pairs are followed from birth to age 30. The leader of this research team was Alan Sroufe, now retired. In a talk Sroufe gave to our local psychoanalytic society, Sroufe summarized his research and the importance of attachment with a story. (I'm going from memory here, so my apologies to Alan Sroufe if I'm misrepresenting him in any way.) One day in nursery where the children in the study were being observed, Alan saw a little 3 year old boy walk up to a girl and asked her if she wanted to dance - there was music being played in the background. The girl told the boy, "No." The boy acted crushed and withdrew into a corner in obvious despair and anguish. Right after this, another little girl entered the nursery and happened to approach the very same girl that the boy had previously asked to dance, and, likewise, asked the girl if she wanted to dance. The girl again said, "No." The second girl looked at the first girl with an expression of, "That's odd," and proceeded to ask someone else to dance. The boy had a relationship with his mother that was rated as being an "insecure attachment," while the second girl had a relationship with her mother that was rated as being a "secure attachment."

The attachment literature is very clear on the point that there is no such thing as a human being with no attachment. A human infant with no attachment is basically a dead human infant. Human infants, as I've said, are totally helpless and require someone bigger and stronger than they are to live at all. The issue of attachment is whether or not the infant can depend on that "someone" or do they have to fret over and manage that relationship. Think again of the infant I observed at breakfast. The fact that the baby was happy, as if her need had already been met, at the sound of the mother getting the bottle would be an example of behaviors of a securely attached infant. Imagine another scenario, where the infant is unwanted by the mother. Let's say the infant was a product of a very unhappy relationship between the mother and father and the father left the mother, leaving her bitter and resentful at having to take care of this child that she never

wanted. Almost every time this baby is hungry, the mother responds only after a very long delay, perhaps dependent on the activity she is engaged in at the time rather than the baby's need expression, and when she does respond it is with a feeling of hate towards the child for disrupting her. This baby will learn to be very cautious about approaching her mother to get a need met. As, unfortunately, can be seen in any grocery store, sometimes children are even hit, or otherwise punished, for even displaying a need. Children of parents like this become insecurely attached. In the child's emotional calculations, an insecurely attached infant can wonder if it is safe to display a need.

Going back to Sroufe's example, we can see why the insecurely attached boy would throw himself into a corner in a fit of shame-based worthlessness and despair. The embodied mental representations, the energy-action-interaction sequence, internalized by this boy was something like (to put it into words, which it is not in actual experience) "I'm a worthless member of the tribe for whom no one will ever want to respond to my needs, and there is no remedy for this other than my own efforts which are basically useless." On the other hand, the second little girl, with a securely attached relationship with her mother, may have had embodied representations that went more like, "Of course me and my needs and wants have place in this tribe and there will always be someone who will want to play with me. If there is not, it says more about the other person than it does about me." It is not hard to predict which child will have a life filled with "dance" and which child will experience "dancing" as a constant fight for survival with little hope of success so he'd better organize himself accordingly.

It is important to note that the learning of embodied mental representations, that is, ego formation, starts from birth (and maybe before) and such learning in the beginning of life is non-verbal, procedural learning. Let me explain. We have two main memory systems which are usually referred to as verbal, declarative memory, so-called because one can declare what is remembered, and non-conscious, procedural or implicit memory. Implicit memory is generally non-conscious. As I'm typing these words and letters on

my computer, I am not going through the file drawers of my memory asking, “how do I type the letter ‘a’ and what is the letter ‘a’ anyway?” I am in no way conscious of “remembering” while I’m typing on the key board. There are whole complex sets of implicit procedural memories involved. As Siegel (2011) puts it, “We encode implicit memory throughout our lives, and in the first 18 months many researchers believe we encode only implicitly” (p.149). This means, and the Minnesota study affirms this, that we are learning tons of embodied mental representations about ourselves and how to relate to other humans in our world, non-consciously, right from birth. By the time our brains develop to the point where explicit memory systems are in place, we have already learned, without knowing it, a whole host of “rules” for self and other interactions. Again, as Siegel puts it, “The brain is a social organ, and our relationships with one another are not a luxury but an essential nutrient for our survival” (p.211). What I am calling the ego represents that collection of mostly implicitly learned blueprints that are our maps for navigating in the social world as to how best to get those “essential nutrients” realized. The way the ego does this is through emotions. Just like in the children’s game of hide and seek, where someone gives us clues by saying, “You’re getting hotter,” or, “you’re getting colder”, so our emotions, on a bodily, brain level, are telling us whether or not we are “hot” or “cold” in our efforts to get our interactional, social, needs met, all based on our memories of relevant past experiences.

The basic needs

Pesso postulates that the ego organizes around what seem to be universal basic needs. These needs are: 1) place, 2) nurturance, 3) support, 4) protection, 5) and limits. This list¹ is derived from Al and Diane Pesso Boyden’s observation of hundreds of hours of therapy, or of “structures,” as they refer to single unit of therapy. In a structure a client

¹ Pesso has told me that Louisa Howe was the person who came up with the need for place.

may be remembering a time in his or her childhood that was deeply dissatisfying or even traumatic. When such a scene emerges, the therapist will invite the client to create an image of an “ideal” figure. An ideal figure is a reversal of the remembered, dissatisfying figure, such as a parent whom the client felt was abusive to him. The ideal figure would be a parent who would never be abusive in those ways. In fact, for the full reversal, the ideal parent would be a source of protection from all such abuse. In this way, a mental representation is manufactured in the form of a person, usually a fellow group member, being asked to role-play the ideal parent. The list of basic needs is an outgrowth of the Pessó-Boydens’ observations of what people always seem to want in their physical interactions with the ideal figure. I will give a very quick summary here of the basic needs¹. In general, the basic needs can be thought of as “intrinsic reward functions” (Redish, p.57) around which the ego system learns to structure itself. If you remember Pavlov’s dogs, food functions as an intrinsic reward.

All of the basic needs follow a developmental trajectory of literal to symbolic. From the beginning of human life, when the egg and sperm are united, the zygote must be in the right place in order to live. Place on a literal level is a sheltering dwelling. As development progresses, the child looks for a place in the parents’ hearts. Does the child feel wanted and a sense of belonging with the parents? This need is often communicated, and met, through gaze.

The need for nurturance starts out as a literal need to be fed. As the brain/mind develops this need becomes more symbolic, or psychological, and becomes a need to be loved. Just as an infant takes in food by opening its mouth, an older infant opens up its psyche and takes in expressions of love, such as a touch, a smile or a verbal expression. In a highly symbolic way an adult may feel loved by “the universe” when it, for example, rains on her garden at just the right time.

The need for support is seen when infants are first born, in that they can’t even hold their heads up by themselves. They need the physical support of being held and

¹ A colleague, Curt Levang, PhD, has developed an instrument to assess developmental deficits around Pessó’s basic needs. See, Levang, C. (2014) Levang Inventory of Family Experiences (LIFE). Author: Mpls, MN, available on the internet.

carried. Later, they may need the parent's "moral" support. For example, say a small child wants to pet a dog that she sees while out walking. She's maybe a bit afraid of doing what she wants, so she looks at her father, who might nod and say, "it's all right, you can pet the dog." But maybe she is still afraid, so the father stoops down to the child's level and they both pet the dog together.

Protection hardly needs any explanation. Children are exceedingly vulnerable. When a child is frightened, that child is feeling their vulnerability and needs a parent, or other adult, to step in and protect them. Perhaps the worst form of psychological suffering (psychopathology) is from children who not only grow up with no protection, but in addition, those who should be their protectors are themselves a source of danger. This is the case in all forms of abusive parenting.

And finally, limits, paradoxically, are a source of freedom for children. For example, if a child feels like her expression of anger will hurt her parents, that child, most often, will feel a need to repress and or dissociate their angry feelings. If a parent expresses to the child that it is all right to feel their anger, and shows them safe ways to express it ("use your words") so that it doesn't hurt others or themselves, then that child feels free to feel, or experience, their anger. A science fiction novel by Ursula LeGuin, The Lathe of Heaven, portrays a character who, to his horror, discovers that whatever he dreams comes true. His life is miserable. What if he dreams that the world is destroyed? What if he dreams that a loved one dies? He is terrified to fall asleep. Without limits, this is something of how we experience that part of us that was not limited. This is true for all of the emotions. I've worked with patients who had manic parents who made them feel that it wasn't safe for them to express their excitement because of the reaction it stimulated in their parent.

This is an all too brief summary of the basic developmental needs. All of these needs are first expressed on the stage of the body. PBSP therapists are trained to observe the sometimes subtle bodily expressions that reveal a need being expressed. For

example, a tension in the back may reveal a desire to be supported that, out of that person's developmental history, doesn't feel safe to express. Each need will have a history of energy-action-interaction-meaning that provides a blueprint to guide our behaviors to maximize getting our needs met. These needs operate on the model of a thermostat. If I feel frightened, my brain/mind goes into a search for interactions that give me protection and doesn't shut down that search until it's found. In the case of the little boy in Sroufe's example I gave earlier, we could speculate that the boy's request for a dance with the girl may have been fueled, in part, by a need for an interaction that would give him a sense of place, of belonging to the group or to someone. His despair may have been a result of the fact that his insecure attachment to his mother provided him with embodied image schema that would lead his young mind to the conclusion that he would never have a place in that, or any other, situation (a distress without remedy, to paraphrase attachment researcher Mary Main). Whereas the second girl may have had schema, based in her secure attachment, which predicted that of course she and her needs have a place, she only has to find it.

When we successfully internalize maps that work well enough that we don't have to spend much energy figuring out how to get our needs met, the world "looks" (is perceived in general) as a very different place than the world of someone whose internalized maps indicate that their needs will be difficult or impossible to get met. All strange, self-defeating behaviors represent that person's maps about the best way possible to meet their basic needs given what they have learned from their experience. When we have well-functioning maps and systems to meet our needs, the world becomes a place where we can find qualities Pessoa terms as a life filled with satisfaction, meaning, pleasure and connectedness. If we are operating with an ego that tells us that we are unlimited, or that we are unlovable, or that we don't belong anywhere, or that we are on our own with no support, then life becomes a grim battle for survival, with little satisfaction, pleasure, meaning or connectedness possible.

