The Deep Psychology of Eudaimonia and Virtue:

Belonging, Loyalty, and the Anterior Cingulate Cortex

Blaine J. Fowers

This is an unpublished conference paper for the 3rd Annual Jubilee Centre for Character and Virtues conference at Oriel College, Oxford University, Thursday 8th – Saturday 10th January 2015.

Jubilee Centre for Character and Virtues

University of Birmingham, Edgbaston, Birmingham, B15 2TT United Kingdom

T: +44 (0) 121 414 3602 F: +44 (0) 121 414 4865

E: jubileecentre@contacts.bham.ac.uk W: www.jubileecentre.ac.uk

The Deep Psychology of Eudaimonia and Virtue:

Belonging, Loyalty, and the Anterior Cingulate Cortex

Blaine J. Fowers
University of Miami

Abstract

Aristotle's function argument suggests that the human good is found in the excellent expression of natural human functions and that virtues are the character strengths that make it possible to fulfill those functions. An evolutionary understanding of human nature recognizes humans as an ultrasocial species that features group living, cooperation, and profound interdependence. Group inclusion was essential to survival and reproduction during human evolution. Therefore, a social exclusion detector is an extremely important adaptation that enables the individual to monitor the threat of ostracism. Social exclusion activates a key part of the neural network that registers physical pain, the anterior cingulate cortex, making social exclusion literally painful. The human function of group living is fulfilled by activities that promote belonging, a central human good. Extensive research documents the essential role of belonging in human flourishing. The primary virtue associated with belonging is loyalty, which is the direct, everyday expression of group membership.

I want to set the context for this talk in two ways. First, although many of you know that the proper context for discussions of virtue is eudaimonism, I speak to and read many people who see virtue as a stand-alone topic, either unaware of or mistaken about eudaimonia being the raison d'etre of virtue. Eudaimonia is the primary topic because virtues are the character strengths that make eudaimonia possible. That is, we cultivate virtues for the sake of eudaimonia because eudaimonia is the highest end for human beings. Second, I believe that Aristotle's philosophy calls for interdisciplinary scholarship in the strongest possible way. Our understanding of eudaimonia and virtue requires the conceptual sophistication of philosophy and careful attention to the psychological realism accessible through social, developmental, personality, and evolutionary psychology and neuroscience. This talk is an attempt to integrate Aristotle's moral philosophy with a set of findings from psychology and neuroscience in a way that is mutually illuminating and that can help us to appreciate the deep psychology of eudaimonia and virtue.

I will approach this by drawing on two of Aristotle's (1996, 1999) primary ethical texts, the *Nicomachean Ethics* (NE) and the *Politics* (Pol). Clearly, Aristotle's is not the only perspective on human goods that is worth exploring, but I focus on his thought because it is particularly well-suited for developing a psychologically realistic theory of ethics. Indeed, I argue here that Aristotle's moral philosophy is enormously congenial to an evolutionary understanding of human nature and the good life.

For Aristotle, eudaimonia is the highest good because it is the actualization of the defining features of human nature[1]. As I understand him, Aristotle saw the human good in teleological terms, but not as a matter of pursuing a specific *telos*. Rather, the good life is an

ongoing, open-ended form of activity defined not by its outcome, but by its manner of enactment. Eudaimonia is not an endpoint or outcome because it is the kind of activity that completes itself as it is enacted. Many psychologists err by seeing eudaimonia as an outcome such as an emotional or cognitive state, as in subjective well-being, but an Aristotelian understanding views eudaimonia as activity or a way of being in the world, not as a psychological state.

I want to suggest that there are many natural human goods, such as knowledge, justice, and belonging, and each of them contributes to the overall quality of one's life. Yet eudaimonia is not a separate end above and beyond characteristic human goods, nor is it "a bundle of discrete goods" (Sherman, 1989, p. 79). Aristotle made it very clear that eudaimonia is a matter of how one's life comes together as a whole. He clarified that "the good of man is an activity of the soul (*psyche*)…But we must add 'in a complete life'" (NE, 1098a 16-18). In my view, the relationship between these characteristic human goods and eudaimonia is one of part-whole. From this perspective, the complete life to which Aristotle refers is a matter of how the successful pursuit of a set of human goods comes together as an integrated whole. A eudaimonic life is one in which a person can pursue a variety of choiceworthy ends in a systematic, coherent, and stable way with a reasonable degree of success.

Aristotle did not develop his theory of the human good from a set of abstract principles or on the basis of a pre-defined endpoint. Instead, he suggested that the good of any entity or being is the excellent fulfillment of its nature. This goes for human beings as well. His view that human nature defines what is good for us is both quintessentially ancient and surprisingly modern. Accordingly, he built his understanding of what is good for humans on what has been

called the “function argument,” wherein he defined a good instance of a thing as one that fulfills its function excellently.

The function argument can be illustrated by analogy. For example, one could describe a heart in terms of its structure and composition. It is made up of muscle tissue with chambers, valves, and conduits attached to the chambers. To fully understand what a heart is, however, one must recognize that its function is to pump blood. The structure only makes sense when one understands the function. Consideration of the function of the heart, leads directly to recognizing that some hearts fulfill this function well, and others do not due to disease,injury, or malformation. Thus, the normative evaluation of the heart is built seamlessly into the natural description of its function, which is, in turn, essential to understanding what it is. By the same logic, a good human is someone who fulfills human functions excellently. Aristotle argued that humans are rational and social by nature, leading to the conclusion that the human good is found in expressing our rationality and sociality excellently. That is, *the facts of our nature* mean that social life is *good* for us as human beings (Arnhart, 1998).

In this interpretation of the function argument, I am suggesting that there is a direct connection between human nature and the human good. If we accept this premise, it means that there is no bright line dividing the scientific and ethical perspectives on human life. This is likely to be a controversial and disquieting premise for many scholars. Just so you know, I am well aware that I am committing what is called the “naturalistic fallacy.” I do so consciously, even gleefully because I think that the attempt to separate facts and values has been responsible for rampant and extensive distortion in the discipline of psychology and other social sciences. Traditional attempts to separate science and ethics have resulted in a series of

reductions that have severely impoverished the sort of account one can give of human life, such as reducing flourishing to functioning, meaningful agency to instrumental behavior, sociality to self-interest, diverse goods to pleasure and positive affect. These reductions profoundly constrain and impoverish our ability to understand the richness and variety of human life. By identifying the sources of the human good in our biological nature, we can dispense with the artificial separation of fact and value. Of course, I cannot give a satisfying argument against the concept of the naturalistic fallacy here. Fortunately, I can refer you to several cogent arguments that have already been made by excellent thinkers such as Searle (1964), MacIntyre (1959), Taylor (1985), Capaldi (1989), and Putnam (2004).

