CHAPTER 20

Moral Development and Moral Values

Evolutionary and Neurobiological Influences

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Morality covers the gamut of life—every action is governed by values—whether those we have chosen or those we have implicitly absorbed. Our morality is shaped by multiple factors: what we inherit, where we habitually put our attention, what actions we choose, and the perceptual sensitivities and capacities we develop from how we were raised. All these shape our values and character. As a result, the study of moral development requires a transdisciplinary and transmethodological approach. Disciplinary contributions from evolutionary systems theory, clinical studies, and developmental and personality research each provide insight into the moral development of humanity. Methodologies of study must also be broad and address both a universalist and an individual-difference approach. The former seeks to find basic patterns across humanity—individuals and societies—whereas the latter takes into account the diversity of influences on the development of an individual's moral dispositions. In this chapter, contributions from multiple disciplines and methods are included in an examination of the development of moral values.

The Study of Moral Valuing

To begin, let's examine a little history, from moral judgment research to values lists, then delve more pointedly into the underlying nature and development of moral values.

Most research in moral developmental psychology has focused on isolated aspects of moral functioning in individuals, such as moral reasoning and decision making in the face of hypothetical dilemmas (e.g., Kohlberg, 1984; Haidt, 2001; Turiel, 1983). For some decades, under the influence of moral philosophical concerns, moral developmental psychology focused on moral reasoning development under the theoretical direction of Lawrence Kohlberg and his (mis)interpretation of Jean Piaget (i.e., "hard stage" theory; Lapsley, 2006). Kohlberg (1984) studied the development of justice-based valuing through the assessment of moral judgment and reasoning, emphasizing a deontological framing of morality—what comprised one's duty according to logical rationality (Kant, 1949). But Kohlberg was also keen to distinguish among different sets of values and, in particular, to defeat moral relativism. He wanted to demonstrate empirically the moral superiority of the lawbreaking actions of civil rights leaders such as Martin Luther King, Jr., and the moral inferiority of the law-upholding actions of an Adolf Hitler. His system assessed the developmental shifts from preconventional to conventional to postconventional reasoning (where Martin Luther King, Jr.'s reasoning is categorized). Empirical studies of Kohlberg and

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the neo-Kohlbergian orientations that followed show, with little doubt, that cognitive maturation in interaction with intensive and variable social experience leads to greater sophisticated reasoning, especially when measured in tacit ways, such as with recognition measures, instead of with measures dependent on verbal fluency (Rest, 1979; Rest, Narvaez, Bebeau, & Thoma, 1999). We might say that Kohlberg's work was intended to measure moral values of intellectual thought—as measured by rationales given for preferred actions in response to hypothetical moral dilemmas. Kohlberg assumed that at the highest stage, an individual's thought and action would align. But empirical evidence was thin for a relation between reasoning capacities and actual action. Noting the gap between making a judgment about what should be done and action taken, broader conceptualizations of the propellants of moral behavior, such as moral personality, were proposed (e.g., Blasi, 1983). Indeed, subsequent research has demonstrated that self-reported second-order desires (Frankfurt, 1988), desires about what desires to have—one's moral identity—influence one's behavior beyond moral reasoning or judgment (Aquino & Reed, 2002).

In another line of research examining the types of values individuals profess, Rokeach (1979) identified lists of terminal values (e.g., a world of beauty, wisdom) and instrumental values (e.g., love, obedience), and determined that individuals prioritize them differently. More recently and more systematically, Schwartz (1992, 2005) identified a set of 10 values, tested them in 67 countries, and found similar distinctive structures across nations, and different cultural motivational patterns. The values are placed into four main categories: *openness to change* includes self-direction and stimulation; *self-enhancement* includes hedonism, achievement, and power; *conservation* is described by security, conformity, and tradition; *self-enhancement* embraces benevolence and universalism. Also interested in cultural differences and based on Shweder's (1993) earlier work contrasting the United States and India, Haidt (2012) focused attention on group differences in five (then six) values that he called moral foundations: Though most ethical traditions emphasize *fairness* and *caring* for others, values of *liberty, purity, hierarchy,* and *ingroup* over outgroup are also highly prized by some individuals and groups. In fact, the latter values have been associated with American political conservatives (Graham, Haidt, & Nosek, 2009); however it is notable that the content of such items are shaped according to the particular interests of Christian conservatives (Suhler & Churchland, 2011).

Values list studies demonstrate that individual differences in value priority vary by nationality and political orientation. However, just because particular values are favorably *endorsed* does not mean that individuals *act* on those values in particular situations. Similar to the judgment–action gap, there is often a value–action gap. For example, social desirability inflates self-reports of religious service attendance (Presser & Stinson, 1998), reflecting prescriptive values rather than being descriptive of actual behavior, which is much lower, when time diaries are used in data collection (Brenner, 2011). This value–action gap is well described by J. D. Vance in his book *Hillbilly Elegy* (2016), in which he chronicles his upbringing in Kentucky. There, values of hard work, church attendance, and Christian behavior are widely espoused by community members yet also widely absent in those same people's behavior.

As mentioned, Kohlberg's (1984) enterprise was driven by philosophical frames of explicit reasoning and moral intention as fundamental to an individual's moral functioning. Values list prioritization studies are explicit tasks as well. The study of explicit, verbalizable discourse has shown its limitations with the discoordination between advocacy and actual behavior. This is not a surprise, as psychology research has shifted paradigms from a focus on the explicit to a focus on the implicit, understanding that most human functioning emerges from automatic tacit processes not accessible to verbal explanation or, sometimes, awareness (Bargh & Chartrand, 1999; Reber, 1993). Which tacit processes guide behavior, including moral behavior, can change by situation in a unique person-by-context signature (Lapsley & Narvaez, 2004; Narvaez & Lapsley, 2005). Let's bear these issues in mind as we examine morality in more detail.

What Influences Moral Values?