Integrating polarities

Pesso's concepts around integrating polarities represent another realm of our existence around which our ego system is organized. Here are the polarities: left brain - right brain, inputs - outputs, male - female, power - receptivity. In attempting to understand the concept of a "basic polarity" I have found the concept of "self-states" championed by the relational school of psychoanalysis represented so ably by Philip Bromberg (2011), but many others also, to be very helpful. When I'm hanging out at a Minnesota Twins baseball game on a fine summer evening with a good friend, drinking beer, I'm, in a big way, a different person than when I'm in my office listening to a patient. When I'm making a grocery list with my wife, I'm a "different" person than when I'm playing a game with a five-year-old granddaughter. The examples can go on and on. In each of these circumstances I am in a different self-state. The integration of polarities is identifying the important ego function that makes me feel like I'm still the same person across all the differing self-states. The polarities Pesso has identified represent, in this sense, important, universal self-states that are contradictory to each other, but, nevertheless, must be put together. Being "put together" means that I still experience myself as the same person as I flip around to the differing self -states. In everyday living the polarities need to function as one, just as picking my leg up is just as important to walking as putting it down. Different muscles are fired with each action but both actions are equally crucial to walking.

Our brains are comprised of multiple processing units. Two of the biggest units are the left brain and the right brain. There is much written about this, but to give a personal example, I get together with a group of music friends weekly and "jam" with them playing harmonica. I taught myself harmonica in my college days when I spent a fair amount of time hitch-hiking around the country (mostly going to visit friends and

attend anti-war protests). I'd travel with a sleeping bag, twenty dollars and a harmonica because it wasn't uncommon to be stuck on some remote stretch of highway for hours while waiting for a ride. My harmonica was my companion. Thirty years later, I started jamming with my friends. If you asked me to play a note, say a "D", I would not have a clue what hole on my harmonica I'd have to blow in to produce a D. However, if someone were to start playing a Muddy Waters blues song, I could play along with them just fine. I couldn't tell you what I was doing, but I could do it. As I understand it, my harmonica playing is pretty strictly a right brain affair. If my playing were integrated with my left brain, I could tell what notes I was playing and maybe even "visualize" what notes I wanted to play ahead of time. Right brain processing tends to be global, "big picture," and non-verbal. Left brain processing tends to be verbal and specific. Both types of processing are important and ideally are integrated and function as a whole. Because there is a lot of literature about the left and right brains, I'll leave my summary here. It is the ego-systems job to put all of these differing processing modes together to be "me," and not two different "me's." This is done through ego-wrapping of all the differing mental processes. Parents, for example, who ignore a child's feelings leave the emotions in an un-represented state. Thus, a person who eats food for the emotional reason of soothing distressed emotions may not learn to "own" the distressed emotions and may not even feel the emotional distress. Such a person may be confused about why it is they keep eating in the way they are even though they are trying to lose weight.

On even just a strictly biological level we are comprised of organs that both are places of inputs and, at the same time, places of outputs. Breathing, for example, means to both "take in," and to "put out," through our mouths and our nostrils. Our orifices are places of both input and output. We need to be comfortable with all our outputs, our saliva, our sweat, our urine, our feces, and so on. At the same time we have to be comfortable with all of our needs for "input," to "take in" what we need. A woman has to take in sperm to become pregnant (and has to "output" the baby); we all have to input

food and information. Our histories (particularly our attachment histories) have a huge impact on how accepting, even loving, we are towards our inputs and our outputs.

With a few very rare exceptions, we are all born in either a female form or a male form. This is simple enough except for the fact that every form of human culture that has ever existed tends to assign particular significance to male and female. Some of these significances are based on biological facts, such as that men, statistically speaking, have greater upper body strength than women. Thus, a cultural image forms that men are strong and athletic (the “hunters”). However, this is statistical. As a man there may be women I know that have greater upper body strength than I do. Women produce babies and tend to bond with them while they are nursing them. This leads to a cultural image that a “woman” is nurturing. Yet, there are women who have no interest in nurturing a child. Generally speaking, every male will have some qualities that culture assigns to women and every woman will have some qualities that culture assigns to men. We all have to be able to integrate these qualities (acknowledge them, welcome them, love them) and we have to feel good about the gender that we are. This is all made easier in cultures (especially the culture of our families) that are tolerant of many differing expressions of gender.

We all have to perform actions on our own behalf that foster our well-being. This is how PBSP defines power, our capacity to do things on our own behalf. On the other hand, we all have to be able to receive. In this regard, I always think of the summer I spent teaching adults how to swim when I was in graduate school. Swimming is a combination of power and receptivity. The very first lesson of swimming is to learn to *trust* that the water will hold you up. Adults, and children for matter, who are afraid of the water will position themselves in a way that will guarantee that they will sink instantly. They have to gain access to the experience that water can actually hold them up, that is, that they can float. That is what I’m calling receptivity. The psychoanalytic writer, Donnel Stern (1997), makes the distinction between “the given and the made.”

Much of human living means to accept and trust what is given to us. On the other hand (a phrase that has to be used a lot when talking about polarities) swimming is more than floating. We have to use power to swim. We have to use our limbs to propel ourselves through the water. Floating is a given, propulsion is made. We have to be equally accepting of both sides and experience that we are still the same person in either receptive or power modes of being. It seems like lately there is an epidemic of young men who are more satisfied to spend their days masturbating to pornography and playing video games, while, usually, being dependent on their parents' incomes, than in seeking more lucrative occupations. Several that I've seen will have "rational" justifications for this revolving around how unjust our western capitalistic system is, and therefore, how immoral it is to be "selfish," by making money. This would be an example of someone having difficulty accepting their power. The stereo-typical macho male who cannot bring himself to ask for directions when he is lost is one who cannot accept his receptive mode of being. To integrate this polarity of receptivity and power we have to know that we are still the same powerful person when we are receiving and that we are still in need of receiving when we are powerful.

Soul Energies

At this point I wish I could quit and go on to discussing the pilot itself. However, the definition of the pilot that I am operating from here includes this phrase: the pilot is "often unaware of soul energies expressed in the body." What is meant by "soul energies"? First of all, by soul, Pessoa does not mean a kind of disembodied spiritual essence. By soul Pessoa means, "everything that we are." In his terminology, we start with "everything that is," which could be called being itself, or in a religious context, God. As humans, we are differentiated from everything that is and everything that *we* are is called "soul." This, the soul, is more inclusive than the "self," which represents everything that we are psychologically. The soul is also more inclusive than the ego, which, as I've described earlier, represents that set of psychological functions that mediates between the self that I am and the outside world, with all the representational mappings that help us survive and navigate ourselves through the world.

When we think of the soul as being everything that we are, there are obviously lots of “things” that we are that we are never consciously aware of (the structure of our ego would be an example). I will never be conscious of my brain’s actions that control the pH balance in my body’s chemistry. From a (PBSP) psychotherapeutic perspective, there are three such soul energies that are important to track with: sexuality, aggression, and compassion, or the need for justice (what Redish calls the intrinsic reward of “fairness” (pp.211-226). I will only very briefly touch on these energies, but in general the concept is to identify those energies that we possess but that are inherently non-conscious. These are energies that are given, not made. They are given to us and we then have to make something of them.

Sexuality is that genetically inherited energy that is about the survival of the species. This energy can be appropriated (which is to say, metaphorically elaborated upon) by the ego for other purposes, such as creative endeavors and as I mentioned earlier, for bonding. However, we assume its primal function is for the survival of the species. Aggression is energy used for the survival of the self. If I’m attacked, I need to be able to defend myself. Self assertion would an example of socially approved aggression. The need for justice, or compassion, is about the survival of the group. We are group, or pack, animals and there are a whole host of energies that appear to be “hard-wired” into our brains to serve behaviors and attitudes that strengthen the group that we are a part of. These are the kind of “soul” energies Pesso is identifying that the pilot is not usually aware of. For example, we are not usually aware of our aggressiveness when we are chewing our food at breakfast while reading the morning paper.

I’ll give a clinical example in regard to sexuality of this “blindness” to soul energies. (I’m constructing a clinical example from actual experience with different clients, rather than a single case, in order to protect confidentiality). I worked with a

woman who had been the victim of a sexual assault. She had already had a couple of years of therapy when I saw her and she had not recovered from the trauma. In her previous therapies she had been directed to deal with her anger extensively. She spent many sessions beating cushions with a tennis racket at her local women's center. While this had given her some relief, she was still suffering from the trauma in the form of not being able to re-establish a sexual relationship with her husband. In our work there was one crucial piece to her narrative of the assault that had not been dealt with. In the midst of the assault her attacker had said, "It looks like you've done this before," in a way that implied that she was enjoying the experience. What horrified her, we were able to sort out, was that on a purely physiological level her body did respond with a sexual response (a soul energy). In PBSP terms the assault weakened her ego to the point that her sexuality broke the bonds of her ego and thereby became omnipotent or unbounded. What finally gave her relief (PBSP practitioners will be very familiar with what I'm describing here) was what Pessó calls a "limit" structure, where ideal protective figures held her legs together (arms around the knees are best for this) while saying (by her instruction), "With us you can feel all of your sexual feelings, but we would never let anyone penetrate you." She was instructed to attempt to part her legs, while her limit figures (called accommodators in PBSP) held them together repeating the phrase I mentioned above, "With us you can feel all your sexual feelings, but we would never let anyone penetrate you." This released tremendous energy in her to attempt to spread her legs, but the accommodators would not let them budge. The result of this, and her previous therapy, too, I might add, was that she was able to re-own her sexuality. She had not been conscious of the fact that the sexual assault made her frightened of her own sexual energy.

Pessó adds compassion, or, as he frequently talks about it, the drive to see justice done, into the realm of basic soul energies that arises from our bodily existence as much as sex and aggression. Just as we have to balance our sexual and aggressive energies, we

also have to have implicit regulatory patterns to create a workable balance in regard to our desires to see justice prevail and compassion reign. This, naturally, is a complex topic that is, as far as I can tell, unique to PBSP theory of psychotherapy. Many people have written about the sex and aggression angle, but no one that I am aware of has written about the psychotherapeutic relevance of “compassion regulation.” I’ll resist saying much here and just give an example. I have a patient who does not own a car and takes the bus wherever he goes. It’s his custom, in our very cold Minnesota winters, to always carry with him an extra pair of gloves and stocking cap in case he encounters, as he frequently does, someone at the bus stop who is freezing and is not wearing any gloves or hat. This, to me, is a very laudable expression of the drive to see justice done! However, this same client is very much aware of our current environmental crisis. Sometimes when he hears of more bad news on this environmental front, he can launch into very painful shame-based self-attacks and aggressive attacks on others for infractions, such as not putting an aluminum can into recycling. The world we live in, and the world humans have always lived in, is not a very reliably just place. Holding a standard for oneself that all wrongs can be righted, especially righted by oneself, can lead to just as much emotional pain and dissatisfaction as an impossible standard that says you are bad if you ever have an angry feeling. Satisfaction and pleasure can be impossible to achieve if one is operating from perfectionist standards that are in fact impossible to meet.