A number of philosophers have attempted to integrate eudaimonia and human nature in ways similar to what I am discussing. Philosophers such as Foot (2001), Hursthouse (1999), and MacIntyre (1999) have adopted the function argument and attempted to give an account of how eudaimonia can be understood as the excellent expression of human nature. For example, Foot (2001) presented a theory of natural goodness that is rooted in what is necessary for a given species. She argues by analogy that terms such as “good,” “function,” and “necessity” apply in similar ways to plants, non-human animals, and humans. There are two fatal problems with her case for the function argument. First, argument by analogy can illustrate a conclusion, but it cannot establish it. (In fairness, the analogies show up first in Aristotle, but he does not rely on them to make his case for the function argument, only to illustrate it.) Second, Foot’s references to human biology are very vague and lack any real analysis of the specifics of biological or evolutionary processes that are necessary to show the connection between human nature and flourishing. Her list of natural necessities is not

systematic in phylogentic or evolutionary terms, making it a very shaky basis even for an argument by analogy.

Interestingly, other scholars have approached an integration of human nature and ethics by taking a scientific understanding of evolution as a starting point. They have suggested that evolutionary science can fruitfully explain human morality and have provided evolutionary accounts of ethics (Boehm, 2008; Joyce, 2006; Krebs, 2011; Wright, 1994). Unfortunately, a relatively weak grasp of ethical theory leads these authors to simply restate common moral beliefs in evolutionary terms, primarily through the unreflective assumption that morality is fully captured in providing benefits to others and avoiding harms to others. For example, near the end of his book on the evolutionary origins of morality, Krebs (2011) concludes that "moral people possess the qualities that induce them to go about the long-term business of surviving, reproducing, and propagating their genes *in fair and altruistic ways*" (p. 258, emphasis added). Although he gives us some reasons to believe that fairness and what he calls altruism can be observed, he has nothing whatsoever to say about why such actions are moral, only that they have putative evolutionary value. Krebs is not unique in the poverty of his ethical theory; this problem is endemic among scholars who clearly prioritize science in their integrative accounts of human nature and ethics. Casebeer (2003) made the prioritization of biology quite clear because his project is to portray "morality as a natural phenomenon subject to constraints from, influenced by, and *ultimately reduced to the sciences*…" (p. 3, italics added).

These well-intentioned efforts by highly respected philosophers and evolutionary scientists have fallen short because they have found it very difficult to maintain a clear and

informed focus on *both* human nature and human excellence. There is an unfortunate tendency to emphasize one side of the biological/ethical integration and shortchange the other side.

The philosophical basis for my formulation of natural ethics is Aristotle's eudaimonic theory, particularly featuring the function argument. To make the function argument, it is necessary to identify what is natural for humans and then explicate what this nature tells us about what is good for us. Of course, deciding what is natural for humans is a very thorny business. One is tempted to choose salutary features of the species as the natural human endowment, and any selection of characteristics runs the risk of arbitrariness. I have adopted a scientific approach to understanding human nature, and from this perspective, evolutionary theory has no peer as an explanation. Evolution is the only robust, comprehensive, and thoroughly tested account of human nature.

Therefore, I ground my account of human nature firmly in the evolutionary science that documents the emergence of humans as an ultrasocial species. In this presentation, I focus particularly on the species typical feature of group membership. There are many other aspects of human sociality that would be equally interesting to discuss, such as attachment, identity formation, social learning, cooperation, ingroup/outgroup relations, and social hierarchy, to name a few (Fowers, 2015). I want to focus on just one domain of human sociality in order to discuss it in greater depth. Very similar arguments can be made about all of these domains. Evolutionary science can explain the origins and functions of group membership, and I attempt to show how the excellent expression of this feature conduces to flourishing. This neo-Aristotelian perspective clarifies the specific evolutionary processes through which our ethical nature emerged, opening up the rich possibility of belonging.

I understand that there are many difficult and contentious aspects of evolutionary science, but I will set them aside here so that I can discuss what I think is a very useful integration of Aristotle's ethics and evolutionary science. A very interesting development in Aristotelian scholarship is the recognition that his function argument presents an open invitation to evolutionary theory in this way. The degree to which Aristotle anticipated the evolutionary perspective is stunning, ranging from seeing the human good as rooted in our species' nature to the specific goods he enumerated as arising from that nature. One important worry is whether tying ethics to evolutionary theory amounts to reducing ethics to the outcome of deterministic and materialistic processes or to an epiphenomenon of those processes. I am arguing that **fully understanding human ethics requires a firm grasp of our evolved biological nature, and a full comprehension of our biological nature is equally dependent on recognizing that humans evolved to become ethically-minded agents.** The short answer to how that is possible is that humans are ethically-minded creatures because we evolved to be both intensely social and self-reflective agents. Our sociality involves us in deep attachments, group living that requires norm-based behavior, cooperative activity, and social organization. Specific and compelling ethical questions are inherent in each of these domains that are not fully resolvable by inherited inclinations. I will argue that humans flourish to a greater extent with some answers to these ethical questions than with other answers. I will operate on the assumption that ethics and questions about the human good can be both firmly rooted in our biology and nevertheless remain open-ended, agentic, and a matter of self-interpretation. I have made a more extensive argument for this position elsewhere (Fowers, 2015).

Although his philosophy is often misread as construing virtue and the good solely or primarily in terms of individuals, it is important to recognize that Aristotle saw eudaimonia in deeply social terms. He asserted in the Politics that sociality defines us because "a social instinct is implanted in all men by nature" (Pol, 1253a 30). Moreover, individuals cannot be seen as independent realities because "the community [polis] is clearly by nature prior to the family and the individual since the whole is of necessity prior to the part" (Pol, 1253a 19-20). Aristotle's term *polis* referred to a community or city governed by a constitution, somewhere between a hunter-gatherer band and what we moderns recognize as a nation (Everson, 1996). He further emphasized the priority of the community over the individual by saying that "the individual, when isolated, is not self-sufficing" (Pol, 1253a 26). Evolutionarily speaking, Aristotle was correct that the individual does not suffice because humans in the Pleistocene were dependent on the band for their survival and ability to reproduce. The Pleistocene was the time period when *Homo* became anatomically and culturally modern. Although the human function of reproduction requires the protection and cooperation of the band, Aristotle helps us to see that communal living is also necessary for a complete and fulfilling life as a human being. He focused on the necessary role of politics in eudaimonia: "the main concern of politics is to engender a certain character in the citizens and to make them good and disposed to perform noble actions" (NE, 1099b 30-32). I do not have time to discuss the fascinating ways that hunter-gatherer societies accomplish this character engendering, but I heartily encourage you to study Boehm's (1993; 2008) account of the evolution of human moral communities.

