

5-2018

## Interpersonal and Ideological Kindness: A Biocultural Approach

Sally Averitt-Hubbard  
*University of Arkansas, Fayetteville*

Follow this and additional works at: <https://scholarworks.uark.edu/etd>



Part of the [Biological and Physical Anthropology Commons](#), and the [Social and Cultural Anthropology Commons](#)

---

### Citation

Averitt-Hubbard, S. (2018). Interpersonal and Ideological Kindness: A Biocultural Approach. *Graduate Theses and Dissertations* Retrieved from <https://scholarworks.uark.edu/etd/2789>

This Thesis is brought to you for free and open access by ScholarWorks@UARK. It has been accepted for inclusion in Graduate Theses and Dissertations by an authorized administrator of ScholarWorks@UARK. For more information, please contact [scholar@uark.edu](mailto:scholar@uark.edu).

Interpersonal and Ideological Kindness: A Biocultural Approach

A thesis submitted in partial fulfillment  
of the requirements for the degree of  
Master of Arts in Anthropology

by

Sally Averitt-Hubbard  
University of Arkansas  
Bachelor of Arts in Anthropology, and History, 2016

May 2018  
University of Arkansas

This thesis is approved for recommendation to the Graduate Council.

---

Ram Natarajan, Ph.D.  
Committee Chair

---

Lucas Delezene, Ph.D.  
Committee Member

---

Peter S. Ungar, Ph.D.  
Committee Member

## Abstract

In accordance with Richard Dawkins' materialist "selfish gene" theory of human behavior, altruism is a subject matter that is treated conservatively by biologists, whose understanding of the human version of altruism tends toward mutualistic and sometimes reputation-based explanations of charity, kindness, and helping. Trivers (1971) first stated that non-kin altruism could evolve if altruistic behavior is balanced between partners over time, implicating a strictly mutualistic domain for kindness. But kindness herein is defined, beyond mere mutualism or reciprocity, as "the quality of being friendly, generous, and considerate." Further, kindness tends to have an action-oriented dimension, as in Goetz et al.'s (2010) definition of compassion, denoting helpfulness, the reduction of another's suffering, or self-sacrifice.

In this paper, I will employ a biocultural approach in exploring the psychological and neuroscientific data on the evolutionary aspect of social behavior as it pertains to kindness. First, I will draw on evolutionary theories of cooperation in suggesting that an individual and ideological ethos of kindness could have evolved as an adaptive orientation that, in a Durkheimian sense, preempted ostracism and cemented alliances as a beneficial balance to the fitness risks inherent in altruism. Then, consulting data on the neurochemical profiles of dopamine and oxytocin, I will describe the sort of human psychological variation that would reveal a complimentary continuum of evolved social proclivities, from selfish to giving. In proposing that non-reciprocal kindness indeed exists, however, I argue that its presence in human societies is statistically rare, as assumptions about human biology suggest. This study thus concludes with a cautious message about the human condition: while the rareness of kindness should have a profoundly fundamental explanatory value in social analysis, scientific

confirmation of its fragility would recommend further scholarship designed to highlight its exceptional biological position vis-à-vis the selfish gene.

## Dedication

To Alena, Grace, and Magnolia: for all the wonderful berry moments.

## Table of Contents

Introduction.....	1
An Introductory Note Regarding a Biocultural Framework... ..	5
Mirror Neurons and Preconscious Affectivity .....	11
Neurotransmitters, Canines, and Cooperation... ..	15
The Biology of Social Sensitivity .....	24
Ethnocentrism and Conformity as Realities of Altruism .....	32
Beyond Altruism and Homo Economicus: Kindness as Fitness .....	40
Conclusion... ..	53
References.....	58

## INTRODUCTION

A Zen parable goes: “A man traveling across a field encountered a tiger. He fled, the tiger after him. Coming to a precipice, he caught hold of the root of a wild vine and swung himself down over the edge. The tiger sniffed at him from above. Trembling, the man looked down to where, far below, another tiger was waiting to eat him. Only the vine sustained him. Two mice, one white and one black, little by little started to gnaw away the vine. The man saw a luscious strawberry near him. Grasping the vine with one hand, he plucked the strawberry with the other. How sweet it tasted!”

As my 14-year-old niece goes through the growing pains of adolescence, I watch her slowly learning how the world works--the first boyfriend breakup, the sudden betrayal of a friend, the shuffling back and forth between the homes of divorced parents on their second marriages--and wish there were some way I could go through it all for her. I was already wishing that in 2003 when she was born, foreseeing, as she slept in my arms, the ups and downs to come. And now I wish she could live in a country that had not just elected a man who made fun of a handicapped person from the campaign stage and was caught on video joking about how fame is a license for assaulting women. Then I think of the classic dad response: life isn't fair; the fair is a place for prize hogs and horses. Sometimes, the prospects for humanity look pretty bleak. But there are strawberries out there for my niece to find, aren't there?

In *The Righteous Mind: Why Good People are Divided by Politics and Religion* (2012), social psychologist Jonathan Haidt (2012) claims that the sensibility informing liberal sociopolitics in the West, for example, is based on an affective moral orientation toward care, in the form of welfare, and fairness, in the form of diversity and tolerance. For that matter, Christianity is supposed to be based on an ethos of self-sacrifice. This doesn't prove that a given

Democrat wouldn't kick his dog or that all Christians tip their waiters generously. But it does indicate that such values at least exist as aspirations. There are, no doubt, Republicans who would give you the shirt off their back but would still prefer that abortion were illegal. Or would they only give you their shirt if they knew you, if you were from their hometown and went to their church and, perhaps, had their skin color? For many decades now, biologists have suggested that this provincial kind of ethos, rather than one based on care and fairness, is natural based on the evolutionary limits of altruism. Combined with the daily news of the corrosive effects of power and money in the neoliberal era, and the microaggressions and indignities we all experience at work and at school from time to time, the future does seem grim. But new data in the field of neuroscience suggests material evidence for strawberries on the cliff of the human condition. In particular, this research reveals the evolutionary roots of non-reciprocal acts of kindness, from paying for the next person's bill at the drive-thru window to donating to international hurricane relief funds.

Neuroscientist Marco Iacoboni's (2009) *Mirroring People: The Science of Empathy and How We Connect with Others* suggests that humans' ability to quickly read facial expressions (indeed, in microseconds, without consciously doing so) indicates the biological root of empathy and possibly morality. Mirror neurons are one of several types of cells in the central nervous system that electrically transmit information through synapses upon environmental stimulation. Speaking anthropologically, the author labels mirror neurons as the biological basis of intersubjectivity, the intangible interactions and connections between "self" and "other" (152), a very basic aspect of the human condition which continues to baffle and enthrall social theorists in all its inexplicable complexity and nuance. The firing of mirror neurons in the brain is, in fact, "pre-reflective" (265), and is thus the neurological basis for humanity's complex social behavior

because it “helps us to recognize and understand [others’] motives and intentions” (6), an integral function in a species for which behavioral plasticity and group cooperation have resulted in unprecedented ecological expansion. One of the problems that plagues the human condition, though, is that humanity’s so-called success, particularly in the form of social cooperation, does not necessarily always equate to cooperative *benevolence*. And so the question that this paper will address is: is there a biology of kindness?

The materialist view of human behavior, most famously delineated by Richard Dawkins in his “selfish gene” theory, tends to advocate a fairly primitive state of affairs in which we are “born selfish” ([1976] 1989, 3) and “most of what we strive for in our modern life uses the apparatus of goal seeking that was originally set up to seek goals in the state of nature” (qtd in Miele 1995). In accordance with this evolutionary paradigm, altruism is a subject matter that is treated conservatively by biologists, whose understanding of the human version of altruism tends toward mutualistic and sometimes reputation-based explanations of charity in modern humans. Trivers (1971) first stated that non-kin altruism could evolve if altruistic behavior is balanced between partners over time, implicating a strictly mutualistic domain for kindness. But kindness herein is defined, beyond mere mutualism or reciprocity, as “the quality of being friendly, generous, and considerate.” Further, kindness tends to have an action-oriented dimension, as in Goetz et al.’s (2010) definition of compassion, denoting helpfulness (2), the reduction of another’s suffering (2, 23), or self-sacrifice (23).

Classic anthropological studies have tended to confirm the mutualistic, i.e. non-generous, parameters of altruism in the repeated documentation of institutions revolving around the tedious yet critical obligations of reciprocal exchange, thus justifying a biologically conservative view of generosity. Even the well-known potlatch ceremony of the indigenous peoples of the Pacific

Northwest, in which a powerful man puts on an expensive community feast and gives away his belongings, was found to be a form of competition in which the gifts presented represented a man's "portfolio" for assertion of chieftainship (Wolf 1982, 186-194). Research in social psychology also shows that charity and social magnanimity are often reserved either for kin, for our local community, or for those within a shared cultural or ethnic boundary--those with whom we have a perceived or real connection. In this paper, I will explore the psychological and neuroscientific data on the evolutionary aspects of interpersonal behavior as it pertains to kindness, which is herein treated as an emotionally motivated and behaviorally manifested outcome of empathy. While the temporal trajectory of the paper will extend from discussions of our ancestors to modern humans, a thematic shift will trend from the biological to the social psychology of culture.

In this paper, I will employ a biocultural approach in exploring the psychological and neuroscientific data on the evolutionary aspect of social behavior as it pertains to kindness. First, I will draw on evolutionary theories of cooperation in suggesting that an individual and ideological ethos of kindness could have evolved as an adaptive orientation that, in a Durkheimian sense, preempted ostracism and cemented alliances as a beneficial balance to the fitness risks inherent in altruism. Then, consulting data on the neurochemical profiles of dopamine and oxytocin, I will describe the sort of human psychological variation that would reveal a complimentary continuum of evolved social proclivities, from selfish to giving. I will argue that social proximity in small groups, as the natural state of human evolution, is a strong factor in the manifestation of kindness but not its limit as evidenced by philanthropy and ideologies promoting universal equality. But, as such beliefs systems seem to flounder in the public sphere in the face of coercive policies that sustain traditional inequalities, this study

concludes with an equivocal message about the human condition: while the rareness of kindness should have a profoundly fundamental explanatory value in social analysis, scientific confirmation of its fragility would recommend further scholarship designed to highlight its exceptional biological position vis-à-vis the selfish gene. I begin by articulating the rationale of a biocultural approach.

#### AN INTRODUCTORY NOTE REGARDING A BIOCULTURAL FRAMEWORK

Based on the helter-skelter state of the art today in cultural anthropology, which is on a trajectory to fully dismiss the theory of structure, and along with it, the realities of hegemony (in contrast with sociology, which generally assumes its framework as a critique of it), I would suggest that structuralist theories of old are in need of revival if the field's practitioners are interested in the cultivation of any moral or intellectual authority in the twenty-first century's embattled public sphere. As it now stands, the scope of post-structuralist deconstructionism and ontology have seemed to suggest to scholars emerging from the academy that the study of humanity be the study of 7 billion realities, requiring 7 billion biographies. Totalities in the form of cross-cultural work are not possible in the fragmentary and disjointed space of the contemporary humanities paradigm, and although neoliberalism comes closest to having a holistic signature, to chronicle it only as the sum of atomized ordeals, and to frame suffering as a phenomenon most indicative of historical particularism, is to mistake human history for a series of coincidences and to abandon the study of *ánthrōpos* as a species exhibiting problematic patterns involving behavioral predispositions with millennia of documentation. These predispositions can either be addressed through awareness-raising, or we can continue to ignore them while puzzling over the shattered mirror's reflection.

Franz Boas, with historical particularism, froze American anthropology in its nascent form. His disdain for the pseudoscience used in racist arguments at the time, while astonishingly courageous and scientifically correct, led him to guide his venerable students and then most future American anthropologists to focus on culture difference instead of culture similarity. He correctly asserted that culture difference is not linked to phenotypical difference, but he problematically lost sight of the fact that the human species' biological similarities, honed through evolution, are the drive behind human culture itself.

Cultures, I believe, need to be seen as symbolic manifestations of a material psychology grounded in a system of neurochemical prompts for social behavior. Such an approach can be described as a neo-functionalism that amends Malinowski's oversight that maladaptive behavior can also fall under the rubric of "functional" if it serves the ever-capricious pull of the social. This is not a premise one gleans from an ethnography on the Hadza nor in a chapter on femoral medial condyle morphology. But it represents a badly needed anthropological synthesis coherently addressing while rehabilitating the concept of human nature.

The source for human behaviors lies in somewhere around 7 million years of shared evolution; this is an uncontroversial statement outside of the humanities. Culture does not disprove the assertion; culture provides evidence that natural selection for social behavior shaped hominin biology. What this means for anthropologists is that the behaviors of humankind are not accidental in the Boasian sense, even as human experiences are myriad. As shown in works such as Haidt's moral foundations theory or Noam Chomsky's universal grammar, our interactions and drives are theoretically understandable through the pursuit of evolutionary and psychological research. Of course, this kind of statement rings the bell built by Edward Said that signals the collusion of empiricism with imperialism. But empiricism is also on the side of global warming

data, stem-cell research, evolution in school curricula, and the eyeglasses or contacts that you're wearing right now to read this print. Furthermore, as cognitive psychologist Steven Pinker argues in *The Blank Slate: The Modern Denial of Human Nature* (2002), it might be understood, were it not for its paradigmatic status, that social constructionism, via the false narrative of Locke's blank slate, is as much an Enlightenment legacy as is positivism.

In advancing toward a biocultural approach, structuralist theory, however, only takes us halfway. That is, it supplies the cultural half, but it starts at the wrong end. As a result, structuralist insights from the likes of Durkheim and Weber to Geertz and Turner are limited to their own abilities to observe and muse perspicaciously. For instance, are we to accept that force of habit represents the main reason for the reproduction of a culture's status quo? Should we not wonder why the social structure seems to have the gravitational pull to normalize and naturalize everyday perception, supernatural superstitions, and state violence? Why should *habitus* be taken for granted by an anthropologist as having such explanatory power? Why does an emotional ontology so consistently develop cross-culturally from the recursivity of experience and convention? I must pursue a project that marries the biological and the cultural because I feel that there is no need for studies of culture to limit themselves to philosophical abstractions.

