

Human Nature in Theistic and Evolutionary Perspectives

with Michael L. Spezio, “Social Neuroscience and Theistic Evolution: Intersubjectivity, Love, and the Social Sphere”; David Fergusson, “Humans Created According to the Imago Dei: An Alternative Proposal”; Thomas F. Tracy, “Divine Purpose and Evolutionary Processes”; Thomas Jay Oord, “The Divine Spirit as Causal and Personal”; and John W. Cooper, “Created for Everlasting Life: Can Theistic Evolution Provide an Adequate Christian Account of Human Nature?”

SOCIAL NEUROSCIENCE AND THEISTIC EVOLUTION: INTERSUBJECTIVITY, LOVE, AND THE SOCIAL SPHERE

by Michael L. Spezio

Abstract. After providing a brief overview of social neuroscience in the context of strong embodiment and the cognitive sciences, this paper addresses how perspectives from the field may inform how theological anthropology approaches the origins of human persons-in-community. An overview of the Social Brain Hypothesis and of simulation theory reveals a simultaneous potential for receptive/projective processes to facilitate social engagement and the need for intentional spontaneity in the form of a spiritual formation that moves beyond simulation to empathy and love. Finally, elements of a virtue science that draws on Dietrich Bonhoeffer’s relational *imago Dei* are shown to be helpful in framing and motivating theological approaches to human origins.

Keywords: Dietrich Bonhoeffer; *imago Dei*; simulation theory; social brain; theological anthropology; virtue

SOCIAL NEUROSCIENCE AND THE COGNITIVE SCIENCES

Social neuroscience is an interdisciplinary field that seeks to apply the theory and methods of cognitive neuroscience to the problems of human intersubjectivity and relationality, especially in the fields of social psychology and related social sciences. The core focus of cognitive neuroscience—one of the central fields in the cognitive sciences—is to relate the activities of

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mind, which are never directly observable from a third-person perspective, to those measures from the brain and from psychophysiology that are directly observable, measurable, and sometimes quantifiable, from the crucial third-person perspective. Social neuroscience would then appear central to future interdisciplinary scholarship addressing theological anthropology, including theistic evolution, and the *imago Dei*, for two primary reasons. First, any perspectives from within religious communities, religious studies, and philosophy that would turn toward public or private theoretical frames about social relation, empathy, compassion, and love must have a conception of human nature and/or human agency, which necessarily includes the mind and its evolution. Second, social neuroscience is arguably the science whose focus most directly seeks to relate the psychological functions of intersubjectivity and relationality (e.g., in thought, emotion, intention, volition, valuation, agency) to the physically measurable signals from the human body (e.g., measures from the brain, heart, skin, eyes, breath, bodily posture, bodily movements). Without implying any reduction of psychology to biology or to computer science, social neuroscience is *the* science concerned with testing hypotheses about the invisible processes of mind regarding human relation by using the visible measures of the body, whether that body is organic and alive or manufactured and computerized.

The way to avoid neuroscientific reductionism within this application of social neuroscience is to keep in mind that neural measures and their locations take their significance first of all from the first-person experience of the persons who participate in the experimental work. There is additional meaning created within the personal and scientific narratives via the second-person intersubjectivity, such as in the patient-doctor relationship, and then finally by the third-person engagement as the brain signals yield interpretations in light of accepted theory. This valuational convergence of first-, second-, and third-person perspectives illustrates a useful principle in engaging social neuroscience for theological anthropology: the scientific data should always be held together with narrative experience so as to maintain a focus on the richness of human personhood and to avoid the pitfalls of mechanistic reduction.