It is a central fact about humans that we are intensely social creatures. Our species has been described as "ultrasocial" because of the unparalleled intensity and pervasiveness of our

socialty (Fowers, 2015; Tomasello, 2014). The capacities to coordinate our behavior with others, pass on knowledge, and form cooperative, norm based social groups have conferred tremendous fitness advantages. These capacities made it possible for ancient humans to migrate across the globe, live in a vast array of habitats, form complex, productive divisions of labor, develop cumulative cultures, and fashion highly elaborated ethical theories. Given that social nature, what does the function argument tell us about what it is to live well as an ultrasocial being?

The Evolution of Belonging

An evolutionary account of a species' characteristic features has at least three requirements including both empirical and theoretical elements. First, the feature must evidence contemporary ubiquity. Bipedalism is a contemporary example in humans, and, I suggest, so is group membership. Second, an adaptive problem must be identified in the environment of evolutionary adaptedness. That is, there has to have been an enduring problem for the organism that the characteristic feature solved during the period in which the species was evolving. This solution made it more likely that organisms who had the feature, also called an adaptation, would reproduce more successfully because they were better adapted to their environment. Over thousands of generations, this reproductive advantage tends to make the feature dominant in a population. As Tooby and Cosmides (1992) pointed out, one of the forms of evidence for recognizing a feature as an adaptation is that it fits the adaptive problem like a key fits a lock. The adaptation solves the adaptive problem neatly, and in a way that cannot be due to chance. Third, for the evolution of psychological features, we must be able to identify the cognitive architecture of the adaptation. This generally consists of a heuristic that guides

the organism to act in a particular way, given specified circumstances and takes an "if, then" form. At best, this cognitive architecture can be linked to neural processes, indicating a neural substrate for the adaptation. In the next three sections, I outline some evidence suggesting that these three conditions have been met with group membership.

Ubiquity

Humans are an obviously group-living species. There is no more ubiquitous feature than our propensity for living in groups, and that form of life involves significant conformity to social norms, adherence to culture, and responsiveness to social influence. Of course, there are exceptions to all of these common features, but the overwhelming majority of human beings have lived within norm-based social groups throughout the history of our species. These aspects of human societies are just as evident in contemporary mega-societies as they are in hunter-gatherer groups. It is also clear that the importance and elaboration of culture and norm psychology in humans differentiates us from chimpanzees and bonobos, our nearest relatives (Tennie, Call, & Tomasello, 2009; Tomasello, Kruger, & Ratner, 2003).

The Adaptive Problem

Brewer (2004) explained that group membership is vital for humans because one's survival and the survival of one's offspring depend not just on one's own skill and effort, but also on others' skill and effort. In the Pleistocene, this centered on small, stable bands of 25-30 individuals. The group living adaptation made the coordination and cohesion of the group paramount to the fitness of the individual. For this reason, "all of the building blocks of human psychology—cognition, emotion, motivation—have been shaped by the demands of social interdependence" (Brewer, p. 107).

Because humans are an exclusively group-living species with extremely dependent offspring, secure group membership is central to reproductive success. Humans are at the top of the food chain, so the two primary threats to survival and reproduction are threats from other humans (Heatherton, 2010). One threat is from competition or hostility between human groups, a topic I will not address here. The second and primary threat is ostracism from the group. Therefore, being excluded from the group was, throughout the Pleistocene, a death sentence because nourishment and reproductive success were entirely dependent on sharing food and child care. Kaplan, Hill, Lancaster, and Hurtado (2000) reported that the largest portion of the hunter-gatherer diet is vertebrate meat (30-80% of calories). They noted that "high quality foods, extractive foraging, and hunting are fundamental to human evolution" (p. 157). Hunter-gatherer males provision women and children as part of a dramatic division of labor that requires a high degree of cooperation over significant time periods. Male provisioning through hunting facilitates female fertility and caregiving for children, and this caregiving is essential for the extended dependency of human children. Hunter-gatherer females provide food through highly skilled, extractive foraging that takes many years to master. The second largest food category for hunter-gatherers is roots, making up about 15% of calories. Humans have specialized in high density nutrients that are difficult to obtain, making the long juvenile period necessary to learn the impressive skills required for both hunting and extractive foraging (Kaplan & Hill, 1985). To further clarify the crucial division of labor, hunter-gatherer males consume far more food than they produce until, on average, age 18, and hunter-gatherer females consume more food than they produce until, on average, age 45. The females' focus on childrearing and the extended dependency of children require massive provisioning by males

(Kaplan et al., 2000). The division of labor goes well beyond the parenting dyad. Group membership is important because cooperative hunting is much more likely to succeed. Multiple hunters are better able to secure larger prey, for example. Group membership is also vital because food sharing provides a much more consistent diet than solitary hunting and consumption could. Meat sharing is common in hunter gatherer groups, with hunters typically and automatically sharing their kill with the group. In many groups, the meat is shared equally, even with those who generally contribute little meat to the group (Hawkes, O'Connell, & Jones, 2001; Hill, 2002). Because hunting is characterized by highly variable success rates, and the high caloric diet afforded by consuming meat has been important in human evolution, food sharing is an extremely important adaptation. For these reasons, parents would be very unlikely to succeed in child rearing without the ongoing support of the band. Given the strength of this selection pressure, early humans evolved a vigilant monitor of social inclusion or exclusion that prompts efforts to maintain inclusion.

The Ostracism Suite of Adaptations

Ostracism and ostracism detection play key roles in human groups. Social exclusion actually involves a suite of adaptations. Williams (2007) reviewed literature documenting social exclusion in many human groups, including hunter-gatherers, Ancient Greeks and Romans, and contemporary children and adults. Ostracism itself is an important adaptation because it makes it possible to shun others who are excessively burdensome or troublesome. If an individual creates difficulties for enough members of a group, their collective threat of exclusion would either correct the problematic behavior or actual exclusion would rid them of the disruptive individual. Shunning troublesome others would help individuals fare better. Punishing others

for behavior that reduces one's fitness is common in many animal species (Clutton-Brooks & Parker, 1995). Ostracism is a collective form of this punishment. The most common reasons for ostracism in hunter-gatherer groups are unacceptable dominance and aggressive behaviors (Boehm, 2000; Wiessner, 2005).

Heatheron (2010) described 4 capacities necessary to maintain belonging. First, individuals need to monitor their own behavior and gauge its appropriateness to group norms. Self-monitoring requires the ability to distinguish oneself from others and to recognize standards and expectations. Second, individuals must be able to understand and predict others' actions. Third, individuals must be able to detect threats of ostracism. Finally, individuals must be able to self-regulate so that they can correct behavior that deviates from norms. I focus only on the ostracism detection adaptation in this presentation.

Given the extreme costs of ostracism, the mere threat of exclusion would be a powerful corrective in most cases. The potency of this threat is a powerful selection factor for detecting the risk. This suggests an ostracism detection system, with automatic responses that would be highly sensitive to positive instances and consequently tolerant of false positives. False positives only incur minor, temporary costs of excessive conformity, whereas missing an actual threat of ostracism, would imperil reproductive potential and survival.