What is a moral value? In this chapter, a moral value is a perceptual–action feature of our behavior, which can change situation by situation and moment by moment. Our actions are always guided by what we perceive to be good in the moment. For example, if someone we like makes a joke at our expense, we take

it as friendly teasing, but if someone we don't like does the same thing, we are insulted. Or, if we become upset after someone cuts us off in traffic, lashing out in anger can feel like a fair or just action—tit for tat—a common reaction in a culture of honor, in which feelings that one was disrespected incite retaliatory behavior (Nisbett & Cohen, 1996; Vance, 2016). In contrast, when we maintain a mood of gratitude, we are more likely to help others (Moore & Isen, 1990; Morris, 1989). Strikingly, within an Amish community with cultural practices of humility and grace, community leaders swiftly forgave the actions of a neighbor who held their daughters hostage, executed five and seriously wounded five others (before killing himself; Kraybill, Nolt, & Weaver-Zercher, 2008). Values are reflected in the moods and mind-sets we bring to a situation. Actions are guided by not only momentary valuing but also our habitual choices about what looks good and feels right, by the schemas we develop to filter events and guide expectations (Taylor & Crocker, 1981). For example, if we were brought up in a religious tradition, we likely learned to express gratitude before a meal. We learned to expect thankfulness in our own behavior and that of others. Then, when thankfulness is not forthcoming in self or others, we sense a violation of morals. In this way, our cultural upbringing influences the moral values and expectations we carry with us.

Like all animals, we operate in a flow of action (Bogdan, 1994; Varela, Thompson, & Rosch, 1991). Most of these guiding forces are implicitly held. Hence the importance of how well cultivated one's habits, characteristic dispositions and intuitions are (Hogarth, 2001). Many human decisions and actions are carried out automatically and without conscious control, based on social–perceptual habits and environmental press (e.g., Bargh & Chartrand, 1999), with many neurobiological layers that influence tacit conceptions but are not available to explicit description (Keil & Wilson, 2000). The subconscious mind, which guides our actions most of the time, has its own associative rationality, responding to familiar situational patterns (Damasio, 1999). This "adaptive unconscious" (Hassin, Uleman, & Bargh, 2005; Wilson, 2004) is rooted in subcortical emotion systems that we inherit as adaptations from our ancestors, which, to be good guides, must be shaped well by early experience with our caregivers (Panksepp & Biven, 2011). In other words, as I discuss further below, individual moral development is initially shaped by the community. Through our experience with caregivers and the caregiving environment as babies and small children, we develop the sensorimotor and neurobiological intelligence that undergird our social and self-habits that we carry forward into the rest of life (Siegel, 1999; Stern, 1985). In early life, these experiences actually mold the very plastic but immature neurobiology humans arrive with at birth, a neurobiology that expects particular supports to develop well. These neurobiological foundations continue to shape preferences and values, undergirding social and moral life. Below, I examine these ideas more fully.

Influences on Moral Values

Let's examine two general sets of influences on the development of moral values. These comprise aspects of *ethogenetic theory,* which uses an evolutionary developmental systems perspective to describe how moral dispositions are rooted in neurobiological structures that are biosocially shaped by early experience and how those structures influence later moral orientations and behavior (Narvaez, 2014, 2016, 2018). See Figure 20.1 for a summary of both sets of influences. One I call *vertical* influences—how a certain person's life is shaped. Most of the time, psychology researchers focus here, on understanding how moral values emerge or change through childhood or what kinds of influences engrave the life of the individual. The second set of influences on moral values concerns the *horizontal* influences (across generations). Horizontal influences are inherited through evolutionary processes occurring over millions of years, including both genetic and nongenetic inheritances (e.g., capacities for self-organization), as well as ancestral history (e.g., one's grandparents' experiences influences on one's genetic expression or phenotype) (Gluckman & Hanson, 2005). Research in anthropology, biological, and evolutionary sciences provide insights here. For example, the field of behavioral epigenetics has demonstrated that some traits considered genetic (e.g., anxiety) are often epigenetic, effected by one's own early experience or the experience of recent ancestors (Dias & Ressler, 2013; Meaney, 2001).

Both types of influences, vertical and horizontal, interact within the life course of an individual to create the nature of the person. We

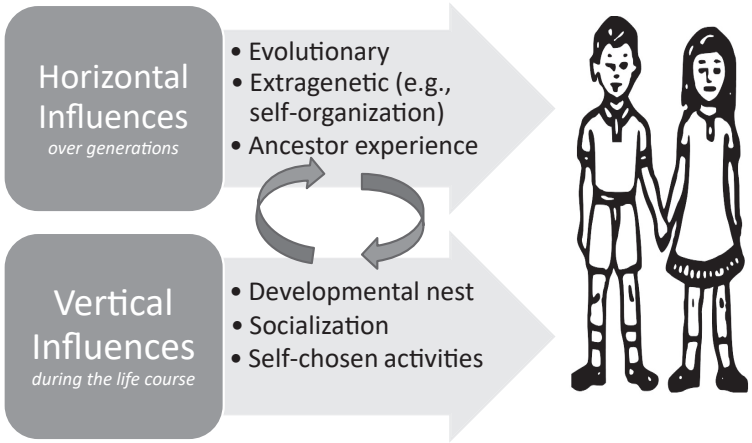

FIGURE 20.1. Ethogenetic theory: Horizontal and vertical influences on an individual's development.

start with the horizontal, the inheritances from ancestors.

Horizontal Influences

In this section, I examine evolutionary inheritances that humanity receives. These include a deeply cooperative natural world, the evolved moral sense and the evolved nest.