Thus, I hereby reject what evolutionary psychologists Tooby and Cosmides (1992) label "the Standard Social Science Model (SSSM): the consensus view of the nature of social and cultural phenomena that has served for a century" to justify "claims of autonomy from the rest of science" and has resulted in "an enormous mass of half-digested observations, a not inconsiderable body of empirical generalizations, and a contradictory stew of ungrounded, middle-level theories expressed in a babel of incommensurate technical lexicons" (23). The authors wish to "jettison" the SSSM, bemoaning it as being rooted in the "ancient dualism

endemic to the Western cultural tradition” that the human individual can be divided into biological and nonbiological aspects (1992, 21). It cannot. Nearly two hundred years ago, Marx himself expressed a similar concern, saying, “The individual is the social being. His life...is therefore an expression and confirmation of social life. Man’s individual and species life are not different... One basis for life and another basis for science is *a priori* a lie. The nature which comes to be in human history--the genesis of human society--is man’s real nature... Natural science will in time subsume under itself the science of man” (1978, 86; 90-91). As academics interested in the health of the public sphere, we must be vigilant of the importance of knowing and acknowledging our own limits as well as those of our species, which is as strictly composed of atoms as is anything else.

As Kurt Andersen points out in his *Atlantic* article “How America Lost Its Mind” (2017), President George W. Bush’s Senior Advisor Karl Rove is attributed with having said, “the reality-based community believes that solutions emerge from your judicious study of discernible reality...That's not the way the world really works anymore...when we act, we create our own reality.” The liberal and conservative sides of this coin both read tails, however. For instance, in academia since the 1960’s, Andersen explains, statements like this one from French sociologist Jean Baudrillard have been formulated: “the secret of theory is that truth does not exist.” Based on a general rejection of arrogant institutional assertions about white male superiority over other races and the female sex that led to atrocities like the Tuskegee Syphilis Experiment and the Holocaust, scholars like Foucault and Said have rejected not only the Enlightenment program of human progress but scientific discourse in general, and with it, the possibilities of empiricism.

Pinker (2018) has recently abridged this movement:

Intellectuals hate progress. Intellectuals who call themselves “progressive” *really* hate progress. It’s not that they hate the *fruits* of progress, mind you... It’s the

*idea* of progress that rankles the chattering class--the Enlightenment belief that by understanding the world we can improve the human condition... If you think knowledge can solve problems, then you have a “blind faith” and a “quasi-religious belief” in the “outmoded superstition” of the “false promise” of the “myth” of the “onward march” of “inevitable progress.” ...You are a practitioner of “Whig history,” a “naive optimist,” a “Pollyanna,” and of course a “Pangloss”...who asserts “all is for the best in the best of all possible worlds.” (39)

Anthropologist Bruno Latour is a more recent example of the anti-science intellectual. In *The Pasteurization of France* (1988), he argues that the social construction of scientific knowledge surrounding the discovery of the microbe was strategically allied with the forces of the state and the military to intervene coercively, as in Foucault’s concept of biopower and the panopticon, in the lives of European citizens. Under the influence of the zealous postmodernist urge to rebel against reason and science, Latour has contributed to the construction of the new authority of doubt in expressing scorn over the theory that Pharaoh Ramses II died of tuberculosis because the bacillus was not discovered until 1882, stating that it did not exist until it was “invented,” or culturally constructed (2000, 248). (One wonders, then, about heliocentrism?) Speaking of agency--which Latour does--imagine for a moment the unmitigated privilege it takes to argue against material facts simply for the sake of polemic.

So, I would suggest that, as long as scholars in the humanities continue to demure over reality while extending the reality of our careers and our families, we forfeit our moral authority in the political sphere--where unreality has, lately, brought the Orwellian dystopia frighteningly to life. While I acknowledge that “authority” is the ultimate problem being addressed in the post-1968 milieu, **I assert that if there can be many ontologies and many subjectivities, there can also be many authorities**--some of them scientific and simultaneously anti-power.

This paper, therefore, addresses the material deficit in anthropology’s cultural theory while bracketing the field’s postmodern crisis of conscience, first articulated by James Clifford

in 1983. In connecting current data about human evolution to documented social behavioral patterns, I forego the intellectual angst of deconstructionism, deferral, irreduction, relativism, and reflexivity while reclaiming the potential for a liberal academic authority in an attempt to separate anthropology from the same social paranoia that, on the right, pushes epistemic murk like a drug dealer, feeding people who crave the kind of plausible deniability that enables public indecencies represented, as Andersen says, by President Trump's birtherism, Steve Bannon's liberal illuminati theory, or climate change denial. I suggest that there are, indeed, ways to know things, and that these include positivist avenues that are epistemologically trustworthy (if subject to refutation through the scientific method).

Attempting to move beyond the sort of Cartesian dogma that has resulted in the denial of human nature through social constructionism on the Left and, on the Right, post-truth fake news and the subjectivity of one's net worth according to mood (Khalid 2011; Carter 2018), I contend that twenty-first-century anthropologists should not be bullied by the postmodernist vogue into ignoring the repeating patterns of the human condition. Denial of these patterns through the fetishization, as Foucault (1988) says, of such abstract vehicles as language and symbol is no longer feasible. Nor, however, do I wish to continue *his* supposedly avant garde tradition of fetishizing all modern coercive power as a function of scientific rationalism. Therefore, I am not concerned here with the political abuses of positivism--the abusers must hold that water, for 1) the philosophy itself is neutral, 2) it can be used just as easily for progress, and 3) state abuses are not synonymous with positivism but with any tool they can manipulate for malice. Are we to blame the political violence of the Roman or the Mongolian empire on horse husbandry and metallurgy? Or on an ugly facet of human nature?

A defense of the post-postmodernist possibilities inherent in a biocultural approach thus articulated, it is my aim now to explore whether anthropological discourse about science as an insidious specter can be turned on its head in mobilizing it as a tool of anti-power by tracing the material contours of the possibilities of kindness and asking answerable questions about its seeming lack of impact on human history.

#### MIRROR NEURONS AND PRECONSCIOUS AFFECTIVITY

Along with the autonomic nervous system, the amygdala, and the anterior cingulate cortex, the human face's muscles are considered to be the initial areas of physiological arousal in emotional experiences, as they code information within milliseconds along a rather primitive dichotomous valence of whether stimuli are good or bad for the individual (Buijs and Swaab 2013; Reihl et al. 2015; Pohl et al. 2013). A small area of the brain in the inferior temporal cortex called the fusiform face area (FFA) is a specialized part of the human vision system tailored to the automatic recognition of other faces (and it is this part of the brain that causes one to detect facial features such as eyes, a nose, and a mouth even in things that are not faces, such as floral designs or wood ring patterns). Cognitive neuroscientists believe that this specialty evolved as a survival mechanism in our ancestors and later became a baseline trait for the type of preconscious social responsiveness that further propelled the species' demographic success (Kanwisher and Yovel 2006, 2109).

Mirror neurons constitute the basis of the social self; unlike other neurons, which tend to deal with the senses, motor functions, thought, and memory, these neurons are as „interested in“ other people as they are in the self in whose brain they reside” (Iacoboni 2009, 132). They fire immediately at the sight of another person's behavior, signaling the motor areas of the brain as if communicating that the same action should be imitated. Simultaneously, other types of

specialized neurons remind the brain that it is only a simulation so that the actions are not physically carried out. Mirror neurons were accidentally discovered in laboratory macaques, an Old World monkey exhibiting behaviors involving intricate social hierarchies. In a study on the connection between the premotor cortex and the manipulation of mundane objects with the hand, neuroscientists noticed that certain neurons were firing when a monkey was resting, and they soon realized that the subject was observing and mentally imitating the grasping behavior of a nearby human.

Iacoboni later found that, in humans, areas of mirror neuron activity are connected to and stimulate “emotional brain areas in the limbic system, particularly the amygdala--a limbic structure highly responsive to faces” (2009, 118-119). Through fMRI scans (functional resonance magnetic imaging), De Vignemont and Singer (2006) had earlier shown “overlapping brain activation patterns when subjects feel their own emotions and observe the same emotions in others” (435). Upon observation of another person’s emotional state--say, someone who has hit himself on the thumb with a hammer--mirror neurons activate for the corresponding facial expressions and then awaken the emotional centers in the brain that would be active in the suffering person (122). This means that the nonpathological brain is capable of “producing a full simulation, even the motor component, of observed painful experiences,” suggesting that mirror neurons are the biological mechanism upon which social ties are built and maintained (124). For Iacoboni, mirror neurons confirm the phenomenology of Husserl and Wittgenstein to the exclusion of Cartesian dualism in light of “the immediacy of our perception of the mental states of other people” (262). Thus, he concludes, “we are biologically wired...to be deeply interconnected with one another” (267).

I think it is difficult to overstate the implications of mirror neurons in social theory, were it common in today's academy to pursue such a broad interdisciplinary sensibility. For the time being, however, the discovery of mirror neurons adds credence to the view of psychologists and psychiatrists that there is a prominent biological aspect to human social behavior, so often thought of in strictly cultural terms in many anthropological circles. What cultural anthropologists tend to forget, in their submersion in the humanities, is that people's initial and essentially involuntary responses to environmental stimuli are informed not only by culture but by adjustments made through millions of years of evolution that have dictated what automatic responses serve the individual best. Scholars of hard science, on the other hand, will often deny the pull of the social, as they tend to think of the individual and the corporeal body as nothing more or less than the "survival machine" (Dawkins 1989, 19) for selfish genes, although some seem to understand the situation, bound up in self-awareness and maladaptive behavior as it is, as a combination of nature and nurture (e.g. Niehoff 1999; Ehrlich 2002). Thus, the discovery of mirror neurons as the physiological basis for intersubjectivity is as confounding to biological conceptions of human behavior as it is unfamiliar to humanities-based understandings of culture.

Psychologists today try to strike a happy medium in the nature vs. nurture debate, allowing that conditioning through experience, including culturally-informed experiences (enculturation), does play a part in our thoughts and feelings and actions. Yet, it is possible that most cultural variation can be subsumed under a genetic predisposition to group bonding and idiosyncratic "badging," the more complex behavioral-cultural correlate of instinctual kin-recognition that some biologists propose evolved to facilitate instantaneous extra-kin identification (Irwin 1986, 138; Qirko 2013, 135, 147). An example of the material parameters that influence us preconsciously but within cultural parameters is appraisal theory, which states

that “emotions and appraisals of events are likely to be culturally variable, but the relationship between appraisals and emotions is culturally general, perhaps even universal... Goals, values, and tastes can vary enormously across cultures, creating manifest and important differences in the *content* of emotional experience. According to appraisal theories the process remains the same: the appraisal of *goal conduciveness* has the same emotional consequence across cultures, regardless of the cultural differences in the definition of what’s worth striving for” (Davidson et al. 2003, 584). This is a highly succinct summary of the biocultural paradigm that illustrates the ancient rootedness of emotions in specifically social “behavioral patterns that evolved to adapt to stimuli critical for survival and species preservation” (Depue and Collins 1999, 497).

According to Zajonc’s (1980) dual process theory, the first step in the sensation of an emotional event happens preconsciously, signals whether something is good or bad, and takes place in the evolutionarily older limbic system of the brain. Studies on the physiology of emotions reveal that split-second autonomic biological responses tend to guide the higher mechanisms of information processing (Haidt 2012, 55), the phenomenon referenced above in “goal conduciveness” and earlier in Dawkins’s “apparatus of goal seeking.” In fact, a shockingly large majority of our mental processes “occur outside our awareness but actually govern most of our behavior” (xxi)--a difficult pill to swallow for those of us invested in our free will and our exceptional intelligence. Summarizing the neuroscientific consensus, Reihl et al. (2015) state that, as in badging behavior,

A fundamental aspect of social interaction and social cognition is the rapid identification of others as either similar to (in-group) or different from (out-group) the self. This type of social/affective decision making utilizes heuristics to automatically categorize individuals based on easily observable traits, factors, or characteristics (e.g., ethnicity, gender, age, weight, speech, attire, profession, hobbies, grooming). (249)

The authors' description of social cognition is illustrative of a biocultural phenomenon. Thus, social facts like stereotypes, prejudices, and displays of group identity are culturally specific but have an instinctual genesis. In fact, the ability to learn and incorporate appropriate cultural responses into one's behavioral repertoire is part of an evolutionary format that bent humanity toward its current demographic success. As Haidt suggests, while cultures seem to vary with a stunning diversity on the surface, many cultural constructions are likely built on a small set of behavioral foundations that was developed in our ancestors (2012, 145). This is because, while there is wiggle room for variance in cultural traits across the globe, behavior *per se* tends to manifest in repeating patterns because it is constrained by what the evolved physiology will allow, and this includes the adaptive force that, on average, binds people to each other and the cultures they inhabit.

#### NEUROTRANSMITTERS, CANINES, AND COOPERATION

The theory of the selfish gene states that individuals in a given species will always act in a manner motivated by their own self-interest, which is a behavioral manifestation of the genetic blueprint for the genes' own self-replication. Interestingly, the older concept of "Homo economicus" defines rational human action similarly: as a product of an individual's self-interest. The premise was first expressed by pre-Marxian political economists like Adam Smith and, later, John Stuart Mill, who, not unlike Hobbes in his conception of natural law, believed that people prefer to accumulate the most assets through the least labor possible. Mill wrote:

[Political economy] is concerned with [man] solely as a being who desires to possess wealth, and who is capable of judging of the comparative efficacy of means for obtaining that end... It makes entire abstraction of every other human passion or motive; except those which may be regarded as perpetually antagonizing principles to the desire of wealth, namely, aversion to labour, and desire of the present enjoyment of costly indulgences. ([1844] 2000, 97)

Of the pull of wealth, Hobbes wrote, centuries earlier, that, out of the relative equal physical abilities of humans existing in a so-called (pre-state) state of nature

ariseth equality of hope in the attaining of our Ends. And therefore if any two men desire the same thing, which neverthelesse they cannot both enjoy, they become enemies; and in the way to their End, (which is principally their owne conservation, and sometimes their delectation only,) endeavour to destroy, or subdue one another. And from hence it comes to passe, that where an Invader hath no more to feare, than another mans single power; if one plant, sow, build, or possesse a convenient Seat, others may probably be expected to come prepared with forces united, to dispossesse, and deprive him, not only of the fruit of his labour, but also of his life, or liberty. And the Invader again is in the like danger of another. (Chapter XIII)

Thus, as it relates to altruism, and in accordance with the selfish gene, the biological version of Homo economicus will act only in furtherance of his or her genes, which means that generosity and kindness are too costly in the same way that failing to provide for one's defense against other's desires leads to dispossession, danger, or even death in the Hobbesian war of all against all.