Williams (2007) suggested that pain would capture the organism's attention and direct it to avoid exclusion. Pain avoidance would prompt rapid corrective action and avoidance of the problematic behavior in the future. Many laboratory studies have documented a very quick and powerful affective response to social exclusion that includes sadness and a reduced "sense of belonging, control, and meaningful existence" (Williams, 2007, p. 434). The effect sizes for

these responses were large, ranging from 1 to 2. Because laboratory experimental conditions must be short-lived and mild, the strong effects of these mild forms of exclusion are remarkable. For example, Williams (2001) used a cyberball game that simulates a game of catch on a computer screen with a pre-set protocol. The participant believes she is playing a three-way game of catch with two others, but these other two participants are part of a computer program, At a pre-determined time, the other two "players" stop throwing the ball to the participant, giving rise to the strong effects noted above. Williams (2007) concluded that "even for very brief episodes that have minimal mundane realism, ostracism plunges individuals into a temporary state of abject misery, sending signals of pain, increasing stress, threatening fundamental needs, and causing sadness and anger" (p. 444). This effect was just as evident when participants knew that a computer was excluding them in cyberball (Zadro, Williams, & Richardson, 2004). These authors argued that ostracism detection is fast, automatic, and powerful because the effect occurred when participants played with a human or a computer and when they knew that the experimenter directed the human players to exclude them. Twenge and her colleagues catalogued many negative consequences of ostracism, including decreased prosocial behavior (Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007), increased self-defeating behavior (Twenge, Catanese, & Baumeister, 2002), and reduced gratification delay, meaning, and self-awareness (Twenge, Catanese, & Baumeister, 2003).

MacDonald and Leary (2005) discussed the brain regions associated with social exclusion and clarified that there are two distinct components of the experience of physical pain: the sensation of pain and the affective response to the pain. The pain sensation alerts the individual to damage to specific tissue, and these physical pain receptors are unrelated to social

exclusion. The affective experience of pain is an aversive signal that stimulates behavior to reduce or eliminate the pain. The site of the activation for the affective response to pain is the anterior cingulate cortex (ACC). MacDonald and Leary theorized that the experience of social disruptions has been incorporated into the circuitry associated with the affective response to pain, meaning that emotional pain can occur without tissue damage. In direct tests of this viewpoint, fMRI studies found that the experience of ostracism activates the ACC, the primary brain region associated with the affective experience of pain (Amodio, 2011; Eisenberger, Lieberman, & Williams, 2003). Sommerville, Heatherton, and Kelley (2006) further localized the experience of social exclusion to the ventral ACC.

The ostracism detection heuristic is simple and automatic, which is typical of evolved cognitive architecture. The heuristic is "if signs of exclusion are present, then modify behavior to be more consistent with social expectations." As we have seen, the ostracism detection heuristic is very easily activated and it has a powerful effect. The experience of pain and depressed affect is conducive to more submissive, compliant behavior, which is, in general, a good bet to reduce the chances of exclusion.

MacDonald and Leary (2005) also summarized experimental animal studies indicating that opioid levels signal the adequacy of social inclusion, again highlighting the role of pain in social exclusion. Opioids are depleted by social isolation, prompting distress cries or other means of contact seeking. Separation distress is suppressed by the administration of exogenous opioids. They also cited experimental studies showing that oxytocin is a potent regulator of physical pain. Rats given oxytocin were more tolerant of pain and blocking oxytocin decreased pain tolerance. This may partly explain how social soothing helps to reduce both physical and

emotional pain experiences because oxytocin release is stimulated by affiliative interactions. This role for oxytocin is another way to see how pain experiences are involved in affiliative bonds.

The commonalities in the neural networks activated by separation distress in rodents and exclusion in humans suggest that this adaptation is extremely ancient (Panksepp, 2003). Because rats and humans share a common ancestor, the opioid pathway for pain management and attachment was likely present in that common ancestor. This means that this adaptation has tremendous antiquity. Because evolutionary theory clarifies that the characteristics of a species come into being through common descent, some adaptations are carried forward through speciation. This means that all species will have traits in common with their ancestor species and with closely related contemporary species. Therefore, an evolutionary timeline can be developed by comparing adaptations across related species. This is called a phylogenentic approach because it analyzes similarities and differences among species to ascertain the periods when specific adaptations and species divergence occurred. Evidence of these commonalities in related species and of the antiquity of a feature are important forms of evidence that increase our confidence in seeing the feature as an adaptation.

Culture and Norm Psychology

Humans are the most cultural creatures on the planet, evident in the enormous array of cultural artifacts that permeate our world, including material culture, institutions, customs, rituals, and so forth. Culture is also normative, with social expectations decisively shaping individuals' behavior, and the norms are reinforced with sanctions. Foremost among general norms is the suppression of excessive competition and domination in favor of cooperation and

harmony. In hunter-gatherer groups, additional norms are typically designed to manage the most serious conflicts by prohibiting theft, deception, and sexual transgressions. Norms are adaptive because they make behavioral expectations public knowledge, which makes actions such as cooperation cheaper because one can anticipate cooperation. This expectation reduces the commitment of energy and time for vigilance about cooperation. It is also less costly to enforce norms because socially recognized norms make the policing of behavior a communal rather than an individual problem. Given the importance of group membership for humans, relationships and the esteem of others are vital, once again making punishment inexpensive because simply withdrawing social esteem and interaction are powerful sanctions. It is no accident that social exclusion is so aversive. The association of pain with exclusion powerfully reminds us of how essential it is to belong to the group, and the threat of exclusion is very effective in guiding our actions toward social inclusion through norm adherence. The potency of this physiological response is a clear indicator of just how essential belonging is.

Human sociality is nowhere clearer than in the importance of group membership (e.g., Brewer & Caporael, 2006). Group membership is also supported by strong, rapid, and automatic social categorization, through which individuals identify ingroup and outgroup members, and this activates ingroup and outgroup responses. This social categorization is a key feature of a group-living species. Social categorization is extremely ancient (at least 25 million years old), and is therefore automatic, simple, and pre-linguistic (Mahajan et al., 2011). The ubiquity and potency of group membership clarifies that the fully separate individual is an abstraction. Recognizing oneself as a group member is basic to human psychology, not an add-on to an already complete person. Our membership in particular groups tells us who we are

and what is important in life; it helps to define our identity. Brewer (2007) uses the term "expanded self" to capture the fact that group membership is so important that it becomes integral to the individual's identity. Humans are, therefore, as much members of groups as they are individuals.