INTERSUBJECTIVITY, EMPATHY, AND THE SOCIAL BRAIN

Social neuroscience provides abundant evidence supporting the notion that many species, including humans, use *simulation* to process and evaluate and (for humans and perhaps some other species) create intersubjective meaning from the behavioral expressions of others, including speech-acts. Simulation processes of emotional, intentional, and goal-directed processes, both for adaptive response and for social learning, form a major putative focus of the Social Brain Hypothesis, an influential account of brain

evolution. The Social Brain Hypothesis posits that humans, and nonhuman primates in general, have the size and kind of brains they have due to the need to function socially within community. That is, social cognition and relationship were points for evolutionary mechanism—natural selection, sexual selection, even social selection—to shape the brains and minds of the organisms in relation. On this account, evolutionary pressures have resulted in larger brains and in information processing networks that allow relatively rapid transformation of signals from the face, voice, posture, and movements into signals that convey goals, intentions, and emotions, or social understanding. Until recently, selective pressures were understood almost exclusively in terms of social competitiveness, under the dominance of “Machiavellian” intelligence; however, recent research has demonstrated that the formation of close social bonds among two to five primates of the same species was at least as important, if not more so, for the selection of networks for social understanding (Dunbar 2003, 2010).

The Social Brain Hypothesis entails the transformation for social communication of certain neural systems dedicated to simple sensory, motor, or sensorimotor processes in species without prominent social organization. One example of this comes from work that I and several colleagues have recently completed (Gazzola et al. 2012), showing for the first time that primary somatosensory cortex—thought to be dedicated solely to processing tactile differences—is highly sensitive to emotional context even when tactile qualities are held constant. Thus, such a highly evolutionarily conserved region as primary somatosensory cortex takes on a new, socioemotional, role in humans (and perhaps in some nonhuman primates): it discriminates emotional context even in the absence of any changes in low-level tactile qualities of touch. Such socially expanded innovations in brain systems are expected under the Social Brain Hypothesis, and our findings give added force to the notion of the “skin as a social organ” (Morrison et al. 2010).

Additional evidence for a critical neural apparatus underlying empathy, compassion, and perhaps even love comes from a series of studies conducted by Steven Anderson and colleagues, investigating the long-term implications of damage early in development (within the first 10 years of life or so) to ventromedial prefrontal cortex, orbitofrontal cortex, and frontal pole. Early reports from this group showed that adults who had sustained such lesions when infants (less than 24 months of age) developed amoral behaviors that were accompanied by a complete lack of any evidence of guilt or remorse (Anderson et al. 1999, 2000, 2009; Barrash et al. 2000). They also showed a failure to achieve moral reasoning beyond concern for egoistic consequences, as determined by the Kohlberg Moral Judgment Task. Anderson and colleagues recently expanded on this work by examining the consistency of social impairments in a larger group of these patients, again comparing them to patients with childhood onset damage outside of

the prefrontal cortex (Anderson et al. 2009). The findings again support the critical role that ventromedial prefrontal cortex, orbitofrontal cortex, and frontal pole play in social judgment and decision-making. Critically, and quite poignantly, the authors convincingly make the case that “emotional dysfunction (both diminished experience of emotion and emotional over-reactivity) is a strong predictor of real-world social dysfunction in patients with [prefrontal cortex] damage,” and then point out that “it remains the case that the impairments stemming from childhood [prefrontal cortex] damage often persist well into adulthood despite intervention, at considerable personal and societal cost” (Anderson et al. 2009, 178). It is important to note that damage to emotionally relevant neural regions so early in development creates social judgment and reasoning dysfunctions that last a lifetime, especially since the brain is known to be quite plastic and flexible in response to damage to other areas, including areas for language, at this early stage.

The ways in which the understanding of other members of one’s own species is supported by the social brain involve what have become known as *simulation processes*. Simulation theories constructed from data demonstrating these processes have made it clear that emotionally relevant conceptual processing is essential for adaptive and efficient social engagement (Adolphs 2006; Spezio 2006; Adolphs and Spezio 2006). Simulation theoretic frameworks in affective and social neuroscience identify putatively similar processing involved in both the *experience* of an intention or emotion in oneself and the *perception* of an intention or emotion in another. The networks carrying out this double duty of self- and other-representation are termed “shared circuits,” or sometimes, “mirror neurons.” Note, however, that the theory does not assert that the sharing occurs between minds and brains, but within one brain, that of the observer trying to understand the mind of the other person. The shared components are some parts of the neural systems that the observer uses to process her own emotions, intentions, beliefs, etc. Those parts do double duty as, quite subliminally, they are recruited during attempts to understand the emotions, intentions, beliefs, etc., of the other person. This happens via simulation, which is far from perfect and can no longer be thought of as “mirroring” in the sense of generating wholly accurate constructions of the mind of the other (Goldman 1995; Goldman and Vignemont 2009). The latter is better understood as empathy, to which simulation may contribute, though the accuracy of the outcomes of simulation processes are highly dependent upon the initial similarity between the persons interacting. For example, the amount of simulation-dependent brain activation when observing another person’s grasp of a food item depends strongly on one’s own level of hunger, even when one is fully informed that the other person is sated and does not really want the food (Cheng et al. 2007). In another study, when participants viewed someone in a different circumstance than themselves,