Studies in social psychology tend to confirm the selfish-gene theory that human emotions underlie a subconsciously instrumental view of the world that corresponds with the designs of a survival machine. Orientation toward survival is a situation microscopically reflected by what Iacoboni calls canonical neurons, which fire not only at the sight of an action, as mirror neurons do, but even at the sight of an actionable object, indicating a preconscious faculty of readiness beyond the basic reactivity of fight-or-flight. Here is a motor-specific property of human behavior, but the utility of known others and objects in the environment is also assigned by the central nervous system's program of neurochemical rewards and punishments that encourage or discourage behaviors and thoughts. Like canonical neurons only socially geared, this mechanism demonstrates a survival machine's--a person's--readiness to react to or interact with any and all

nearby counterparts based on what the brain's goal-seeking apparatus deems as bearing positive or negative emotional connotations for the individual.

Echoing a Dawkinsian framework, Iacoboni states that "in evolutionary terms, the [neurochemical] reward system has probably evolved from a system that evaluated primary goals such as food and sex" to one that is much more socially focused (2009, 223). Ultimately, the evolution of cooperation (in any species) is never more than a balance for individuals between subsistence, reproduction, and mortality--the same balance maintained in solitary species. As Alexander (1974) pointed out long ago, group-living in animals can only have evolved "because all of the individuals involved [in the group] somehow gain genetically" (327). Since social animals have the same selfish genes that all other biota possess (actually, some amoeba species have a much larger genome than humans have!), individual members of social species must also have genes that code for ways in which behaving socially helps them live to reproduce.

Evolutionary psychologists believe that, "over evolutionary time, social animals who formed strong relationships and were integrated most strongly into group living were most likely to survive, reproduce, and raise offspring to reproductive age" (MacDonald and Leary 2005, 203), so that selection for intensively social behavior informed the human species' behavioral reward system. Physiological rewards that prompt proactive social behavior and provoke happiness, good moods, or other automatic responses (such as sexual attraction or mother-infant bonding) include the activity of neurotransmitters like dopamine, serotonin, norepinephrine, endorphin, vasopressin, and oxytocin. These are the seeds of the strawberries.

Some of these neurotransmitters, such as **dopamine**, are naturally-occurring opioids, which provide a feel-good emotional boost in the same way that opioid painkillers do, reinforcing the future repetition of a pleasant social interaction in the same way that

norepinephrine, a product of physical stress, warns us to avoid future aggressive dogs. Similarly, a neuropeptide and hormone called **oxytocin**, made in the hypothalamus, acts as a chemical reward for social bonding--new mothers normally produce it during childbirth and breastfeeding in order to bind them emotionally to their infants, and it is produced relatively easily in any type of interpersonal circumstance, especially through intimate contact with another person, such as even a back rub from a total stranger (Haidt 2012, 270). Oxytocin in mammals “has been shown to increase in response to the onset of pair-bonding in adults, maternal attachment, infant attachment, maternal responsiveness, positive social behaviors or contact, onset of sexual behavior, and exploration or approach to novelty” (Davidson et al. 2003, 1095). In the next section I will elaborate on these neurotransmitters and their function in social cohesion, but first, I will discuss a few origin theories for social evolution in our ancient ancestors.

As biologists, zoologists, and ethologists have looked into evolutionary explanations for the common presence of human social institutions like charity, socialism/welfare, gifting, animal rights, and environmentalism, they consistently conclude with a contribution to the consensus that emphasizes a *Homo economicus* view involving the psychological or reputational wellbeing of the generous individual (e.g. Roberts 2011, Chapters 9 to 11). But it is my premise in this section that the selfish gene does not represent a properly complete *paleoanthropological understanding of the evolution of Homo sapiens*.

While I do not disagree that the evolutionary “problem” of charity, as a drag on biological fitness, is resolvable through an analysis of the neurochemical and reputation-based (and thus biologically selfish) rewards that counterbalance fitness risks, scientists underestimate or outright ignore the degree to which these motivations resolve themselves as some of the more positive and satisfying (and unique) aspects of human existence. Without these, in an intelligent

species able to capitalize on a constant awareness of its own selfish desires, life might not be worth living. Thus, even though it is true that subconscious inclinations drive us toward altruistic behaviors that promote the selfish gene, the considerateness and caring involved in acts of kindness, empathetic ideologies, and humanitarian organizations represent the provisioning of sweet strawberries to others as they hang precariously on the cliff of life and, importantly, do not manifest phenomenologically in the living world as selfishness but as goodness.

Sociobiologist Christopher Boehm (1982) has proposed that the kind of social intelligence that, today, enables kindness, began to evolve as an adaptive response to a new hominid lifestyle that downplayed dominance/submission conflict as the social status quo. The gradual development of reduced conflict among our ancestors is evidenced by a reduction in canine size around 7 million years ago in *Sahelanthropus tchadensis*--at the very beginning of the hominin line--and, later, a reduction in sexual dimorphism (Nakahashi and Horiuchi 2012, 57); the reasons for these changes are unclear, but the trajectory toward modern behavior almost certainly involved changing mating and/or feeding strategies, possibly prompted by climato-ecological changes (Villmoare 2018, 80-81).

Based on comparison with other primates' mating/territorial systems, and taking reduced canines into account, the human reproductive system is most likely to have evolved in multiple-male, multiple-female societies, as with chimpanzees, but where male-male competition is weak(er) and predation is highly likely--in such conditions, males are less physically powerful and, thus, life in groups is a safety strategy (Nakahashi and Horiuchi 2012, 62). As such, the ability to socially navigate within cohesive groups would be advantageous, too. Not that we should assume that reduced aggression in our ancestors equates to communitarian peace on the homefront--intracommunity violence occurs in all our primate cousins, and our closest ones, the

chimpanzees, seem to be the nastiest, fighting not only over mates or as a result of anthropogenic stressors but, most often, as infanticide or to reduce resource competition (Wilson et al. 2004, Wilson et al. 2014). Bonobo behavior, however, illustrates best the sort of early reduction in intragroup aggression that may have presented in our ancestors: their ability to amicably forage together in large groups (not collectively, but side-by-side) without fighting over spoils is a hallmark of their behavior compared to that of chimps (Wrangham 2000).

Paleoanthropologists are in agreement that something novel occurred with the reduction of canines and the canine shearing complex (Kimbel and Deleuzene 2009, 37). Lacking dangerous canines, “any weaponry or physical or behavioral advantage that helps males win contests should be powerfully favored by selection” (Plavcan 2012, 52). This novelty therefore probably involved the development of coalitionary violence, which is seen in anthropoid taxa with small canines (52) but also in our closest genetic relatives, the chimps, as an antipredator and territorial defense strategy (55). Such a theory would suggest that coalitional intergroup violence, as has been documented in chimpanzees who go to “war” over resources (Ehrlich 2002, 207), long preceded the cultural invention of warfare. As zoologist Richard D. Alexander argued, intragroup cooperation was a hallmark of early hominins, but *intergroup* aggressive competition was its prime stimulation (Melotti 1986, 95). Hobbes may as well have been articulating a theoretical hominin evolution when he wrote, “For as to the strength of body, the weakest has strength enough to kill the strongest, either by secret machination, or by confederacy with others, that are in the same danger with himselfe” (Chapter XIII). As canine reduction and cooperation faculties ensued, potentially in tandem with pair-bonding or male provisioning of offspring, and combined with the type of body-mass increase typical in K-strategy species that eventually allowed for encephalization, a perfect storm of incipient altruism began to brew.

According to Boehm, the adaptive ability to detect pending intragroup conflict or even preempt it through diplomacy (called “conflict interference” among chimps and bonobos) became the new status quo as a substitute for the old order maintained by the alpha male and his elite court, although a cursory glance at any national history will show both paradigms existing side by side at various levels of organization (and one could argue that conflict interference tends to manifest most effectively in smaller human groups--a matter to be discussed in the section on ethnocentrism as altruism). With regards to the evolution of the human faculty of conflict avoidance, Boehm and, more recently, Haidt (2012), Tomasello et al. (2012), and Raghanti et al. (2018) propose the concept of shared intentionality as the unparalleled hallmark of human cooperation. Boehm asserts that the capacity to inwardly represent others (called “theory of mind” and now connected to mirror neurons; Gallese and Goldman 1998) is perhaps present in subordinate social primates who can “pick up on very subtle cues because of their greater social sensitivity” (1982, 416), and he stresses that this sensitivity was instrumental at the onset of reduced intragroup aggression. It essentially picked up the slack left by the alpha as daily group interactions became less competitive and less based on body mass and canine size.

Tomasello et al. argue that recursivity was involved in the groundbreaking act of collective foraging, which is difficult for all other great apes to accomplish due to food competition (2012, 680). Recursivity and collaboration, they say, required the conceptualization of “joint intentionality,” the ability to share in the knowledge of and agree upon a shared goal. After this behavior became an ontogenetic norm, a new condition of mutual interdependence necessitated that pressures be put in place to punish what behavioral economists call “free-riders” or cheaters, further enhancing the species’ success. Haidt theorizes that moralities centered around fairness “evolved in response to the adaptive challenge of reaping the rewards of

cooperation without getting exploited” (2012, 178), and he later expanded this concept to incorporate the communal punitive aspect of norms and laws. But all types of social animals, from reef fish to chimpanzees, engage in the punishment of free-riders (Sasaki and Uchida 2013), illustrating the commonplace evolution of this solution to the problem of the selfish gene.

It is possible that an ecological need for memory in wide-ranging foraging plus the socio-environmental ability to monitor one’s own behavior for the purpose of ingratiation and integration were both selective pressures that favored the growth of the human brain and, thus, intelligence (Boyd and Silk 2009, 203). Biologist Paul R. Ehrlich (2002) deems the evolution of “intense consciousness” (more appropriately, I think, “self-awareness”)--or what the existential phenomenologist Martin Heidegger called *dasien* in reference to a constant co-awareness of others--was an aid for “maneuvering in a complicated society of other individuals,” as evidenced by the fact that “the size of the primate neocortex appears to be correlated with the complexity of social structure” (113). Ehrlich speculates that as social group sizes grew past what we see in primate grooming networks, the neocortex grew in order to accommodate the information-processing capacity necessary for keeping track of the reciprocity record of allies.

Thus, instead of an orientation toward self-defense and bonobo- and chimp-like conflict interference, the capacity to monitor closely for the subtle cues of cooperation and manipulation, and of like and dislike, geared individuals toward self-esteem, what psychologist Mark Leary in 2004 called an internal gauge or “„sociometer“ that continuously measures [one’s] value as a relationship partner” so as to maintain rapport with helpful group members (Haidt 2012, 90). The sociometer could, then, detect--on others” faces and in their body language (and later through the grapevine)--whether one had a good reputation that could preempt conflicts and ensure stable alliances. In general, that reputation was a measure of one’s reciprocity, a matter to be addressed

later, in the context of altruism. But for now, suffice it to say that while one's ability to manipulate others out of the kindness of their tasty strawberries came to be one aspect of the human social milieu, in addition to the older strategy of brute bullying, so did the motivation to provision them voluntarily as a signal of confederation; meanwhile, as groups began to cohere, Hobbes's war of all against all metamorphosed into a struggle encompassing us versus them, a phenomenon that, through the capacity of shared intentionality, led to ethnocentrism in modern humans.

Unfortunately, intense consciousness or self-awareness enables not only cooperation but manipulation, or what Frans de Waal diagnosed in chimps in 1982 as "Machiavellian intelligence...a component of human intelligence thought to be rooted in the selective value of using cunning, cooperation, and deceit" to artfully guide other members of a social group into acting against their own self-interest (Ehrlich 2002, 207). Another theory of hominin encephalization suggests that the large and proficient "social brain...evolved via intense social competition in which social competitors developed increasingly sophisticated „Machiavellian“ strategies as a means to achieve higher social and reproductive success" (Gavrilets and Vose 2006, 16823). While there is no doubt that humans (like Machiavelli!) possess Machiavellian intelligence, its association with early brain-size growth assumes, first and foremost, male-male competition for mates as an organizational framework, which I have already asserted was on a downward trend due to the selective benefits of cooperation. Furthermore, self-awareness and intelligence imply that we are just as likely to perform magnanimous team-building acts that elicit the brain's disbursement of chemical rewards for bonding in the same way that we recreationally manipulate drugs and sex for similar physiological pleasures. Ethologists can attest that solidarity is important many primate species.

After fights, “chimpanzees sometimes kiss their former opponents, female baboons grunt quietly to their former victims, and golden monkeys may embrace or groom their former adversaries” (Boyd and Silk 2009, 187), while notoriously promiscuous bonobos “rub genitals after disputes,” demonstrating an evolved need deep in our shared heritage “to preserve relationships that are valuable to the participants, protecting them from the corrosive effects of aggression” (Ehrlich 2002, 207). Among hominins, once there was an absence of an alpha male to establish everyone’s place, and once general male-male competition was reduced and social life revolved around offspring-provisioning (as it also does in a few other primate species), extended alliances became essential in both defense and reproduction, the keystones of genetic success in social species. But because of the brain’s primitivity during the evolution of such a paradigm, early hominin cooperation cannot yet have amounted to the birth of pure altruism. As discussed below, however, the human neurochemical profile is uniquely designed to reward reciprocity over Machiavellian intelligence, making the survival strategies coequal.

#### THE BIOLOGY OF SOCIAL SENSITIVITY

Reviewing the behavioral and emotional faculties involved in the functioning of the striatum (a cluster of neurons in the basal ganglia), Raghanti et al. (2018) compare the neurochemical profiles in that region of humans, chimpanzees, gorillas, baboons, macaques, and capuchins. They conclude that the human striatal neurochemical profile is uniquely developed for cooperative behavior--what Haidt calls the hive mentality (2012, 258)--due to higher levels of serotonin and a high ratio of dopamine to acetylcholine relative to the other primates studied. The authors label this complex of features the “dopamine-dominated striatum” (1111), a further synthesis of what physiologist Ruud van den Bos (2015), one of the earliest scientists to understand the social significance of the striatum, called in humans the “ventral striatum-tilted

personality.” Dopamine reinforces neural connections made during social bonding and appears in increased levels in pair-bonded (or “monogamous”) species (1110); serotonin is often higher in social animals because it promotes the capacity to coexist in a proximity that would spark aggression among non-kin; and while acetylcholine supports learning and memory, and is thus high in apes, it is relatively lower in humans, the authors state, because it also contributes to reduced aggression while promoting social responsiveness, which is associated with conformity and attention to external/social cues (1111). No doubt mirror neurons are at the bottom of such an *ability* to pay attention and pick up on others’ dispositions, but it is the neurotransmitters that define the *emotionally motivated dimension* of a prosocial behavioral repertoire inspired by such sophisticated intersubjectivity.