Although group membership is integral to one's self-concept, self-interest and group-interest do not always coincide. Therefore, it is important for individuals and groups to have ways to deal with this important motivational tension. Sometimes this tension is easily resolved because individual needs or social inclusion are particularly salient. At other times, this tension requires humans to reflect and deliberate about what is most important in a given situation. Questions pertaining to the human good and to the ethics of group relations are unavoidable for self-aware social beings. Some of our responses will be quick and automatic, but we are also capable of working these questions out deliberatively because our cognitive architecture does not always provide automatic and clear answers when there are conflicting needs or heuristics.

Group Membership and the Human Good of Belonging

According to the function argument, the ubiquity of norms and sanctions suggests that this aspect of human nature is aimed at producing stable social groups capable of coordinating their activity in ways that mutually benefit group members. This is a highly desirable state of affairs for a group-living species that depends on a reliable division of labor for its success. Given that humans evolved to have a norm-psychology that supports compliance with social expectations, and that compliance promotes group membership, norms, sanctions, and group membership are recognizable as human functions. This makes it possible for us to inquire into what the excellent expression of norms and group membership would be. An individual who is

good at following group norms and who has a stable group membership can be said to belong to the group. This suggests that belonging is the human good associated with group membership.

Recall that the function argument states that a creature's good is found in the excellent enactment of its natural functions. Because there is ample evidence for the proposition that group membership is a natural function, we must consider whether it is plausible that there are better and worse forms of group membership. The best kind of group membership would seem to include the individual having is a clearly acknowledged place in the group, an understanding of how to participate in the group well, active participation, a strong sense of fellowship with other group members, shared intentionality with other group members regarding what is important and how to pursue the group's goals, and a wholehearted endorsement of those goals. Unsurprisingly, this set of characteristics seems to describe a socially integrated, coherent life, one that has many important elements of what it means to flourish as a human being.

Belonging is not only a good that is beneficial to individuals. Belonging also involves us in collective activities that take us beyond narrow individual interests. In the Politics, Aristotle (1996) argued that contributing to the overall good of one's community is the most important good in practical life. The term he used for these activities is *koinonia*, which is translated as good fellowship or communion (Pol, 1295b 23). The key meanings of this term include participation, partnership, contributory help, and sharing in an endeavor (Strong, 1979). Today, communion most commonly refers to Christian understandings of the bond among co-religionists, but Aristotle understood communion more broadly, including bonds between

relationship partners, friends, business partners, and civic partners, thereby encompassing political, intellectual, artistic, athletic, and other communal endeavors. Our membership in groups makes it possible to commune, as we partner in and contribute to the shared pursuit of what our group recognizes as choiceworthy endeavors. Group membership thereby expands a person's capacities. Cooper (1980) eloquently expressed this: "only by merging one's activity and interests with those of others can the inherent fragility of any human being's interests be overcome" (p. 329). Belonging gives scope, continuity, meaning, and staying power for our activities, all of which are essential to the successful pursuit of all human goods. Belonging reinforces the choiceworthiness and endurance of human activity far more powerfully than is possible for activities undertaken by a putatively autonomous individual. In the Eudemian Ethics, Aristotle (1952) magnified this point by saying that "for us [humans] well-being has reference to something other than ourselves, but in his [God's] case he is himself his own well-being" (EE, 1245b 18-19), clarifying the hubris of seeing any human individual as sufficient in herself.

One of the interesting aspects of the central human good of belonging is that it is consonant with Aristotle's understanding of human goods because it has an obviously constitutive form. Belonging is a constitutive good because there is no separation between the actions associated with belonging and the outcome of belonging. That is, belonging is partly constituted by acting consistently with group norms and coordinating one's actions with other members of the group. Adhering to social norms is a central feature of belonging to the group because following the expectations and customs of the group partly instantiates belonging. In addition, acknowledgement of one's group membership by others is the complement of norm

following because belonging also requires that others recognize one's participatory membership in the group.

Of course, one can obtain tokens of belonging such as membership cards or uniforms through instrumental actions such as purchasing or stealing them, but these artifacts are meaningless without the mutually recognized participation that constitutes belonging to a group. Adherence to norms, expectations, and the culture of the group are constituents of belonging because one does not act like a member of the group in order to obtain a separable outcome of belonging to the group. One's norm-following and culture consonant actions are part of what it means to be a member of the group.

Languishing and Flourishing with Respect to Group Membership

It is not hard to see how one can fare poorly in group membership. There is overwhelming evidence that social exclusion and isolation are damaging experiences for human beings, and that loneliness contributes to profound languishing. I documented the immediate, physically sensed pain of ostracism above, and loneliness is the chronic painful manifestation of social exclusion. Because the literature on the negative effects of loneliness is vast, let me cite just a few representative findings. The psychological toll of isolation includes experiencing depression, hopelessness, and low self-esteem (Steptoe, Owen, Kunz-Ebrecht, & Brydon, 2004), heightened stress experiences (Hawkley & Cacioppo, 2007), as well as reductions in neural activity and cognitive functioning (Campbell et al., 2006). Loneliness also has many physical sequelae, including reduced cardiovascular functioning (Hawkley, Burleson, Berntson, & Cacioppo, 2003), an elevated inflammatory response (Steptoe et al., 2004), and impaired transcription of genes controlling inflammatory response (Cole et al., 2007). The overall

conclusion of this literature has been apparent for many years: social isolation has as strong a negative impact on health and mortality as hypertension, lack of exercise, obesity, or smoking (Cacioppo & Patrick, 2008; House, Landis, & Umberson, 1988). Recent research has clarified the pathways through which isolation and loneliness undermine health.

In contrast, a number of large-scale studies have documented the positive effects of social integration. Using the data from the Framingham Heart Study, Fowler and Christakis (2008) found that the number of social connections an individual has and the happiness of the people with whom one is connected are strongly associated with one's happiness. The emotional state of one's connections is even more important than the total number of relationships. These associations include family members, friends, and neighbors up to three degrees of separation from the index individual. That is, the happiness of my friend's friend's friend has a bearing on my happiness. The more central an individual is in a social network the greater her happiness. This means that the more an individual has connections that embed her in relationships with many other people in the network, the happier she is. These findings remain intact even when the investigators controlled for age and education. The influence of others' happiness is strongly contingent on physical proximity, as others who live more than a mile away are less influential on an individual's happiness than those who live within a mile. Fowler and Christakis concluded that "happiness…is not merely a function of individual experience or individual choice but is also a property of groups of people. Indeed, changes in individual happiness can ripple through social networks and generate large scale structure in the network, giving rise to clusters of happy and unhappy individuals" (p. 7).