Human beings live on a planet of beings that are highly interdependent, where many entities evolved to give and take in an endless, ever-renewing cycle of mutualism (Bronstein, 2015; Worster, 1994). "Genes cooperate in genomes; cells cooperate in tissues; individuals cooperate in societies" (Rubenstein & Kealey, 2010, p. 78). (Yes, as Darwin [1859/1962] noted, there is competition in nature—a common focus of male scholars [Gross & Averill, 2003]—but it plays a relatively minor role in the everyday workings of the biosphere that is largely symbiotic [Margulis, 1998].) One animal sloughs off its skin or other matter and another animal uses it for homebuilding or nourishment. The extensive cooperation within biological systems is of ongoing research interest. For example, in forests, old trees nourish the young—even of other species (Wohlleben, 2016); in soil, a dynamic heterogenous environment, there is greater biodiversity than among the life forms that live above the soil (Ohlson, 2014). Cooperation is so fundamental that in the natural world, very little changes across generations—most of what exists in one generation is conserved into the next (Margulis, 1998). Indeed, humans are part of the tree of life, sharing characteristics with species that emerged billions of years ago. For example, as Neil Shubin points out in *Your Inner Fish: A Journey into the 3.5-Billion-Year History of the Human Body* (2009), the spinal column that humans share with other vertebrates evolved more than 500 million years ago (humans have been around for about 2 million years). Human bodies are themselves communities of cooperation, whose genetic material consists primarily (90–99%) of the genes of the trillions of microorganisms that form the microbiota that keep a human body alive (Collen, 2015; Dunn, 2011). In other words, we emerged *from* cooperative systems and we *are* cooperative systems. "Within our cells, the mitochondria that provide energy are descended from free-living bacteria that gave up their autonomy for a cooperative existence" (Denison & Muller, 2016, p. 41).

Humans are assumed to have emerged from evolutionary processes taking place over billions of years, inheriting many things beyond genes (Jablonka & Lamb, 2005). Based on ethological and evolutionary sciences that gather and compare observations, *evolutionary systems theory* offers a comprehensive list of human inheritances that include culture, the ecological landscape, and self-organization (Griffiths & Gray, 2001; Oyama, 2000a, 2000b). Within a lifespan, the individual will self-organize around the opportunities and supports provided. A key inheritance directly related to moral values is the "moral sense."

The Evolved Moral Sense

Darwin (1871/1981) came to the idea of the moral sense because he sought to counter theorists who argued that humans evolved to be selfish. Instead, he identified components of a "moral sense" through the tree of life in order to show that morality was *not contrary but fundamental to* human nature. The set of characteristics—empathy, social pleasure, concern for the opinion of others, memory for plans and outcomes in relation to pleasing the community, and intentional self-control to fit in socially—can be seen here and there in other animals. Recent experiments support Darwin's observation of animals. For example, rats will help a trapped peer instead of eating their favorite snack, chocolate (Ben-Ami Bartal, Decety, & Mason, 2011). But Darwin contended that the moral sense culminates in human beings. If we understand that it is normal, based on ethological evidence, for humans to display the moral sense described, then we should ask why some people act with an "immoral sense." How does a group of humans *lose* the moral sense?

Unfortunately, the opposite assumptions and questions have been asked by scholars. As Ho (2010, p. 67) points out, contrary to Darwin's views, neo-Darwinian theory emphasizes the competitive selfishness of humanity (which was presumably constructed by sociopolitical attitudes: "Victorian English society preoccupied with competition and the free market, with capitalist and imperialist exploitation"). Others have pointed out the androcentric nature of neo-Darwinian theory as well (Longino, 1990). The neo-Darwinian view, grounded in unverified assumptions, resulted in the presumably paradoxical question "How could altruistic behavior evolve (given that genes and the behavior they control are fundamentally selfish)?" Instead, based on evidence across nature, including humanity, the question should be inverted: "Why do humans compete, given their natural sociality?" And, one could extend the question: "Why do humans behave in selfish, aggressive ways when the moral sense is part of their heritage?" Moreover, when we look more closely, we see that across societies, the moral sense seems to vary in scope: Some societies show moral concern only for a subset of humans or, in many First Nations societies, include more-than-human entities (e.g., animals, plants, rivers). If the moral sense evolved, why such variability? An answer is emerging. It now appears that the moral sense is largely developed *after* birth and requires particular kinds of experience, specifically humanity's evolved nest. I discuss this in the next sections.

We can think of moral development like Leo Tolstoy's discussion of happy and unhappy families in his novel *Anna Karenina*. He noted, to paraphrase, that happy families are all alike but unhappy families are all unique. Similarly, moral flourishing looks similar across individuals as a form of dynamic, high-minded, self-controlled, flexible, selfless sociality with resilience (e.g., making amends) when setbacks occur. Harry Potter is a fictional exemplar of these capacities. Nelson Mandela exemplified a real person who characterized this type of moral resilience. For example, he was able to move past his anger and reconcile with his enemies even while spending 27 years as a political prisoner in his country of South Africa. In contrast, as with unhappy families, there are multiple ways for individual moral development to "go wrong" (which perhaps makes them more interesting as characters). There are individuals who do not display the evolved moral sense. They are habitually low-minded, caught in fleshly pursuits (Al Bundy in *Married with Children*), impulsively lacking self-control (Homer Simpson from *The Simpsons*), rigidly hierarchical in social relations (Archie Bunker from *All in the Family*), or unable to forgive (George Costanza from *Seinfeld*). In the discussion ahead, I focus on Sheldon Cooper (*The Big Bang Theory*), intellectually gifted but almost asocial, and Francis Underwood (*House of Cards*), ruthless in treatment of others for his own desire for power. You might have noticed that all the characters are male. It turns out that boys are particularly affected by early life care, when neurobiological systems are shaped because they mature more slowly physically, socially, and linguistically, and because they are affected more negatively by early life stress than are girls. As a result, boys are more vulnerable to neuropsychiatric disorders that appear developmentally such as autism, early-onset schizophrenia, attention-deficit/hyperactivity disorder (ADHD), and conduct disorders (Schore, 2017). This may be the reason that boys make for more variable and interesting characters in fiction.