Statistically, the Raghanti team found that humans have more activity in the ventral striatum than any of the other primates studied based on the neurochemical distribution in that region. The ventral (lower) striatum is part of the mesolimbic dopamine pathway, a “system that regulates emotions [and] is more sensitive to social and environmental cues. It regulates externally guided conduct and facilitates behavioral flexibility” (2018, 1109). This part of the striatum is directly linked to the area where dopamine is produced and is involved in prosocial behavior, unconditional trust, and motivation and reward, and is also rich in oxytocin receptors, behaviorally associated with social approach, attachment, maternal care, and cooperation (Kim et al. 2009, 2074).

Conversely, the dorsal (upper) striatum “is involved in internally driven, goal-directed behaviors” (Raghanti et al. 2018, 1108) and is more dominant in all the other primates studied. But these species are not emotionally or socially monolithic; individuals within each species exhibit a continuum of dopamine, acetylcholine, and serotonin profiles, indicating what we

already know: that not every individual in a species has the same personality. The authors found that individuals with high activity in the dorsal area were “internally driven and exhibited a high level of autonomy,” indicating superficial or contextual interaction with the social environment and a tendency toward aggression and dominant behavior (2018, 1109). Alternatively, individuals that exhibit higher activity in the ventral area tend to be “less aggressive,” “subordinate in social interactions,” and “heavily influenced by the actions of others.” Similarly, a review by Wacker and Smillie (2015) concludes that what was, early in the science, a hypothesized “link between extraversion and individual differences in brain dopamine” is firmly established (232).

The work of Van den Bos affirms that differences between aggression/passivity and inward/outward drive constitute the fundamental physiological basis of personality/style in the animal world (2015, 15). Such variation, then, explains the phenomenon of alpha-types and submissive-types in social species organized into dominance hierarchies, including chimps, baboons, macaques, lions, and hyenas. And anyone who has owned two or more pets can certainly attest to the fascinating variety of personality even among nonhumans! But this data also provides a clue on the trail of kindness; it suggests that outwardly-oriented and/or less aggressive individuals (who must also present a number of other characteristics, including, according to social psychologists, self-esteem and a secure attachment style) might possess a ventral striatum particularly oriented toward positive social interactions.

In the same way that Iacoboni’s study of mirror neurons is lacking a synthesis with findings in neurochemistry that demonstrate the physiology of empathic emotions, the Raghanti study leaps over the faculty of intersubjectivity that enables instinctual recursivity in the first place. Autism is a disorder that provides an example of the connection between these two

systems. Through testing in the 1990's, psychologists came to see autism as a disorder entailing a deficiency in the imitation capacity leading to a faulty intersubjectivity mechanism. Critical of the "theory of mind" module that states recursivity is a reasoned cognitive thought process leading to an intersubjective awareness, some scholars began to argue that the primary deficit in autism was emotional (Iacoboni 2009, 170).

Simultaneous studies at the University of Aberdeen and UC-San Diego found that "an early developmental failure of the mirror neuron system" with a cascading effect on other developmental impairments was the cause of autism (173). Neuhaus, Beauchaine, and Bernier (2010) point out that dopamine's reward system for promoting social affiliation begins with an instinctual "appetite" for the chemical--an appetite that is awakened by nearby "social stimuli such as facial expressions, vocalizations, and gestures" that then "encourage behavioral approach" (738). The implication is thus that the inability to inwardly mirror others' facial expressions and body language cuts off the social reward system before it even begins because social stimuli cannot stimulate dopamine's initial appetitive phase. The result is a behavioral indifference toward an ongoing state of physiological disconnection.

Not to jar the reader out of this haze of technical biological jargon, but I find it necessary as well as intriguing to point out that, in light of the neo-functionalist approach I mentioned at the beginning, the behavioral dynamic described so far matches a bridging of Weberian and Durkheimian sociology in which, although human motives are irrational/emotional in the pursuit of values, they are quantifiable in the sense that social life depends upon the regularity of meaning, which is not only a historical process but the collective representation of an established order (and often an established hierarchy). The largest difference between this sociological sentiment and that articulated in the preceding biological discussion is that one might add

“...collective representation of an *evolutionarily* established order.” But in light of the continuum expressed by individual variations in the striatum’s neurochemical profiles, it is appropriate to also include the critiques of functionalism by practice theorists like Giddens and Bourdieu, who are respectively attentive to the “reflexive monitoring” (1979) and “questions of style” (1977) present within collectivities that represent agents of structural change.

These two phrases reflect, for me, theories that unknowingly describe the observable effects of mirror neurons and striatum profiles. Take, for instance, antisocial personality disorder (once called sociopathy), defined in the American Psychiatric Association’s current diagnostic manual as “a pervasive pattern of disregard for and violation of the rights of others,” including failure to conform to social norms, deceitfulness, impulsivity, irritability, aggressiveness, irresponsibility, and lack of remorse. While some research (e.g. Shirtcliff et al. 2009) implicates the insular cortex and the anterior cingulate cortex, along with the mirror neuron system, in callousness and unemotional (CU) traits and empathy deficits, other studies, such as that by Glenn and Yang (2012) or Carré et al. (2013), find dysfunction or abnormality in the ventral striatum and the amygdala to be related to antisocial personality disorders.

No doubt all these studies report accurate data, given the brain’s interconnective complexity, but I would draw a parallel between the latter two examples and what van den Bos (2015) characterizes as a pathology at the extreme end of the dorsal-dominated-striatum personality, indicating social obliviousness, a high level of autonomy due to inwardly-oriented goal-seeking, aggression, non-conformance, and a superficial relationship with the social environment. Most people, obviously, are not sociopaths--some inwardly-directed individuals may simply fall under the rubric of the old pop psychology Type A personality: driven, competitive, irritable, aggressive. One is also reminded of the aggrandizer type known to

archaeological theory, usually a male who managed to direct resources and alliances toward the maintenance of his high status and reputation, all the while manipulating while obscuring the Marxian relations of production (e.g. Hayden 1994).

While the Type A person may be bereft of Giddens's "reflexive monitoring" skills, the aggrandizer-chief apparently had a mastery of Bourdieu's "questions of style," enabling him not only to play the game of social praxis but to become a cultural innovator. Aggrandizers today might be successful CEO's, national politicians, megachurch televangelists, organized crime bosses, or the Kardashians. Absent any accumulative or exploitative behaviors, however, they may simply be charismatic leaders, movers and shakers, like a Malcolm X or a Susan B. Anthony, who are able to mobilize immense intellectual and human resources.

At the other end of van den Bos's behavioral continuum are externally-directed individuals, the "low-ranking/subordinate animals" who are acutely attuned to their environments (2015, 9) and whose polar orientation toward ventral rather than dorsal striatal activity is displayed in behavior that tends toward allocentrism, passivity, or reactivity, resulting in short shrift in the pecking order. The hormone and neurochemical oxytocin also has a place in external orientation or allocentric, as opposed to egocentric, behavior. Oxytocin, as noted above, rewards mother-infant bonding through childbirth and breastfeeding, while also reinforcing interactions involving "trust, empathy, eye contact, face memory, and generosity" (Insel 2010, 774).

Several studies with regard to genetic variation on the oxytocin receptor gene (an allele called "rs53576," which involves a guanine to adenine substitution), show that this subtle change can result in "a range of favorable attributes, such as high levels of trust, self-esteem, empathy, maternal sensitivity, and may be more attuned to social cues" (McQuaid et al. 2015, 1153).

Unfortunately, there is a downside of extremity in striatal activity and the genetic oxytocin variant. As to the former, van Bos states that “in both tails of the distribution, stronger differences emerge, with potential social pathology, because of a loss of flexibility in shifting between the activity of the dorsal and the ventral striatum” (2015, 11). Complete dominance of either the ventral or dorsal striatum can result in violent behavior--impulsive violence on the one hand and planned violence on the other.

Oakley, Knafo, and McGrath (2012), in hesitantly exploring the dark side of altruism, describe its pathological form as “any behavior or personal tendency in which either the stated aim or the implied motivation is to promote the welfare of another. But, instead of overall beneficial outcomes, the „altruism“ instead has irrational (from the point of view of an outside observer) and substantial negative consequences to the other or even to the self” (3). They label a wide array of psychologically problematic behaviors as pathological altruism, from codependency, empathy-based guilt, and pet hoarding to suicide martyrdom, in which “the altruistic intention [is] to help companions or one’s own in-group” (3). They also implicate Williams syndrome, a developmental disorder caused by a number of gene deletions from chromosome 7. Along with other unrelated physical symptoms, people with Williams syndrome exhibit “a general presentation of extreme happiness,” are “unusually sociable, friendly and empathic,” and have “an excessive interest in others and a distinct lack of inhibition with regard to approaching others in social contexts” (Little et al. 2013, 959).

These cases represent extremes, but they also provide *physiological evidence for the non-selfish end of a continuum of personality variation that undermines the unilateral implications of the theory of the selfish gene*. In the case of the evolution of altruism, natural selection has, in some cases, demonstrate that even when individuals within the same species pursue, dependent

upon hereditary genetic design, either helping or nonhelping survival strategies, the fitness results are the same, showing both behaviors to be equal and “optimal solutions to ecological problems” (Cornwallis 2018, 1686). As such, human behaviors that promote a feeling of community, an emotional sense of goodwill, and a motivation toward generosity, will have been favorably selected right alongside those that selfishly promote the survival machine’s genes in a more direct manner. While the latter template may be more common, it cannot have been more successful over the eons or altruism could not have evolved in humans.

Because non-reciprocal altruism and Machiavellian intelligence represent social extremes, most people probably statistically plot on the middle of this continuum (Pinker 2003, 256-259). On average, as shown in the Raghanti study, our species has a uniquely formatted striatum that guides us into amenability, rather than either unmeasured generosity or outright selfishness, by the social neurotransmitters in the ventral side, so most of us should be fairly docile, generally law-abiding, going along to get along, if not downright conformists. Maybe we dream about giving it all away, about fighting or cheating the system, maybe we even buy local and go vegan and advocate socialism. But we go to work, we get paid, and we pay rent. And how many of us in heterosexual relationships deliberately choose not to have children or to adopt? Why do we tend to behave, structurally-speaking, like everybody else? And why is kindness so often limited only to those we know?

For anthropologists invested in social constructionism, conformity and ethnocentrism are indicative of the overwhelming primacy of “nurture” or enculturation in human behavior, as suggested in Berger and Luckmann’s ([1966] 1991) *The Social Construction of Reality*, which asserts, in-line with Tooby and Cosmides’ SSSM, that most of our beliefs and behaviors are inculcated during childhood through example and instruction. With regard to the vagaries of

cultural diversity, this is undeniable, but there is a grave oversight in the conflation of culture with widespread human patterns of emotion and behavior, which are, because of their ubiquitous frequency over human time and global space, going to be dictated by evolutionary tendencies. For instance: cultural attitudes toward homosexuality vary wildly from country to country; some nations have passed laws against it that may entail imprisonment or execution, while some have legalized gay marriage. A social constructionist might insist that such divergent beliefs are illustrative of the complete absence of universal human behaviors and thus represent the failure of evolutionary theory to explain culture.

The problem with this stance is that it simplistically ignores the sheer instinctual pull of adherence to culturally-salient tenets that evolved as a result of selection for a socially-oriented psychological reward system as described in this paper. Nor can a theory of the primacy of social construction explain deviance from encultured values and practices in the same way that individual physio-neurological antisocial or internally-directed striatum profiles can, a problem with which cultural anthropologists have struggled ever since the appearance of the contrary Omaha Indian named Two Crows in Edward Sapir's 1938 critique of the culture-personality theory. Anthropologists have, unfortunately, taken Two Crows' deviance and run with it: in postmodernist theory, *everyone* is an individual agent of change. Conversely, I would suggest that Durkheim was more right about the authority of society over the individual than Boas or any anthropologist since him because most of us are wired through evolution to survive through the social.

#### ETHNOCENTRISM AND CONFORMITY AS REALITIES OF ALTRUISM

In the nature vs. nurture debate, Epley and Gilovich (1999) assert the "nonconscious," instinctual influence of social cognition on human behavior. Through the natural selection

process, modern humans seem to possess an innate need to belong to groups (Baumeister and Leary 1995) as well as an innate aversion to being excluded by them (Holt-Lunstad et al. 2010) that, as reflected in the workings of the mesolimbic dopamine system, is deeply tied to emotion centers in the brain. Indeed, mirror neurons illustrate that, in the social milieu, perception, emotion, and cognition are coordinated and nearly simultaneous (Iacoboni 2009, 12-13; Haidt 2012, 52). Weber argued over a century ago that there is not much in human cognition that is absent of emotional motive. He was inadvertently making a neurological observation.

Psychologists knew before the discovery of mirror neurons that complex social interactions have a direct channel to the brain's primitive infrastructure. In the classic "line-length experiment," in which male participants were asked to make an easy judgment as to which line out of three was the longest, Asch (1956) showed that 75% were likely to, at least once, report the obviously incorrect answer in order to conform to the response by confederates who had been instructed by the researchers to unanimously answer incorrectly. (A confederate is someone who is part of the research and therefore knows what participants are being tested for.) Sherif and Sherif (1969) confirmed these results with a wider variety of both objective and subjective judgments.

More disturbingly, the classic but controversial 1963 study on obedience to authority by Milgram (2009 [1974]) showed that extreme punishment--in the form of electric shocks that subjects believed they were administering--may be meted out to peers based on no other logic than the encouragement of a cultural authority--a scientist in a lab coat, or, as Milgram imagined in his interpretation, a military captain in a uniform. Sixty-five percent of participants worked their way up to the maximum 450 volts as punishment for incorrect answers while believing that

the confederate in the next room was calling out in pain, while a full 92% obeyed when their only job was to instruct someone else to administer the shock.