It is also important to recognize that happiness is not merely a pleasant emotional state. Danner, Snowdon and Friesen (2001) reported that the degree of positive affect expressed by a sample of nuns predicted mortality 60 years later. Similarly, Koivumaa-Honkanen et al. (2000) found that life satisfaction predicted mortality 20 years later. Steptoe, Wardle, and Marmot (2005) investigated physiological pathways through which happiness could influence health and mortality. After controlling for age, employment level, smoking status, and body mass index, happiness was negatively related to cortisol, a stress hormone. Among men, but not women, happiness was related to ambulatory heart rate, an important predictor of cardiovascular disease. Plasma fibrinogen, an inflammatory marker, was dramatically elevated in response to laboratory stress among the less happy participants compared to the happier participants. Indeed, a meta-analysis of 35 studies by Chida and Steptoe (2008) found that psychological well-being reduced mortality by 29% in healthy individuals.

Holt-Lunstad, Smith and Layton (2010) conducted a meta-analysis of 148 studies of the relationships among social networks, support, and mortality. The studies included people from North America, Europe, Asia, and Australia that were followed for an average of 7.5 years. Having stronger social relations increased survival by 50%, indicating that social integration is a risk factor that is as strong as smoking cessation and stronger than obesity or physical inactivity. Yet this meta-analysis likely underestimated the importance of social relationships because the studies typically did not assess the quality of the relationships and many measures were very crude (e.g., single item measures of living alone). In studies with more complex measures of social integration were used, the change in odds of survival was 91%. Holt-Lunstad et al. also found that the level of social integration was related to mortality throughout the distribution.

Increased mortality is not just a matter of being completely isolated; risk increases steadily the weaker one's social relations are.

All of these studies provide very good evidence that group membership is an essential function for humans and belonging is the natural good that is the excellent expression of that function. We have seen that the welfare of individuals who are social excluded, even in trivial, momentary ways, is decreased. When individuals experience loneliness, their happiness, health, and longevity are reduced. All of this suggests that social exclusion, the absence of belonging, contributes strongly to languishing. In contrast, when individuals experience belonging, they are happier, healthier, and more long-lived. These are clear, important indicators of flourishing. I do want to acknowledge, however, that happiness, health, and longevity could be construed as hedonic indicators of well-being. The richer kinds of indicators comprising eudaimonia include many characteristically human goods in addition to belonging, such as meaningful activity, purpose in life, personal growth, justice, and knowledge (Fowers, 2005, 2012). Research investigating the relationship between high quality group membership and these features of a eudaimonic life remains to be done.

Nothing in this discussion suggests that there is only one type of group or one form of group membership that can produce the good of belonging. In fact, there are many different ways to belong, and this capacious understanding of a human good makes it possible to incorporate a great variety of cultural forms. This cultural capaciousness reduces the worry that substantively identifying specific human goods such as belonging will lead to a cultural imperialistic understanding of the good life.

The Virtue of Loyalty

If belonging is an important human good, then it is reasonable to ask which virtue or virtues is necessary for the successful pursuit of this good. Inasmuch as one of the primary ways that group membership is instantiated is through adherence to group norms, that is a good place to look for at least one relevant virtue. When one follows group norms, one can be said to express a behavioral form of loyalty by acting in the way that demonstrates one's group membership. Loyalty is also expressed by sticking with one's group, even when the chips are down, by benefitting the group and its members, and by standing up for one's group (van Vugt & Hart, 2004; Zdaniuk & Levine, 2001). There are some interesting studies that demonstrate how group membership induces loyalty, even in the sterility of artificial laboratory situations.

Van Vugt and Hart (2004) pointed out that maintaining group integrity is an important problem for groups. Loyalty is one potential solution. These authors conducted several studies on whether group membership promoted loyalty to the group. They used a social dilemma paradigm wherein participants could remain in a relatively unsuccessful group or to act as independent individuals with better prospects of monetary success. There were two conditions in the study. In one condition, they activated a sense of group membership with a minimal group paradigm. This means that the experimenters provided an artificial, temporary group identity for the participants, such as an ostensible preference for the same type of abstract art as other participants in the study. There was also a control condition without any group membership induction. It is ridiculously easy to induce this perception of group membership. This is another indication of just how automatic and powerful the human inclination toward group membership is.

Even when it was in their self-interest to do so, participants in the group membership condition were less likely to leave unsuccessful groups than participants who were not given a group identity. Van Vugt and Hart (2004) interpreted this as a loyalty effect because staying with the unsuccessful group was costly. They also found that participants in the group membership condition reported more affective loyalty to the group. Moreover, group membership participants were loyal in attributing the group's failure to more external and unstable causes than those in the control condition did. Van Vugt and Hart (2004) also examined whether members stayed in the group because others did. They manipulated some participants' perception about other group members staying in the group. If more people were thought to leave, the participant may be more likely to leave because a loyalty norm is not in play. There was no evidence that such a norm was in effect in their studies. They concluded that "group membership [collective identity] acts as social glue by holding groups together that would normally collapse due to a shortage of resources" (p. 594).

Zdaniuk and Levine (2001) also found that individuals in a group membership condition were more likely than control group participants to remain in a group when it was disadvantageous. Participants in the group membership condition who did leave their groups also found the decision more stressful than control group participants. Even more interesting, group membership participants who left their group saw themselves as less moral than group members who stayed in the group. Ellemers, Spears and Doosje (1997) also found that those with a group membership are more inclined to remain in a group, even when it was disadvantageous. They reported evidence suggesting that the relationship between ingroup identification and inclination to leave the group is mediated by commitment to the group.

These studies only indicate how group membership tends to foster apparently loyal behaviors in artificial laboratory situations. The results suggest that real group memberships that persist through time with real people are likely to naturally induce loyalty. The virtue of loyalty, however, is acting with fidelity in a characteristic and intentional way, an action pattern that could not possibly be assessed in a laboratory setting. This means that, at present, we do not have good scientific evidence for the virtue of loyalty. We can be encouraged to seek evidence for the virtue of loyalty, however, because we do have evidence for loyal behavior that is related to individuals' sense of their own morality.

One important objection to what I have presented here is that the simple compliance or group supporting behavior that I have linked to group membership and loyalty can be highly problematic. One could act as a "loyal" automaton or comply with norms or expectations that are, in fact, heinous. Such behavior could not possibly qualify as virtuous action. One response to these worries is to recognize that loyalty, like all virtues, is flanked by a vice of deficiency and a vice of excess. Excessive compliance is not virtuous, it is a vice because it is a form of blind allegiance that allows one to follow any social expectation, no matter how reprehensible or ridiculous. The deficiency associated with loyalty is fickleness—the inability to remain faithful to a group when it counts. The proper degree of fidelity that constitutes loyalty is recognized through practical wisdom, through which one can recognize the good of group belonging, and the specific group norms and collaborative pursuits that foster other human goods, such as justice and social order. There are times when group norms are inimical to the welfare of the group or of members of the group, and a loyal group member will question rather than blindly follow such norms. In the most extreme cases, an individual may come to the conclusion that it

is not possible to be virtuously loyal to a group because the norms and practices of the group are so problematic. This may make it necessary to leave the group. Such an exit would not be an act of disloyalty as much as the recognition that virtuous loyalty is simply not possible in that group. In these ways, we can see that loyalty is never a matter of blind allegiance. Rather, we can see how loyalty, like any other virtue, is a characteristic that makes it possible to pursue important human goods. As Aristotle put it, "the virtue or excellence of man…will be a characteristic which makes him a good man, which causes him to perform his own function well" (NE, 1106a 23-24).