Sheldon Cooper (*The Big Bang Theory*) seems to lack Darwin's moral sense. In terms of behavioral economic theory, his basic social

orientation was set to be more egoistic than empathic (Cory, 2016). He is not known for desiring or displaying its components—empathy, social pleasure, concern for the opinion of others or for pleasing the community. Sheldon displays few social skills and instead shows extensive difficulties with human relationships (and animal relationships for that matter). He is unable to intuitively pick up the emotional signaling of others. Instead, he requires instructed memorization of social scripts. He has been told rules for life by his mother and others, and has committed many to memory, but they do not match up with his own anti- or nonsocial intuitions and reactions. Sheldon shows an obsessive–compulsiveness in needing to follow rigid scripts (e.g., where to sit, how to knock on a door) and becomes discombobulated when interrupted. His sense of superiority, along with his lack of common sense make him an entertaining character, though his self-centeredness make him an irritating companion. What might have gone wrong with Sheldon's upbringing? The roots for moral disarray often begin in early childhood, when toxic stress or poor care have greatest impact. Early experience initially shapes moral values by engraving one's neurobiology, influencing one's deep moral values, setting one on a better or worse trajectory in terms of social–moral development. Enduring states in early life, such as unmitigated distress, become traits—e.g., stress reactivity (Lupien McEwen, Gunnar, & Heim, 2009), and the stress response necessarily puts attention on oneself.

Let's start by looking at species-typical development. Every animal has a nest that optimizes development of its young. Humans do too. In fact, one of the most important inheritances for the development of moral values (and Darwin's moral sense) may be the evolved nest.

The Evolved Nest

As ethological observation has noted, all animals provide a nest that matches up with the maturational schedule of their young in order to optimize normal development (Gottlieb, 2002; West-Eberhard, 2003). Humans are no different. Humans evolved a particular nest to provide the intensive care that human offspring need (Konner, 2005). Humans are born highly immature compared to other hominids (and should be in the womb at least another 18 months!) (Trevathan, 2011). As a result, most brain development occurs *after* birth. Thus, humans evolved to expect a particular type of early care (Greenough & Black, 1992). Child well-being requires an intense level of support on the part of the mother and community (Bronfenbrenner, 1979), a situation that was available throughout most of humanity's existence (Hrdy, 2009).

How do we know what humanity's evolved nest looks like? Substantive evidence comes from extant studies of nomadic foraging communities around the world, the type of society in which the human genus spent 99% of its history (Fry, 2006; Hrdy, 2009; Konner, 2005). Nomadic foragers raise their children in a similar way wherever they have been observed around the world (Hewlett & Lamb, 2005). Anthropologists summarize the communal caregiving that infants and young children experience across these groups:

> 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, 2005, p. 15)

To this list can be added soothing perinatal experiences and positive social support (Narvaez, 2013). How much do these characteristics matter for development? A great deal. It may be best illustrated this way. Think about raising a wolf in a human family: You will end up with a wolf. But if you raise a human in a wolf family, you end up with a wolf-child (as has happened), an individual missing many characteristic human attributes such as walking on their feet instead of all fours, language, and social skills. In other words, humans are greatly affected by their experiences after birth. Though the focus here is on the evolved nest in early life, it should be understood that the evolved developmental system for human beings lasts for several decades, as human beings need several decades to mature and need models and mentors along the way.

The evolved nest can be taken as a cross-cultural *baseline* for optimizing normal human development. We should not be surprised that when a child is missing some aspect of the evolved nest, he or she turns out more self-centered or unwell. I discuss the moral developmental effects of the evolved nest in following sections.

Vertical Influences (during an Individual's Life Course)

Vertical influences are those that occur within an individual's life—what the individual experiences him- or herself or creates (after early childhood shapes a self). In this section, I examine how an individual is influenced by experience, especially by the evolved nest. The components of the nest interact with horizontal influences to shape the individual's moral propensities.

But first, like a tourist guide, let me alert you to a couple of issues. Virtually all psychological and neurobiological studies are performed in civilized nations (settled and dependent on forcibly extracting resources from places outside where they live) where rewards and punishments are used to socialize children. The studies are also typically performed in Western-educated populations (those who know how to participate in the games of schooling and of psychological experiments), typically in rich, industrialized nations with some degree of democracy (Henrich, Heine, & Norenzayan, 2010). It turns out that the fact that most studies are performed in *civilized* nations may be the most important fact for our attention here. Most of human history (99%) occurred before history was recorded. It was spent in "unsettled" societies (i.e., small nomadic bands that forage for food [some of which still exist today]; Lee & Daly, 2005). As noted earlier, these societies provided the evolved nest and are immensely different in their assumptions about life, their practices, and attitudes toward one another—all of which interrelate (for a review, see Narvaez, 2013). In these societies, most early learning occurs informally through immersed experience, observation, and practice. Adults are not coercive and everyone is considered to be his or her own person, yet children need no external motivation to follow the practices of those older than they (e.g., Endicott & Endicott, 2014; Morelli, Ivey Henry, & Foerster, 2014).

Before examining what influences moral development, we must ask: What do children bring to their life course? What is innate? It is hard to sort out what moral characteristics are innate in human beings because of the largely unknown effects of conception and gestation on psychological traits, though we do know that maternal depression and stress during pregnancy have epigenetic effects on the child's temperament, increasing irritability (Davis et al., 2007), as well as on many biological systems, particularly in boys, that influence later psychological functioning (e.g., greater stress reactivity and anhedonia; Mueller & Bale, 2008).

In terms of innate predispositions, socioemotional sensitivity specifically, researchers have observed empathic response to crying peers in neonates, a type of empathy. Hoffman (2000) has mapped the development of empathy from this physiological resonance to graduated awareness of the feelings and states of others through childhood, along with their interest in alleviating others' distress (for a review, see Dunn, 2014). Beyond these early observations of children's empathic responsivity, children's moral value development becomes an interaction between horizontal influences and vertical influences, that is, among evolved needs, biological capacities, prior and ongoing experience. Although studies of babies' moral judgment have indicated that babies have a measurable sense of justice, generally preferring puppets that help others to puppets that hinder others (Bloom, 2013), Jessica Sommerville's (2015) research program demonstrates that although infants generally show a preference for fairness and fair actors, individual differences are related to the degree of the parent's dispositional empathy.