While, as a matter of statistical average, most of us are designed to promote social accord and seek out social approval, we are also, in general, designed by natural selection to avoid interactions that might lead to social unrest. Milgram was mystified by his subjects' inability to defy the scientist; even as they verbally vowed to discontinue the shocks and displayed visible distress, they continued to shock the confederates. He could only conclude that it was a problem of protocol: waxing anthropological, he stated: "Social occasions, the very elements out of which society is built, are held together...by the operation of a certain situational etiquette, whereby each person respects the definition of the situation presented by another and in this way avoids conflict, embarrassment, and awkward disruption of social exchange" (2009, 152). In short, he was describing the primacy of a social structure, which was heightened by the immediacy of a power disparity between paid subject and scientific expert. He concluded, in affirming the writing of Hannah Arendt on the banality of evil, "[i]t is the extreme willingness of adults to go to almost any lengths on the command of an authority that constitutes the chief finding of the study and the fact most urgently demanding explanation" (5). One might argue that the Cold War era was a strange time of extremist conformity, but incidents like Abu Ghraib suggest otherwise.

Neuroscience has helped to find extra-cultural explanations of the Durkheimian primacy of structure. MacDonald and Leary (2005) state that "social and physical pain overlap in the attitudes, behaviors, and cognitions of humans" because they "operate via shared mechanisms. Specifically, both types of pain have been shown to involve the anterior cingulate cortex and periaqueductal gray brain structures *and the opioid and oxytocin neuroendocrine systems*" (203, emphasis mine). Nonconformance to group perceptions and decisions has been found to activate

the rostral cingulate zone and the ventral striatum (Klucharev et al. 2009), regions associated with the chemical punishment of social inappropriateness, and the amygdala (Berns et al. 2005), the area associated with remembering the emotional effects of the automatic fight-or-flight fear response. Interestingly, these experiments in conformity often involve little more than deviation from group opinions on matters like line lengths, mentioned above, or the properties of a 3-D shape. It stands to reason that if such simple disagreements cause distress to people in the vacuum of the lab, interpersonal cultural conflicts must cause that much more anxiety, while instances of cultural cohesion should occasionally result, as Durkheim predicted, in the euphoria of collective effervescence.

Indeed, social psychologists consider positive social interactions like bonding and conformance to have an “anxiety-buffering” function which facilitates activation of the parasympathetic nervous system, providing a person with continual access to a sense of calm (Martens, Greenberg, and Allen 2008). According to Kruglanski’s (1989) theory of lay epistemology, the psychological need for the anxiety reduction and existential meaning inherent in social cognition means that adherence to socially-accepted beliefs and behaviors tends to trump devotion to logic and rationality because cultural conformity offers a biased view of reality that validates the group-identified self. In an essay on the sociobiology of ethnocentrism, Flohr (1986) suggested that social cognition (unlike our technological prowess) developed as a response to the practical problems of daily group living and not as an optimal solution to finding truth (195), while Vine (1986) stated that psycho-social orientations like self-deception, cognitive dissonance, and group narcissism have adaptive values for the individual and the social group, including the ability to cement trust (when it is not truly earned) and physical or ideological defense of the social unit.

The pressure to maintain the structural stability of a culture's social solutions to daily living is also strong: the conservative tendency to defend tradition (often to the point of warfare) is indicative of the extent to which day-to-day coping is tied up in the maintenance of the cultural anxiety buffer. The typical neophobic attitude most people seem to effect toward cultural change has been theorized to be based on the individual's idiosyncratic sensitivity in the fear structure of the amygdala (Blackford et al. 2009). Such emotions are, in many different animals, based on "genetically determined, naturally occurring individual differences" in dopamine receptors in the striatum (Siemiątkowski et al. 2004), but in humans, the implication is that a willingness to adhere to a social status quo imparts neurological benefits while an upsetting of established norms, even if voluntarily done, provokes stress and fear. If group cohesion through conformity elicits chemical rewards and anomie provokes an autonomic fear response in the same way that a vicious dog does, then I would suggest that kindness towards others represents a cohesion strategy on steroids that follows the kind of psychosomatic carrot on a stick that human sociobiology was designed to seek.

Williams and Zadro (2001) propose that painful reactions to communal discord represent adaptations to the potentially deadly effects of ostracism among our ancestors as verified in non-human primate studies (e.g. Kling et al. 1970; Silk et al. 2003). According to Williams' 1997 need-threat theory, ostracism poses a threat to four basic social motivations: the need to belong, the need for control, the need for self-esteem, and the need for a meaningful existence (Williams and Zadro 2001, 39). His and Zadro's studies of ostracism span multiple types of exclusion and rejection, from social to physical to online, and include multiple methodologies, from controlled lab experiments involving ball games or computers to real-life simulations, written accounts, and structured interviews. Their results have shown *cross-cultural correspondence*: respondents

report loss of self-worth, a sense of purposelessness, suicidal thoughts, signs of trauma (from pauses in phone conversations to fear of silence at night), and health issues such as eating disorders, migraines, heart palpitations, fatigue, and high blood pressure (42).

On the bright side, though--as a response to the hazards of ostracism--evolution has encouraged hyper-cooperative behavior. Mood enhancement and a boost to self-esteem have been shown to be the result of helping and compassionate prosocial behavior (Sprecher and Fehr 2006). In a 25 year study of the link between prosocial behavior and empathy, beginning with children who were four to five years old, "other-oriented" behavior such as helping, sharing, and donating manifested well beyond mere compliance, tended to be costly, and persisted into adulthood as part of individuals' personalities (Eisenberg 2007, 74-75). And, although our nervous system seems to automatically recoil at the idea of evolutionarily costly altruism toward non-kin, oxytocin, along with its kindness-rewarding effects, has the prodigious capacity to override the selfish gene's imperative, not only increasing the release of dopamine along the mesolimbic pathway but dampening any arousal in the amygdala in order to reduce the anxiety that otherwise might be aroused by non-reciprocal altruism (Zak et al. 2007, 1128). Mirror neurons, oxytocin, and dopamine, therefore, provide a neo-functionalist response to overly conservative evolutionary theories of reciprocal altruism and inclusive fitness, which cannot account for random acts of kindness or extra-cultural charity.

As with Iacoboni, Haidt's study of the evolution of morality largely overlooks dopamine, and he instead chooses mirror neurons and oxytocin as the vectors signifying "the biology of the hive switch" (2012, 266) that evolved, he says, in a synthesis of Darwin and Durkheim, to "create cohesive groups that can function like [individual] organisms" (300). Pointing to a Dutch study in which men played economic games alone in cubicles, linked via computers into small

teams, Haidt states that the results show the way in which oxytocin--administered along with a placebo as a nasal spray--causes less selfish decisions (271). But, in a prisoner's dilemma game, it also caused a greater level of retaliation against members of the outgroup, suggesting the existence of a dark side to solidarity that often manifests in culture traits that revolve around xenophobic traditions. It would seem that it is only the rare psychological profile that can surmount evolution's average design, even in a social species. So, do all these findings prove that even the most positive emotions that promote extra-familial cooperation evolved for the function of self-interest?

Iacoboni admits that there is no one-to-one relationship between mirror neurons and empathy; mirror neurons are indicative only of the extreme utility of the ability to imitate and can encode for and encourage the imitation of violence and cruelty as well (Iacoboni 2009, 268). The cognitive psychologist Steven Pinker (2003) speculates that the evolutionary solution to ruthless selfishness in humans may be "a moral sense" that "evolved in our species rather than having to be deduced from scratch by each of us" after every new fight (2003, 187). But Pinker also bemoans the human "tendency to confuse morality with conformity, rank, cleanliness, and beauty" (294), and Haidt suggests that while a "moral matrix provides a complete, unified, and emotionally compelling worldview," people will attain to moralities that conflict, causing interpersonal and cultural strife and sometimes violence (2012, 125). This suggests--to state the obvious--that moral ideologies are not universal and are therefore a function only of the *proximal, local* need to maintain the evolutionary mandates of cooperation, fairness, and reciprocity, an ecology of ethical conduct that extends only as far as its adherents and their needs. This would make sense, as humans did not behaviorally evolve in groups as numerous as exist today in nations or in world religions.

Indeed, because the intense bonds of the (small) social group were so important in our most recent eons of evolution, according to Haidt, fMRI scanning shows that biased adherence to a given ideology (say, a political party or a religion) provides such a reliably patterned secretion of dopamine in the ventral striatum that partisanship and zealotry may qualify as addictive (2012, 102)! Based on the demographics of hunter-gatherer groups, Ehrlich suggests that ancient hominin populations were probably composed of 25 to 50 individuals (not unlike modern chimp troops), in the Paleolithic growing to 100-200 individuals who were partially part of larger tribal entities as cooperation and technology stabilized resource exploitation (2002, 173). As such, Ehrlich concludes that these statistics represent “the most important lesson to learn from our long existence as hunter-gatherers”: that, in terms of any “genetic predisposition,” humans “must still be basically a small-group animal, accustomed to living in units of at most hundreds or thousands, not millions or billions, of individuals” (173-174).

When the term “human nature” was still acceptable in the field of anthropology, Jane B. Lancaster (1975) wrote: “Over 99 percent of human history was spent as „man the hunter-gatherer“, and what we think of as „human nature“ evolved to cope with social situations and problems arising from life in small groups with face-to-face contact. Small wonder that many human beings find it hard to feel brotherhood with the millions of strangers who now share their world” (5). Social psychologists tend to concur with this disheartening conceptualization (Haidt 2012, 125; Pinker 2003, 187; Karau and Williams 1993). In light of the possible natural selection of ethnocentrism, the evolutionary possibilities of indiscriminate kindness appear reduced. But, paradoxically, the allocentric dynamic of ethnocentrism may be where the possibilities of kindness emerge.

There seems to have been, as has been explained in the foregoing, a special vector in humanity's evolution of cooperation that imparts the capacity to exceed the kind of reciprocal non-kin altruism described by Trivers. Haidt describes it as "the ability (under special conditions) to transcend self-interest and lose ourselves (temporarily and ecstatically) in something larger than ourselves" (2012, 258). Typical of iterations of altruism, Haidt is careful in making two disclaimers of feasibility in the ability to transcend the selfish gene dynamic. But I would amend this. Based on the data we have established on oxytocin and the dopamine-dominated striatum, and in consideration of the physiologically extreme forms implicating allocentrism, I would suggest that some people are indeed endowed with the capacity to transcend self-interest and lose themselves not only in the group but in a larger conception of humanity as a global tribe. These individuals, therefore, represent the strawberry factor in the human condition.

#### BEYOND ALTRUISM AND HOMO ECONOMICUS: KINDNESS AS FITNESS

Biological accounts of altruism tend toward a conception of humanity that has been described in economic theory as *Homo economicus*, a species that will always act rationally as motivated by individual self-interest in accordance with the selfish gene. So, although, as we have seen, humans evolved to be quite emotionally attuned to others, this attunement was directed generally toward 1) parties' mutual interests and 2) an individual's integration into the social group. Altruism is thus not, on its surface, an exception to the rule of the selfish gene-- *except*, perhaps, in a species that has the ability to manipulate its own neurochemical rationing in the same way that recreational sex and drug-use capitalize on nature's incentives.

We've already seen how cooperation evolved both physiologically and behaviorally, and cultures seem to almost universally include institutions of fairness and accountability (which

tend to be more easily enforceable with smaller group sizes where proximity encourages fidelity). In accordance with Trivers' theory of reciprocal altruism, Haidt states that moral ideologies centered on fairness "evolved in response to the adaptive challenge of reaping the rewards of cooperation without getting exploited" (2012, 178). Stressing the utility to the ingroup of punishment of free-riders and ostracism of deviants, he expanded the concept to include the way in which norms and laws enforce (sometimes irrational but always ethnocentric) paradigms of proportionality and deservingness. Meanwhile, cultural anthropologists have, since the work of Marcel Mauss ([1950] 2000), suggested that a gift (from food sharing in hunter-gatherer groups to wedding presents in the US) is never free because it is usually given with the expectation of reciprocity. But upon a closer look we find that the selfish gene, in humans, is complicated by the exceptional proclivities of the dopamine-dominated striatum. Before discussion of the mitigation of neurochemistry in the selfish gene paradigm, let's take a brief look at the mechanics of altruism.

In primates, examples of altruism often reflect the *Homo economicus* model, only occurring when the situation is likely to resolve as a win-win one--an example would be when two subordinate males band together to challenge one alpha male. But biological altruism must specifically involve the sacrifice of genetic fitness, so this example is simply mutual cooperation. A better example is alarm calling in some monkey species. The conservative argument, labeled "kin selection" in a landmark theory by W.D. Hamilton (1964), states that alarm calling cannot have evolved unless a particular measure of kinship within a group was met. So, if an altruist-gene-bearing monkey gave an alarm call to a group of unrelated monkeys, it sacrificed its own individual and genetic fitness while allowing a group made up of potentially all genetic non-altruists to survive. This means that the gene or set of genes for alarm calling would have

eventually disappeared from the population's gene pool. Altruism, therefore, can only evolve if some of the group members being saved from the predator are related to the altruist and therefore may also possess the alarm-calling gene. Thus saved, they can pass the trait down, their genes persisting despite risky behavior.

Grooming is another altruistic behavior in primates that may correlate with human generosity, but again, it is more common among kin and is usually reciprocated, another example of mutualism (Boyd and Silk 2009, 186). However, food-sharing among chimps and bonobos has been well-documented, and interestingly, the more highly prized the food (meat and rare fruit), the more frequently we see sharing (Byrnie et al. 2015, Hockings et al. 2007). Is this still the behavior of *Homo (or Pan) economicus*? I would answer yes and no. On the one hand, kinship, extra-kin reciprocity, alliance-building, and annoying harassment by others have been shown to be the motives of food sharing in chimps (Silk et al. 2013). On the other hand, Yamamoto (2015) reports "non-reciprocal" and "courteous food sharing" by dominant female bonobos with subordinate ones who seem merely to be testing their superiors' feelings toward them. The behavior is not likely to be a function of alliance networking, as dominant females will already have firm alliances established based on their hierarchical privilege.

