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The Joining of Neuroscience, Psychology, and Philosophy in a Search for the Self

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"Who are you?" seems like a question with a simple answer. When asked, a person often replies automatically with their name. When further pressed, they may supply their place of origin or what they do for a living. When pressed even further, often they shrug their shoulders and ask in reply, "What do you want to know?" The seemingly simple question, "Who are you?" is no longer able to be answered with a rote answer; with further pressing the question reveals its complexity. Is the self bound up with our personal history, our narrative, or is it more than that? What makes us who we are? What is the self? Is the self to be found in the intricate system of neurons in the brain or is it something that is separate from our biological bodies? Are our thoughts, desires, pains and all other mental states dependent solely on the roles they play in the cognitive system (functionalism) or is it better to focus on the four features of the mind (consciousness, intentionality, subjectivity, and mental causation) in order to understand what the self is? This paper puts forth that none of these methods will give us a full answer to our question. However, by incorporating insights found within many different theories of the mind, we will be able to move closer to an understanding of the self. In order to understand what makes us who we are, we need to look at the pattern of the system, or systems, and not just the individual parts.

First, we need to define our terms before moving on. The definition of the word "self" found in *The Harper Collins Dictionary of Philosophy* includes an interesting entry that reads, "[The self is] the unity (ego, subject, memory, mind, I, awareness, consciousness-knower) that endures throughout change and is aware of its unity, its endurance, and the change" (Angeles 269).[1] Another interesting entry found in the dictionary under "self" reads as follows, "[The self is] the entire sequence of mental events of which one can be aware at a given moment"

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[1] Angeles, Peter A, ed. "Mind." The Harper Collins Dictionary of Philosophy. Second Ed. New York: HarperCollins, 1992 (See Page 269)

(Angeles 269).[2] Now, the definition for "mind" is more drawn out and begins as follows,

> **Mind 1.** consciousness; awareness. **2.** human rational powers; thought; the capacity to think. **3.** psyche; self; ego; personal identity. **4.** soul; spirit; spiritual substance. **5.** that which endures throughout changes of consciousness (experience, awareness). **6.** the entity that performs such functions as sensing, perceiving, remembering, imagining, conceiving, feeling, emoting, willing, reasoning, extrapolating into the future, or judging… [3]

Only about half of the definition found in the dictionary for "mind" is quoted because it continues at length and the aspects important to answering our question are to be found above. Both the definition for "mind" and for "self" are very broad; they both include features and functions and they both include aspects of each other. For the purposes of understanding the self, it is important to note that self and personal identity are included in the definition of "mind" and both mental events and mind are included in the definition of "self". Therefore, we can safely assume that the system that makes up the self is intricately bound up with the mind and vice versa. I would even venture to say that they are different aspects of the same system. This is not a view taken on purely semantic authority; it is also the view that the neuroscientist Susan Greenfield takes in her book, *The Private Life of the Brain*. She writes, "After all, if *mind* is the personalization of the brain, then what more, or what less, could *self* actually be?" (Greenfield 186).[4]

If the self if bound up with the mind then this brings us to the mind-body question. Today, several theories of mind, from several different fields, focus on the biological aspect of what makes us who we are. Just peruse the shelves of your local book store and you will find a dozen titles that suggest just that. For example, two titles that I've spotted with a quick glance at my own library include: *Astonishing Hypothesis: the Scientific Search for the Soul* by Francis Crick and *A Universe of Consciousness: How Matter Becomes Imagination* by Gerald Edelman. What is so interesting is the rather recent acceptance of a purely materialistic approach to understanding the self. The ascendency of monism and, in particular, physicalism in the 20th and 21st centuries has led to such positions in

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[2] Angeles, Peter A, ed. "Mind." The Harper Collins Dictionary of Philosophy. Second Ed. New York: HarperCollins, 1992 (See Page 269)

[3] Angeles, Peter A, ed. "Self." The Harper Collins Dictionary of Philosophy. Second Ed. New York: HarperCollins, 1992 (See Page 187-188)

[4] Greenfield, Susan. The Private Like of the Brain. New York: John Wiley & Sons, Inc., 2000 (See Page 186)

philosophy of mind as behaviorism, the identity theory, and functionalism.[5] In fact, in the *Stanford Encyclopedia's* entry for physicalism, Stoljar writes, "Most contemporary philosophers are physicalists" (Stolijar).[6]

However, prior to the 19th century, many philosophers who wrote about the mind-body question where considered dualists (such as Plato and Descartes). According to Howard Robinson, "In the philosophy of mind, dualism is the theory that the mental and the physical — or mind and body or mind and brain — are, in some sense, radically different kinds of things" (Robinson).[7] With the publication of *The Origin of Species* by Charles Darwin and the rise of modern science, the tide began to shift for dualism. At that time, a more mechanistic view came into favor. Mechanism is, roughly, the idea that all natural phenomena "follows from and is in accord with the laws of physics" (Robinson).[8]

In the early 20th century, largely stemming from the need to answer the problems brought about by mechanism, different forms of material monism were devised. But, according to Howard Robinson, even though "dualism has been out of fashion in psychology since the advent of behaviorism (Watson (1913)) and in philosophy since Ryle (1949), the argument is by no means over" (Robinson).[9] It is my view that the breakthroughs in science can and will move us further towards our goal of understanding what makes us who we are. However, it is only part of the picture. In order to fully understand the self, we must first look at a few philosophers from both the dualist and the monist traditions that have made major contributions to the philosophy of mind.

In the *Treatise of Man*, Descartes did not describe humans but, rather, he described conceptual models of humans that consisted of two ingredients: a body and a soul. He regarded the soul as "the principle of thought" and believed that it was to be found in a specific area of the brain known as the pineal gland

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[5] Stoljar, Daniel, "Physicalism", *The Stanford Encyclopedia of Philosophy (Winter 2005 Edition)*, Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/win2005/entries/physicalism/>. (*n. pag.*)

[6] Stoljar, Daniel, "Physicalism", *The Stanford Encyclopedia of Philosophy (Winter 2005 Edition)*, Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/win2005/entries/physicalism/>. (*n. pag* This quote is found under *4. Minimal Physicalism and the Philosophy of the Mind.*)

[7] Robinson, Howard, "Dualism", *The Stanford Encyclopedia of Philosophy (Fall 2006 Edition)*, Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/fall2006/entries/dualism/>. (*n. pag* See the introduction to dualism.)

