

The Neurobiological Roots of Our Multiple Moral Personalities

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There appear to be three types of affectively-based moral stances that persons can take: one oriented to security (the Ethic of Security) and focused on self-preservation through safety, and personal and ingroup dominance; another oriented to emotional engagement with others (the Ethic of Engagement), particularly through caring relationships and social bonds; and the third that I call the Ethic of Imagination, which is focused on creative ways to think and act socially. Perhaps the labels are not all inclusive but they seem to capture three different ways of co-existing with others in the social landscape.

Each ethic has neurobiological roots that are apparent in the biological structures and circuitry of the human brain. Triune Ethics theory derives its structure from MacLean's (1990) Triune Brain theory which proposes three basic formations in the human brain that reflect ancestral relations to lower-order species. Anatomically and biochemically, the three formations reflect the evolution of reptiles, early mammals, and late mammals. Although the theory is on its face simplistic in separating brain structures from one another, in fundamental ways animal and human research support MacLean's basic theory (Panksepp, 1998). Accumulating research in affective neuroscience not only confirms the general thrust of MacLean's triune brain theory, but points out the critical importance of early experience in gene expression in emotional circuitry (e.g., Champagne & Meaney, 2006), personality formation (Schore, 1992; 1994), and cognition (Greenspan & Shanker, 2004). Animals have not only evolved brain functions that facilitate learning but have "psychobehavioral potentials that are genetically ingrained in brain development" as "evolutionary operants" (Panksepp, 1998, p. 55). These operants are inherited emotional command systems that help animals (and their ancestors) behave adaptively in the face of life challenges.

I propose that three distinctive moral systems have evolved from our ancestors, propel human moral action on an individual and group level, and have aetiologies that are influenced by early and critical period experiences. According to MacLean (1990), the first formation is the reptilian or R-complex (shared with an extinct reptile, the therapsid), which resides at the base of the forebrain, seated on top of the motor cortex, and relates to several forms of behavior in mammals, including territoriality, imitation, deception, struggles for power, the maintenance of routine, and following precedent. The Ethic of Security is based primarily in these instincts which revolve around survival and physical flourishing. Subcortically-driven instincts for seeking (autonomous exploration) and emotional circuitry for fear and rage when autonomy or safety is thwarted are systems shared with all animals (Panksepp, 1998). The security ethic is oriented to physical factors in two senses. First, it maintains physical survival through self-protection and exploration. Second, the security ethic is attendant to physical flourishing through status enhancement (hierarchy or pecking order) and ingroup loyalty (purity). Self-protective behaviors and values protect the life of the individual and the ingroup. One learns to secure oneself and one's group against the competition or an "enemy". When the security ethic is explicitly triggered by personal or group threat, tribalism predominates, rivalry and the pecking order are stressed, and mob behavior can be set in motion (MacLean, 1990) as we become part of a super social organism:

“The superorganism is often a vile and loathsome beast. But like the body nourishing her constituent cells, the social beast grants us life. Without her, each of us would perish. That knowledge is woven into our biology. It is the reason that the rigidly individualistic Clint Eastwood does not exist. The internal self-destruct devices with which we come equipped at birth ensure that we will live as components of a larger organism, or we simply will not live at all.” (Bloom, 1995, p. 325)

Prone to ruthlessness and attaining one’s goal at any cost, the security ethic reflects Simone Weil’s view, “Evil when we are in its power is not felt as evil but as a necessity, or even a duty.” This ethical orientation fits with the received view of human nature, that we are violent, self-interested, and hierarchical, like our cousins, the chimpanzees. But the received view is veridical only under certain conditions, when ecological circumstances (person x situation interaction) increases perceived threats to “tribal”, “clan” “troop” or in-group safety. Triune Ethics accounts for this variation in “human nature.”

The second brain formation, identified by MacLean (1990) as central to mammalian functioning, brought about three signatory sets of behavior that did not exist in evolutionarily prior species: nursing and maternal care, audiovocal communication between mother and offspring, and play. What MacLean calls the neo-mammalian brain, the limbic system and related structures, is the seat of emotion, personal identity, the memory for ongoing experience, and the sense of reality and truth. These form the foundation of the Ethic of Engagement. For example, play, found only in mammals, promotes harmony and sociality. Sexual functioning radiates from the earliest to the latest brain structures. For example in mammals, genital display is a precursor to determining cooperative or aggressive interaction, behavior that both Darwin and MacLean consider to be foundational for altruism.

According to Loye (2002), the capstone to Darwin’s theory of evolution was the emphasis on moral sensitivity as the most important driving force in human evolution. Finally published in 1974, Darwin’s private notebooks set forth a theory of moral agency as a culmination of his theory of natural selection (Loye, 2002). In these notes Darwin argues that “the moral sense” arises from the sexual, parental and social instincts that have evolved in mammals generally but especially in humans. According to his notes, the moral sense gives rise to the golden rule and the second commandment given by Jesus, to ‘love your neighbor as yourself.’ The Ethic of Engagement is rooted in these mammalian emotional systems that drive us towards intimacy. The functionality of these systems, however, are co-constructed by the environment during an extended childhood.