But at the root of it all seems to be, as you may have guessed by now, a chemical feeling of goodwill. Wittig et al. (2014) report, in a study involving urine analysis, that oxytocin levels in wild chimpanzees rise during food-sharing behaviors with kin and non-kin alike. Importantly, they also note that these high oxytocin levels are greater during this evolutionarily risky behavior of food-sharing than they are when engaging in less-costly altruistic behaviors like grooming. Scientists have studied the physiology of altruistic emotions in the lab (Kim et al. 2009; Sprecher and Fehr 2006), sometimes through the administration of oxytocin (De Dreu et al. 2010; Zak et

al. 2007). Social psychologists have also promoted the existence of an imitative, environmental aspect in which amenability and generosity depend upon the milieu in the family home; yet, identical, fraternal, and virtual twins studies indicate the heritability of many testable social traits (Greenberg et al. 2015, 476; Pinker 2003, 47), a trend in which prosocial behavior and social accountability rank the highest (Ebstein et al. 2000)--traits we have addressed under the umbrella of neurochemicals and the striatum. Herein lies the source of a physiological compulsion behind a conception of human nature that opposes the theory of Homo economicus.

The biology of kindness thus illustrates how non-reciprocal altruism, as a social manifestation of adaptive fitness, represents a way to access, on the one hand, the evolved behavioral inclination to ward off ostracism and, on the other hand, the healthy alliances that satisfy an instinctive psychological appetite for chemical rewards. If the key to the promotion of the selfish gene in human and all other social species is social security (so to speak), then kindness would be as effective and fruitful a strategy, and perhaps more so emotionally, as forceful alliance through dominance or false federation through lies and manipulation. What I am arguing, then, is that kindness satisfies the sociobiological imperatives of human evolution by achieving psychological rewards and serving to cement evolutionarily strategic alliances. But it does so in an ethically accountable manner that, as an extremely beneficial byproduct, affords benefits to others that do not involve a primitive coefficient of relatedness. In this way, interpersonal and ideological kindness is a manifestation of an anthropologically valuable but rare iteration of the externally-guided or allocentric dopamine-dominated striatum.

Even though, therefore, non-reciprocal altruism falls well within the bounds of what we assume about developments in late-Pleistocene human behavior, it does not paint a picture that biologists outside of primatology would be familiar with. Not only have acts of anonymous

international charity confounded scholars of the life sciences, but the idea of a person jumping in front of a train to save a stranger or a soldier signing up to die for his country have little to no place in altruism theory. Eminent evolutionary biologist George C. Williams, in 1966, insisted that “unmeasured generosity” could not evolve unless a species were “genetically fixed and hermetically sealed” because selfish infiltrators would take over and “reap the advantages of others” sacrifices without making their own” (qtd in Pinker 2003, 258). Perhaps he understood humans’ behavioral flexibility, but he did not know about the pull placed on it by, in the right psychological profile, dopamine and oxytocin. Nor did he consider the extent to which, as discussed above, the traumatic physiological effects of ostracism adaptively pulled most people toward conformity and some toward forthright kindness as methodologies of ingratiation beyond mere food-sharing where food security is not at issue. These strawberry strategies of social survival, thus, exist, but they tend to be overlooked due to the overwhelmingly greater effects on society of the behavior of those oriented toward the exploitation rather than the maintenance of the hive.

As Haidt points out, it is really the social life of the eusocial insect, more so than the *Pan* genus, that resembles humans’ unique community-oriented behavior. Like us, hive species build, farm, defend, and procreate cooperatively, but they only function successfully when they “find a way to suppress free-riding,” (Haidt 2012, 234), an issue for social species that revolves around the potential for exploitation. Suppression of free-riding is necessary when evolution does not dampen the behavioral effects of the selfish gene in species the way that it did, say, in honeybees--all of whom are completely mind-controlled by their queens’ hormonal and neurochemical signals. Accordingly, the evolution of the social emotions and the development of culture has had mixed results in the promotion of cohesion because, as explained in the section

on ethnocentrism, it still tends only to extend to the level of the hive--how-ever we might choose for that to be defined. Thus, a disclaimer about instinctual cooperation is in order.

Especially in places where people's basic needs of survival, safety, or self-determination are not met, civil war, state violence, and ethnic conflict are standard. The same goes for areas within the developed nations where quality of life is distressed and social and material resources are lacking, resulting in crime and poor sociological outcomes. And even in the West's privileged pockets where crime is low and outcomes are high, contentious ideological strife persists beneath the placidity of farmers' markets and soccer practices. This is not to mention the exceedingly successful persistence of aggressive behavior (from spousal abuse and sexual predation to oil warlords and extra-constitutional military droning) or free-riders (from the local damages of organized crime to the national despoilment by Russia's free-market thieves and corporate American tax havens). Yet, particularly among the military, the mafia, and the elite world of finance, even if conscientiousness and harmony are absent, the Gestalt of cult-like ethnocentrism persists, and solidarity will often have the last word. But what about those members of the species who *do* have a conscience?

Pinker suggests that the wide range of specifically social emotions, involving outward orientation and the reflexive sociometer for constantly gauging one's position vis-à-vis others, evolved to adjust to the "demands of reciprocal altruism." He continues, "Sympathy and trust prompt people to extend the first favor. Gratitude and loyalty prompt them to repay favors. Guilt and shame deter them from hurting or failing to repay others. Anger and contempt prompt them to avoid or punish cheaters... This leads to an interest in the reputation of others, transmitted by gossip and public approval or condemnation, and a concern with one's own reputation" (2003, 243). Journalist Matt Ridley vividly explains this aspect of the human condition: "Reciprocity

hangs, like a sword of Damocles, over every human head. He's only asking me to his party so I'll give his book a good review. They've been to dinner twice and never asked us back once. After all I did for him, how could he do that to me? If you do this for me, I promise I'll make it up later. What did I do to deserve that? You owe it to me. Obligation; debt; favour; bargain; contract; exchange; deal.... Our language and our lives are permeated with ideas of reciprocity” (qtd in Pinker 2003, 256). In general, it sounds like what he is focused on is Homo economicus.

Centuries ago, Hobbes and Locke suggested that the power of a king or a social contract could balance the extractive nature of Homo economicus but, as philosopher Giorgio Agamben (1998) has illustrated, the democratic state (and, in Gramscian terms, it should be added, the state’s socioeconomically hegemonic actors), tends not to neutralize Homo economicus but, rather, to embody it. A large part of the Republican Party’s political platform is dedicated to the public policy that citizens should not rely on taxpayer support for their economic well-being because they will tend to take advantage of such largesse and become lazy (Hochschild 2016, 35, 158; Williamson et al. 2011, 26), a startlingly transparent iteration of the problem of free-riding despite its complete innocence of a biological perspective.

However, as Delery and Block (2006) state: “Welfare bums and welfare queens are by no means limited to the public housing projects. They are also to be found in the corporate boardrooms of some of the most prestigious business firms in the nation” (337) who cost taxpayers billions per year (338) so that corporate welfare represents the robust backbone of the Republican political project. As such, the evolutionary principle of reciprocity and cooperation can manifest in a myriad of ideologies that buttress the supposed legitimacy of irrational and, in this case, misguided doxic traditions. Pinker summarizes this anthropological paradox from a materialist perspective: “the design of the moral sense,” developing as it did out of the need to

cohere through whatever idiosyncrasies validate the group, “leaves people in all cultures vulnerable to confusing defensible moral judgments with irrelevant passions and prejudices” (2003, 272).

The emotional ethos underlying the sort of preoccupation with proportionality in reciprocity as described by Ridley, above, and in Republicans’ passionate disgust over welfare queens, could be said to be fairness, but when a concern with fairness is directed inwardly as a kind of *personal standard of conduct* toward others rather than outwardly as a *kind of vindictive social policing*, individual conscientiousness will be the impetus for its upkeep.

Conscientiousness would seem to be a personality trait that varies widely in populations, sometimes depending upon cultural values, and sometimes differing from family to family and individual to individual. Philosopher Peter Singer has argued, through a problematically exceptionalist Western lens, that “[p]eople have steadily expanded the mental dotted line that embraces the entities considered worthy of moral consideration...outward from the family and village to the clan, the tribe, the nation, the race, and most recently (in the Universal Declaration of Human Rights) to all of humanity” (qtd in Pinker 2003, 167). Perhaps such a sweeping statement is a problem of implicit versus explicit cultural values--a declaration is not a law, after all, and besides that, laws get broken. Conversely, I would stipulate that certain people in *every* culture have this emotional capacity to embrace a wide moral circle, and that they tend to congregate together, in places where agency allows, in social movements or ideologies that enable the satisfaction of intersubjective coalescence around the shared sensibility of kindness and compassion without borders.

In his book on the evolution of morality, Haidt (2012) explores psychology through a Durkheimian lens that emphasizes cohesion and accountability in small groups as the key

Darwinian advantage that enabled the biological success of the human species, formulating a touchstone theory for cross-culturally ubiquitous religious and political behaviors. Embracing Durkheimian sociology as a framework that reveals the organizing principles of social patterns not only in non-stratified or stateless societies but in the industrialized world as well, Haidt argues--correctly, I believe--that Durkheim's concept of "mechanical" solidarity, in which "normative values are shared and more important than individual ones" (Moore 2012, 46), should be interpreted as a basis for the species' social life. Haidt argues that in every society including Western ones, which tend to be politically and economically organized around individuality, most people are born into small, closely-knit social units, like those in which humanity involved, that contain "strong and constraining relationships that profoundly limit [one's] autonomy," and these cultures and subcultures "value self-control over self-expression, duty over rights, and loyalty to one's groups..." (192)--just like the stratified relations in one of Durkheim's preindustrial societies.

Arguing against the prominent rationalist approach to moral psychology of Piaget, Kohlberg, and Turiel, who have suggested that morality tends to follow the utilitarian logic of Homo economicus in simply prescribing fairness and proscribing harm to others, Haidt shows that the river of human psychology runs much deeper and wider than the rationalist paradigm (2012, 20). Hitching his wagon to the nativist school of thought in which morality is an evolved trait, Haidt's "moral foundations theory" states that there are six basic psychological modules for morality, developed through natural selection in the physiology of hominin ancestors, that are likely to be satisfied by any number of culturally-established institutions in order to promote socially acceptable means of solidarity (146-147, 193). While Haidt assigns each module an original trigger that must have been in effect, and been powerfully selected for, among the rather

limited conditions of the Pliocene, he states that the triggers now will vary but still exhibit a connection to an ancient psyche geared toward survival in groups, despite our seemingly modern surroundings.

The virtue of Care, according to Haidt, developed out of the neurobiology of parents' attachment to their offspring; however--as we have seen--care is an attitude that is chemically reinforced through a wide range of social interactions. A mandate for Fairness among peers comes from the benefit of reciprocal altruism among non-kin, which proved early on to be a successful survival strategy among hominin groups. The pull of Loyalty further enabled coalitional competition, enhanced in times of need by the Authority module, which played upon the dominance/submission behavior of primate ancestors for efficiency in competition and organization. However, the latter is kept in check by the Liberty foundation, which blossomed as language and weaponry provided less physically-endowed individuals with a voice in the group milieu through means other than the innate pecking order, thus putting a check on extreme greed (at least for a long stretch of ancient history). Finally, a Sanctity module, originally for delineating contaminants and parasites, served to sacralize parochial standards for solidarity, making the survival strategy of cohesion into a divine sort of mandate that, like Fairness, punishes transgression, but by cosmic decree instead of peer pressure and emotions like shame and guilt.

While stating that the mechanical force of bonding still determines actual, lived and felt (often ethnic, religious, or political) social boundaries, Haidt does not explain why some people might tend toward a moral system involving the Care and Fairness foundations (which he assigns to liberals in the US) while others find comfort in more-organized and hierarchical Authority, Loyalty, or Sanctity structures (conservatives in the US). The idea that several radically different

moral modules entailing emotional meaning and checks and balances on free-riding are present across human time and space is theoretically indicative of various successful social arrangements that evolved simultaneously due to their equal viability, which Haidt associates with their ability to promote solidarity over selfishness, which in return promotes the species' success. But it is within the foundations' equal viability that the problem of Haidt's subtitle lies, and it also represents the research question for his book: why good people are divided by politics and religion. "Why is it so hard for us to get along?" he asks in the introduction.

Contrary to Haidt, I strongly disagree that there is a moral equivalency between the proposed six foundations or between the ideologies espoused and behaviors displayed by adherents of conservative and liberal politics in the US. However, I do agree with his sociological assessment--borrowed from the now-abandoned psychological anthropology of Richard Shweder--that many cultures across the world can be divided into a dichotomy between sociocentric and individualistic, with really only the mainstream Western cultures in the Enlightenment tradition representing the latter. The conservative foundations of Authority, Sanctity, and Loyalty, Haidt finds, tend to manifest in both society types, according to his research in several cultures of varying techno-economic levels across the globe, while he finds that Care and Fairness tend to be sociological luxuries that allow the development of a more intimate, personalized ethos that lacks the constraints and obligations of sociocentric cultures (2012, 114). While such data conflicts with my assertion of the universal if diffuse existence of a kindness ethos between and among all cultures, it may be true that the mechanical force of solidarity and the institutions designed to support and enforce it are more constraining in traditionalistic cultures--and especially in smaller subcultures--in which the established and strict

moral norms that emphasize order and authority over fairness and care are more-easily compelled due to cultural authorities' looming proximity.

Still, there is the chance for rebellion--or even for the presence of silent, conscientious struggle and dissent against established norms--which Haidt does not address. And here is where, I believe, the individual's psychological profile, if it exerts a strong enough force on a person's emotions and behaviors, may override, if only in rare cases, the proximal constraints of whatever the chosen moral foundation of the local culture may be. What if I live in a society, for instance, in which homosexuality is punishable by imprisonment or exile, but as I grow into an adult, I realize that I am gay, that there are others out there who are gay, and that I cannot live the lie that my family and my religion require of me in order to remain integrated with my natal culture? Or perhaps my life has been spent in a small sociocentric circle of Christian fundamentalists who believe that abortion is a sin punishable in hell for eternity, and one day I decide that this idea is wrong because I don't believe people have souls? What if I am a Scientologist but eventually come to question the concept of extraterrestrial predecessors or see that the process of "clearing" hurts people? There is a theoretical place where this person will surface in the data on the biology of kindness.