they required consciously controlled changes in perspective in order to make simulation activation in the brain more accurately constructive of the other person's experience (Lamm et al. 2010).

These networks are then supportive of empathy, which is the ability to spontaneously and even subconsciously reconstruct in oneself what another really is feeling, thinking, and intending (Singer and Lamm 2009). Empathy can, but need not, arise from simulation processes. One might as easily become emotionally distressed from intuitively sensing what one processes as another's pain or suffering, without that person really experiencing any suffering at all. Consider the example of a conversation between two people about an impending surgery to remove an ingrown toenail. The person going in for the surgery begins to detail the prospective movements of the scalpel in the tender flesh of the big toe, describing what she anticipates it will feel like, but doing so fairly dispassionately, simply as a way to seek support for the upcoming ordeal. Meanwhile, the person who is listening to the account begs her friend to stop, that she cannot take anymore of the graphic description of cutting into the toe. This is a classic case of simulation leading to personal distress rather than to empathy, since accurate construction of the other's mind was lacking.

Finally, neither simulation nor empathy entails empathic concern for the other, sympathy, compassion, or love. Simulation, as we have seen, is primarily projection of one's own states onto the other in the process of constructing the other's mental contents. Empathy is the accurate construction of those contents. But one could simulate and only result in distressing oneself. Indeed, Tania Singer has gone so far as to say that compassion requires that simulation in this sense be overcome rather than enhanced. One could be highly empathic without being highly empathically concerned and without feeling any compassion or love. Such might be the case for people who are very good at understanding others for their own gain, manipulating them for their own gain (Singer and Lamm 2009). Thus, simulation networks, while important for social cognition, do not indicate anything like the notion of an "empathic brain," unless the two persons involved are already highly similar to one another in background and circumstance. And empathy is no guarantee of further development for sympathy, compassion, and love for one another. Unfortunately, some portrayals of the social brain, including those from Vittorio Gallese and colleagues (2004) and from Frans de Waal and colleagues (de Waal 2006; Preston & de Waal 2002), rely on outdated interpretations of simulation theoretic accounts of the social brain. They imply that proto-empathy, empathy, and perhaps even compassionate responses are evolutionarily already in place, and they accuse social systems of interfering with these "natural processes" so as to prevent the development of empathy and compassion in human society. Certainly, social systems can and do interfere with the

cultivation of compassion and love, something that theologians and ethicists have long sought to understand. However, current models and evidence of simulation processes undermine any notion that simulation leads naturally to a social bonding via empathic understanding. Rather, as already discussed, simulation is a projection of one's own values, intentions, goals, onto the observable behavior (including speech-acts) of others. It works very well when there is high social similarity, but even here, egocentric valuational states interfere with accurate representation of and with compassionate response to the needs of the other.

HABIT, CHARACTER, AND SPIRITUAL FORMATION OF THE PERSON

As we have seen, humans can and do engage in spontaneous simulation of another. It is also true that sometimes such simulation leads to empathy or leads one to further efforts to better understanding of another person, and that sometimes such empathic outcomes can be developed into a vision of the other as existing being as fully human as anyone, including oneself.