[8] Robinson, Howard, "Dualism", *The Stanford Encyclopedia of Philosophy (Fall 2006 Edition)*, Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/fall2006/entries/dualism/>. (*n. pag* The quote is found under *The History of Dualism.*)

[9] Robinson, Howard, "Dualism", *The Stanford Encyclopedia of Philosophy (Fall 2006 Edition)*, Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/fall2006/entries/dualism/>. (*n. pag* The quote is found under *The History of Dualism*)

(Lokhorst).[10] For Descartes, the body has a life of its own but is still connected to the soul. This soul acts on the pineal gland and produces such mental events as sensing, perceiving, willing, and thinking (Angeles 76).[11] He wrote, "Since it is the only solid part in the whole brain which is single, it must necessarily be the seat of the common sense, i.e., of thought, and consequently of the soul" (qtd. in Lokhorst).[12] Prior to this, St. Augustine wrote in *On the Trinity*, "In each body the whole soul is in the whole body, and whole in each part of it" (qtd. in Lokhorst)[13] Descartes moved away from the idea of the soul being found in the whole body and positioned the seat of the soul in the brain.

It is interesting that Descartes was both a substance dualist and a mechanist.[14] Also, his definition of soul is more closely aligned to the modern definition of mind. With the publication of the *Treatise of Man* in 1632 (and later in the *Passions of the Soul* published in 1649), Descartes wrote of a soul-body dualism, which has today turned into mind-body dualism and, even though he was wrong about the importance of the pineal gland, he pinpointed the part of the body (the brain) which is responsible for thought. Later Philosophers, such as Hume, would pick up on this idea and expand upon it.

Hume criticized Descartes' idea of substance dualism because he found the whole concept lacking in empirical content. I.e. "when you search for the owner of the properties that make up a substance, you find nothing but further properties" (Robinson).[15] Hume thought that the mind is "nothing but a bundle or collection of different perceptions, which succeed each other with an inconceivable rapidity, and are in perpetual flux and movement" (qtd. in Angeles 188).[16] The mind is not

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[10] Lokhorst, Gert-Jan, "Descartes and the Pineal Gland", *The Stanford Encyclopedia of Philosophy (Winter 2006 Edition)*, Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/win2006/entries/pineal-gland/>. (*n. pag* The quote is found under *2.1 The Treatise of Man*)

[11] Angeles, Peter A, ed. "Dualism." The Harper Collins Dictionary of Philosophy. Second Ed. New York: HarperCollins, 1992 (See Page 76)

[12] Lokhorst, Gert-Jan, "Descartes and the Pineal Gland", *The Stanford Encyclopedia of Philosophy (Winter 2006 Edition)*, Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/win2006/entries/pineal-gland/>. (*n. pag* The quote is found under *2.1 The Treatise of Man*)

[13] Lokhorst, Gert-Jan, "Descartes and the Pineal Gland", *The Stanford Encyclopedia of Philosophy (Winter 2006 Edition)*, Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/win2006/entries/pineal-gland/>. (*n. pag* The quote is found under *2.1 The Treatise of Man*)

[14] Robinson, Howard, "Dualism", *The Stanford Encyclopedia of Philosophy (Fall 2006 Edition)*, Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/fall2006/entries/dualism/>. (*n. pag)*

[15] Robinson, Howard, "Dualism", *The Stanford Encyclopedia of Philosophy (Fall 2006 Edition)*, Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/fall2006/entries/dualism/>. (*n. pag)*

[16] Angeles, Peter A, ed. "(Mind) Bundle Theory of Hume."The Harper Collins Dictionary of Philosophy. Second Ed. 1992 (See page 188)

separate from the brain but is a collection of experiences that occur between birth and death. The entire series of these events is called the bundle and this bundle is the mind or self. The events that make up the bundle "are related by such features as: (a) resemblances of perception, (b) contiguity of experiences in time and place, (c) regularity of succession among perceptions, and (d) memory" (Angeles 188).[17] If any of these components are missing, then it cannot be said that you have a mind and, for Hume, the mind does not exist apart from the brain.

Hume's view is known as bundle dualism but it is not necessarily dualism because it is a theory about the makeup of the unity of the mind; it has also been accepted by some physicalists including Parfit and Shoemaker (Robinson).[18] While I do not agree that a collection of experiences is all that makes up the mind, I do think that Hume contributes two important pieces of the puzzle that will bring us closer to our goal of understanding the development of self. First, Hume separates different features of the mind (such as memory and perception) which play important roles in the creation of the self. And second, he also stressed the role of space and time in the ordering of experiences, which is of paramount importance in the creation of the self. Also, we will see later that the prefrontal cortex of the brain and the hippocampus (found in the medial temporal lobe) have been linked to the creation of memories that include space and time.

Over two hundred years after the death of David Hume, it is now thought by many philosophers and scientists that the unity of the mind, which Hume was searching for, is to be found within the systems of the brain itself. Both Descartes and Hume agreed that the mind was to be found within, or could not be separated from, the brain (for Descartes it acted upon the pineal gland specifically). However, Hume recognized that the experiences which occur between birth and death also make up the mind or self. These experiences are bound by features (such as memory) which are all aspects of the system, or systems, found within the brain.