Turning to the evolved nest, we know from animal research that when animals are deprived of an expected experience and sensitive periods are not supported properly, opportunities for expected alterations close (e.g., Harlow, 1958; Meaney, 2001). Complex behaviors (e.g., social skills) are hierarchical and have sequences of sensitive periods for multiple subsystems. "Experience-dependent shaping of high-level circuits cannot occur until the computations being carried out by lower-level circuits have become reliable" (Knudsen, 2004, p. 1414). A particular, sensitive period opens up when there is sufficiently reliable and precise information, when the circuit has adequate connectivity (excitatory and inhibitory) to process information, and mechanisms are activated that allow plasticity. If all these factors are not in place, there will be no effect on the circuit.

Three things are known to occur during a sensitive period. (a) Axons are elaborated, and synapses are formed. (b) Axons and synapses are eliminated based on usage. (c) Synapse consolidation also occurs through cell adhesion mechanisms. A sensitive period ends when "the circuit's landscape becomes resistant to

change," which is a permanent feature of *critical* periods (Knudsen, 2004, p. 1417). With the passing of a sensitive period that is not critical, change may occur later but require much more energy (sustained enriched experience). With deprivation, circuits developed during maturational sensitive periods are formed abnormally; unable mechanistically to acquire typical patterns of connectivity, "they never respond appropriately to social signals offered by members of their own species" (Knudsen, 2004, p. 1420). Behavior analysis is typically unable to detect these neuronal deficiencies because higher functions tend to mask lower level abnormalities in information processing, and because often the brain will use an alternative route to make up for deficiencies as much as possible.

What functions are scheduled to develop in early life that undergird morality later? Psychologist Daniel Stern (2010) wondered why babies are not ready to learn to speak until after the first year. He answered his question by noting that babies

> have too much to learn about the basic processes and structures of interpersonal exchange. *In particular, they have to learn the forms of dynamic flow that carry social behavior.* In addition, they have to learn this before language arrives to mess it all up. The basic structures are all non-verbal, analogic, dynamic Gestalts that are not compatible with the discontinuous, digital, categorical nature of words. (p. 110, emphasis added)

Note that initially what is developed is the *implicit* mind, the mind that guides most of human behavior, undergirding dispositional traits and characteristic values and goals. We can see that the implicit mind is initially shaped in early life, shaping social capacities.

Assessments of attachment represent one indicator of how well neurobiological systems were established (Bowlby, 1969/1982, 1988). Schore's (2003b) *regulation theory* contends that attachment represents the right-brain hemisphere's capacities, which develop more rapidly in the first years of life, for regulating biological synchronicity between organisms. Secure attachment is a signal of well-developed, socially significant neurobiology (e.g., vagus nerve function: good vagal tone allows for intimate relationships; Porges, 2011). Insecure attachment signals that neurobiological development has gone awry in some way. The insecurely attached individual has difficulty regulating the intensity and duration of emotional states (for more detail, see Schore, 2002, 2003b). Dispositions toward social anxiety or avoiding others are reflective of poorly developed vagal tone, stress response, and other self-regulatory systems.

In other words, sociality and morality are rooted in biology—in how well basic biological systems develop, all of which are influenced by the evolved nest (for more detail, see Narvaez, 2014). For example, in early life, the brain's right hemisphere is the formative seat of various systemic forms of self-regulation, such as vagal tone (Porges, 2011; Schore, 2001, 2003a, 2003b). If the evolved nest of support is not provided when expected, these systems can be underdeveloped or malformed, influencing behavior regulation and sociality. Sheldon Cooper of *The Big Bang Theory* shows the type of incapacities that are apparent with right-hemisphere underdevelopment or dysfunction: the inability to quickly pick up nonverbal social cues, awkward social interactions, feeling threatened by intimacy, distress when the unexpected occurs and scripts are not followed (matching the "stiffness of mind" evident in patients with prefrontal lobe damage [Goldberg, 2002], an area that has significant development in the first year of life [Schore, 1994]).

How do the components of the evolved nest influence moral values? As Darwin (1871/1981) noted, adults in "less civilized" societies (than Britain in the 19th century) exhibited the components of the moral sense (societies Darwin encountered on his voyages followed the practices of nomadic foragers). If adult personalities are a measure of cultivated moral values (an integration of bottom-up shaping and top-down cultural values), we can examine the recurring patterns among adults from nomadic foraging societies in which the evolved nest is commonplace. A word of warning: Some modern scholars collapse nomadic foraging data into other types of preindustrial societal data (e.g., complex hunter–gatherers, tribes, chiefdoms), misleading readers about the characteristics of nomadic foragers (e.g., Fry & Söderberg, 2014; Pinker, 2011; see Fry, 2013, for multiple rebuttals). Also, one should remember that most societies are and have been collectivistic rather than individualistic, like the United States and other countries where most psychological research has taken place (Henrich et al., 2010). In collectivistic or communal societies, the emphasis is on maintaining harmonious connection with

others, including with young children. Returning to nomadic foraging data, the findings are remarkable. Similar characteristics are noted among the adults when we examine accounts of first- and early-contact diarists (e.g., Spaniards like Columbus) in response to meeting indigenous peoples of the Americas (Siepel, 2015; Turner, 1994), as well as anthropological studies of nomadic foragers in the last century or so (e.g., Fry & Soulliac, 2017; Gowdy, 1998; Ingold, 2005; see Narvaez, 2013, for a review). Across nomadic foraging societies, adult personalities on average are reported to be generous, social, cooperative, egalitarian, and content, with high sense of both communalism and autonomy. In terms of behavior economics theory, their personalities have been set to a more *empathic* than *egoistic* orientation (Cory, 2016). In a recent study of forager–horticulturalists (a non-nomadic people called the Tsimane, who likely provide components of the evolved nest) using Big-Five personality theory (Gurven, von Rueden, Kaplan, & Massenkoff, 2013), researchers found a "big two"—communally oriented factors of prosociality and industry. It appears then that the species-typical development system, the evolved nest, supports the development of prosociality and the evolved moral sense. I examine this linkage further below.