Such expressions of love, however, depend on a lifetime of cultivating the habits of thought, including habits of feeling, leading from simulation to empathy to love that presumes the dignity of the other and entails compassionate response to the real suffering of the other. Such a love makes real the nondual relationality suggested by Thomas Aquinas' exposition of *agape* (Latin *caritas*). Linda Zagzebski's (2004, 44–46) account of love and its relation to virtue has at its core both fully developed practical reason in recognizing and enacting justice (i.e., *phronesis*) and fully developed affiliation (i.e., love) (220). Note especially that the particular form of love that Zagzebski defends is fully compatible with the recognition of the dignity possessed by another person. For her, love is not love if it is constituted only by “desiring the welfare” of another person. Emotion of this kind is not love, since it is directed to some set of traits or outcomes for the other person (i.e., it is better understood as compassion). Rather, love of another is love of that person as the person whom they are, in their humanity and personhood, while desiring the person's welfare is “an effect of love” for that person (221). The kind of love that is to be imitated by those who want to develop according to the examples of love—the exemplars—is a love that has as its object only “the incommunicable personhood of the other,” and that is “not identical to the state of desiring that something happen” (221–22).

Zagzebski's exemplarism converges with social neuroscience in affirming the foundational role of emotion in orienting human judgment to the destiny of human fulfillment. Hers is a virtuous exemplarism that consists of emotions fitting their intentional objects such that when actions follow, they are phronetic actions motivated by the fitting emotion. No exemplar could be a virtuous exemplar of a given emotion in relation to

another person unless, when that exemplar was moved to act, she acts “in a way characteristic of that emotion” (Zagzebski 2004, 73). Without such an understanding of Zagzebski’s account, it is impossible to understand her conception of exemplary love. Such love, as we have seen, fits the other because of the other’s incommunicable personhood. Yet, if this personhood—and thus the person—is under threat, love entails action that respects “the rights and dignity of persons” (102). Thus, Zagzebski rejects the notion that ordinary concepts of compassion are equivalent to love, since compassion is an emotion that is only fitting when suffering needs to be shared for the purpose of its alleviation. One can have too much compassion, say, if what one means by this is a feeling of suffering for someone who is in pain and distress, but who does not desire to be rid of that pain and distress (e.g., an athlete, a caregiver, a firefighter). Aquinas defined compassion (Latin *miser cordia*; the same word is used in the Vulgate to translate the Hebrew *chesed*, or lovingkindness) in such a way that it must fit its intentional object: “heartfelt identification with another’s distress, driving us to do what we can to help,” where “distress is anything [one] suffers against [one’s] will” (Aquinas 1989, 360). Zagzebski, like Aquinas, understands true compassion as “something we feel as affecting us through love” for the other, and not as defining our love for the other. Zagzebski makes clear, as we have seen, that love first presupposes “respect for the personhood of another,” such that it does not subordinate the autonomy of the other person to the sufferings of that person (Zagzebski 2004, 319–20). Further, the kind of love that Aquinas has in mind (i.e., Greek *agape*) is one in which the other is a friend in that love, wherein “a friend is another self,” and so the two “should have all things in common” (Aquinas 1964, 477).

Virtue science can provide some help with identifying those habits of thought that may most successfully realize the love that characterizes virtuous exemplarity, and help with how best to educate those seeking to internalize this exemplarity. One intriguing possibility is that virtue science, as an interdisciplinary and multilevel endeavor (see, e.g., Flescher and Worthen 2007) can help in how we frame possibilities for virtuous exemplarity amid human finitude and dependence.

In seeking such framing within theological and scientific interaction, one helpful place to begin is the highly relational theological anthropology of Dietrich Bonhoeffer. A brief exploration of his relational anthropology and its connection to a view of ethics as formation of one’s character will draw our reflection to a close.

BONHOEFFER’S RELATIONAL THEOLOGICAL ANTHROPOLOGY

Bonhoeffer’s openness to science and scientific worldviews deserves a brief mention, if only because in this he is wholly dissimilar to the Barthian

neo-orthodoxy with which he is sometimes identified. Bonhoeffer explicitly rejected any attempt to argue against scientific findings on the grounds that by so doing one might better defend God's place in the world. Instead, he wanted Christians to "find God in what we know, not in what we don't know; God wants to be grasped by us not in unsolved questions but in those that have been solved. This is true of the relation between God and scientific knowledge . . ." (Bonhoeffer 2009, 406; a letter of May 29, 1944). He voiced these reflections while reading from the physicist Carl Friedrich von Weizsäcker's *The Worldview of Physics*, and he clearly saw, in the work and ethical dedication of his older brother, physicist and agnostic Karl Friedrich, a compelling way of being both a scientist and a courageous resister of oppression in the world.