John Searle, in an essay entitled *The Mind-Body Problem*, argues that all mental phenomena (both conscious and unconscious) are caused by processes going on within the brain. He writes, "to put it crudely, and counting all of the central nervous system as part of the brain for our present discussion, everything that matters for our mental life, all of our thoughts and feelings, are caused by processes inside the brain" (Searle 19).[19] For Searle, what lies at the bottom of our

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[17] Angeles, Peter A, ed. "(Mind) Bundle Theory of Hume."The Harper Collins Dictionary of Philosophy. Second Ed. 1992 (See page 188)

[18] Robinson, Howard, "Dualism", *The Stanford Encyclopedia of Philosophy (Fall 2006 Edition)*, Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/fall2006/entries/dualism/>. (*n. pag)*

[19] Searle, John. Minds, Brains and Science. Cambridge: Harvard University Press, 1984 (See page 19)

failure to solve the mind-body problem is a misunderstanding of causation.[20] Hume used the model of two billiard balls hitting each other to represent cause and effect, but for Searle, this is a crude understanding of causation, especially when applied to the relationship between the mind and the brain. Searle turns to the common distinction between micro- and macro- properties of systems found in physics in order to gain a greater understanding of the mind-body relationship.

Every object, like a desk or pen for example, is made up of micro-particles. These micro-particles have structure and features at the level of atoms and molecules and, if you go deeper, they also have features at the subatomic level. In addition, objects have surface or global features; an example of a surface feature is the solidity of the desk mentioned above. The desk has features at both the atomic and surface level. The surface features are due to the behavior of elements at the micro level. Searle states, "… macro features are causally explained by the behavior of elements at the micro-level" (Searle 21).[21] He uses examples throughout his paper (such as a table, water, and a hammer) in order to further explain his point. All of these objects, and indeed, all of the objects around you, have both micro- and macro- properties. Searle states that, "Nothing is more common in nature then for surface features of a phenomenon to be both caused by and realized in a micro-structure, and those are exactly the relationships that are exhibited by the relation of mind to brain" (Searle 22-23).[22] Therefore, in order to understand the relationship between the mind and body, we must have a better grasp of the processes that make up the system.

For Searle, mental states are features of the brain that can be described at two levels, a macro-level (or higher level) in mental terms and a micro-level (or lower level) in physiological terms. "…The mind and body interact but they are not two different things since mental phenomena are features of the brain" (Searle 26).[23] This goes beyond simple cause and effect because both the mind and the physiological features (such as neuronal processes) are part of the same system. With this view, both the physical phenomena and mental phenomena exist; it is a bridging of both native physicalism and native mentalism and it brings us one step closer to understanding the self.

Searle's theory shows how closely the mental and physical levels are bound together. The mind, and indeed the self, is no longer the inessential froth on a wave

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[20] Searle, John. Minds, Brains and Science. Cambridge: Harvard University Press, 1984 (See page 20)

[21] Searle, John. Minds, Brains and Science. Cambridge: Harvard University Press, 1984 (See page 21)

[22] Searle, John. Minds, Brains and Science. Cambridge: Harvard University Press, 1984 (See pages 22- 23)

[23] Searle, John. Minds, Brains and Science. cambridge: Harvard University Press, 1984 (See page 26)

(as mechanists conjectured) nor is it something that is immaterial. It is now intricately bound up with the body and, as we will discuss later, with the physical world around us. If the self is a part of the system, then we will be able to understand the processes that are essential in its creation. For, if the mind and brain are different levels of the same system, then the events that we experience between birth and death actually contribute to the development of the brain. This is a view that many psychologists and neuroscientists have taken up in recent years.

One neuroscientist that takes up this basic premise in his book *Synaptic Self: How Our Brains Become Who We Are* is Joseph LeDoux. He draws upon massive amounts neurological and psychological research to support his theory that "the particular pattern of an individual's brain, and the information encoded by these connections are the keys to who that person is" (LeDoux 3).[24] For LeDoux, the self, your personality, who you are, is to be found in the patterns of connections between neurons, which are known as synapses. These synapses "are the main channels of information flow and storage in the brain" (LeDoux 2).[25]

LeDoux realizes that many people view the self as "psychological, social, moral, aesthetic, or spiritual" but he states that his theory is not an alternative to these views, it is just an attempt to portray how that "psychological, social, moral, aesthetic, or spiritual" self is realized (LeDoux 2-3).[26] "People don't come preassembled but are glued together by life" (LeDoux 3).[27] The first step to understanding what makes us who we are, is to realize that both nature and nurture contribute to the shaping of the self. In fact, nature and nurture speak the same language and synapses are the key to understanding both (LeDoux 3-5).[28]

For years there has been a "nature vs. nurture" debate but now it is generally accepted that both play important roles. It is presently "not so much a debate about genes vs. environmental experience as one about the precise contribution of

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[24] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page 3)

[25] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page 2)

[26] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page 2-3)

[27] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page 3)

[28] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page 3-5)

experience" (LeDoux 72).[29] Roughly speaking, "genes only shape the broad outline of mental and behavioral functions, accounting for at most 50 percent of a given trait, and in many instances far less" (LeDoux 5).[30] Our genes may bias our development in particular directions but many other factors contribute to how our genes are expressed.

For instance, a child with a tendency towards shyness could, instead, overcome that shyness because he or she had supportive and encouraging parents. Likewise, a child with a tendency towards sociability could become introverted because of an unsupportive family environment while growing up. LeDoux points out that, "Most systems of the brain are plastic, that is, modifiable by experience, which means that the synapses involved are changed by experience" (LeDoux 8).[31] The self may be biased towards developing in a particular way, but it is ultimately the effects of the environment that shapes how traits will be displayed.

What is interesting is that the plasticity of the brain is determined by our genes. The framework that the self is woven upon (the basic makeup of our brain) is determined by our genes but not the individual self that each of us becomes. Each individual is unique and one of a kind because each person is a product of their genes as well as their environment and experiences. For LeDoux, without learning, and its synaptic result, memory, "a person would have a bare-bone personality provided by genes, but wouldn't know much about it… [Learning and memory] play major roles in gluing a coherent personality together as one goes through life" (LeDoux 9).[32]

Now, in order to fully understand the role that learning and memory play in the development of the self, we must further define our terms and look at the different types of memory outlined by LeDoux in *Synaptic Self*. Prior to the 1980's the term "memory" was used to describe both explicit (facts and experiences) and implicit (conditioning, skills, and priming) forms of long-term memory. But because of the work done by Larry Squire and Neal Cohen (who originally used the terms declarative and procedural memory in 1980) and because of the work done by Dan Schacter (who specifically coined the terms explicit and implicit