The neurochemical data discussed by Raghanti et al. (2018), which entailed the sociobiology of cooperation, demonstrate what psychologists already know quite well to be the potential for individual variability in emotional and social personalities. Autism and Williams syndrome, as previously discussed, represent examples of neurophysiological disorders that demonstrate exceptions to the socially average physiology. But it seems obvious that even those without such disorders should be seen as falling along a socio-emotional spectrum ranging from the sociopath at one extreme to codependent at the other. In articulating the dichotomous social

affectations behaviorally exhibited by individuals guided unevenly by either the ventral or dorsal striatum, van den Bos (2015) suggests that the presence of binary profiles in the population might have developed out of an “evolutionary advantage” that was “conferred to having potentially more personalities,” perhaps “allowing for dynamic adaptation to changes in the environment” (15). Pinker, meanwhile, believes that “pure magnanimity can evolve in an environment of people seeking to discriminate fair-weather friends from loyal allies... The best way to convince a skeptic that you are trustworthy and generous is to be trustworthy and generous” (2003, 259). Thus, he sees conscientious altruism, as Boehm did decades earlier, as evolving through a process of gradual emotional sophistication designed to benefit the individual through group functioning, as in the social evolution of the hive insect species but, of course, much more nuanced.

Experiences in life will influence one’s personality down to the neuronal and synaptic level (Niehoff 1999, 116-117) so that people will fluctuate on the spectrum of affectively-motivated altruism as they age, but the overarching moral modules remain, so that only one’s orientation toward them is capable of changing (and this, only to the extent of one’s abilities and proclivities). Based on the data revealed in social psychology and neuroscientific imaging experiments, conformity and ethnocentrism seem to represent the most common and direct social survival strategies. Given the Durkheimian cohesion they impart, they probably also prove the most beneficial for the group and whatever its authorities’ interests happen to be. Kindness, on the other hand, offers a rewarding sense of purpose and gratification to the benefactor, while its effects on beneficiaries can range from a single individual to many others. An orientation toward conscientiousness and kindness will be located in the person who has been neurochemically and experientially prepared for such a talent, and it will be evidenced by his or her behavior toward

others and, more broadly, perhaps, in his or her fidelity to corresponding culturally-specific institutions upholding the Care and Fairness moral foundations. Pinker ultimately suggests a variation on Singer's theme of the expanding moral circle, stating, "Once the sympathy knob is in place, having evolved to enjoy the benefits of cooperation and exchange, it can be cranked up by new kinds of information that other folks are similar to oneself" (2003, 168).

In many modern nations, moral foundations are worked out societally through the institution of politics, but, as is obvious, not everyone in a society is endowed with a voice to participate in the formation of political platforms. In struggling nations, oligarchs tend to enforce their statuses through the Authority, Loyalty, or Sanctity foundations. In democratic nations, the foundations, through religion and politics, compete even as the hegemonic status quo may lie stagnant (Gramsci [1971] 2014), but it would seem that the liberal platform of public works, human rights, corporate regulation, and diversity and tolerance represents the morality of non-reciprocal altruism. As I intimated in the opening, this is not to state that liberals do not behave selfishly or greedily in their everyday interactions. But most aspects of the liberal platform provide evidence that kindness exists abstractly as one element in an otherwise coercive structure, while neuroscience and social psychology reveal the delicate material of kindness.

## CONCLUSION

I am wary about closing out this research with a statement regarding my position on what is at stake, politically and otherwise, in the pursuit of knowledge surrounding the biology of human behaviors like selfishness and kindness. I took the position in the opening that the intellectual reputations of cultural anthropologists are at stake if we continue to deny the fundamental aspects of evolution that guide, as we blindly follow, the Gestalt of a social reality that reveals temporally and spatially repeating patterns of power and violence. True to my

training, however, I am skeptical about suggesting that there are any societal possibilities inherent in articulating these truths, even if they were to become part of an established pedagogical system imparted to young citizens of the West at an early age as part of a cautionary as opposed to an exceptionalist discourse about human nature--an idea whose rise to acceptance is still very far in the future.

As I noted in the opening section with a quote by Pinker, the Western narrative of the onward march of progress inherited from the Enlightenment era is a subject of scorn for many liberal intellectuals. In this paper, on the other hand, I have mobilized the accusation of dogma and superstition against social constructionism, which, as Pinker has shown, also derives from the Enlightenment. In postmodernist social theory, there seems to be no safe haven from the discourse of positivist-phobia established by Said and Foucault that pours like an acidic rain on the construction of knowledge, which continues in full force, budgets straining, mostly Western-funded, despite intellectuals' acknowledgement of a legacy of power and privilege. Having critiqued this paradigm, why do I still express trepidation about suggesting "a way forward" as closing arguments in many disciplines are so wont to do?

It is not because I feel dubious about the validity of the research I have cited. And it is not because I question the privileged foundations of that research, done for the most part in the West by Westerners (with some exceptions, such as studies from Korea, China, and Japan). I have already stated that, regardless of the political economy of its funding, the research that I have accessed from the fields of neuroscience and social psychology is geared toward explaining some of the problematic behaviors that humans acting in groups exhibit, like ostracism and conformity and structurally violent ideologies, which I think actually helps illuminate some of the issues that constitute the embattled human condition. I find that a biocultural approach, like

that being promoted by Pinker and Haidt, represents participation in an intellectual consensus geared toward highlighting humanity's primitive tendencies, which biologists and psychologists make no bones about ascribing to the people in the West, but which cultural anthropologists deny in any culture--a problem, if we are trying to root out power. So what are the stakes of forcing the biology of kindness onto an overlay of cultural theory?

Because I have a measure of confidence, unlike most of my intellectual peers, that positivism and structural violence do not represent an infinite symbiotic monolith, it would seem that my disbelief in the secular religion of progress branches from a different root than does postmodernist skepticism. In fact, my doubt is rooted in positivism, or rather, in my interpretation of the implications of the data articulated above. Mere observation of human history alone might tell us that behavioral and cultural manifestations of altruism will be acutely circumscribed. Sadly, Dawkins' selfish gene theory only confirms the gist of Hobbes' concept of natural law, which states that the living of one's life, which first and foremost entails self-preservation, in the social realm, entails conflicts with others' definitions of all that self-preservation entails:

And from this diffidence of one another, there is no way for any man to secure himself, so reasonable as...by force, or wiles, to master the persons of all men he can, so long, till he see no other power great enough to endanger him: And this is no more than his own conservation requireth, and is generally allowed. Also because there be some, that taking pleasure in...acts of conquest, which they pursue farther than their security requires; if others, that otherwise would be glad to be at ease within modest bounds, should not by invasion increase their power, they would not be able...by standing only on their defence, to subsist. ([1651] 2013, Chapter XIII)

Marx's theory of the estrangement of labor as a function of avarice exudes a Hobbesian aura, although I disagree that the institution of private property is somehow a tragic perversion of human nature. Property is a much more ancient social fact than the Industrial Revolution, and I

suspect that its manifestation as a frequent cultural phenomenon in the archaeological record of the first chiefdoms and civilizations simply coincides with the invention of technologies that enabled sedentary accumulation. Nonetheless, Marx's diagnosis of the coercive relations of production illuminates the precarious nature of the biology of kindness that gives me pause in mediating the possibilities of a way forward: "There is a form of inactive, extravagant wealth given over wholly to pleasure, the enjoyer of which...knows the slave-labour of others (human sweat and blood) as the prey of his cupidity, and therefore knows man himself, and hence also his own self, as a sacrificed and empty being" (1978, 100). Is it possible that greed also has a biology of its own? I think so, and I think it tends to be more potent a force of nature than the physiological mechanisms described above.

I have come as close as I can to taking a stand against the selfish gene in an empirical rather than a philosophical way, so that rather than simply complaining about the lack of sociopsychological nuance in the theory, I could illuminate the research that suggests alternatives. While other scholars in this tradition, such as Pinker and Haidt, whose work has guided this one, tend to reflect on their optimistic hopes for our future in the final chapters of their biocultural productions (Pinker sentimentally clings to progress, while Haidt, incredibly, advocates the impartial rationality of free markets), I prefer to close with a reminder that, as we go about our days struggling to get along, to make a life with a spouse, to put food on the table and a roof over our heads for us and our children, to take care of elderly loved ones, to seek out trustworthy friends with whom we share interests, to ward off illness through healthy living or prayers, to accomplish material or ethical goals, we are behaving in a manner that was programmed in us through evolution. Having children, striving for status or self-esteem, hoping for good health--these behaviors represent some of the most fundamental aspects of animal life.

The urge to procreate is hardcoded into our genes, and few human individuals escape its pull; longevity is the surest strategy for accomplishing this genetic imperative; status is central to reproductive success in any hierarchically social species; and self-confidence is essential in garnering the social alliances necessary for emotional and material wellbeing and thus longevity. Until social theory embraces the utter and unfortunately unflattering primitivity of the nature of human existence, I will continue to advocate for the addition of a biocultural wing to the institution of anthropology while warning that the strawberries of the human condition are precious and rare, and the tigers and mice are sometimes everywhere.

## References

- Agamben, Giorgio. 1998. *Homo Sacer: Sovereign Power and Bare Life*, translated by Daniel Heller-Roazen. Stanford: Stanford University Press.
- Alexander, Richard D. 1974. The Evolution of Social Behavior. *Annual Review of Ecology and Systematics* 5: 325-383.
- Andersen, Kurt. 2017. How America Lost Its Mind. *The Atlantic*.  
<https://www.theatlantic.com/magazine/archive/2017/09/how-america-lost-its-mind/534231>. Accessed 2 February 2018.
- Asch, SE. 1956. Studies of Independence and Conformity: I. A Minority of One Against a Unanimous Majority. *Psychological Monographs: General and Applied* 70(9): 1-70.
- Baumeister, RF and MR Leary. 1995. The need to belong: desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin* 117: 497–529.
- Berger, Peter L. and Thomas Luckmann. [1966] 1991. *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*. London: Penguin Books. Reprint, 1967.
- Berns, Gregory S., Jonathan Chappelow, Caroline F. Zink, Giuseppe Pagnoni, Megan E. Martin-Skurski, and Jim Richards. 2005. Neurobiological Correlates of Social Conformity and Independence During Mental Rotation. *Biological Psychiatry* 8: 245–253.
- Boehm, Christopher. 1982. “The Evolutionary Development of Morality as an Effect of Dominance Behavior and Conflict Interference.” *Journal of Social Biological Structure* 5:413-421.
- Bourdieu, Pierre. 1977. *Outline of a Theory of Practice*, translated by Richard Nice. Cambridge Studies in Social and Cultural Anthropology, edited by Ernest Gellner, Jack Goody, Stephen Gudeman, Michael Herzfeld, and Jonathan Parry. Cambridge: Cambridge University Press.
- Boyd, Robert and Joan B. Silk. 2009. *How Humans Evolved*, Fifth Edition. New York: W.W. Norton & Company.
- Buijs, Ruud M. and Dick F. Swaab, eds. 2013. Autonomic Nervous System. *Handbook of Clinical Neurology* 117, 3rd series, edited by Michael J. Aminoff, Francois Boller, and Dick F. Swaab. Amsterdam: Elsevier B.V.

- Byrnit, Jill T., Henrik Høgh-Olesen, and Guido Makransky. 2015. Share your sweets: Chimpanzee (Pan troglodytes) and bonobo (Pan paniscus) willingness to share highly attractive, monopolizable food sources. *Journal Of Comparative Psychology* 129(3): 218-228.
- Carré, Justin M., Luke W. Hyde, Craig S. Neumann, Essi Viding, and Ahmad R. Hariri. 2013. The neural signatures of distinct psychopathic traits. *Social Neuroscience* 8(2): 122–135.
- Carter, Brandon. 2018. Kushner disclosed additional assets in amended financial disclosure form: report. *The Hill*. <http://thehill.com/homenews/administration/374243-kushner-discloses-additional-assets-in-amended-financial-disclosure>. Accessed 28 March 2018.
- Cornwallis, Charlie K. 2018. Cooperative Breeding and the Evolutionary Coexistence of Helper and Nonhelper Strategies. *PNAS* 115(8): 1684-1686.
- Davidson, Richard J., Klaus R. Scherer, and H. Hill Goldsmith, eds. 2013. *Handbook of Affective Sciences. Series in Affective Science*. Oxford: Oxford University Press.
- Dawkins, Richard. [1976] 1989. *The Selfish Gene*. Oxford: Oxford University Press.
- De Dreu, CK, LL Greer, MJ Handgraaf, S Shalvi, GA Van Kleef, and M Baas. 2011. The Neuropeptide Oxytocin Regulates Parochial Altruism in Intergroup Conflict Among Humans. *Science* 328: 1408- 1411.
- De Vignemont, Frederique and Tania Singer. 2006. The empathic brain: how, when and why? *Trends in Cognitive Science* 10(10): 435–441.
- Delery, Jeanette and Walter Block. 2006. Corporate Welfare. *Journal of Markets and Morality* 9(2): 337- 346.
- Depue, Richard A. and Paul F. Collins. 1999. Neurobiology of the structure of personality: Dopamine, facilitation of incentive motivation, and extraversion. *Behavioral and Brain Science* 22: 491 - 569.
- Ebstein, Richard P., Salomon Israel, Soo Hong Chew, Songfa Zhong, and Ariel Knafo. 1999. Genetics of Human Social Behavior. *Neuron* 65: 831-844.
- Ehrlich, Paul R. 2002. *Human Natures: Genes, Cultures, and the Human Prospect*. New York: Penguin Books.
- Eisenberg, Nancy. 2007. Empathy-related responding and prosocial behaviour. *Novartis Foundation Symposium* 278: 71-80.