Within psychology the development of mammalian emotional systems in the first years of life are captured by Bowlby’s attachment theory, which is strongly influenced by ethological considerations. Attachment is fundamental to the functioning of the Engagement Ethic. Bowlby (1988, 1969) identified the hunter-gatherer context of our ancestors during the Pleistocene era as “the environment of evolutionary adaptedness,” when an infant’s processes for forming attachments and completing brain development evolved. This is also where we can see the flourishing of evolved human morality that Darwin identified. Hewlett & Lamb (2005) summarize the type of child care in hunter-gatherer communities, most of which are peaceful (Knutson, 1968): “young children in foraging cultures are nursed frequently; held, touched, or kept near others almost constantly; frequently cared for by individuals other than their mothers (fathers and grandmothers, in particular) though seldom by older siblings; experience prompt responses to their fusses and cries; and enjoy multiage play groups in early childhood” (Hewlett

& Lamb, p. 15). Brain-building experiences are embedded in attachment relationships (Schore, 1994). Recent research has shown that initial experiences with the caregiver are deeply imprinted in the brain, helping form the neurobiological structures for a lifetime (Weaver, Szyf, Meaney, 2002).

The damage caused by lack of proper infant nurturance is old but oddly forgotten news. It was initially tested in monkeys by Harlow (1958). Monkey infants reared without physical social interaction (touching, holding, playing) experienced brain damage and were violent and socially impaired as adults. These monkeys were not deprived of nourishment, nor of other social sensory stimulation—they could smell, see and hear other monkeys (sensory deprivation was systematically tested). Children raised under similar conditions, as in orphanages, display the similar impaired behaviors (Spitz, 1965). In a study of Romanian orphans, when cuddled by their adoptive parents, they fail to generate the same soothing hormones as normal children when cuddled by their parents (Nelson et al). In these cases, the lack of physical touching and rocking by a caregiver has deleterious effects on brain development. Mason and Berkson (1975) found that a rocking artificial “mother” (a fur-draped plastic bottle on a rope) alleviated the depression and autistic-like behaviors that would otherwise develop in socially isolated monkeys. Inadequate care leads to deficiencies in the genetic expression, hormonal regulation and system integration that lead to sociality (Weaver et al, 2002). Sadly, modern childbirth, childcare and social systems build brains that are incomplete resulting in, I propose, personalities that are less socially engaged. There may be a “goodness-of-fit” between expectable environments and optimal development. Darwin’s account of moral evolution appears to have been foiled by modern culture and societal practices.

According to MacLean (1990), the third brain area is the neomammalian, referring to the neocortex and thalamic structures to which the neocortex is connected. It reaches its greatest size and complexity in humans. Focused primarily on the external world, the neomammalian brain provides the capacity for problem solving, memory and deliberative learning.

The third ethic, the Ethic of Imagination links more to these recently evolved parts of the brain, particularly the prefrontal lobes. The latter are the seat of executive functioning and are not fully developed until the early or mid-twenties (Giedd, Blumenthal & Jeffries 1999) and may be damaged by behavior choices made in the final phase of development during the college years (Bechara, 2005). The Ethic of Imagination is the source of our deliberative reasoning and imagination, which respond to the intuitions and instincts of the other ethics, able to countermand instincts with “free won’t” (Cotterill, 1999). Although humans have evolved to favor face-to-face relationships and have difficulty imagining those not present (such as future generations), the prefrontal lobes provide a means for a sense of community that extends beyond immediate relations. Humans are at their most moral when the ethic of engagement is linked with the ethic of imagination.

Throughout the brain, emotional systems are placed centrally in order to dynamically interact with more evolved cognitive structures and lower level physiological and motor outputs. As a result, there is no emotion without a thought and most thoughts evoke emotion. Further, there is no emotion without a behavioral or physiological outcome. “Emotive circuits change sensory, perceptual, and cognitive processing, and initiate a host of physiological changes that are naturally synchronized with the aroused behavioral tendencies characteristic of emotional experience” (Panksepp, p. 49). According to a hybrid model of emotional functioning, many of the emotional component systems in the brain come together as a function of learning: “...emotions are learned states constructed during early social development from more elemental

units of visceral-autonomic experiences that accompany certain behavior patterns” (p. 44-5, Panksepp, 1998). The basic neural-emotion systems “generate an animal’s egocentric sense of well-being with regard to the most important natural dimensions of life” (ibid, p. 48). These systems provide the animal with potential solutions to basic issues of survival (how do I stay intact? How do I get what I need? How do I keep what I need? How do I get and keep social supports?)