Reluctantly, I am not going to say anything more about soul energies here. These soul energies are derived from the givens of our genetic information that we receive but don’t choose. In this topic I have at least introduced a picture of what can happen when these soul energies, or any other energies for that matter, are not part of the regulatory system called the ego. Any energies, thoughts, or feelings that are outside of the ego’s capacity to regulate are termed “unbounded,” and tend to be frightening to people. Much of what psychotherapy deals with are unbounded energies that the pilot is attempting to

regulate even though they feel limitless and overwhelming.

I hope I have conveyed the complexities of ego formation. The ego is the entirety of our learned, or mapped, emotional representations of how to survive and thrive in the world. These mappings are implicitly learned and stored as specific procedural memories called emotions. This entire system allows us to not only respond and adapt to the world we live in but it, more importantly, allows us to predict the future and thereby adapt to the world and to some extent, to change the world. This entire system is what I'm calling the ego. This entire system can run as a kind of "auto pilot" and does not need consciousness per se to operate. (As I will discuss later, the ego needs awareness, but it doesn't necessarily need consciousness.) As infants we are not born with complete knowledge. The foundations of our ego, as an emotional regulation system, are laid down in our early attachment experiences.

The pilot

In order to understand the pilot function, we must keep in mind everything I've said about the ego. The pilot, as the highest ego function, can be metaphorically thought of as being like the ego on steroids. The pilot is like the ego with the capacity for self-reflective consciousness added in. I will say more about this later. In some ways the metaphor of the pilot is one of the easiest concepts for people to understand. There are two everyday experiences we have that are what I am describing as being the pilot: the experience of consciously deciding and the experience of responsibility, or ownership. To illustrate, just as I was writing this, I became aware that I was hungry. I went to my refrigerator, looked at what was available, and experienced myself as deciding what I was

going to eat. I didn't decide about being hungry, this I just noticed. Since I had just been grocery shopping, there were three or four things I could have made for lunch. That is, three or four things that fit into other criterion that I was working with. These were things like, my hunger was immediate and intense, so I wanted something that would be quick to fix. My wife, who has various food allergies and sensitivities that I don't have, was out of town so I wanted food that I like but normally don't even have in the house because of her food needs. I mention these parameters because I was conscious of them only in retrospect. My conscious experience was that I went to the refrigerator and chose something to eat. Now, afterwards, I'm aware that my choice was from a kind of "pre-selected" set of items based on the two criteria, the intensity of my hunger thereby wanting something fast, and the availability of food items that I like a lot but which I don't usually have available.

In my thinking about the pilot, this "pre-selection" was a result of my auto-pilot, or my ego. The relationship of ego functions to the pilot functions is like the relationship between an executive secretary and an executive. The executive may leave all kinds of functioning up to the secretary. For example, the secretary may decide about who gets to make an appointment to see the executive.

The other quality about my lunch decision is the element of responsibility. I notice that I am hungry. I know that if I'm going to meet my hunger need I am the one that must take responsibility to find a way to eat. If I were to get hungry and blame the President of the United States for my hunger, I would be judged as insane. More importantly, if I were to hold to the notion that the President, not I, was responsible for feeding me, I would eventually starve to death. When a two-year-old is hungry, we hold that child's care-givers as being responsible for meeting that child's hunger. Responsibility and decision making are intertwined as much as picking my foot up and putting it down are intertwined in the act of walking. Responsibility describes the limits of that which we can make decisions about. The notion of responsibility is defined by

our own experience of our limitations and to a larger extent, I think, by our social/historical circumstances. For example, in my life time (I was born in 1951) the attitudes toward children born out of wedlock have changed dramatically. As Stephanie Coontz, the author of Marriage: a history (2005), has pointed out, the biggest change of the “sexual revolution” of the 1960’s was the elimination of the importance of the status of out-of-wedlock children for the first time in recorded human history. The change in the acceptance of out-of-wedlock children allows, for both parents and children, hugely different options from what was true before. This is just one small example of the social, historical nature of our sense of responsibility. Other examples of historical circumstances determining our choices would be attitudes toward gender, homosexuality, race and pre-marital sex.

Our ego is primarily a collection of affect regulation programs that guide our behaviors in our day-to-day living. These programs are learned, mostly through conditioning, which means, learned by what was most rewarding or pleasurable. This means that the ego has the capacity to make decisions based on what is maximally rewarding. The pilot function adds the very powerful mental capacity of self-reflective consciousness, or what I’ll simply call consciousness, to the decision-making process. What we feel is within our ability to consciously decide about is defined by what we feel we have a relationship of responsibility towards.

Conscious decision-making takes up a tremendous amount of energy and focus. As a small example, think about looking at a dinner menu. If there is one item on the menu that immediately leaps out at you, as the item you want, then the decision of what to eat is quick and without much expenditure of mental energy. If there are 3 or 4 things on the menu that immediately grab you, it can take a much longer time, along with much more mental energy, to make your decision. As a friend of mine likes to say to humorously to capture this, “Where there is choice, there is misery.” In what proceeds, I will elaborate on this general picture.

Awareness and consciousness

At this point I would like to propose a distinction between *consciousness* and *awareness*. I get this distinction from the philosopher of mind, David Chalmers (1996). Chalmers defines awareness as “a state wherein we have access to some information, and can use that information in the control of behavior” (p.28). The ego system, as I have been describing it, is a system of awareness; the ego is a system that takes in information and then directs behavior given our memory of previous experience. For example, while I am walking, I am aware of the terrain under my foot. This awareness leads to many micro adjustments in my body as I am walking to take into account the variable conditions underfoot. As this example also illustrates, I may not always be conscious of what I am aware of. When I walk the foot paths in the park across the street from my house, unless I focus my attention on my awareness in my feet, I am not conscious of the varying ground conditions that my feet, legs, and indeed that my entire body, are constantly adjusting to as I navigate the changing terrain. I’ll go out on a pretty thick limb here and propose that we are only conscious of a small percentage of what our body/brains are aware of.

Consciousness is that which I am aware that I am aware of. Consciousness always includes awareness, but awareness does not have to include consciousness. My take on the pilot is that the pilot can be considered to be that part of the “awareness system” of the ego system which can be conscious of what it is aware of. Furthermore, just as awareness can use information to direct behavior, the pilot can use what it is conscious of to direct conscious behavior (action). The difference then between the ego

and the pilot is that the pilot is a mirror of the ego only with consciousness available to it. The author, Julian Jaynes, (1976) gave a metaphor that still fits to describe this relationship between the ego and the pilot, or, between awareness and consciousness. Picture the room you are sitting in right now. The room represents your interior mental space. Picture the room as being dark. Consciousness is like a narrow flashlight beam of light on a small, two inch square area of the room. The ongoing functioning of our ego does not require “light.” The dynamics of the ego system can be organized via conditioning and awareness without consciousness.

Ideally, using Jaynes’s metaphor of a dark room and a narrow beam of light, we are capable of moving the beam of light of consciousness around to almost any part of the interior room of our mental life. Let’s say the child in a social situation becomes aware of a very uncomfortable itch in his nose, but his conditioning has taught him never to pick his nose in public. He may now be in a state of conflict; his nose itches like crazy and demands relief but his training has been rigid (“no exceptions”) and he is caught between his “soul” need to scratch the itch and his training around his attachment needs to not scratch. In this condition it would be helpful if the whole conflict situation could be made conscious so that novel solutions could become apparent. Hopefully his attachments were such that he could come up with some solutions without undue anxiety or even terror. If this child was severely punished for picking his nose, he might feel so much terror at the idea that he would have to learn to disassociate his consciousness from his awareness of his itchy nose.

As powerful as the pilot is, it is also very limited. Just like in a corporate organization, the power and efficacy of the CEO is limited by the information available to it. The ego, as the executive secretary, may provide the pilot/CEO with poor or even distorted information. This is especially true when one’s upbringing is abusive or neglectful. Our pilot functions are dependent, to a large degree, on our ego functions. All of this I will elaborate further in what follows.

Pilot Functions

There are two pilot functions I will elaborate on: decision-making, or deliberative choice; and responsibility, or ownership of the self. The function of ownership of the self is complex and there are, I think, two important functions of the mind/brain that go into the sense of the responsible self. These are authorship, or creating a narrative of self experience, and imagination. From my viewpoint, all of these functions are operating when we use our pilot (consciously acting instead of acting on automatic). As you will see, I am conceiving the pilot function as more than just decision-making. In fact, the sense of ownership we get when we make what seems to us to be a conscious decision may be as important for our emotional well-being as the actual, conscious choice.

Decision Making

Actions that we personally experience as arising out of a simple decision - like, I need milk, when should I go to the store? - are incredibly complex to describe from a scientific explanatory viewpoint. One of the most basic of these complexities is that some aspects of our conscious decisions are already made by our ego, or by our systems of affect regulation, by the time we make a conscious decision. As Redish reports, there are many studies that indicate that our brains have already made a choice before we become conscious of making a choice. It's a possibility that that making a conscious choice may more often be a matter of *owning* the choice that our ego system has already made. A writer, Joseph Jones, (1995) illustrates this primal decision-making capacity by asking us to visualize a predatory animal (p.45). Let's say a fox is very hungry, on the point of starvation. Potential prey is spotted. Let's say it's a mink. The nature of the wild is that the fox has to make a very quick decision about whether to attack or not. The situation is not ideal; foxes normally go after small rodents, like mice. A mink may injure

a fox if it attacks it. Like humans, all mammals also have something like an inner stage where predictions and decisions are made. The fox brain will dump everything it knows (history/memory) about what to expect from attacking a mink and it will also dump everything it knows about its hunger condition into a kind of executive working space (this is similar to Damasio's core self that I spoke of earlier). In other words, all the information about attacking minks and about the fox's energy reserves given its current state of starvation will be dumped into a short-term memory "space." The level of fear that is generated by the picture that is created by attacking a mink is compared to the degree of fear it feels at what will happen if it doesn't eat immediately. If the "fear meter" about starving is higher than the fear meter of attacking a mink, it will attack. If the fear around starvation is not so high and the fear of potential injury is higher, then it won't attack but wait for more suitable prey. All of this happens at a very high rate of speed. It also illustrates how we make decisions first on an ego level. This whole sequence requires awareness, but not necessarily consciousness.