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[29] LeDoux , Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page 72)

[30] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page 5)

[31] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page 8)

[32] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page 9)

memory in 1986) the distinction between the different forms of memory was made.[33]

Explicit memories are memories of things that we were once aware of; they are memories that we can consciously recall, that we have access to. We can remember events, people, scenes, songs, paintings, and any number of things that we were once aware of. This is what most people think of when they think of the term "memory". Implicit memory is memory that we have limited or no conscious access to. Implicit forms of memory contribute in very important ways to the development of the self; it contributes towards our personality traits. "Each of us has his or her own style of walking, talking, and thinking. We hold our bodies in a certain manner when we are standing or sitting… these and many other aspects of behavior are expressed so automatically, so implicitly, that they may seem unchangeable, perhaps innate" (LeDoux 117).[34] I agree with LeDoux that we should not overlook the role of experience, of learning and memory, in establishing these aspects of our behavior and in maintaining them.

So, in essence, we have two layers of memory that make up who we are: we have the explicit memory of our experiences and facts (which we can consciously mold and revise as time goes on) and the implicit memory that makes up our conditioning, skills and priming. "Through explicit systems, we try to willfully dictate who we are, and how we behave. But we are only partially effective in doing so since we have imperfect access to emotional [implicit] systems, which play such a crucial role in coordinating learning by other systems" (LeDoux 323).[35]

Explicit memories, as Bartlett demonstrated in 1932, are not stored as complete entities within our brains; rather they are constructions assembled at the time of retrieval. The information stored during the original experience is only one of the items used to construct the memory. Other contributing factors to your memories include information already stored, how you feel about the event, and what you hear or see after the experience (LeDoux 203).[36] In fact, studies by Elizabeth Loftus and others, in 1986 and 1989, show that memories of particularly

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[33] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Pages 102-103)

[34] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page 117)

[35] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page 323)

[36] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page 203)

emotional events are often much different than the actual events (LeDoux 203).[37] It is not that the recollections of these events have been intentionally fabricated, but rather remembered experiences (explicit memories) are impressions of the actual experience.

This idea falls right in line with Ricoeur's concept of narrative identity. For Ricoeur, the self can be viewed as the principle character in a narrative. "If in living my life I configure it as a narrative, I understand my life by refiguring it: 'the fragile offshoot issuing from the union of history and fiction is the assignment to an individual or a community of a specific identity that we can call their narrative identity'" (Simms 102).[38] However, in order to fully understand identity, Ricoeur proposed that we must divide it into two parts, *ipse* identity and *idem* identity.

Ipse identity is narrative identity, the identity that you have control over; the identity that you can sculpt and form into a coherent narrative of your life. This is the part of identity that you have conscious access to. Narrative identity is developed when memories are consciously shaped and formed into a narrative structure and it is through this process of "writing" your narrative, that you come to understand your life. Thus, it is formed by your explicit memories. *Idem* identity is the identity of the body; it is the identity of "sameness" through change. Everyone ages and changes over time but, even though a person is older, they are the same person bodily; they are the same but changed by age and this "sameness" is *idem* identity (Simms 102).[39]

The memories that you store in your brain are constructed at the time of retrieval; memories are constantly changing and being rewritten. This process of rewriting and organizing your past experiences into a coherent whole is how you create your narrative identity and you are constantly rewriting that narrative. This is a major part of the creation of the self but it is only one part of what makes you who you are. Implicit memory and emotion also play an important role in the self. This is because implicit memory and emotion shape and skew how you view certain events and people, as we will fully explore later. But first, in order to understand the role that implicit memory and emotion plays in the creation of the self, we must look at a few developments in both philosophy and neuroscience.

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[37] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page 203)

[38] Simms, Karl. Paul Ricoeur. New York: Routledge, 2003 (See page 102)

[39] Simms, Karl. Paul Ricoeur. New York: Routledge, 2003 (See page 102)

Two views of the self prominent in contemporary philosophy include the Kantian view of the self as an ethical subject that "uses reason to transcend cultural norms and to discover absolute moral truth" and the utilitarian view of the self or homo-economicus; a self that uses reason to rank desires and to develop a strategy that will maximize the satisfaction of those desires (Meyers).[40] However, both of these views downplay the importance of emotion and this privileging of reason over emotion has been a dominant theme in western philosophy. *Cogito ergo sum*, being just one example out of many.

It is interesting to note that until recently, the importance of emotion was mostly ignored and relatively unexplored by neuroscientists as well. In fact, by the mid 1960's (after the development of the limbic system theory of emotion by Paul Maclean) neuroscientists predominantly viewed emotion as "more a manner of mental content than of mental processing" and thus not relevant to their field (LeDoux 201).[41] Because of the subjective nature of emotion, it was difficult to measure and study and, until recently, the important role of emotion in the self was not only downplayed in philosophy, as it has been for centuries, but also in neuroscience, a discipline dedicated to understanding the human brain and mind (LeDoux 201-202).[42]

However, a recent approach to studying emotion called *emotional processing* has once again made emotion a popular topic in neuroscience. Emotional processing does not concentrate on the subjective states of emotion; rather it is the study of the way these emotions come about. "Specifically, from this point of view, emotion can be defined as the process by which the brain determines or computes the value of a stimulus. Other aspects of emotion then follow from this computation" (LeDoux 206).[43] This approach further defines the term "emotion". Historically, it has been understood as meaning "feeling" but a more exact definition should include the unconscious processes of emotion as well as the feelings that these processes produce. In this way, we can further understand the role of emotion without relying strictly on subjective experience or behaviorist

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[40] Meyers, Diana, "Feminist Perspectives on the Self", *The Stanford Encyclopedia of Philosophy (Spring 2007 Edition)*, Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/spr2007/entries/feminism-self/>. (*n. pag)*

[41] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page 201)

[42] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page 201-202)

[43] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page 206)

models. In the *Webster's Dictionary*, the first entry under the word "emotion" reads, "strong feeling" (Webster's Dictionary 195).[44] However, the reactions to the processes going on within your body, that can usually be recognized and named by your conscious self, are only one part of what makes up emotion.