The three ethics are present in behavior, at least partially, from a young age, although deliberative moral reasoning lags far behind (this is not surprising since most of what we know is tacitly held; Keil & Wilson, 1999). Not only do the three ethics interact they each have both a dispositional aspect (“trait-like”), based on developmental experiences, and a situational aspect (primed by context). So, for example, if childhood established healthy brain development (as manifested in secure attachment and functional empathy components), the person is able as a matter of course to reach out to others in empathy when they are in distress. In contrast, a person can have a foundational sense of insecurity, based on early childhood experiences of unmitigated distress, that drives their view of the world, as in attachment disorders. This foundational sense of insecurity may thwart feelings of empathy. Moreover, when a family or culture is focused on threat, individuals and groups may focus on the security ethic, suppressing the engagement ethic.

From a personological viewpoint, Sylvan Tomkins (Demos, 1995) offered concrete depictions of biosocial effects on personality. He suggested that early socialization sets up life orientations that the individual subsequently applies to many domains throughout life. The “ideo-affective posture” developed from early experience represents a socialized “set of loosely organized feelings and ideas about feelings” (Tomkins, 1965, p. 74) which resonate with particular organized ideologies, attracting individuals to particular viewpoints. A warm, supportive childhood leads a person to orient either to an open, accepting posture (“humanistic”) while a harsh, restrictive childhood leads to a defended, rejecting posture (“normative”) towards people and towards life experiences in general.

One might speculate on the characteristics of a person dominated by a particular ethic. A person dominated by the Ethic of Security likely has a “stressed brain” formation from trauma or neglect; poor attachment and bonding; lack of early embodied experience with reciprocity in social interactions; little sensorimotor memory for loving intimate interactions; compromised social abilities; domination by a defended, rejecting ideo-affective posture (Tomkins); some basic needs not fully or regularly met in childhood (e.g., Competence, Autonomy/Control, Belonging, Trustworthy world); and feelings of anger and contempt more accessible than positive feelings. Behavior is more ruthless and focused on self advantage covertly or overtly; they have a narrow ingroup orientation and value loyalty, hierarchy, control, purity (of self and of ingroup), freedom to seek (“liberty”). The engagement ethic is minimized and the imagination ethic is hijacked for security interests. An interesting example of the security ethic in ascendance is a report that 90% of members of an evangelical congregation left after the pastor began to preach an inclusive rather than an exclusive message, saying that the whole world would be saved not just those of their brand of faith (*National Catholic Reporter*, 2005). When a security ethic is a cultural norm, inclusivity is an unwelcome message.

A personality dominated by the Ethic of Engagement has strong attachment; sensorimotor memory for reciprocity and emotional intersubjectivity; strong empathic responses in mirror neurons; an open, accepting ideo-affective posture (Tomkins); feelings of empathy more accessible than feelings of anger. Primary values include compassion and tolerance. The security ethic is minimized and the imagination ethic is used for sociable ends.

A personality dominated by the Ethic of Imagination, under a state of calm and engagement, considers outgroup members as deserving of full respect and rights, as well as empathy; is able to conceptualize alternative social systems, think impartially about moral problems and counteract harmful instincts and intuitions with “free won’t” (Cotterill, 1999). However when threat is high and engagement low, a personality dominated by the imagination ethic will likely focus on maximizing safety and dominance, be prone to negative attributions, focus on ‘being strong,’ avoid emotional expression and respond to his/her worst instincts and intuitions.

A particular ethic can be primed by the situation or other triggers. The engagement ethic may, for most people, require an environment characterized by safety, caring and belonging (indeed children in caring classrooms tend to be more prosocial) whereas the imagination ethic may also require surrounds that promote hope and transcendence. The prevailing ethic likely will influence sensitivities to stimuli, preferred reasoning, susceptibilities (fallacies), motivations and goal direction, shifting perceived social affordances.

In summary, I propose that there is a neurobiological substrate to moral personality evident from research on early epigenetic imprinting on brain structure and “wiring,” and the effects of emotional co-regulation or its absence (Greenspan & Shanker, 2002; Schore, 1992; 1994). The three neurobiological brain systems that underlie the three ethics may signal the features of development and lived experience that yield optimal functioning. One might consider these three ethics as goals for human optimization. First, children develop a sense of security through intersubjectively-safe and nurturing rearing which designs a “morally-prepared” brain. Second, a child develops a sense of engaged enactive participation in social life, rooted in sensorimotor sensibilities for justice (Lerner) from extensive experiences of reciprocity and social exchange. Third, children are provided opportunities to engage the imagination for good ends. Caregivers provide *in situ* modeled and guided training of prosocial perception/action (*enactive* learning). Each person is built from a myriad of intelligent systems, from the biochemical reactions of the limbic system, to the neuronal networks that compete to win when stimuli are processed. The virtuous person is able to coordinate and focus the systems. *Exemplar* moral personality may require more than these basic pieces, such as imagination beyond the everyday; deep attachment to an inspiring caring person (or divine being) translated to deep concern for others; and a sense of calm, certainty or faith.

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