As I noted at the beginning, I have discussed only one domain of human sociality here. I have followed the same logic in arguing for a larger variety of natural goods for humans as ultrasocial creatures elsewhere (Fowers, 2015). In addition, humans are rational, agentic creatures, and a complete account of natural ethics must include the identification and justification of the goods associated with these important human functions. So I understand that what I have presented here is a small part of a portion of an account of human flourishing. But, even so, I have discussed only a fraction of what can be said about the important good of belonging and the virtue of loyalty.

I have articulated a very optimistic understanding of evolved human nature that suggests clear and strong connections to the human good. By tying eudaimonia to our evolved nature, the natural ethics I am proposing overcomes the potentially alienating effects of identifying a clear set of human goods because those goods are part of our nature rather than issuing from a set of theological or philosophical dicta. Moreover, to the degree that the human good is the best expression of human nature, eudaimonia is accessible to all, at least in

principle. Finally, this integration of the function argument with evolutionary science shows how Aristotle's equation of the good life and the moral life is possible. Expressing our human nature in the best possible ways is arguably the best way to live, and living in the best way is also living morally. Taken together, this perspective offers a very promising way to reinterpret human life and the ethics that is at the core of our nature.

References

Amodio, D. M. (2011).Self-regulation in intergroup relations: A social neuroscience framework. In A. Todorov, S. T. Fiske, & D. A. Prentice (Eds.), *Social neuroscience: Toward understanding the underpinnings of the social mind*. New York: Oxford University Press.

Aristotle. (1952). *The Athenian Constitution, the eudemian ethics, on virtues and vices*. (H. Rackham, trans.). Cambridge, MA: Harvard University Press.

Aristotle. (1996). *The politics and the Constitution of Athens* (S. Everson, Trans.). Cambridge, England: Cambridge University Press.

Aristotle. (1999). *Nicomachean ethics*. (M. Ostwald, trans.) Upper Saddle River, NJ: Prentice Hall.

Arnhart, L. (1998). *Darwinian natural right: The biological ethics of human nature*. Albany, NY: SUNY Press.

Boehm, C. (1993a). Egalitarian behavior and reverse domination hierarchy. *Current Anthropology 34*, 227-240.

Boehm, C. (2000). Conflict and the evolution of social control. *Journal of Consciousness studies, 7*, 79-101.

Boehm, C. (2008). *Moral origins: The evolution of virtue, altruism, and shame*. New York: Basic.

Brewer, M. B. (2004). Taking the social origins of human nature seriously: Toward a more imperialist social psychology. *Personality and Social Psychology Review, 8*(2), 107-113.

Brewer M. B. (2007). The importance of being *we*: Human nature and intergroup relations. *American Psychologist, 62*(8), 728-738.

Brewer M. B., & Caporael, L. R. (2006). An evolutionary perspective on social identity: Revisiting groups. In M. Schaller, J. A. Simpson, & D. T. Kendrick (Eds.) *Evolution and social psychology* (pp. 143-161). Ann Arbor, MI: Psychology Press.

Cacioppo, J. T., & Patrick, W. (2008). *Loneliness: Human nature and the need for social connection*. New York: W. W. Norton.

Campbell, W. K., Krusemark, E. A., Dychman, K. A., Brunell, A. B., McDowell, J. E., & Twenge J. M., & Clementz, B. A. (2006). A magnetoencephalography investigation of neural correlates for social exclusion and self-control. *Social Neuroscience, 1*, 124-134.

Capaldi, N. (1989). *Hume's place in moral philosophy*. New York: Peter Lang.

Casebeer, W. D. (2003). *Natural ethical facts: Evolution, connectionism, and moral cognition*. Cambridge, MA: MIT Press.

Chida, Y. & Steptoe, A. (2008). Positive psychological well-being and mortality: A quantitative review of prospective observational studies. *Psychosomatic Medicine, 70*, 741-756.

Clutton,-Brock, T. H., & Parker, G. A. (1995). Punishment in animal societies. *Nature, 373*, 209-216.

Cole, S. W., Hawkely, L. C., Arevalo, J. M., Sung, C. Y., Rose, R. M., & Cacioppo, J. T. (2007). Social regulation of gene expression in human leukocytes. *Genome Biology, 8*, R189.1-R189.13.

Cooper, J. M. (1980). Aristotle on friendship. In A. O. Rorty (Ed.) *Essays on Aristotle's ethics*, (pp. 301-340). Berkeley, CA: University of California Press.

Danner, D. D., Snowdon, D. A., & Friesen, W. V. (2001). Positive emotions in early life and longevity: Findings from the nun study. *Journal of Personality and Social Psychology, 80*, 804-813.

Eisenberger, N. I., Lieberman, M. D., Williams, K. D. (2003). Does rejection hurt? An fMRI study of social exclusion. *Science, 302*, 290–292.

Ellemers, N., Spears, R., & Doosje, B. (1997). Sticking together or falling apart: In-group identification as a psychological determinant of group commitment versus individual mobility. *Journal of Personality and Social Psychology , 72* (3), 617-626.

Everson, S. (1996). Translator's notes in Aristotle's *The politics and the Constitution of Athens*. Cambridge, England: Cambridge University Press.

Foot, P. (2001). *Natural goodness*. Oxford, England: Oxford University Press.

Fowers, B. J. (2015). *The evolution of ethics: Human sociality and the emergence of ethical mindedness*. London, England: Palgrave/McMillan.

Fowler, J. H., & Christakis, N. A. (2008). Dynamic spread of happiness in a large social network: Longitudinal analysis over 20 years in the Framingham Heart Study. *British Medical Journal, 337*:a2338.

Hawkley, L. C., Burleson, M. H., Berntson, G. G., & Caciopo, J T. (2003). Loneliness in everyday life: Cardiovascular activity, psychosocial context and health behavioral. *Journal of Personality and Social Psychology, 85*, 105-120.

Hawkley, L. C., & Cacioppo, J. T. (2007). Aging and loneliness: Downhill quickly? *Current Directions in Psychological Science, 16*, 187-191.

Hawkes, K., O'Connell, J. F., & Jones, N. B. (2001). Hazda meat sharing. *Evolution and Human Behavior, 22*, 113-142.