For example, the first thing that happens when a stimulus, that will produce an emotional response, is detected by the brain (such as a car flying by or a ball thrown at your head) is an emotional reaction, or reactions, such as an increased heart rate. Subsequently, "a feeling emerges as we become aware that our brain has determined that something important is present and we are reacting to it" (LeDoux 206).[45] For LeDoux, it is a relatively easy thing to account for how emotional reactions can follow from emotional processing. "Information received by sensory systems activates emotional-processing circuits [a circuit is a group of neurons linked together that performs some specific function], which evaluate the meaning of the stimulus input and initiate specific emotional responses by triggering output and only afterward noticed what it was- a ball thrown… for example" (LeDoux 207-208).[46]

In the case of a ball thrown at your head or a car flying by, you only notice the feeling of fear after you jump back and after your heart is already pumping. The feeling itself did not cause the jumping or the increase in heart rate. There are many more examples given and studies performed that have proven these facts (See pages 206-210 in *Synaptic Self*) but the important thing to note is that the study of emotional processing has shown the fundamental nature and role of emotion in everyday life and in the development of the self, as we will explore later. "A Processing approach… allows emotion and cognition to be treated the same… and opens the door for the much needed integration of cognition and emotion" (LeDoux 209-210).[47]

Another important fact to note is that emotional conditioning is a form of implicit learning. Subjects can be conditioned to have implicit reactions to stimuli. This fact, known as classical conditioning, has been understood since the time of Pavlov and his dog. For example, in the case of Ivan Pavlov, roughly, if you ring a bell while feeding a dog, eventually the sound of the bell will be associated with

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[44] "Emotion" Def.1-3. Webster's New World Dictionary. Third College Ed. 1990. (See page 195)

[45] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page 206)

[46] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page 207-208)

[47] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page 209-210)

food and, from that point on, the dog will salivate at the ringing of a bell. In classical conditioning, a subject learns to associate two stimuli. It is now thought that circuits that do not depend on the explicit memory system instead engage in implicit learning (LeDoux 119).[48]

It is important to note, though, that today neuroscientists "have a detailed understanding of circuitry involved in only a few of the many systems that learn implicitly" (LeDoux 119).[49] This is an area in neuroscience where there is still a great deal of research to be done. However, we should not underestimate the role that implicit memory has in the creation of the self. Studies done by Liz Philips and Paul Whalen have shown that implicit memory is activated in social interactions. "In separate studies, they found that exposure of white subjects to the faces of unfamiliar African Americans led to amygdala activation (a part of the brain thought to be associated with emotion), and the degree of activation was directly related to the subject's score on a test that measures racial biases" (LeDoux 221).[50] The bias test shows that people can be conditioned to have implicit tendencies towards racism.

Implicit memory affects you in more ways than just the way you walk or the tones of your voice. It is very important to realize the power that implicit memories have on the type of person you are and on society as a whole. It is also important to recognize and, therefore, to be able to begin to change, tendencies towards behavior that is undesirable and unacceptable. These changes cannot be accomplished if we refuse to see the power of implicit memory. It is an essential part of what makes us who we are and it too has been shaped by experience and our environment.

In the past, philosophy has predominantly focused on explicit (or executive) functions within the brain (such as cognition) and has ignored the implicit systems within the brain (such as emotion and the role of implicit memory). This focus on the strictly executive functions of the mind has created a skewed image of the self. Emotions play an important part in our lives; they help us to stay alive, to remain healthy, to identity safe environments, to propagate our species, to detect friend from foe, to bond with others and form communities, and many other functions. Therefore, we are not only rational beings but also semiotic beings. These two

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[48] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page 119)

[49] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page 119)

[50] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page 221)

layers of self are intertwined, equally important, and inseparable. Historically, emotion was set up as the antithesis of reason. However, reason, as modern findings in neuroscience have made clear, is only one of the aspects that make us who we are; it is not the antithesis of emotion, but rather both emotion and reason perform important functions. They work in unison for the survival of the whole. If we focus on just one aspect of what makes us human, of what makes us who we are, then we will invariably cultivate (and have cultivated) a skewed view of reality, humanity, and the self.

The intertwining of emotions and cognition leads us to the work of Julia Kristeva. For Kristeva, the self includes both the semiotic and the symbolic. "Kristeva understands the self as a dynamic interplay between the feminine semiotic and the masculine symbolic…" (Meyers).[51] Unlike the symbolic, the semiotic gives expression to repressed and unconscious material. It is the body; it is emotion, intuition, and feeling. The semiotic *is* implicit memory. Kristeva understands the lessons that language can teach us about the self. She understands that the self is more than just the symbolic; it is more than alienated reason and explicit functions. We think but we also feel, dream, create, desire, and intuitively understand. The self is dynamic and Kristeva's view falls in line with the findings of modern neurological research and her view of the semiotic is supported by our increasing understanding of the role that implicit memory plays in the creation of the self.

"For Kristeva, the self is a subject of enunciation — a speaker who can use the pronoun 'I'" (Meyers).[52] And both the symbolic (characterized by signs and linear logic) and the semiotic (which corresponds to the unconscious and emotions) can be found in language. This falls in line with the view of the linguist Ray Jackendoff in his book *Foundations of Language*. He states as a basic principle in his book, "that the proper formulation of reference [in language] is as a relation between linguistic expressions and the world as conceptualized by the language user" (Jackendoff xvi).[53] If language is the linguistic expression of the world as seen by the language user, then it must include both the symbolic and the semiotic because both of these systems are involved in how we see and understand the

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[51] Meyers, Diana, "Feminist Perspectives on the Self", *The Stanford Encyclopedia of Philosophy (Spring 2007 Edition)*, Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/spr2007/entries/feminism-self/>. (*n. pag)*

[52] Meyers, Diana, "Feminist Perspectives on the Self", *The Stanford Encyclopedia of Philosophy (Spring 2007 Edition)*, Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/spr2007/entries/feminism-self/>. (*n. pag)*

[53] Jackendoff, Ray. Foundations of Language. New York: Oxford University Press, 2002 (See page xvi)

world around us. Thus, language is an intertwining of the explicit and implicit systems and, in that way, is an act of creation that reflects the creation of the self.