The evolved nest maintains close connection between the child and the caring community. The components of the evolved nest influence all that the child becomes, from physiology to sociality and morality, largely not only because humans are so immature at birth but also because humans are much more shapeable than any other animal through general plasticity and multiple epigenetic effects (mechanisms for activating genes, such as turning them "on" or "off"; Gómez-Robles, Hopkins, Schapiro, & Sherwood, 2015). Neurobiological capacities shaped in early life infuse personality and moral values. When one has an inflexible, easily distressed psychobiology, one is less likely to be openminded or openhearted toward ideas and people who are different. One will be more closed off emotionally or easily shut down by perceived threats (Schore, 2003b). Sheldon Cooper appears to have this type of psychobiology, which I have noted is more likely among boys stressed prenatally and/or postnatally. In contrast, with a flexible, agile neurobiology, one will be socially oriented and maintain calm, or quickly restore it, in the face of new experiences and people.

The neurobiological effects of each nest component on an individual's health and well-being are discussed in detail elsewhere (e.g., Narvaez, Panksepp, Schore, & Gleason, 2013). Our laboratory has been collecting correlational data on the relation of nest components to child well-being and morality using standardized measures of (3- to 5-year-old) children's moral development (Kochanska, 1994) along with validated measures of parenting attitudes and behaviors (Narvaez, Gleason, Lefever, Wang, & Cheng, 2016; Narvaez, Wang, et al., 2013). Here are a couple of examples of what we found using a longitudinal dataset of mothers and children observed and tested several times from 4 to 36 months (Narvaez, Gleason, et al., 2013). After controlling for age, income, and education, as well as maternal responsivity (which is routinely correlated with all positive child outcomes), greater affectionate touch throughout the early years was correlated with the development of empathy, self-regulation, conscience, and intelligence. Perhaps most surprising to a modern audience, breastfeeding *initiation* correlated with conscience and intelligence, while breastfeeding *length* correlated with the development of conscience and self-control. These results are not surprising if one understands the content of breast milk—thousands of ingredients tailored to the particular child at the time of ingestion (Karra, Shobha, Udipi, Kirksey, & Roepke, 1986), with building blocks for the immune system and other major systems of the body/brain (Goldman, Goldblum, & Hanson, 1990). The results conform with findings regarding breastfeeding generally. For example, in a study of 14,000 infants, general developmental milestones were reached more quickly the longer exclusive breastfeeding occurred, or to put it another way: the more infant formula consumed instead of breastmilk, the greater the developmental delays (Sacker, Quigley, & Kelly, 2006). Neurobiological research is demonstrating the causal underpinnings of breast milk's effects on neurobehavioral organization and maturation, such as greater myelination among breast-fed children (e.g., Hart, Boylan, Carroll, Musick & Lampe, 2003; Khedr, Farghaly, Sel-D, & Osman, 2004; see Gaber Rizk, 2014, for a review). The effects of breast milk on brain size and white matter are pronounced among boys participating in a randomized feeding trial at preterm birth and brain-scanned in adolescence (Isaacs et al., 2010). Again, boys are more influenced by early experience.

It is not a surprise that components of the evolved nest might have such effects because multiple epigenetic effects take place in the early life of mammals, especially humans, who evolved to expect the intensive care their evolved nest provides (Gómez-Robles et al., 2015; Gudsnuk & Champagne, 2012; Kuzawa & Quinn, 2009). In short, early life experience shapes temperament and dispositions based on the plasticity of the brain–body in early life.

Longitudinal observational studies show that children who experience mutually responsive care in early life are more likely to demonstrate the development of a (prosocial) moral self at 5.5 years old, which includes committed compliance to parental values (demonstrated by following those values when the child is alone); this moral self in turn mediates socially engaged, competent, and prosocial behavior at age 6.5 (Kochanska, Koenig, Barry, Kim, & Yoon, 2010). Thus, we can see how dispositional traits are shaped initially implicitly, with neurobiological engravings of trust or distrust (Erikson, 1950), according to the nature of early care, and then elaborated with more deliberate family and cultural practices. These dispositions include implicit schemas of self (e.g., good–bad), relationships (trustworthy or not) and the nature of the world (safe–unsafe) (Narvaez, 2014). The moral self emerges from the habitual activation of moral schemas through reciprocal social experience, habitual family practices, and from attention-drawing discussions that co-construct autobiographical memories.

With language development, children are able to discuss feelings with family members, so that causes of inner states are linked to actions and outcomes, facilitating direct instruction from parents on these matters (Thompson, 2006). Caregiver verbal interactions have various effects. For example, even with toddlers, caregivers help the child review, structure, and consolidate their memories in a script-like fashion by how and what they elaborate in conversations with the child (Fivush, Kuebli, & Clubb, 1992; Nelson & Gruendel, 1981). These conversations help structure the child's own self and moral narratives (Lapsley & Hill, 2009). So, for example, whether the caregiver talks and asks questions about feelings and actions or about clothes and looking good, he or she is guiding the child to develop conceptual structures that form memories about the self.

In adolescence, identity and purpose become more salient (Damon, 2008). Identity and sense of purpose continue to be guided by these implicit notions of, for example, social trust or distrust, personal competence or incompetence (Erikson, 1968). The empirical linkages between childhood traits and characteristic adaptations and adolescent identity and narratives still need to be specified (Lapsley, 2015). We can perform some theoretical linkages here.

Moral Orientations

We can see that explicit measures of moral reasoning cannot capture the type of neurobiological development we've been discussing. *Triune ethics metatheory* (*TEM*; Narvaez, 2008, 2014, 2016) attempts to integrate the neurobiological and psychological literatures to explain the different types of moral orientations we can have. Measures of triune ethics orientations represent a combination of what others perceive one to be like (the implicit self) and what one is aiming for (moral identity) in social situations. An *engagement* ethic or relational attunement, representing the type of moral sense Darwin identified, indicates well-functioning psychosocialneurobiology. Self-protectionist ethics such as *social opposition* and *social withdrawal* represent forms of social behavior noted by clinicians when neurobiological systems have been toxically stressed. A variety of imagination ethics that use abstracting capabilities are based on these basic forms and are mentioned below.