For Bonhoeffer, there was a clear connection between love for the other and affirming the dignity of the personhood of the other. This demanding view of love required a type of formation that constituted for him the heart of ethics. In this, at least, Bonhoeffer's ethics are a virtue ethics. Bonhoeffer's view of ethics as formation is based in the central place that he accorded relationality within his theology and theological anthropology. For him, moral and ethical choice emerged not from aspects external to relationship, but always involved and required a commitment of being-in-relationship, or love. Though more than ten years separate the publication of his early work on the church, *Sanctorum Communio* (1998 [1930]), and his initial work on his final *Ethics* (2005 [1949]), Bonhoeffer kept in mind all along an account of human nature that focused on identity formed and the dignity affirmed in loving relation. Ethics and questions of value, for Bonhoeffer, can only be understood in terms of identity-in-relationality, ultimately with the divine, but not separated from the community to which and for which one is responsible. For Bonhoeffer, personhood emerges only through encounters with the other, only when the "moment" involves certainty of knowledge about this or that characteristic of the other, and only when the moment forms a direct acknowledgment of the other, in which one is called to "believe in" the other. This is similar to Linda Zagzebski's (2004, 374) claim that "[t]hose who have a deep and sympathetic understanding of another person do not see him or her as an impersonal 'he' or 'she,' but as 'you.' The deeper the understanding, the more they are able to appreciate the other's first-person perspective."

Bonhoeffer rejects the notion that humans are persons only if they have the potential or actual capacity to participate in reason, and thus in universals. He also rejects utilitarian foundations, in which the other is a means to an end and in which happiness or pleasure must be understood as divisible into each individual. This approach, he claims, critically disallows any consideration of a relational good, such that "there are no essential or meaningful relations between human beings that are grounded in the human spirit; connections to others are not intrinsic but only utilitarian" (1998

[1930], 53). He cites Hobbes' *Leviathan* here, via Kant's *Religion within the Limits of Reason Alone*, to suggest that under this system, all relational forms are purely contractual and satisfy self-interest, enlightened though such self-interest may be. Finally, he rejects what he sees as Descartes' error in focusing overly much on epistemology, such that the standards of theoretical reason are substituted for a proper understanding of practical reason. Bonhoeffer traces this error through Kant and Fichte, identifying it as relying upon instrumental, procedural conceptions of reason, which may work well in the purely theoretical domain, for more metaphysically grounded conceptions of practical reason. Bonhoeffer's concern is to reject the utilitarian tendency of theoretical reasons in favor of a relational, practical reason, which enables recognition of the good, and encourages a disposition for virtue. In these theological moves, Bonhoeffer opposes any approach that makes the existence of, the responsibility for, and the encounter with the other purely incidental to morality, an effect or situation to be managed rather than a constitutive element within the moral attitude. Relying so heavily on theoretical reason in the moral domain reduces the other to an object and, at most, a very important aspect in some formal moral calculus, but certainly something much less than a person in Bonhoeffer's conception. He writes in *Sanctorum Communio* (1998 [1930], 45): "It is impossible to reach the real existence of other subjects by way of the purely transcendental category of the universal. . . . As long as my intellect is dominant, exclusively claiming universal validity, as long as all contradictions that can arise when one knows a subject as an object of knowledge are conceived as immanent to my intellect, I am not in the social sphere."

Hence theistic evolution must be primarily an interdisciplinary, multi-level investigation of the "social sphere" as laid out in Bonhoeffer's theological ethics. Such a focus is vital to the challenges posed by attempts to develop an interdisciplinary theistic understanding of human origins. Without a strong vision of human destiny in relationality through love, theistic formulations of human origins will founder, both theoretically and practically. It is time to bring social neuroscience, virtue science, and theistic evolutionary theories together for deeper engagement such that all might be transformed. Such an outcome, possible only through authentic relation, is fitting to the motivations of our endeavors.

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