Now, it is interesting to note that language has greatly increased the power of the brain. This is because it gives us the ability to "chunk" or categorize large amounts of information (LeDoux 177).[54] Working memory is involved in all thought and problem solving and is one of the brain's most sophisticated capacities. It underlies the ability to read a menu, to play chess, or to have a conversation (LeDoux 175-176).[55] However, working memory can only keep a few things active in the brain at one time and the ability to chunk increases the amount of information that you can deal with at once. For LeDoux, "It is… the structuring of cognition around language that confers on the human brain its unique qualities" (LeDoux 197).[56] There is a big difference between having only a nonverbal working memory and having both a nonverbal and a verbal working memory. "Language radically alters the brain's ability to compare, contrast, discriminate, and associate on-line, in real time, and to use such information to guide thinking and problem-solving" (LeDoux 197).[57]

It is language that makes it possible for us to signify "I" and, thus, to be a subject of enunciation. This is because complex abstract concepts are represented by language (such as "I", "me", "ours"); we relate external events to these abstractions and use them to guide decision making and thought. Language is personal but it is also public because the signs that make up language constitute groupings of information that have been accepted by the culture that each of us is a part of. These groupings mold and direct thought because complex thought is dependent upon language to chunk information. In this way, Wittgenstein was correct when he argued against private language in *Philosophical Investigations* because our thoughts are necessarily shaped by the language that we use. A person can not have a purely personal language that is only understood by them (if you view personal language as "language") (Candlish).[58]

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[54] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page 177)

[55] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page175-176)

[56] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page197)

[57] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page197)

[58] Candlish, Stewart, "Private Language", *The Stanford Encyclopedia of Philosophy (Spring 2004 Edition)*, Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/spr2004/entries/private-language/>. (*n. pag)*

However, language is still used to signify the world "as conceptualized by the language user", and is only one system within the brain; we have both verbal and nonverbal working memory capacities (Jackendoff xvi).[59] Our minds, and our selves, are shaped by language but language is also shaped by the mind. Thus, Kristeva's view that language contains both the symbolic and the semiotic shows that language is a reflection of the structure of the mind which contains both explicit and implicit systems and is shaped by both nature and nurture. Our explicit memories are dependent upon what we have learned before. "Indeed, much of the self is learned by making new memories out of old ones. Just as learning is the process of creating memories, the memories created are dependent on things we've learned before" (LeDoux 96).[60]

If the structure of language is a reflection of the structure of the mind and therefore of the self, then we can utilize theories concerning language in order to understand the self. As we explored earlier, a part of what makes us who we are is our narrative identity. According to the work done in the 1970's by the psychologist Endel Tulving, long-term memories can be broken down by what they are about. He argued that there are two categories of explicit memories: episodic memories dependent upon space and time (things that happened to you) and semantic memories which are simple facts that are stored rather than experience (LeDoux 108).[61] Recently, the work of Faraneh Vargha-Khadem, Mortimer Mishkin, and others supports Tulving's distinction. They studied children who damaged their hippocampus early in life. Even with their injuries, they were able to attend school and learn basic facts despite having a poor ability to remember their own experiences. Many researchers think that the hippocampus is specifically involved in remembering episodic memories (LeDoux 108).[62]

Your narrative identity, based upon episodic memory, is how you come to understand yourself and your life. It has a simple plot structure, moving from earlier events to a climax, which is ultimately death. Language also moves from earlier words to later, building meaning with each word. I propose that it is not the self that is constructed like a narrative but, rather, the narrative that is constructed

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[59] Jackendoff, Ray. Foundations of Language. New York: Oxford University Press, 2002 (See page xvi)

[60] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page 96)

[61] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page108)

[62] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page108)

like the self. If language is a reflection of the structure of the mind, then we could infer that the constructions of language (i.e. narratives) also share that structure. Remember, the self is not completely developed by outside experiences but, rather, it is the dynamic interplay between environment and genes; just as narrative is not completely developed by the symbolic but is the interplay of both the semiotic and the symbolic. Narrative identity, therefore, is the dynamic interplay of nature and nurture, of the outside world and the inside world, and both worlds are affected by the other. The narrative is shaped by the mind just as the mind is shaped by language.

If part of our identity is a narrative, then we can apply Derrida's idea of *differance* in order to understand how the narrative self gains meaning. Every experience is temporal; the moment of the present, of now, is different from the past and future, but it is a small difference that is non-dualistic. This difference is undecidable (Lawlor "Jacques Derrida").[63] The cutting of reality into dualisms is an artificial partitioning of what *is*. Each concept that makes up part of a dualism depends upon the other concept for meaning. One cannot be valued over the other because each makes the other possible; each contains the other; each is within the other. Deconstruction and, therefore, the principle of *differance* is not only a textual strategy, a particular technique that can be used to unpack texts, but rather, it is the event; it is what is found in appearances when we realize that they are temporal. It is what lies beneath the cutting of reality into dualistic concepts. The French word *differer* means both to "defer" and to "differ". The difference between words makes meaning possible and, at the same time, constantly defers meaning. For Derrida, "Literature, like thought, cannot be reduced down to either a theory of imitation (imitation of actual things or of the idea) or to a theory of creativity. Instead, literature 'is' the simultaneity of imitation and creation, of identity and difference…" (Lawlor, Imagination 117-118).[64]

Derrida built upon the work of Saussure in order to explain how texts gain meaning through *differance*. For Saussure, a sign is made up of two components: the signifier, which is the actual word, and the signified, which is the concept that the word represents (Saussure 115).[65] Signs are arbitrary; but then Saussure goes on to explain that signs are also differential. Saussure writes, "It is precisely

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[63] Lawlor, Leonard, "Jacques Derrida", *The Stanford Encyclopedia of Philosophy (Winter 2006 Edition)*, Edward N. Zalta (ed.), URL = http://plato.stanford.edu/archives/win2006/entries/derrida/. (*n. pag)*