As I've said, Redish (2013) describes our brain's decision-making capacity as having three parts: the emotional, Pavlovian system (that I have focused on), Procedural action-chains (These are learned skills, like driving a car. When I see a stop sign, I automatically put on the brakes and stop rather than making a deliberative choice), and Deliberative decisions. These three systems are different ways our brains have of making a decision. Because these ways of making decisions represent differing structures within the brain, they can compete and be in conflict with each other. For example, an alcoholic can deliberately decide not to have a drink. However, once she is in a context where drinking has been procedurally learned, in a Pavlovian way, for example, in certain social situations, the other systems will swamp the deliberative system. This is because deliberative choices, as I've mentioned earlier, takes huge amounts of brain power and the brain seems to prefer not to make decisions this way. Each system has its advantages and disadvantages. The procedural/Pavlovian system is very fast. If I meet a stranger,

my emotional system will respond very quickly with assessments of potential dangers and rewards. Likewise, Procedural action-chains can be equally fast. If I am playing ping pong, I have to make decisions about how to act in a very fast manner. This task is best accomplished by learned procedural action-chains, which is accomplished by practicing. However, if I am trying to change my behavior, like with the alcoholic, procedural decisions can get in the way.

What is the advantage of consciousness? As LeDoux puts it, "... in real-life situations, we don't always have habits to fall back on, or time to learn a new one. We aren't only impelled by drives, pulled by incentives, and shaped by reinforcements. We live in a complex world where the physical and social environment changes from moment to moment and we often integrate immediate needs and past learning with predictions about the best course of action to take. ... Decision-making compresses trial-and-error learning experiences into an instantaneous mental evaluation about what the consequences of a particular action will be..."(p.252).

Conscious decision-making is not very fast or energy-efficient. As the researcher Michael Gazzaniga (2011) puts it, "It's a dog-eat-dog world going on in your brain with different systems competing to make it to the surface to win the prize of conscious recognition" (p.66). As slow and as "expensive" as conscious decisions are, they also add a great deal of adaptability to our decision-making process. I always think of the time I watched a bull fight in Mexico when I think of this topic. I went to the bull fight reluctantly, expecting a kind of lopsided battle between beast and man. However, within the first few seconds of watching the bull fight I realized that the event had absolutely nothing to do with a fight between man and beast. The fact that the bull would be slaughtered, it was immediately apparent, was a foregone conclusion; there was no fight involved. This impression came from observing that the bull, under these conditions, behaved in exactly the same way at every turn. The bull would be harassed by the picadors stabbing at it. When the matador came out and waved his cape, the bull would

charge, mistaking the large target of the cape for being the whole target of the matador. There is no pausing on the part of bull to reflect on its strategy. It simply repeats the strategies available to its non-symbolic processing capabilities. What the bull fight was really about, it seemed to me, was an attempt to dignify the slaughtering of meat with a kind of ritual. The matador is judged, via a point system, about the various aesthetics of his kill and the bull is honored for how it keeps on fighting in spite of the guaranteed outcome. If the bull had the capacity for conscious strategizing, he might notice that his “autopilot” decisions were not getting the desired response. He might be able to halt his rage-induced actions and do something like fake being stunned and then gore the matador when he gets close enough. As I said, it’s obvious in the first few seconds of the event that nothing like that is going to happen.

As the researcher, Ramachandran (2011) puts it, most decisions/actions, like stepping over an obstacle versus going around it, “are unconscious and highly automated, like a robot or zombie co-pilot that follows your instructions without much guidance or monitoring” (p.63). Ramachandran thinks that our capacity to make a conscious decision is primarily based on two brain facts: mirror neurons and our brain’s capacity to stop, or veto, its own behaviors. That is, unlike the bull, our brains have the capacity to say “no” towards the expression of emotionally-driven behavior. I can know that I want to poke my boss’s eye out in rage, while smiling and carrying on a civil conversation. I can know that I am sexually attracted to the person I’m talking with at a party, without acting on that impulse. As Ramachandran puts it, “ ‘free won’t’ may be a better term than ‘free will’.” (p.124).

Mirror neurons represent a set of neurons that exist in primates, and most plentiful of all in the human brain. Ramachandran describes mirror neurons as our brain’s Xerox machine. He says, “Any time you watch someone doing something the neurons that your brain would use to do the same thing become active - as if you yourself were doing it. If you see a person being poked with a needle, your pain neurons fire away as though you

were being poked” (p.124). Our circuitry in this regard is so good that the more difficult question is to explain how it is that we experience ourselves as being separate from those we observe. He describes an experiment he conducted with a Gulf war veteran who had lost a hand. He had a research assistant stroke her own hand as the veteran watched. To their amazement the veteran reported that he could feel his missing hand being stroked (p.124)! Ramachandran reasons that normally people with actual hands have differing nerve pathways that would reveal to the brain that in fact their hand was not being stroked, in spite of the firing of mirror neurons. Because the veteran didn’t have a hand with the actual nerve pathways that would have told his brain that in spite of what he was seeing his actual hand was not being touched, he experienced, via his mirror neurons, that his hand, which he no longer possessed, was being stroked. In Pessoa’s language, the veteran saw, in his mind’s eye, a hand being stroked and felt, in his mind’s body, his missing hand being stroked. This, via mirror neurons, produced a remembered sensation in his mind’s body of his own hand being stroked. Without the actual nerve pathways from his hand, the sensations from his mind’s body took over.

Ramachandran proposes that our capacity for consciousness - our capacity to be aware that we are aware - is a result of our mirror neurons being able to represent our own neuronal/mental state. Just like we can position two mirrors in a way that we get the visual image of an infinity of mirrors, so neuronally we can become aware of our own mental states. This allows for secondary mental representations, i.e., symbols, and allows for the mind’s eye and mind’s body to develop.

Joseph LeDoux (2002) writes that on the basis of research studies on short-term memory, he has come to the view that there are “...two kinds of cognitive systems: a set of specialized systems dedicated to specific mental tasks, and a general-purpose system... The general-purpose system consists of a workspace and a set of mental operations called executive functions that are carried out on information held in the workspace. Although only a limited amount of information can be retained at any one time, the workspace can

hold on to and interrelate information of different types from different specialized systems ... This ability to integrate information across systems allows for abstract representations of objects and events” (p.176).

Our brains have differing levels of decision-making capacities. Pessoa identifies three levels of decision-making leading to actions: reflexive, emotional, and conscious voluntary. All of these levels involve awareness (i.e., information available that produces behavioral action) but only the conscious voluntary level involves consciousness, which is to say, the pilot. The reflexive system is operating when I duck because my brain has perceived something coming at it; my brain has “decided” about what the best course of action is. My brain is constantly relating to gravity and adjusting my body to stay upright. We think of these things as being “hardwired” and not chosen by us. It’s as if our “bodies” do these things on their own without our help. All three of these forms of movement have their own pathways in the brain and body.

Emotional actions/movements/decisions, as I’ve argued, are largely what our ego systems are made out of. Schore (2003) says that research reveals that the brain takes in and responds to emotional information (e.g., emotional expressions on faces) in less than 30 milliseconds, which is way faster than the threshold of conscious voluntary systems. This means that emotional, Pavlovian movements have a quality of being “always already.” By the time we notice them, they have already happened. When I smile warmly while greeting a friend I haven’t seen for a while with a handshake, a “decision” has been made about how best to comport myself. On a brain level I know that I feel warmly towards my friend because I become conscious of my response (my smile and other things).

The pilot represents our capacity to make conscious choices and thereby to act with conscious, voluntary actions. I don’t usually read popular self-help books, but out of curiosity (an emotionally based decision) I read Richard Machowicz (2008), Unleash the warrior within. Machowicz is a former Navy Seal and trains people to develop their

pilot using some of the principles of Navy Seal training. His writing illustrates how much focus it requires to apply our pilot functions in life. For example, he describes an incident in his training where they parachute out of a plane at 30,000 feet, but only deploy their parachute at 1,500 feet (a tactic to get soldiers behind enemy lines without being noticed). On one of his first training runs he makes a rookie mistake and opens his chute with his body out of proper alignment resulting in his chute getting tangled up in his legs. He realizes that he has to cut away his tangled up parachute in order to deploy his backup emergency parachute. He says, “that’s when it attacked me: The Panic. Decision-making, rational thinking, start to shut down” (p.43). Later, he says, “I’ve got to be meticulous and focused. Everything in my world is focused on clearing my leg and staying in balance. Just for a second I see the ground, but tear my eyes away” (p.44). Just to finish the story, he manages to deploy his chute, falling at a rate of around 180 miles per hour, at about 500 feet.

Pesso describes conscious voluntary actions as being comprised of 1) having a goal, 2) executing an action toward that goal, and 3) getting feedback as to the effects of one’s actions towards meeting the goal. Plan, execution, feedback. What Machowicz’s example illustrates is just how much focus it takes to push every other mental activity out of consciousness and to focus only on the goal. Most actions we take are not as focused as Machowicz had to be in his extreme example. It’s very easy for me to picture (imagine) losing my focus in such a situation and emotional systems taking over as I go “splat” when the fight-or-freeze response takes over. What I am trying to convey here is just how powerful and yet, at the same time, how limited conscious choice and actions are. Our ability consciously to decide and act is limited by our ability to focus, and what we choose to focus on is most often already pre-chosen by our auto-pilot ego system. We can see with great detail and precision those objects that are within that spotlight of focused light that consciousness is, while the rest of our mental functioning is in the dark, but, nevertheless, still motivating behavior. We can use our conscious capacities to plan

for future actions. For example, I may practice for hours to improve my table tennis game. But I can't just walk up to a ping pong table and play table tennis without a lot of goal-directed practice. And since there are only so many hours in a day, I can focus only on a finite number of actions, particularly complex actions such as playing table tennis, playing a musical instrument, doing psychotherapy, or learning how to stay happily married, etc.