All of us are born with survival systems to keep us alive. They include the emotion systems located in the extrapyramidal action nervous system: fear, anger, panic/grief, and basic lust—all well mapped in mammalian brains and integrated with the stress response (Panksepp, 1998). When toxic stress takes place in early childhood, survival systems are enhanced and become dominant, while prosociality networks are underdeveloped (Niehoff, 1999). Survival systems kick in under stress and promote things such as territoriality, imitation, deception, struggles for power, maintenance of routine, and following precedent (MacLean, 1990). When survival systems take over the mind, they change perception of what seems good in the moment (Sapolsky, 2004), and if they trump other values and guide behavior, we can call them a *self-protectionist ethic* (Narvaez, 2008, 2014, 2016). Protectionist ethics indicate a hierarchical orientation (dominance or submission) to which survival systems are

oriented to promote self-safety. Self-protectionism becomes apparent as a mind-set when individuals hold themselves apart from others, unable to relationally attune as an equal to others (Laing, 1959/1990). When the stress response is active, blood flow shifts toward mobilization for safety and away from higher order thinking (Arnsten, 2009; Sapolsky, 2004). The shift can occur by situation and happen so quickly that it is not apparent to the individual. Individuals can dispositionally favor aggressing or withdrawing, or shift between them opportunistically. Someone can shift quickly into aggression under particular circumstances, as with road rage (Deffenbacher, Deffenbacher, Lynch, & Richards, 2003). George Costanza (*Seinfeld*) offers a good illustration. When at a day care, he suddenly felt in danger from a perceived fire in the building. He starts to run out of the building, impulsively pushing out of his way anyone on his path, including children and an elderly woman. Most aggression in mammals obtains from reactive self-defense, a dynamic intermixture of fear and anger (Blanchard, Blanchard, & Takahashi, 1977; Panksepp, 1998). People who are dispositionally stress reactive will spend more time in a protectionist mind-set and feel slights when there are none, such as when they are accidentally bumped (Dodge & Somberg, 1987). This implicitly driven behavior will be rationalized by the explicit mind (Taber & Lodge, 2006) as occurs with violent criminals (Gilligan, 1997). My collaborators and I have shown that individuals whose childhoods were more inconsistent with the evolved nest, which increases chances for dispositional stress reactivity (Lupien et al., 2009), were more likely to have protectionist ethics and behaviors (Narvaez, Wang, & Cheng, 2016); they also were more distrustful, behaved less prosocially, and had lower integrity scores (Narvaez, Thiel, Kurth, & Renfus, 2016). This conforms with neurobiological findings that stress reactivity decreases emotional intelligence (Singh & Sharma, 2012).

Let's return to our two fictional characters. Francis Underwood (*House of Cards,* novel and Netflix show) is a manipulative politician, a coldhearted, ruthless pragmatist out for power. He was traumatized by an abusive father. Francis Underwood is not as autistic (socially awkward in perception, sensitivity and behavior) as Sheldon Cooper, but he has similar antisocial attitudes. Neither cares much about other people, except instrumentally, using them to help him get what he wants. It appears that when they were babies, they were smart enough to "go into their heads" when their needs were not met, as a defense against early trauma/neglect (Winnicott, 1965). Like those with avoidant attachment, they took a cognitive (i.e., emotionally disconnected) route to getting along in life, suppressing emotion, which at the same time thwarted the development of emotional intelligence during the early sensitive periods of development (Crittenden, 1995). They both show how a person can learn rules from explicit instruction that don't match up with implicit understandings of the world. While such a person may comply with others' moral values when necessary, he has not internalized the values—does not believe/understand/know them. What kinds of moral orientations are Sheldon and Francis exhibiting?

Both Sheldon and Francis demonstrate protectionist ethics. Sheldon displays *social withdrawal* enhanced by intellect into what I call *detached imagination,* which represents emotionally detached intellectualism, a type of moral disengagement (Bandura, 1999). It does not attend to relational connections to others, lacks a sense of responsibility to others, and makes plans without a sense of long-term consequences on the web of life (a common criticism of Western society's emphasis on intellect; e.g., MacMurray, 1935/1999; McGilchrist, 2009). Our studies have found that detached imagination correlates with personal distress and social distrust (Narvaez, Thiel, et al., 2016). Recent real-life examples of this mind-set include the bankers and mortgage brokers who caused the 2008 U.S. financial crash (illustrated in *The Big Short* [2010] by Michael Lewis).

Social opposition is a common outcome for insecurely attached children, displayed in aggression and noncompliance (Sroufe, Egeland, Carlson, & Collins, 2005). Francis Underwood displays social opposition enhanced by intellect, a *vicious imagination,* which represents planful control or harm of others. It can take various forms such as not only revenge but also pathological altruism (Oakley, Madhavan, & Wilson, 2012). In our studies, we found that vicious imagination strongly correlated with insecure attachment and trait aggression (Narvaez, Thiel, et al., 2016).

In summary, we have multiple ethical mind-sets that can shift and change our moral orientation in the circumstance or become dispositional. Propensity for different ethical mind-sets

are founded on how well one's neurobiological structures work, enhanced by personal choices and cultural press.

What happens when early life goes well? In our studies with multiple-age adults, the *engagement ethic* is related to all around good functioning, as represented by secure attachment, mental health, perspective taking, empathy, self-regulation, and prosocial behavior, and, when abstracting capabilities are involved, a *communal imagination* is related strongly to forgiveness, prosocial action, and integrity (Narvaez & Hardy, 2016; Narvaez, Thiel, et al., 2016). I discuss optimal functioning more in the next section.

Adult Lives

Moral functioning involves the interrelation of several components: perception, sensitivity, and interpretation of situations; reasoning, judgment, and reflection; motivation and focus; implementation of action and follow through (Rest, 1983). Morally mature adults have honed their moral capacities and demonstrate the practical wisdom to coordinate them in ways that young people typically lack (Hursthouse, 1999). What do we see in wise elders? Wise people display an engagement ethic, the ability to attune to others in face-to-face encounters with an egalitarian, open manner, showing Darwin's full moral sense, built on a well-functioning visceral–emotional nervous system on the hypothalamic–limbic axis (Panksepp, 1998) as well as a well-functioning right hemisphere (Schore, 1994). Data from adults who report a childhood more consistent with the evolved nest fit path models linking secure attachment, mental health (anxiety and depression), perspective taking, and relational attunement with others in both negative and positive pathways (Narvaez, Wang, et al., 2016). Such capacities are confirmed by studies conducted by the Berlin Wisdom Project, in which, for example, those with higher scores on wisdom-related knowledge demonstrate other-enhancing values and a preference for cooperative social orientations rather than protective ones (submission, withdrawal, dominance) (Kunzmann & Baltes, 2003). In studies of general wisdom, moral reasoning development was necessary but not sufficient for the highest scores on wisdom, whose combination was more typical of older participants (Pasupathi & Staudinger, 2001). Nevertheless, wisdom is not necessarily age related (Smith & Baltes, 1990).