[64] Lawlor, Leonard. Imagination and Chance. New York: State University of New York Press, 1992 (See Pages 117-118)

[65] Saussure, Ferdinand de. Course in General Linguistics. Chicago: Open Court Publishing Company, 1972 (See Page 115)

because two signs *a* and *b* are never grasped as such by our linguistic consciousness, but only the difference between *a* and *b*, that each sign remains free to change in accordance with laws quite unconnected with their signifying function… all that matters is the difference between the signs…" (Saussure 116).[66]

Derrida agreed with Saussure that without the spaces between signs, there would be no stationary meaning; this is because the sign's meaning can change in accordance with the rules of the linguistic system. The meaning of a sign is contingent upon the linguistic system which is made up of differences .We do not grasp the meaning of the sign itself, but rather we understand the sign because of its place in the system, because of the signs that follow. In the essay entitled *Differance*, Derrida wrote, "Every concept is necessarily and essentially inscribed in a chain or a system, within which it refers to another and to another and to other concepts, by the systematic play of differences" (Derrida 449).[67]

In the same way that the meaning of a word is constantly deferred down an endless chain of signifiers, the meaning of an explicit memory is constantly deferred down an endless chain of memories; this is because our understanding of events is contingent upon new events, pieces of information, changing feelings, and past information both collected and forgotten. How many of us have looked back upon an event that we once thought had a particular meaning, only to realize that, as we gained in experience, the event held a completely different meaning. The mind utilizes a system in order to organize memories. It forms relations and configurations of stimuli, of memories about spatial arrangements, and among different memories; it is able to join together many pieces of information at once and to configure them into a context (LeDoux 132).[68] The mind does this automatically and without the partitioning off and organizing of memories there would be no meaning and, therefore, no self. Just like with words, the difference between memories makes meaning possible and, at the same time, constantly defers meaning. Identity cannot be privileged over difference and presence cannot be privileged over absence because each concept makes the other possible. Your identity and the world around you could not be understood without the spaces; without a system made up of differences and the partitioning of reality into manageable chunks.

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[66] Saussure, Ferdinand de. Course in General Linguistics. Chicago: Open Court Publishing Company, 1972 (See Page 116)

[67] Derrida, Jaques. *"Difference"* The Continental Philosophy Reader. Ed. Richard Kearnery and Mara Rainwater. New York: Routledge, 1996 (See Page 449)

[68] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page 132)

A word signifies a breaking away, a partitioning off of reality. In order for a sign to have meaning, it must be seen against the backdrop of other signs not present. We know light because of dark, future because of past, joy because of sorrow, etc. But this breaking into pieces, this partitioning off, and this forming of dualisms, is both how we come to understand reality and an artificial structure built upon reality; it is not reality itself, but rather a system that enables us to understand and to communicate. This difference, thus, gives meaning to words and concepts but only against the backdrop of other words and concepts not present. Derrida wrote, "We could thus take up all the coupled oppositions on which philosophy is constructed, and from which our language lives, not in order to see opposition vanish but to see the emergence of a necessary such that one of the terms appears as the differance of the other, the other as 'differed' within the systematic ordering of the same…" (Derrida 455).[69]

Language helps us to recognize the difference that makes all meaning possible. The structure of language points to the structure of the mind and the mind automatically recognizes and separates space and time; it breaks down the outside world into "chunks" that can be handled by the capacities of the brain. It creates binary oppositions but does not automatically privilege one over the other. We are bound by the limits of the brain and by the senses that we are born with. Language points to the very foundation of our understanding; to the distinction between life and matter, between past and future. It points to the non-dualistic foundation of what is and to the temporal nature of the self. Derrida, through *differance*, uncovers the system that makes all meaning possible; he shows us the sameness in difference that marks not only words and concepts, but also our understanding of reality.

Additionally, when we actively remember (use our working memory), just as when we are reading a text (also, using our working memory), we sort through competing codes in order to gain understanding. And every memory that makes up who we are must be reinforced in order to become part of the system, to become part of the self. The very act of looking, touching, smelling, hearing, tasting, experiencing, and remembering is an act of affirmation that attaches meaning to the stimuli or signs. And, as each memory is again and again affirmed, it becomes more of a part of us. Concepts and stimuli that are activated, felt, experienced together become connected. We then ascribe value and meaning and that too becomes connected to the concepts. "Old memories are the result of accumulations

[69] Derrida, Jaques. *"Difference"* The Continental Philosophy Reader. Ed. Richard Kearnery and Mara Rainwater. New York: Routledge, 1996 (See Page 455)

of synaptic changes in the cortex as a result of multiple reinstatements of the memory" (LeDoux 107).[70]

In the same way, education forms memories which are connected to other memories and reinforced. Early in life we are taught, or molded, in school and in the home to form certain concepts and dualisms and to ascribe particular values to these memories. These accepted abstract concepts and dualisms (like justice and injustice, meaning and meaninglessness, mastery and submission, true and false) are passed down through the generations with ascribed values; indirect experience is learned through these direct experiences. Culture is passed down through language in the form of public narratives, such as myths and legends, and within the very words that we use. The privileging of one concept over the other, and the grouping of different concepts by one signifier, is a form of shaping and molding the minds of a people in a particular culture. We learn to privilege not only one concept over the other but also one type of discourse over the other.

This does not mean that all concepts are relative or that they do not have value. I am simply showing the process by which value is formed in order to show the effects that education and culture have on the creation of the self. This shaping by society should be recognized because if we do not understand the process, then we will not be able to fully understand the development of the self. And also, we will not be able to effectively question the validity of the values that are shaping each of us and to actively change these values when they are harmful or reinforce these values when they are beneficial. As Foucault pointed out, we are taught what is acceptable and what is taboo, who is deemed sane and who is deemed insane, who can speak and who can not, and what is a valid area of inquiry and what is not.[71]

For Foucault the three ways that discourse is controlled include: prohibited words, the division of madness, and the will to truth (Foucault 339-342).[72] As mentioned above, words have power because they can shape the minds of people and change the very pattern of your synapses. According to Foucault, words and discourse as a whole are controlled in order to avert that power. In *The Discourse on Language*, Foucault wrote, "I am supposing that in every society the production of discourse is at once controlled, selected, organized and redistributed according

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[70] LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002 (See Page107)

[71] Foucault, Michel. *"The Discourse on Language"* The Continental Philosophy Reader. Ed. Richard Kearnery and Mara Rainwater. New York: Routledge, 1996 (See Page 339-342)

[72] Foucault, Michel. *"The Discourse on Language"* The Continental Philosophy Reader. Ed. Richard Kearnery and Mara Rainwater. New York: Routledge, 1996 (See Page 339-342)

to a certain number of procedures, whose role is to avert its powers and its dangers, to cope with chance events, to evade the ponderous, awesome materiality" (Foucault 340).