In real life, the three levels of decision-making are not separated but work jointly. A lot of what gets labeled as “psychopathology” are aspects of people’s lives that are not so integrated. For example, people who grew up with insecure attachment histories may have fear responses on the order of a parachute not opening when an important person such as a boss or romantic partner expresses disapproval of them. When this happens, just as Machowicz says, “decision-making and rational thinking start to shut down.” In this way a person’s ability to make important relational choices may be impaired by their ego functioning, or by their lack of ego functioning. Our pilot functions are the highest order of ego functioning; if our ego functions are weak, so are our pilot functions. From a psychotherapeutic viewpoint, this means that to help improve a person’s pilot function, so that they feel more in charge of themselves, we often have to put in a lot of work on ego-wrapping, or helping to build up more auto-pilot functions of the ego.

Ownership (the responsible self)

Here is a small, everyday example of what I am calling ownership. As I’m sitting at an outdoor table, sipping a glass of wine at a café at a local park (*my* park), I observe what looks like a father and a teenage daughter, perhaps 13, approach the bike rack to get their bikes. As they are unlocking their bikes a third person, a woman who could be the girl’s grandmother, also arrives at the bike rack to pick up her bike. The woman says, in a friendly, joking kind of way, to the girl, “I thought that looked like your bike.” The

young girl, in a tone of voice that said to me that she was mildly offended, said, “That was my bike!” In other words, it seemed important to the girl the bike be acknowledged as her bike in fact, not merely in appearance. The fact of ownership was important enough to this girl that she could not tolerate any diminishment in acknowledgment of her ownership of her bicycle, as when her grandmother jokingly said that she thought that it *looked* like her granddaughter’s bike. The bike was hers, period. This everyday sense of ownership of things, my clothes, my house, my career, my spouse, and so on, depends on a sense of having a self that we own. For the girl in my example to have a sense of “this is my bike,” she has to have a sense of “me,” or a sense that she is a unique self. A firm sense of ownership of one’s self means that not only do we own and have a sense of responsibility for the things in our life, but also for our interior life of thoughts and feelings. An additional outcome of owning our self is that we realize that others also are “selves” with their own interior lives.

My grandson illustrated this quality (naturally in an above-average way) when my wife took him to a children’s play. He was around two-and-a-half. The play had some actors dressed as sheep which apparently frightened him. My wife was surprised and said something driving home like, “The sheep were scary?”, to which he replied, “They weren’t scary to you, Nana, they were scary to me.” This illustrates a very sophisticated capacity for self-reflection, a prerequisite to owning one’s experience, along with a capacity to recognize that another self is doing the same thing but having a different experience. My grandson was owning his experience of being afraid of the sheep while acknowledging that his Nana was having a different experience.

There is a group of researchers that have called this the “self-reflective function,” or, alternatively, “mentalizing.” There is a fairly extensive body of literature and research on the topic of mentalization and since there is a lot of overlap between this body of thought and the sense of ownership of the self (there is also a lot of overlap, by my reading, with Seigel’s “mindsight”), I will briefly present some of what seem to me to be

the main conclusions of this research.

In the movie “State of Mind” documenting Pessoa’s work that I mentioned in the beginning, he summarizes consciousness by saying, “Feel something, then know that you feel something.” This is also a fairly accurate summary of mentalization (the label, “mentalization” is pretty universally disliked. I definitely like the poetry of the “pilot” function better). As Allen, et al (2000) puts it, “...we might best construe mentalizing as thinking and feeling about thinking and feeling (p.63, emphasis in the original).

Mentalizing and the self-reflective function are two terms for the same mental phenomenon of being aware of being aware of one’s thoughts and, especially, of one’s feelings. Awareness, as I said in the section on consciousness, is “automatic” and built into our perceptual systems. Self-reflective consciousness, what I called “consciousness” for short, is a developmental achievement in the same way that learning to walk is a developmental achievement. As Allen, et al., succinctly puts it, “The progressive development of mentalizing capacities is intertwined with agency, which in turn is intertwined with a sense of self and others” (p.75).

I first became aware of the mentalizing concept through the work of Peter Fonagy (2002) and his research associates who were developing an interdisciplinary theory of cognitive development of the human mind. Here is an outline of the developmental trajectory that he outlines. The first step is the integration of body experiences. An example of this would be developing our perceptual capacities out of “synesthetic perception.” For a newborn baby, the senses are not fully differentiated. Levitan (2000) describes synesthetic perception by writing, “... at a very early age, babies are thought to be synesthetic, to be unable to differentiate the input from different senses, and to experience life and the world as a sort of psychedelic union of everything sensory. Babies may see the number five as red, taste cheddar cheese in D-flat, and smell roses in triangles” (pp.127-8). In other words, babies have to learn to organize and differentiate all their various perceptual abilities: sight, sound, touch, taste, and hearing. This is just

one example of the integration of bodily experience. As Fonagy puts it, “There is general agreement that the self-organization initially entails the integration of body-related experiences, defining the physical boundaries of self and world. Once the physical self has been established, social exchanges, the identifications of social boundaries, and, somewhat later, the identifications of social causality become central self-functions” (p. 31).

The second stage of cognitive development is termed “teleological.” Research suggests that children’s first inferences of the social contingencies are ‘teleological’ in that they make reference to future states (goals) as explanatory entities in the interpretation of behavior (Fonagy, et al. 2002, p.33). This stage represents the infant mind’s first attempts to understand the behavior of others. A child might see, for example, an ant walking on the window and say, “The ant is going home.” The behavior is understood from the vantage point of an end goal that the child can understand. Errors can abound in this mode. A child may see what appears to be a friendly dog approaching and understand the dog’s behavior to be an intention to eat the child. The point is that here is the first evidence of a child attempting to predict the world by understanding the possible motivations of the objects in the world (children will assume teleological motivations to inanimate objects as well as people). It is the beginning of the child forming a “theory of mind” that helps them to understand the behaviors of others.

The third stage of cognitive development Fonagy calls “psychic equivalence.” In this stage the child identifies its mental representations with reality. For example, if the child can “visualize” a boogeyman under the bed, then such a being must exist. In the language of Pessoa, at this stage of development, the experience of “limits” is crucial. Let’s say that a parent tells their young toddler that it is time to go bed when the child does not want to go to bed. The child may feel their rage as a picture of destroying the parent. It is crucial that the parent understand the child’s rage but not take it personally. If the child expresses their rage, “I hate you, you’re the worst mommy in the world,” and

the child sees the parent crumple in insecure guilt (“Maybe I don’t know what I’m doing”) and allows the child to stay up, the child in a state of psychic equivalence will experience that its anger hurt and/or overwhelmed the parent. This will mean that the child will essentially have the experience of having no parent (no one bigger and stronger than them who acts on their behalf). This result, of course, doesn’t happen from one experience. This result happens when the parents’ mode of affect regulation doesn’t allow him or her to calmly and assertively stand up to the child’s anger. Such a child, when they experience the boogeyman under the bed, will have no one to turn to whom they experience as being stronger and able to cope with the feared experience. Of course, this is only one example of the need for limits in the child’s development when they are in the cognitive stage of psychic equivalence.

The fourth stage of cognitive development is the capacity for mentalization. This capacity I illustrated with my grandson who could identify his own affect state as ‘fear’ in regard to the sheep characters in the play, and furthermore could identify that his grandmother was having a different affective experience than he was having to the same event. This capacity to mentalize one’s affects “...marks an adult capacity for affect regulation in which one is conscious of one’s’ affects while remaining within the affective state. Such affectivity denotes the capacity to fathom the meaning(s) of one’s own affect states” (Fonagy, 2002, p.96). As Allen, et al., summarizes, “mentalizing emotion entails making emotion meaningful (p.65).

This capacity to make meaning of our emotions, or to make symbolic mental representations of our affect states, is behind the capacity to make deliberative choices. As Allen, et al., says, “...the development of representational capacity frees the mind from reality” (p78). Recall the example of our Navy Seal having to overcome fear in order to untangle his legs from his parachute. If he were not able to represent his fear state he would be limited in his responses to those of the amygdala, which are fight, flight, and freeze. By being able to represent his affect state he is capable of breaking its’ grip and acting deliberately. Allen summarizes the brain structures involved with this:

“Extensive evidence supports distinguishing affective (rostral and ventral) and cognitive (dorsal) regions in the anterior cingulate. The affective region registers emotional salience of situations and regulates emotion, whereas the cognitive region modulates attention and executive functions in cognitively demanding situations. ... Registering affect, the anterior cingulate can influence the allocation of attention...” (p.126).

I take this to mean that the structures of the brain associated with thinking can regulate affects by determining where attention is focused. Thus, even while feeling the fear of falling to his death, our hero is able to bend his focus to other matters enough to fix the situation that is creating the fear, a feat which requires an ability to experience the fear as a mental representation that the mind can work with.

How does this capacity develop? The general answer to this is through secure attachment with care-givers. As Fonagy emphasizes, secure attachment and the care-givers’ capacity to accurately mentalize the child are the same. To give a concrete example, if a child becomes distressed because her balloon pops, the parent who can mentalize the child’s experience understands that even though this event is not a big deal from his experience, he can see from his child’s affective display that it is for the child. The child’s brain is not able, at this point, to down-regulate their distress on their own. The parent sees this and intervenes by showing his understanding of the child’s experience, and offers comfort, perhaps holds the child on his lap and tells her that he can blow up another balloon. A parent that offers an insecure attachment experience might dismiss the child’s experience, perhaps rationalizing that the child needs to learn to “grow up.” As I indicated in the ego section of this paper, children will perpetually experience need states (affect states) for place (belonging), nurturance, support, protection and limits. If developing a capacity for self-reflection (mentalization) depends on parents’ mentalizing their child’s ever-changing affect states, it means, concretely, effectively meeting the child’s basic needs.