Heatherton, T. F. (2010). Building a social brain. In P. A. Lorenz-Reuter, K. Baynes, & G. R. Mangun, Cognitive neuroscience of mind: A tribute to Michael S. Gazzaniga (pp. 173-188). Cambridge, MA: MIT Press.

Hill, K. (2002). Altruistic cooperation during foraging by the Ache and the evolved human predisposition to cooperate. *Human Nature, 13*, 105-128.

Holt-Lunstad, J., Smith, T. B., & Layton, J. B. (2010). Social relationships and mortality risk: A meta-analytic review. *PLOS Medicine, 7*, 1-20.

House, J. S., Landis, K. R., & Umberson, D. (1988). Social relationships and health. *Science, 241*, 540-545.

Hursthouse, R. (1999). *On virtue ethics*. Oxford: Oxford University Press.

Joyce, R. (2006). *The evolution of morality*. Cambridge, MA: MIT Press.

Kaplan, H., & Hill, K. (1985). Food sharing among Ache foragers: Tests of explanatory hypotheses. *Current Anthropology, 26*, 223-246.

Kaplan, H., Hill, K., Lancaster, J. & Hurtado, A. M. (2000). A theory of human life history evolution: Diet, intelligence, and longevity. *Evolutionary Anthropology, 9*, 156-185.

Koivumaa-Honkanen, H., Honkanen, R., Viinamäki, H., Heikkilä, K, Kaprio, J., & Koskenvuo, M. (2000). Self-reported life satisfaction and 20-year mortality in healthy Finnish adults. *American Journal of Epidemiology, 152*, 983-991.

Krebs, D. L. (2011). *The origins of morality*. Oxford, England: Oxford University Press.

MacDonald, G., & Leary, M. R. (2005). Why does social exclusion hurt? The relationship between social and physical pain. *Psychological Bulletin , 131* (2), 202-223.

Machery, E. (2008). A plea for human nature. *Philosophical Psychology, 21*, 321-329.

MacIntyre, A. C. (1959). Hume on "Is" and "Ought". *The Philosophical Review, 68*, 451-468.

MacIntyre, A. C. (1999). *Dependent rational animals: Why human beings need the virtues*. Chicago: Open Court.

Mahajan, N., Martinez, M. A., Gutierrez, N. L., Banaji, M. R., Diesendruck, G., & Santos, L. R. (2011). The evolution of intergroup bias: perceptions and attitudes of rhesus macaques . *Journal of Personality and Social Psychology , 100* (3), 387-405.

Panksepp, J. (2003). Feeling the pain of social loss. *Science, 302*, 237-239.

Putnam, H. (2004). *The collapse of the fact/value dichotomy and other essays*. Cambridge, MA: Harvard University Press.

Searle, J. (1964). How to derive "ought" from "is". *The Philosophical Review, 73*, 43-58.

Sherman, N. (1989). *The fabric of character: Aristotle's theory of virtue*. Oxford: Oxford University Press.

Sommerville, L. H., Heatherton, T. F., & Kelley, W. M. (2006). Anterior cingulated cortex responds differentially to expectancy violation and social rejection. *Nature Neuroscience, 9*, 1007-1008.

Steptoe, A., Owen, N., Kunz-Ebrecht, S. R., & Brydon, L. (2004). Loneliness and neuroendocrine, cardiovascular, and inflammatory stress responses in middle-aged men and women. *Psychoneuroendocrinology, 29*, 593-611.

Steptoe, A., Wardle, J., & Marmot, M. (2005). Positive affect and health-related neuroendocrine, cardiovascular, and inflammatory processes. *PNAS, 102*, 6508-6512.

Strong, J. (1979). *Strong's exhaustive concordance of the Bible with Greek and Hebrew dictionaries*. London, England: Royal Publishers.

Taylor, C. (1985). *Philosophy and the human sciences: Philosophical papers*, (Vol. 2). Cambridge: Cambridge University Press.

Tennie, C., Call, J., & Tomasello, M. (2009). Ratcheting up the ratchet: On the evolution of cumulative culture. *Philosophical Transactions of the Royal Society B, 364*, 2405-2415.

Tomasello, M. (2014). The ultra-social animal. *European Journal of Social Psychology, 44*, 187-194. DOI: 10.1002/ejsp.2015

Tomasello, M., Kruger, A. C., & Ratner, H. H. (2003). Cultural learning. *Behavioral and Brain Sciences, 16*, 495-511.

Tooby, J., & Cosmides, L. (1992). The psychological foundations of culture. In J. Barkow, L. Cosmides, & J. Tooby (Eds.), *The adapted mind: Evolutionary psychology and the generation of culture* (pp. 19-136). Oxford, England: Oxford University Press.

Twenge, J. M., Baumeister, R. F., Tice, D. M., & Stucke, T. S. (2001). If you can't join them, beat them: Effects of social exclusion on aggressive behavior. *Journal of Personality and Social Psychology, 81*, 1058-1069.

Twenge, J. M., Catanese, K. R., & Baumeister, R. F. (2002). Social exclusion causes self-defeating behavior. *Journal of Personality and Social Psychology, 83*, 606-615.

Twenge, J. M., Catanese, K. R., & Baumeister, R. F. (2003). Social exclusion and the deconstructed state: Time perception, meaninglessness, lethargy, lack of emotion, and self-awareness. *Journal of Personality and Social Psychology, 85*, 409-423.

van Vugt, M., & Hart, C. M. (2004). Social identity as social glue: The origins of group loyalty . *The Journal of Personality and Social Psychology , 86* (4), 585-598.

Wiessner, P. (2005). Norm enforcement among Ju/'hoansi bushmen. *Human Nature, 16*, 115-145.

Williams, K. D. (2001). *Ostracism: The power of silence*. New York: Guilford.

Williams, K. D. (2007). Ostracism. *Annual Review of Psychology, 58*, 425-452.

Wright, R. (1994). *The moral animal*. New York: Vintage.

Zadro, L., Williams, K. D., Richardson, R. (2004). How low can you go? Ostracism by a computer lowers belonging, control, self-esteem, and meaningful existence. *Journal of Experimental Social Psychology, 40*, 560–567.

Zdaniuk, B., & Levine, J. M. (2001). Loyalty: Impact of members' identification and contributions . *Journal Experimental Social Psychology , 37*, 502-509.

[1] My use of the phrase human nature does not imply an essentialist nature in which essential properties define human nature. Rather, I am referring to a more nomological account of human nature in which humans have characteristic features due to our common descent (Machery, 2008). Characteristic features are found in a substantial majority of the members of the species, which allows for anomalies and phenotypic variation. This also eliminates the unacceptable condition of essentialism that the characteristics that make us human are possessed only by humans. To say that pair bonding or ingroup bias "belongs to human nature is to say that this trait is common among humans and that its occurrence among humans can be explained in evolutionary terms" (p. 326).