- Epley, N. and T. Gilovich. 1999. Just Going Along: Nonconscious Priming and Conformity to Social Pressure. *Journal of Experimental Social Psychology* 35(6): 578-589.
- Flohr, Heiner. 1986. Biological Bases of Social Prejudices. In *The Sociobiology of Ethnocentrism: Evolutionary Dimensions of Xenophobia, Discrimination, Racism and Nationalism*, ed. by V. Reynolds, Vincent S.E. Falger, and Ian Vine, 190-207. Athens: The University of Georgia Press.
- Foucault, Michel. 1988. Truth and Power. In *Power/Knowledge: Selected Interviews and Other Writings, 1972-1977*, edited by Colin Gordon. 1st American Edition. New York: Random House.
- Gallese, Vittorio and Alvin Goldman. 1998. Mirror neurons and the simulation theory of mind-reading. *Trends in Cognitive Sciences* 2(12): 493-501.
- Gavrilets, Sergey and Aaron Vose. 2006. The dynamics of Machiavellian intelligence. *PNAS* 103(45): 16823–16828.
- Giddens, Anthony. 1979. *Central Problems in Social Theory: Action, Structure, and Contradiction in Social Analysis*. Berkeley: University of California Press.
- Glenn, AL and Y. Yang. 2012. The potential role of the striatum in antisocial behavior and psychopathy. *Biological Psychiatry* 72(10): 817-822.
- Goetz, Jennifer L., Dacher Keltner, and Emiliana Simon-Thomas. 2010. Compassion: An Evolutionary Analysis and Empirical Review. *Psychological Bulletin* 136(3): 351–374.
- Gramsci, Antonio. [1971] 2014. *Selections from the Prison Notebooks of Antonio Gramsci*, edited and translated by Quintin Hoare and Geoffrey Nowell Smith. New York: International Publishers. Reprint.
- Greenberg, Jeff, Toni Schmader, Jamie Arndt, and Mark Landau, eds. 2015. *Social Psychology: The Science of Everyday Life*. New York: Worth Publishers.
- Haidt, Jonathan. 2013. *The Righteous Mind: Why Good People Are Divided by Politics and Religion*. New York: Vintage Books.
- Hamilton, W.D. 1964. The genetical evolution of social behaviour I, II. *Journal of Theoretical Biology* 7: 1–52.

- Hayden, Brian. 1994. Competition, labor, and complex hunter–gatherers. In *Key Issues in Hunter- Gatherer Research*, edited by E.S. Burch and L.J. Ellana, 223–239. Oxford: Berg Press.
- Hobbes, Thomas. 2013. *Leviathan, or: The Matter, Forme, and Power of a Common-Wealth Ecclesiastical and Civill*. The Project Gutenberg EBook of Leviathan, edited by Edward White and David Widger. <https://www.gutenberg.org/files/3207/3207-h/3207-h.htm>. Accessed 18 March, 2018.
- Hockings, Kimberley J., Tatyana Humle, James R. Anderson, Dora Biro, Claudia Sousa, Gaku Ohashi, and Tetsuro Matsuzawa. 2007. Chimpanzees Share Forbidden Fruit. *PLoS One* 9: e886/1-4.
- Hochschild, Arlie Russell. 2016. *Strangers in Their Own Land: Anger and Mourning on the American Right*. New York: The New Press.
- Holt-Lunstad, J., TB Smith, and JB Layton. 2010. Social relationships and mortality risk: a meta-analytic review. *PLoS Med.* 7:e1000316.
- Iacoboni, Marco. 2009. *Mirroring People: The Science of Empathy and How We Connect with Others*. New York: Picador.
- Insel, Thomas R. 2010 The Challenge of Translation in Social Neuroscience: A Review of Oxytocin, Vasopressin, and Affiliative Behavior. *Neuron* 65: 768-779.
- Irwin, Colin J. “A Study in the Evolution of Ethnocentrism.” In *The Sociobiology of Ethnocentrism: Evolutionary Dimensions of Xenophobia, Discrimination, Racism and Nationalism*, ed. by V. Reynolds, Vincent S.E. Falger, and Ian Vine, 131-156. Athens: The University of Georgia Press.
- Kanwisher, Nancy and Galit Yovel. 2006. The Fusiform Face Area: A Cortical Region Specialized for the Perception of Faces. *Philosophical Transactions: Biological Sciences* 361(1476), The Neurobiology of Social Recognition, Attraction and Bonding, 2109-2128.
- Karau, Steven J. and Kipling D. Williams. 1993. Social Loafing: A meta-analytic review and theoretical integrations. *Journal of Personality and Social Psychology* 65(4): 681-706.
- Khalid, Kiran. 2011. Trump: I'm worth whatever I feel. CNN Money. [http://money.cnn.com/2011/04/21/news/companies/donald\\_trump/index.htm](http://money.cnn.com/2011/04/21/news/companies/donald_trump/index.htm). Accessed 28 March 2018.

- Kim, Ji-Woong, Sung-Eun Kim, Jae-Jin Kim, Bumseok Jeong, Chang-Hyun Park, Ae Ree Son, Ji Eun Song, and Seon Wan Ki. 2009. Compassionate attitude towards others' suffering activates the mesolimbic neural system. *Neuropsychologia* 47: 2073–2081.
- Kling, A., J. Lancaster, and J. Benitone. 1970. Amygdectomy in the free-ranging vervet (*Cercopithecus aethiops*). *Journal of Psychiatric Research* 7: 191–199.
- Klucharev, Vasily, Kaisa Hytönen, Mark Rijpkema, Ale Smidts, and Guillén Fernández. 2009. Reinforcement Learning Signal Predicts Social Conformity. *Neuron* 61 (1):140-151.
- Kruglanski, AW. 1989. *Lay Epistemics and Human Knowledge: Cognitive and Motivational Bases*. New York: Plenum Press.
- Lancaster, Jane B. 1975. *Primate Behavior and the Emergence of Human Culture. Basic Anthropological Units*, edited by George Spindler and Louise Spindler. New York: Holt, Rinehart and Winston.
- Latour, Bruno. 1988. *The Pasteurization of France*. Cambridge: Harvard University Press.
- Latour, Bruno. 2000. On the Partial Existence of Existing and Non-existing Objects. In *Biographies of Scientific Objects*, edited by Lorraine Daston, pp. 247-269. Chicago: Chicago University Press.
- Little, Katie, Deborah M. Riby, Emily Janes, Fiona Clark, Ruth Fleck, Jacqui Rodgers. 2013. Heterogeneity of social approach behaviour in Williams syndrome: The role of response inhibition. *Research in Developmental Disabilities* 34(3): 959-967.
- MacDonald, G. and MR Leary. 2005. Why Does Social Exclusion Hurt? The Relationship Between Social and Physical Pain. *Psychological Bulletin* 131(2): 202-223.
- Martens, A., J. Greenberg, and JB Allen. 2009. Self-Esteem and Autonomic Physiology: Parallels Between Self-Esteem and Cardiac Vagal Tone as Buffers of Threat. *Personality and Social Psychology Review* 12(4): 370-389.
- Marx, Karl. 1978. Economic and Philosophic Manuscripts of 1844. In *The Marx-Engels Reader*, 2nd edition, edited by Robert C. Tucker. New York: W.W. Norton and Co.
- Mauss, Marcel. [1950] 2000. *The Gift: The Form and Reason for Exchange in Archaic Societies*, translated by W.D. Halls. New York: W.W. Norton & Company, Inc.

- McQuaid, Robyn J., Opal A. McInnis, Kimberly Matheson, and Hymie Anisman. 2015. Distress of ostracism: oxytocin receptor gene polymorphism confers sensitivity to social exclusion. *Social Cognitive and Affective Neuroscience* 10: 1153-1159.
- Miele, Frank. 1995. Darwin's Dangerous Disciple: An Interview by Frank Miele. *Scepsis* magazine, 3/4. [http://scepsis.net/eng/articles/id\\_3.php](http://scepsis.net/eng/articles/id_3.php). Accessed 14 March 2018.
- Milgram, Stanley. [1974] 2009. *Obedience to Authority*. New York: HarperCollins.
- Mill, John Stuart. [1844] 2000. *Essays on Some Unsettled Questions of Political Economy*, 2nd edition. Kitchener: Batoche Books. <https://socialsciences.mcmaster.ca/econ/ugcm/3ll3/mill/Questions.pdf>. Accessed 19 March 2018.
- Moore, Jerry D. 2012. *Visions of Culture: An Introduction to Anthropological Theories and Theorists*. Plymouth: AltaMira Press.
- Neuhaus, Emily, Theodore P. Beauchaine, Raphael Bernier. 2010. Neurobiological correlates of social functioning in autism. *Clinical Psychology Review* 30: 733–748.
- Nakahashi, W. and S. Horiuchi. 2012. Evolution of ape and human mating systems. *Journal of Theoretical Biology* 296: 56–64.
- Niehoff, Debra. 1999. Bad Chemistry. In *The Biology of Violence: How Understanding the Brain, Behavior, and Environment Can Break the Vicious Circle of Aggression*, 115-149. New York: The Free Press.
- Oakley, Barbara, Ariel Knafo, and Michael McGrath. 2012. Pathological Altruism: An Introduction. In *Pathological Altruism*, edited by Barbara Oakley, Ariel Knafo, Guruprasad Madhavan, and David Sloan Wilson. Oxford: Oxford University Press
- Pinker, Steven. 2003. *The Blank Slate: The Modern Denial of Human Nature*. New York: Penguin Books.
- Pinker, Steven. 2018. *Enlightenment Now: The Case for Reason, Science, Humanism, and Progress*. New York: Viking.
- Plavcan, JM, CP van Schaik, and PM Kappeler. 1995. Competition, Coalitions and Canine Size in Primates. *Journal of Human Evolution* 28: 245-276.

- Pohl, Anna, Silke Anders, Martin Schulte-Rüther, Klaus Mathiak, and Tilo Kircher. 2013. Positive Facial Affect – An fMRI Study on the Involvement of Insula and Amygdala. *PLoS One* 8(8): e69886.
- Qirko, Hector N. 2013. Induced Altruism in Religious, Military, and Terrorist Organizations. *Cross- Cultural Research* 47(2): 131 - 161.
- Raghanti, Mary Ann, Melissa K. Edlera, Alexa R. Stephenson, Emily L. Mungera, Bob Jacobs, Patrick R. Hofe, Chet C. Sherwood, Ralph L. Holloway, and C. Owen Lovejoy. 2018. A neurochemical hypothesis for the origin of hominids. *PNAS*, E1108–E1116.
- Reihl, Kristina M., Robin A. Hurley, and Katherine H. Taber. 2015. Neurobiology of Implicit and Explicit Bias: Implications for Clinicians. *Journal of Neuropsychiatry and Clinical Neurosciences* 27(4): A6-253.
- Roberts, S. Craig. 2011. *Applied Evolutionary Psychology*. Oxford: Oxford University Press.
- Sasaki, T. and S. Uchida. 2013. The evolution of cooperation by social exclusion. *Proceedings of the Royal Society of London* 280: 20122498, 1-7.
- Sherif, M. and C. Sherif. 1969. *Social Psychology*. New York: Harper & Row.
- Shirtcliff, Elizabeth A., Michael J. Vitacco, Alexander R. Graf, Andrew J. Gostisha, Jenna L. Merz, and Carolyn Zahn-Waxler. 2009. Neurobiology of Empathy and Callousness: Implications for the Development of Antisocial Behavior. *Behavioral Sciences and the Law* 27: 137–171.
- Silk, JB, SF Brosnan, J. Henrich, SP Lambeth, and SJ Shapiro. 2013. Chimpanzees share food for many reasons: The role of kinship, reciprocity, social bonds and harassment on food transfers. *Animal Behaviour* 85: 941–947.
- Silk, JB, SC Alberts, and J. Altmann. 2003. Social bonds of female baboons enhance infant survival. *Science* 302: 1231–1234.
- Sprecher, S. and B. Fehr. 2006. Enhancement of Mood and Self-Esteem as a Result of Giving and Receiving Compassionate Love. *Current Research in Social Psychology* 11: 227-242.
- Tooby, John and Leda Cosmides. 1992. *The Psychological Foundations of Culture*. In *The Adapted Mind: Evolutionary Psychology and the Generation of Culture*, edited by Jerome H. Barkow, Leda Cosmides, and John Tooby. Oxford: Oxford University Press.

- Trivers, Robert L. 1971. The Evolution of Reciprocal Altruism. *The Quarterly Review of Biology* 46(1): 35-57.
- Udehn, Lars. 1996. *The Limits of Public Choice: A Sociological Critique of the Economic Theory of Politics*. London: Routledge.
- Van den Bos, Ruud. 2015. The Dorsal Striatum and Ventral Striatum Play Different Roles in the Programming of Social Behavior: A Tribute to Lex Cools. *Behavioral Pharmacology* 26: 6-17.
- Villmoare, Brian. 2018. Early Homo and the Role of the Genus in Paleoanthropology. *American Journal of Physical Anthropology* 165: 72-89.
- Vine, Ian. 1986. Human Nature and Sociocultural Processes in Intergroup Discrimination. In *The Sociobiology of Ethnocentrism: Evolutionary Dimensions of Xenophobia, Discrimination, Racism and Nationalism*, edited by V. Reynolds, Vincent S.E. Falger, and Ian Vine. Athens: The University of Georgia Press, 60-80.
- Wacker, Jan and Luke D. Smillie. 2015. Trait Extraversion and Dopamine Function. *Social and Personality Psychology Compass* 9(6): 225–238.
- Williams, Kipling D. and Lisa Zadro. 2001. Ostracism: On Being Ignored, Excluded, and Rejected. In *Interpersonal Rejection*, ed. by Mark R. Leary. Oxford: Oxford University Press.
- Williamson, Vanessa, Theda Skocpol, and John Coggin. 2011. The Tea Party and the Remaking of Republican Conservatism. *Perspectives on Politics* 9(1): 25-43.
- Wilson, Michael L., William R. Wallauer, and Anne E. Pusey. 2004. New Cases of Intergroup Violence Among Chimpanzees in Gombe National Park, Tanzania. *International Journal of Primatology* 25(3): 523–549.
- Wilson, Michael L., Christophe Boesch, Barbara Fruth, et al. 2014. Lethal aggression in Pan is better explained by adaptive strategies than human impacts. *Nature* 513: 7518.
- Wittig, R. M., C. Crockford, T. Deschner, K.E. Langergraber, T.E. Ziegler, and K. Zuberbühler. 2014. Food sharing is linked to urinary oxytocin levels and bonding in related and unrelated wild chimpanzees. *Proceedings of the Royal Society of London: Biological Sciences* 281, 20133096.
- Wolf, Eric R. 1982. *Europe and the People Without History*. Berkeley: University of California Press. Wrangham, RW. 1996. *Demonic Males: Apes and the Origins of Violence*. Boston: Houghton Mifflin

Yamamoto, Shinya. 2015. Non-reciprocal but peaceful fruit sharing in wild bonobos in Wamba. *Behaviour* 152(3-4), 335–357.

Zajonc, R.B. 1980. Feeling and Thinking: Preferences Need No Inferences. *American Psychologist* 35: 151-175.

Zak, Paul J., Angela A. Stanton, and Sheila Ahmadi. 2007. Oxytocin Increases Generosity in Humans. *PLoS One* 11: e1128/1-5.