As I’ve said, the literature on mentalizing is extensive and I don’t mean to

summarize it all here. However, there are two features of developmental interactions that I think bear presenting here, because of their relevance to psychotherapy. The first is “marked interactions.” The example I gave above of a child’s balloon popping can serve to illustrate a marked interaction. When the parent is mentalizing the child’s experience, they have to be able to “see” the child’s experience while not relinquishing their own experience. So, the father’s experience of the popped balloon might be that it was no big deal, balloons pop all the time and can be easily replaced. This is very different from the child’s experience whose affective display is as if the world came to an end. In order to help the child the father first has to see the experience from the child’s perspective so the child experiences that “Dad understands what’s going on with me.” (I’m putting this into words, but the mental representation of Dad’s understanding may be in the realm of an affective, wordless experience). But, the child may also notice something else, namely, that she can identify by the slight hint of an amused smile on Dad’s face that his experience is different from hers. This quality occurring regularly in the parent-child affect-regulatory experiences is a crucial element in the child’s ability to develop her own mentalizing capacities. Thus, a marked interaction, where the child can see both that the parent understands her experience and that the parent’s experience is different from the child’s, is crucial towards the child’s developing a capacity to self-reflect on his or her own internal, mental experience.

Another central activity in child-rearing that is crucial is the parent’s playing with the child. “Pretend” games are especially important. When a parent and child play by pretending things, for example, the mother is a damsel in distress and the son is the knight who rescues her, the child can take on all kinds of roles and pretend affect states with the safety of the parent present. A child who wakes up in panic because there is a monster under the bed can pretend to be a monster who is frightening while playing with his mother. In the words of Bleiberg (2000), “Empirical evidence supports the link between pretend play and reflective functioning” (p. 40). “In play, children learn to

manipulate their mental representations, creating a greater sense of agency (ibid, p.49). “When a child can pretend that a stick is a magic wand, there is a “decoupling of mental representation with reality; an object is represented as if it were something else, thereby acquiring a mental existence” (Allen, et al, p.78)

Again my point in all this is to expand and unpack what is involved in a sense of ownership of the self. If I own something, I’m responsible for it. We tend to feel responsible for that which over which we have agency. In order to own myself, to take responsibility for myself, I have to have a sense of agency about myself. In order to have a sense of agency about myself, I have to have a felt capacity for regulating my own affects, which in turn is contingent upon my capacity to mentalize my own affect states. The development of this capacity in turn is dependent on the ability of a child’s caregivers to mentalize the child’s affect states. In the Pessos’ language, the most important affect states that the child needs to be able to be self-reflective about (to be conscious of) are the states associated with the basic needs for place, nurturance, support, protection and limits. The “good enough” parent helps the child to develop the self-reflective capacity by being able to “mentalize” the child’s experiences around these need states and to help the child maintain a homeostatic balance around these need states.

Authorship and Imagination

A question I have been working around throughout this presentation is how is it that we experience our selves to be a unified experience, a unified self, when that experience is a product of many, many, brain processes? As the author and movie director, Peter Guber (2011) puts this,

While we all feel ourselves to be unified creatures, that is not the reality of our experience of our brains. There is no central command post in the brain, says

neuroscientist Michael Gazzaniga, professor of psychology at the University of California at Santa Barbara. Rather, there are millions of highly specialized local processors - circuits for vision, for other sensory data, for motor control, for specific emotions, for cognitive representations, just to name a few modules - distributed throughout the brain carrying out the neural processes of experiences (p.84).

Guber argues that we pull everything together through the narratives, the stories, we create. Stories are literally the way we integrate the two hemispheres of the brain. We reflect on our experiences and tie them altogether in a meaningful way through stories. As Guber puts it, “The psychological unity we feel emerges from the specialized system of the interpreter, our built-in storyteller, generating explanations about our perceptions, memories, and actions and the relationships among them. What results is a personal narrative, the story that confers the subjective experience of unity, that solid sense of self” (p.84). It is Gazzaniga (2011) who calls this built-in storyteller, “the interpreter.” Here is how he introduces the notion of the interpreter:

“We have numerous examples of this process at work in our split-brain patients (patients whose two hemispheres are not connected for various medical reasons). For instance, we flashed the words *bell* to the right brain and *music* to the left brain. The patient reported that he had seen the word *music*. When asked to point to a picture of what he just saw, our patient chose the bell, even though there were other pictures that better depicted music. Then we asked him: Why did you pick the bell?” He replied, “Well, music, the last time I heard any music was the bells banging outside here.” (He was referring to the bell tower.) His speaking left brain had to concoct a story to explain why he had pointed to the bell” (p.83).

As Gazzaniga comments, the correct answer to the question of why he choose the picture of a bell to represent the word *music* would have been “I don’t know.” But there is something in us that has to make sense of the experience, so we make a narrative to place our experience in a meaningful framework. Gazzaniga gives another example of this with a woman whose brain was injured in such a way that she experienced her hospital room as being her living room. When Gazzaniga asked her about the hospital elevator outside her door, she replied, “That cost us a mint to put that in.”

Gazziniga's "interpreter", I think, is a part of the autopilot ego system. As Redish points out, we humans are terrible at recognizing chance. We tend to put everything we apprehend into a meaningful, story format. A line from a novel, Phillip Caputo's, Acts of Faith, illustrates this: "Who among us, when an apparently chance meeting or some other random occurrence changes us profoundly, can swallow the idea that it was purely coincidental?"

I was once walking along a trail on the Mississippi River, deep in thought about a presentation that I was going to be giving. I noticed a group of people in canoes pulled up on the bank. It was a cool, wet, November day, the type of weather that is practically a prescription for hypothermia. The mixed group of men and women were discussing something while sitting in their canoes resting on the river bank. Several of them were shivering with the cold. Now, I've spent a lot of time canoeing. My spontaneous narrative I generated about this scene was that this was a group of neophyte canoeists who had bitten off more than they could chew, and they were discussing whether or not they should abandon their planned trip. I briefly considered inviting them all up to my house for something warm to drink, but went back to my thoughts instead and continued walking. All this took place within the span of about two seconds. I wasn't totally conscious of my narrative construction. I just quickly viewed the scene and gave it a meaning. After I had walked past the group my thoughts were again interrupted by a sound, a vocalization. I turned around and saw the group of canoeists (there were three canoes) paddling at a very impressive rate of speed *up river* (against the current). The vocalization I had heard was of someone shouting out a cadence. I then became aware of my previous narrative because this scene revealed that I had been wrong. No one looked cold. They looked like very expert canoeists out on a training run for a race. My first narrative was created automatically, the second one with more conscious thought (that is, I was conscious of the narrative my mind came up with as it was happening).

Human beings don't "live by bread alone," we live in a world of meaning. When

I saw the canoeists, my mind automatically tried to put a meaning framework around what I was seeing. More to the point, we don't even "see" anything without putting a meaning to that thing or event. The interpreter is making meaning. Or, more precisely, the interpreter is putting into language the meaning that our emotional brain has already made of the situation. This is a way of establishing our ever-changing but omnipresent relationship to the world. If the canoeists I saw were carrying knives and automatic weapons the narrative would have been very different. The actions I might have taken would have been very different. In living in the world, I'm not a bunch of separate processes. I am a person with self-interests who is, at every moment, trying to survive and thrive. The holistic perspective is created in the ongoing narratives, or stories, that are generated as we exist in the world. When I act reflexively, say when my eye perceives a particle of something coming at my eye and I blink, subsystems are working to protect my eye. When we generate a narrative, we are creating a self-in-relationship to some aspect of the world type of constellation. At this level of functioning we are taking all of the information available to us at the time and generating a holistic picture, or story, out of all this information and then acting accordingly to our understanding.

The researcher, Bessel van der Kolk (2014) describes all this as a relationship between the brain's two hemispheres. I've already mentioned how the two hemispheres specialize differently. In Van der Kolk's words, "The right is intuitive, emotional, visual, spatial, and tactual, and the left is linguistic, sequential, and analytical. While the left half of the brain does all the talking, the right half of the brain carries the music of experience" (p.44). In a general way then, the right brain experiences, the left brain puts meaning onto the experience by putting it into a narrative. Doing this allows us to plan and anticipate for the future in a way that puts humans on top of the food chain. Much of Van der Kolk's book is devoted to describing how in trauma, this linkage is broken. Traumatized individuals cannot put a narrative onto their experience.

Whatever happens in the child's experience that isn't acknowledged verbally, or

in some kind of representational form, can make that experience unavailable for the child's consciousness, and hence, their pilot. For me this is powerfully illustrated with the few Catholic clergy I've worked with who have sexually abused their parishioners. These patients, in my experience, have all grown up in atmospheres where sexuality of all forms was regarded as being a sin. Within celibate Catholic religious life, not feeling any sexual feelings is regarded as a "gift" from God. A proper religious person living in a celibate order understands that if they have attended to their relationship with God then a "fruit" of that relationship is that they don't feel any sexual feelings (anger feelings are also included in this). If they have a sexual feeling it means that they have turned from God. This belief system seems to be a solution to their own experiences of growing up in sexually abusive households. In other words, sexuality in general is associated with traumatic experiences and the theology of the church gives them a strong rationale to follow an emotional agenda to disassociate from their sexual feelings. When these patients are being sexual with a child, they do not feel it to be a sexual experience. Their sexuality is in a very real way running amuck without guidance from their ego or pilot. The only narrative provided is a prohibition that sexual feelings are "bad". This, in turn, means much mental energy is devoted to not knowing of one's sexual dimensions in living. To say all this differently, it's as if the "celibate" abusers lived with a narrative of themselves that they don't have any sexual feelings because God has called them in a special way. With this narrative as their only lens to understand themselves, their actual sexual responses and desires go unnoticed. This is in contrast to families where the parents are comfortable with sexuality. Parents might say to a toddler who is touching his or her genitals in the back seat of the car, "That feels good, doesn't it? But that's something you need to do in private." A child fortunate enough to have such pedagogy grows up able to be aware of their sexual responses to the people around them and to operate within a set of "rules" that make sense because they minimize the risk of being hurt or hurting others, all while affirming the joys of sexual living.

I sometimes think of what's called psychopathology as being a result of someone being stuck rigidly in the narratives they experience themselves through. I've had the experience with certain patients of feeling immense affection for them while they are telling me, with complete conviction, how they are totally unlovable and will therefore never achieve the life they want to live. Why would anyone want to marry, hire or have on their team anyone as unlovable as they are? All the time they are talking I'm feeling waves of love for this person. I'll think to myself, "If this person were open to experiencing a drop of the feeling I'm having for him or her right now, they would have to change their story."