It is important to note that the creating of concepts and binary oppositions, the joining together of different concepts under one signifier, and the attaching of value and meaning are ways that the very development of the self is molded by the society and culture that each of us is a part of. It molds the very pieces, the words and experiences, that we use to create the narrative self and even implicit memories are formed within a system that is in many ways influenced by culture. These facts make clear the importance of fully understanding the concepts and assumptions behind the words that we use in communication because of their deep influence on the development of the self.

Therefore, we are molded by our culture, by the environment around us, by our DNA, and by ourselves because the self is an active creation of the self. We pick and choose the meanings that our explicit memories have. We actively create our narratives by ascribing meaning, by choosing (to some extent) which memories are reinforced and which are not, and by questioning and changing the values that we live our lives by. Memories are not reality itself but rather the impressions of reality made upon the mind; some of these impressions must be consciously affirmed in order to gain meaning, while others are unconscious impressions implicitly reinforced by experience. These impressions are not reality, just as words are not reality, but both reflect reality and are a way to understand and give meaning to both the self and the world.

The self, who you are, is reflected in the dynamic interplay between nature and nurture, between the semiotic and the symbolic, between the explicit and the implicit, between society and the self, and between the narrative and interpretation; each of us is unique, inseparable from the context of our lives, from our time and place, and from the system of differences that makes the creation of the self possible. Derrida quoted Heidegger as writing, "Being speaks through every language everywhere and always" (qtd In Derrida 464).[73] Being does speak through every language because language is a reflection of the system of the mind, of the self, and in that way it reflects being. It is at the same time a manifestation of the self, the narrative identity of a culture, and the system that is essential to the understanding of reality and to the creation of that self.

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[73] Derrida, Jaques. *"Difference"* The Continental Philosophy Reader. Ed. Richard Kearnery and Mara Rainwater. New York: Routledge, 1996 (See Page 449)

It is no wonder that the question, "Who are you?" cannot be answered with a few words. Words can only indirectly communicate the vast system that makes up the self, with pale impressions like shadows on cave walls. Language enables us to communicate our thoughts and at the same time denies us precise meaning. In that way, the unique tapestry that makes up the self can never be fully communicated to another. Each of us can never be known, truly and fully known, because we are ourselves signifiers within a complex system of society, objective beings whose rich and deep meaning is constantly deferred down an endless chain that is continually in the act of simultaneous creation and deconstruction. "Who are you?", then, must be answered with a few words, because to communicate who we truly are would be an impossible task. So, when you are asked that seemingly simple question, you have no choice but to answer with your name, which is itself a pale signifier of the awesome and complex tapestry that makes up who you are.

References

Angeles, Peter A, ed. "Dualism." The Harper Collins Dictionary of Philosophy. Second Ed. New York: HarperCollins, 1992

Angeles, Peter A, ed. "Mind." The Harper Collins Dictionary of Philosophy. Second Ed. New York: HarperCollins, 1992

Angeles, Peter A, ed. "(Mind) Bundle Theory of Hume." The Harper Collins Dictionary of Philosophy. Second Ed. New York: HarperCollins, 1992

Angeles, Peter A, ed. "Self." The Harper Collins Dictionary of Philosophy. Second Ed. New York: HarperCollins, 1992

Candlish, Stewart, "Private Language", *The Stanford Encyclopedia of Philosophy (Spring 2004 Edition)*, Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/spr2004/entries/private-language/>.

Derrida, Jaques. *"Difference"* The Continental Philosophy Reader. Ed. Richard Kearnery and Mara Rainwater. New York: Routledge, 1996

Foucault, Michel. *"The Discourse on Language"* The Continental Philosophy Reader. Ed. Richard Kearnery and Mara Rainwater. New York: Routledge, 1996

Greenfield, Susan. The Private Like of the Brain. New York: John Wiley & Sons, Inc., 2000

Jackendoff, Ray. Foundations of Language. New York: Oxford University Press, 2002

Lawlor, Leonard, "Jacques Derrida", *The Stanford Encyclopedia of Philosophy (Winter 2006 Edition)*, Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/win2006/entries/derrida/>.

Lawlor, Leonard. Imagination and Chance. New York: State University of New York Press, 1992

LeDoux, Joseph. Synaptic Self: How Our Brains Become Who We Are. New York: Penguin Books, 2002

Lokhorst, Gert-Jan, "Descartes and the Pineal Gland", *The Stanford Encyclopedia of Philosophy (Winter 2006 Edition)*, Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/win2006/entries/pineal-gland/>.

Meyers, Diana, "Feminist Perspectives on the Self", *The Stanford Encyclopedia of Philosophy (Spring 2007 Edition)*, Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/spr2007/entries/feminism-self/>.

“Emotion” Def.1-3. Webster’s New World Dictionary. Third College Ed. 1990.

Robinson, Howard, "Dualism", *The Stanford Encyclopedia of Philosophy (Fall 2006 Edition)*, Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/fall2006/entries/dualism/>.

Saussure, Ferdinand de. Course in General Linguistics. Chicago: Open Court Publishing Company, 1972

Searle, John. Minds, Brains and Science. Cambridge: Harvard University Press, 1984

Simms, Karl. Paul Ricoeur. New York: Routledge, 2003

Stoljar, Daniel, "Physicalism", *The Stanford Encyclopedia of Philosophy (Winter 2005 Edition)*, Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/win2005/entries/physicalism/>.