Narratives guide our lives, from cultural to personal to biological narratives. Biological "narratives" have deep neurobiological foundations in the implicit worldview a person carries from patterns of experience in childhood (unless changed from later impactful experience), reflected in a basic (dis)trust toward self and sense of (un)safety in the world (Narvaez, 2011). Just like deep cultural assumptions, these are difficult to uncover through explicit narratives. However, in an individual whose early experiences were *inconsistent* with the evolved nest, neurobiological systems will be less regulated, leading to a disconnect between the individual's natural inclinations and moral values learned explicitly. The focus of explicit life narratives will be on the self or on issues of self-control, such as following rules, because, under conditions of poor self-regulation, explicit attention to rules is needed (Niehoff, 1999). This state is reflective of Aristotle's *incontinence* (in contrast to *virtue,* in which desires and behavior align without temptation). Individuals will be more oriented to punishment, and more threat reactive toward unscripted situations, outsiders, and the unfamiliar, as they did not learn the social agility that comes with evolved nest provision. As noted earlier, they are more likely to show mental rigidity and the splitting (us-against-them or black-and-white thinking) noted by clinicians in patients with early trauma (e.g., Fairbairn, 1952; Lanius, Vermetten, & Pain, 2010).

In contrast, early experience *consistent* with the evolved nest results in good self-regulation and coordination of neurobiological systems for sociality (e.g., vagus nerve; Porges, 2011). In a well-fostered individual, stress reactivity did not develop to routinely draw attention to self concerns, so prosocial moral valuing and behavior come naturally most of the time. Indeed, rescuers of Jews in World War II tended to report warm relationships with their parents (Oliner & Oliner, 1988). A well-developed individual bends his or her life toward prosociality and communality, and these are reflected in the narratives he or she believes and discusses about his or her life. Topics of his or her narratives will be on the needs of others.

The research of Anne Colby and Bill Damon (1992) shows what a communally oriented adult life looks like. In an attempt to study moral commitment, they systematically solicited nominations of moral exemplars, who demonstrated a

sustained commitment to moral ideals that included a respect for humanity, a disposition to act according to those ideals, and a willingness to risk self-interest for them. They also had to be inspirational to others and humble about their importance, while contributing significantly to their community. Colby and Damon summarized the characteristics of the 23 people they interviewed. Exemplars were clear about what they thought was right and what their moral responsibilities were. It wasn't that the exemplars had exceptional moral reasoning or judgment—their moral commitment was much more than intellectual. Moral responsibility was central to their self-identity, which was grounded in a meaning greater than the self. Exemplars were positive and optimistic about their work, demonstrating not only courage but also openness to personal growth throughout life. Most importantly, they exhibited a unity of personal and moral goals, which has been confirmed by other studies showing a blending of personal agency and communalism (Frimer, Walker, Dunlop, Lee, & Riches, 2011); that is, moral goals were not viewed as a sacrifice or even a choice but became the means to attaining personal goals. As for everyone, moral actions were everyday occurrences, but for the exemplars, the *range* of concerns and *depth* of engagement were exceptional; that is, their moral concerns had greater scope, intensity, and breadth than those of nonexemplars.

Colby and Damon (1992) also documented moral transformation. They discussed a case in which peers influenced a change in moral values. Southerner Virginia Durr described how she changed after she went to college when, for the first time, she encountered "colored" people treated as equals. Over time, she made friends and learned to care for them as equals, eventually becoming a civil rights activist. This aligns with a more recent case in the news, the conversion of Derek Black (Saslow, 2016). Derek was raised as a white supremacist and, as a child, started the white supremacist website for kids called Stormfront. But then he went to college (against his family's wishes), made diverse friends who, after they found out who he really was paused their relationships. But then they came back to him and initiated friendly dialogue about his beliefs, which over months brought him to renounce white supremacism. Thus, characteristic values and goals, as well as life narratives, may be altered by an individual's choices and relationships, even though these might have been initially molded by familial and cultural press. Moral values can change top-down from therapeutic efforts or transformative experiences.

Conclusion

Each person is an embodied story—integrating the tale of not only human evolution but also their own lived experience. Moral learning, like all learning, is biosocial and embodied in our neurobiological systems. We are first constructed by the community of care (or undercare), including our biological and genetic functions, *within immersed relationships* (Ingold, 2013). Thus, precursors to adult moral capacities are shaped by community caregiving practices. Morality, including components of moral sensitivity, judgment, motivation, and action, is initially bottom-up learning from relational immersion in early life (Kochanska, 2002). Implicit social-procedural knowledge that underlies conscious thought and action is shaped by environments with caregiver relations in which cognitive and emotional capacities develop together (Greenspan & Shanker, 2004; Stern, 1985).

The evolved nest emerges from our cooperative history as a species and undergirds a relational epistemology or worldview. Babies and children rely on a caring community to provide for their needs, which thereby fosters the evolved moral sense: Experience becomes internalized culture (Hall, 1976)—all the way down to neurobiological structures. In other words, moral development is highly communal in construction and in execution. When the evolved nest is provided, matching the maturational schedule of the child, it influences the trajectory and type of moral development, affecting dispositional traits, characteristic values and goals, and integrative life narratives. The evolved moral sense is supported. However, when early life does not include the evolved nest, leading to self-protectionist ethics, there is still hope. Life experiences can intervene and have the power to transform moral values and behavior.

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