Imagination and Story Telling

From a physiologic, brain point of view, imagination can be considered to be the brain's ability to use mental images and to organize them in novel ways. For the brain to act, that is, to make a decision and act, it must use information. Bits of information are referred to as mental images. For example, I just reached over to my coffee cup, picked it up, and took a sip of coffee. All the parts of this action are bits of mental images. There's a mental image for grasping, and even for grasping my particular favorite coffee cup. There's a mental image for lifting the cup to my mouth, tipping it in just the right way to that just the right amount of liquid enters my mouth, and so on. Mental images in turn are specific patterns of "wiring" or of synaptic junctures that have "learned" to fire together. All of these bits of knowing have to be brought together as a whole pattern that results in my being able to pick up my cup and take a sip while I'm staring at my computer screen trying to come up with my next thought.

Letters and words also are mental representations. Abrams (1996) outlines how words started off as direct symbols of objects. The word for "oxen" (in Hebrew) started off as a miniature pictograph of the animal itself. To my thinking, this ability to have

symbols stand for something and then to be able to manipulate those symbols in our mind has to be pretty close to the essence of what makes us humans a different animal. It's the basis for our capacity to make tools, for example. The ability to see a stick and a rock and to think of the possibility of tying them together to make a tool, like a hammer or an axe, is the ability to combine mental representations into a novel form that in turn becomes another mental representation (a "hammer"). Something has been created that didn't exist before. This new something, as a mental representation, then becomes part of the human tribe's collective representation, which can be passed on to future generations, which is the basis of human culture. (Damasio (1999) refers to culture as the most powerful invention of the brain.)

When we watch children playing, turning sticks into magic wands, a space under a tree into a house, and so on, we are watching our native human capacity for imagination at work, as they take various objects and use them in novel ways to symbolize other objects. I have come to believe that the essence of imagination is our ability to think analogically. Pavlovian conditioning represents a basic capacity for making analogies. The dog salivates in the presence of food and at that moment a bell is rung. After a short while, the dog salivates when the bell is rung, even though there is no actual food there. The sound of the bell becomes something of a symbol for food. This symbol is "in the body" in that the dog has a bodily response; it salivates when it apprehends the symbol. Mental events are never disembodied. To argue for this point more, I want to give a summary of the theory of language developed by Mark Johnson.

The philosopher of language, Mark Johnson, (1987) argues that language is based on a process of "metaphorical projection" of everyday patterns of bodily experience. These patterns of everyday experience he calls "embodied image schemata." An embodied image schema is a pattern, or mental representation, of non-linguistic bodily experience that is consistent enough that it can be represented in the mind/brain as an

image. One such image schema is “in-out.” We constantly have the experience of going in and out of bounded spaces. We go in and out of houses, in and out of the shade, in and out of cars, and so on. The experience of identifying our bodies as being in or out of something is a major way we have of organizing our sense of orientation in space.

Consider ... only a few of the many *in-out* orientations that might occur in the first few minutes of an ordinary day. You wake *out* of a deep sleep and peer *out* from beneath the covers *into* your room. You gradually emerge *out* of your stupor, pull yourself *out* from under the covers, climb *into* your robe, stretch *out* your limbs, and walk *in* a daze *out* of the bedroom and *into* the bathroom. ... In a few minutes you have performed more orientation feats than you could ever keep track of while they are occurring in rapid-fire fashion. And these are only a fraction of the *in-out* orientations, let alone those for *up-down*, *near-far*, *left-right*, *front-back*, *toward-away from*, and so forth (Johnson, 1987, pp.30-1).

The experiences of in-out, up-down, near-far, and so on, are examples of embodied image schemata. Anyone who has been around a pre-verbal baby sees them learning and mastering these basic schemata. I’ve watched many a toddler spend a half hour going up and down three steps. The idea here is that as the toddler repeatedly has the up-down experience an image is formed (a mental representation) in the mind/brain of a discernible pattern of orientation and movement that is distinguishable from, say, front-back. These experiences and the images we form (hold in memory) are non-linguistic and non-propositional. Once an image is formed into a discernible schema, this schema can be used as a metaphor to understand other events.

A metaphor, as the philosopher David Tracy (1981) points out, has the structure of “similar yet dissimilar.” If I say, “Bill was as quiet as a mouse,” I’ve taken certain characteristics of mouse behavior and applied them to an entirely different class of entity, namely, the person of Bill. Historically, this type of analogical understanding has been thought of as different from propositional knowing. I might propose that all dogs are canines, my friend’s pet is a dog, therefore, it must be a canine. But if Johnson and his

colleague, George Lakoff (Johnson and Lakoff, 1999) are correct, there is no form of language expression, even propositional thought, that is not based in metaphorical projections of embodied image schemata. All language is based on bodily based metaphors. The metaphor, “Bill is as quiet as a mouse,” depends on the *experience* of being surprised by the presence of a mouse which has made so little noise we were unaware that it was there. This experience is then applied to another domain of experience, Bill’s manner, to make sense of it. In the same way, the experience of the discernible pattern of *up-down* can become the basis for metaphorical projections into other domains of experience. For example, we might say of someone we greatly admire, “I really look up to Jill for her ability to empathize with her patients.” The experience of looking up at an object that is out of reach becomes metaphorically projected into the experience of admiration, or of feeling that someone has qualities “out of reach” of our own capacities. Pessó frequently highlights that the experience of “fittedness,” where two or more things fit together just right, the round peg goes into the round hole, is the embodied image schema for our concept of “justice.”

Lakoff and Johnson are arguing that there is no such thing as a “de-sensed thought,” to use a phrase of Hannah Arendt’s (1971). Our thinking and our language are rooted in our experience as embodied creatures. This experience is rapidly transformed by metaphorical projection into secondary, symbolic thinking. From this humble beginning as sensory experience, our mind/brain has created language, which then gives us the ability to communicate our experiences to other humans in language, and to ourselves in our thinking, in a highly symbolic and complex manner.

It is through language that we create, through imagination, stories, or narratives, about ourselves. These stories represent our understanding of our place in the world. In fact, our stories create a world in which we find ourselves. This means that the more we can own and reflect upon our self-in-relationship-to-the world, the more we can feel in charge of ourselves and in charge of how we feel. For example, picture in your mind

being a slave. Everywhere in the cultural world, you are told a “story” of yourself that you are not as intelligent as other members of the human race, and therefore it’s “OK” for other members of the human race to treat you like a beast of burden. You regularly hear of “scientific reports” that confirm this point of view. Because of your “inferior intelligence” no effort is made to teach you to read. Requirements are made that stipulate for you to participate in society as a full member, with voting rights; you have to be able to read so reading tests are given to all potential voters. You don’t know how to read, you are called “stupid” and not allowed to vote. You grow up feeling ashamed of yourself for being so stupid and you set your ambitions for yourself accordingly. Later in your life you discover that reading, for everyone, is a learned skill that has little to do with native intelligence and that much of the “scientific” data that told you that your intelligence was inferior, was either made up, or was extremely bad science and that new research indicates that you are as smart as anyone else. Now your narrative about yourself may radically change.

To this picture I’ve created, we have to add another step. The slave example illustrates how a social narrative can be internalized to be our own narrative. On a more micro level, individual brains can be equally oppressed by the narratives that are unconsciously constructed. I think of a woman I worked with once whose parents were killed in a car accident when she was 5 years old. When I was working with her she was in her 60’s. The day before the accident, she had been caught by a teacher “playing doctor” during recess. Thus, when her parents were killed she was in the midst of feeling intense guilt and shame over having been caught expressing her 5-year-old sexuality. Until her work with me, which was her first therapy experience, she had not been aware that she was caught in the narrative that her brain had constructed at age 5 that God was punishing her for her sexual transgressions. She denied herself practically everything and felt that it was necessary and just to live a very narrow life with no ambitions for herself.

For another example, relevant to psychotherapy, if a child is in the psychic stage

of development of psychic equivalence, and they experience their parent suffering in a helpless way (like caught in an unhappy marriage) that child's soul energies around compassion and justice may be mobilized, and he or she may imagine him or herself as having the capacity to fix a parent's unhappiness. On an ego level, such a state could make a child feel guilty whenever she experiences her mother as being lonely and unhappy. Remember, in the stage of psychic equivalence, if the child can picture a possibility in its mind, it will experience that mental picture as reality. "I can picture making mommy happy by my actions, so it must be true." If this mental picture is not "limited" by the parent, the child will "own" the responsibility of making mommy happy as his or her job. The two most important ways a parent can help are by noticing the child's guilty sense of responsibility for the parent's unhappiness and speaking directly to the child about it, or better, by the parent noticing that they are unhappy, and changing what needs to be changed to not be unhappy. As the psychoanalytic theorist, Heinz Kohut (1978) put it, "it's not what the parents do as much as who the parents are," that affects the child's development. All of this, I hope I have conveyed, can happen in a totally unconscious way, and become part of the child's ego dynamic. Gazziniga's "interpreter" can try and make sense of this guilt feeling by creating a narrative that might go, "Mommy is unhappy because I'm too selfish to help her." The narrative will be constructed by what is going on in the moment. The child will always be able to find some reason to explain, or, narrate, his or her guilt, not realizing that it comes from his or her soul energy of natural compassion mobilized during the stage of psychic equivalence and burned into his or her ego functioning. In Pesso's language, this common occurrence is called, "holes-in-roles." From this example you can see that such a person, with such an ego development, will be prone to a vulnerability to feeling guilty. For such a person to feel more in charge of his or her life, to make guilt-free decisions, they will need to develop a capacity to free themselves from this embodied, ego-based, guilt narrative. Doing this requires imagination, which is the capacity to work freely with our (embodied)

mental representations. I once had a friend who had a narrative about himself that he would die young. This was because his mother constantly talked about how everyone in her family died young, as she and he would also. He was stunned when he visited his mother's grave, and other than his mother's sister, who died young, the rest of his relatives all had lived into their 80's, including his mother. With this information he was able to change his self narrative, as one who would probably die young, to a self understanding that he would probably live a normal lifespan.

Putting it all together

The pilot concept that I am talking about is primarily an *experience* that most everyone has to some degree. It is the experience of being a self who is in charge of oneself and of taking responsibility for the consequences, good and bad, of who we are. Various analogies to physical activities come to my mind; surfing, for example. I took one surfing lesson and spent a delightful afternoon in Hawaii surfing in some beginners' waves. When I'm out in the ocean on *my* surfboard, I have to be *in charge* of my experience. This includes making judgments, and carrying out actions based on the judgments, that keep me in a comfort zone where I feel safe. How far out do I go? Are there waves I can't handle? I have to *choose*, out of many, many waves going by, which one I want to attempt to ride. There are a few basic skills my teacher showed me (the main ones are how to paddle out to catch a wave and then how to stand up on the board). With these few basic skills, I then have to learn the sense of balance as the board moves through the water (easy to do with a beginner's board that's as wide as the bottom of a row boat) and most importantly, I have to learn the timing of "catching" the wave. The pilot experience is represented in all the times I used the word "I." When I am riding the wave, I feel exhilarated at learning something new, and at many other pleasurable sensations. After I get the hang of how it all works, *I* reflect on *my* experience of surfing.

I notice the combination of managing things that *I* control and how much my experience also depends on things I cannot control. For example, I wouldn't be able to surf without waves. *I* can choose the waves, I can even choose which beach, since the waves on some beaches strike me as life-threatening and I look on with admiration to surfers out in the water handling those bad boys. In spite of this combination of events *I* can control and events *I* cannot control, *I* have a feeling, a sense, that it *my* job and *my* job alone to manage myself in such a way that the experience is fun and pleasurable.

What I have been discussing in this paper are the factors involved in this experience of *I-ness*. When all of these factors I have been discussing come together, that is, happen at the same time, there is the emergent experience of being a self-piloted self.

These factors are, first, the development of systems of emotional regulation that I have called the ego. The basics of these systems of regulation are given to us by are early developmental, training experiences. These systems run in an "auto-pilot" kind of way. In fact, our brains prefer that the majority of decisions we make as we are navigating (surfing?) through the world are made in this quick and efficient, auto-pilot manner.

Secondly, we create a kind of narrative of our journey through life. This narrative creation, this self-made novel, starts off as part of our auto-pilot function. Our brains are equipped such that we don't just react to life, but we plan and prepare for hoped-for futures. Putting our life experiences into some sort of more-or-less coherent narrative imbues our life with a sense of meaning. This is a product of what Gazzinga called, "the interpreter." We are natural meaning-making creatures. The meaning we make is largely an understanding of how "*I*" fit into the world. That is, how *I* can fit into the world in a way that maximizes my survival and the survival of my species. Thus, the narratives we create are not entirely a "post-modern," anything-goes type of story. The protagonist in Jean Paul Sartre's novel, Nausea, has a moment while having lunch with a friend where he is suddenly overwhelmed with the nauseating experience of "realizing" that it made no difference if he used his butter knife to butter his bread or to stab the eye

of his friend. From the perspective of our natural self, of our genes we could say, such understandings are not “natural.” Our story-lines that our interpreter (the auto-pilot narrator) comes up with are always toward the end of maximizing our well-being and the well-being of our species. For the character in Nausea to feel that it makes no difference if he uses his butter knife to butter his bread or gouge his friend’s eye out, he must disassociate his consciousness from his over-all soul (everything that he is).

Third, the development of self-reflective consciousness, that is, being aware of what we are aware of, allows for a huge emergence of self-experience. Our stories about our self, which are always stories about our self in relationship to the world, can now be *owned* as belonging to us. If we truly feel ownership of our narratives it leaves open the possibility that we can notice the impact of our narratives on our self-experience. This, in turn, gives us the capacity to modify our self-narratives to be closer in line to the goals of living lives of pleasure, satisfaction, connectedness and meaning.

Research indicates (reported in the work of Redish) that when subjects are given simple tasks where they have to make a decision while hooked up to brain-reading equipment, the affect-regulating systems of the brain literally make the decision before the subject reports making a decision. This seems to illustrate that our conscious decisions are actually made before we are conscious of the decisions we make. This has led some to question whether free will actually exists. Maybe we are all just trained Pavlovian dogs. This notion is hard to take because in everyday life in the human community we don’t treat ourselves or others as if they are simply products of conditioning. Someone who doesn’t experience themselves as being in control of his or her self is judged to be very immature, if not insane. Our legal systems hold individuals responsible for their behaviors. The movie, “A clockwork orange,” portrays in a chilling fashion the outcome of treating criminal behavior as if it were simply bad conditioning and such criminals only need re-conditioning. The movie, for me, asks the question, who is more violent and immoral, the violent criminal or the authorities who “fix” the

criminal by forced conditioning.

I'm arguing for a position that choosing, in other words, free will, is more than disembodied free-floating will making arbitrary decisions. Free will is an embodiment of everything that we are. When we consciously own ourselves we make decisions based on all of who we are. The implication of the auto-pilot system is that a lot of who we are, are the habits and routines of our life. I get up in the morning in time to go to my office for work. I have a usual breakfast menu. I drive to work and usually park in the same place. I expect that if you think of your life you will notice that most of your living is taken up with routines and beneficial habits. Our self-reflective consciousness gives us the power to look at all of that and *plan* for a future where we might enjoy living with a different set of habits and routines that give us more satisfaction, pleasure, meaning and connectedness to a wider community. *We are* the sum total of decisions, however those decisions are made. Our freedom lies in owning our decisions. The knowledge that we *are* making decisions (acting), and owning those decisions is what makes us free.

When people are abused, either developmentally or by horrific events, to use an analogy that both Bromberg and Van der Kolk use, the traumatized ego system becomes devoted to being a "smoke detector," constantly on the lookout for the smoke that signals the "fire" of repeated abuse. Thus the child who grows up feeling unwanted by her parents can find that experience to be so painful that it becomes traumatic. Trauma, to this way of thinking (see Bessel van der Kolk for a much more detailed account of this) is an experience where the person experiences so much helpless suffering that the mind cannot consciously stand to be aware of it affects. Instead, the mind/brain flips into a non-conscious mode of doing everything possible to avoid ever going through that traumatic experience again. In this way the unwanted child grows up into an adult who has very little tolerance for the risks involved in being intimate with another human being. Being close to another is experienced as setting one's self up for an affective experience that is the equivalent of a parachute not opening. The invitation or possibility

of an intimate connection with another person looks like a smoky fire hazard that should be avoided. The rub with this solution is that, as I've said, we are pack animals. To be human at all we need connections with people just as much as we need daily doses of the right vitamins. Thus, there is a constant conflict within.

My patient whose parents were killed as a child also displayed this outcome of trauma. Sexual energy is an outgoing creative energy. When my patient incorrectly understood her sexual energies to be the cause of her trauma, she avoided all outgoing creative energy. I was struck by the fact after her therapy with me the one big change in her life was she started writing poetry for the first time in her life and derived huge satisfaction from it (she was celibate her whole life and remained so). This illustrates one of the main psychotherapeutic implications of the pilot experience arising out of the ego; namely, in order to improve the pilot we have to improve the auto-pilot system, that is, the ego. Psychotherapy, in this regard, simply cannot happen if therapists do things like working with someone's depression by giving them a book about depression and telling them to go away in three sessions. (I hear of clinics working in this manner all too often.) This works no better than teaching someone to become an excellent tennis player by giving them a book, but never allowing them onto a tennis court. Developing the ego is much more like developing a fine motor skill, like playing tennis, playing piano, playing table tennis, learning to dance the rumba, etc. Learning such skills takes repetitive practice in actual "hands-on" experiences. Thus, paradoxically, for a psychotherapist to help improve the pilot experience of her client, the therapist often has to work at improving the ego, which can be repetitive, long-term work.

When I first started training with Albert Pesso, in the early 1980's, the pilot was a minor concept. He would mention it in training because it was always necessary to gear psychotherapeutic interventions towards the patient's pilot. He meant to avoid making therapeutic interventions that don't have the conscious permission of the client. This means things like being aware of when the client is only complying with the therapist but really disagrees with the therapist's suggestions. This was to help overcome resistance to the psychotherapeutic endeavor. As the therapist, you only go through with an

intervention if it had the clear permission from the patient's pilot. Gradually the pilot has taken on a more important role in the theory. Particularly with trauma and abuse, helping to develop the patient's sense of pilot became a goal in and of itself. A big part of developing the pilot, in therapy and with children, is to realize "the medium is the message." That is, as a therapist or as a parent, we can't help another develop their pilot sense unless we treat them with respect, as independent people with their own pilots. If we want to help someone develop, and support, their sense of themselves as a piloted person we have to relate to them as a whole person and not as a symptom. We are not working with a "case of depression," or a "case of a narcissistic personality." We are, rather, working with a whole person who is dissatisfied, in emotional pain, or perhaps just wanting to know their self better and who is asking for our assistance in attaining his or her goals. To put my point differently, helping a person to attain a greater sense of him or herself as a piloted person can never be a matter of just psychotherapeutic technique. Whatever techniques a therapist uses in order to support the pilot functions of a person the therapist has to have an over-all attitude respect for the individual person that the therapist is working with. An individual person cannot be reduced to a set of symptoms. In the current atmosphere, where there is a drive to make psychotherapy "evidence based," there is an increasing tendency to reduce people to a symptom. The power of the scientific viewpoint, the philosopher Martin Heidegger pointed out repeatedly, (see, for example, Heidegger, 1967) is that it views the world through a mathematical lens. In Newton's law of inertia, for example, an abstract object is seen to be moving along an infinite line whereby if we know the speed and mass of the object we can calculate and predict where that object will be at a future time. This is treating the object as if it's a geometric point. A human being is very much more than a geometric point. Evidenced based therapies, in order to make a measurement, must make narrow definitions of behavior. Thus, "depression" must be defined as a common set of "symptoms" that can be rated in a simple questionnaire that is given before therapy and then after in order to measure, or give evidence, of the impact of the therapy. There is an increasing danger, with the evidence based movement, that all psychotherapeutic patients

will be reduced to something like a geometric point on a graph. While it is very important for a therapist to have ways to get feedback about his or her work, noticing whether or not a patient seems engaged in a joint project of personal growth is very different from passing out a standardized questionnaire that assumes all people are the same. Psychotherapy, from the point of view of pilot work, is about a relationship. A specialized relationship to be sure, but it is still a relationship as much as any other relationship such as a parent and child, two friends, two lovers or two co-workers. If we are really interested in people achieving a state whereby they feel like they are their own authors of their story, that is, to be piloted, it makes little sense to treat them like they are a non-individual. Only as a unique individual can we achieve the ultimate goal of psychotherapy, which is to enable a person to live a life filled with pleasure, satisfaction, connectedness and meaning.

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