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Sin, Morality, and Norms for Prosocial Behavior

William G. Graziano David A. Schroeder

Purdue University University of Arkansas

Author Note: Correspondence may be addressed either to W. G. Graziano, Department of Psychological Sciences, Purdue University, 703 Third Street, West Lafayette, IN 47907 (USA) or to David A. Schroeder, Department of Psychology, University of Arkansas, Department of Psychological Science, 216 Memorial Hall, Fayetteville, AR 72701.

Abstract

The sheer size of the literature linking morality and prosocial behavior creates challenges for coordinating the findings, much less formulating theory from research. Furthermore, the variables differ in scope from the molecular to the sociocultural level. A multilevel approach is one way to integrate these variables into coherent scientific explanations. A three-level approach (e.g., Dovidio, et al, 2006; Penner, et al., 2005) in particular encourages refined scientific analyses by promoting consilience across research areas. It recognizes that causal variables are usually described as operating at a level lower than the prosocial process to be explained. This multilevel approach was illustrated using forces contributing to the evolution of moral and prosocial norms. Specifically, we applied the multilevel approach to the relations among concepts of sin, debt, reparations and prosocial acts. Next we addressed the impact of infections on the evolution of norms for morality and prosocial behavior. Finally, we describe a proximal mechanism linking norms to prosocial behavior.

Keywords: multi-level approach, pathogens, sin, debt, consilience, prosocial behavior, helping

Sin, Morality, and Norms for Prosocial Behavior

We plan to talk about sin, infections, social norms and morality. We will discuss the impact of these concepts on overt acts of prosocial behavior. For long sweeps of human history, these variables have been tightly connected. Before attacking such weighty topics, however, let us begin with an amusing incident that may illustrate the difficulties of exploring the scope of prosocial behavior. Frans de Waal (2014) reported an exchange following a presentation on prosocial behavior in Bonobo apes (*Pan Paniscus*). A sociologist questioned de Waal's claim that nonhuman primates like Bonobos engage in prosocial behavior. The critic claimed that such behavior was impossible because prosocial behavior had not been invented until the French Revolution. (Insert laughter here.) Perhaps what the critic meant was that the term "altruism" was originally coined by Auguste Comte during that period, because we suspect that people around the world did, in fact, act to benefit others well before the French Revolution. This critic's comments do highlight however an important issue, namely the roles labeling and framing play in understanding morality and prosocial behaviors.

Is prosocial behavior simply a social construction of relatively recent vintage or something buried deeper in psychological processes (e.g., Pagels, 1996)? A sober scholarly answer would suggest a need for nuance; labels used to describe complex phenomena can be misleading. A verbal label like "prosocial behavior" implies a demarcation and narrowing of the boundaries. First, the "behavior" aspect limits the domain to overt, observable actions. Narrowing the boundary further, the "prosocial" aspect refers to a subset of actions that bring desirable outcomes to other people. It is a broad umbrella that would include under it helping, cooperating, caregiving, volunteering, social support, and sharing, to name but a few of the most obvious cases. Implicit in this boundary narrowing is the exclusion of behaviors that are

negative, destructive, antisocial, or even neutral in terms of their effects on others. The prosocial behavior label by itself does not require costs to the actor, feelings of tender concern, or consistency in the actor's actions nor does it require a selfless intent to bring benefits exclusively or even preponderantly to the recipient; the label simply describes the behavior and implies nothing about underlying motives or other latent factors.

Some conclusions seem in order at this point. First, as a behavioral phenomenon, prosocial behavior has an ancient lineage, almost certainly appearing early in the biological and social evolution of our species (e.g., de Waal, 2008; Tomasello, 2014). The presence of prosocial and cooperative behavior in other primates and its link to other forms of social behavior suggests biological substrates evolving over millions of years. Also supporting the argument for a long history of individuals acting to benefit others is information from written records in Aramaic, Greek, and Hebrew dating back more than 3000 years ago (e.g., Anderson, 2009; Brunschweig & Lloyd, 2000). The second conclusion tempers the first: the construal of prosocial behavior varies across time, theory and research literatures. This is especially true if prosocial behavior is conceptualized as an aspect of moral reasoning, a correlate of redemption from sin, or the result of empathic concern. Like many other social behaviors, the nature of prosocial behavior may appear simple on the surface, but it should perhaps be seen as an end product of a sequence of antecedent events, combined with the circumstances of the immediate situations, that contribute to the final expression of overt action.

One of the most important issues that may play some role in the expression of prosocial action is the status of an actor's intent. Assessing intent in ourselves and in others seems to be a basic human activity (e.g., Haidt, 2012; Lieberman, 2014; Malle, 2011; Weinstein & Ryan, 2010). When trying to understand why one person might help or benefit another, intent is a

covert variable that cannot be directly observed and must be inferred, either in the self or in others. In other cases, it might be prudent to overlook intent, concentrating on the positive outcomes of prosocial acts (e.g., Dorf, 2005). As part of its commitment to create a scientific psychology, many psychologists from the 1890's to the 1960's promoted behaviorism (e.g., Watson, 1924), both as a conceptualization and as a methodology. In the behaviorist heyday, psychology was defined as the science of behavior, with explicit proximate environmental stimuli seen as causes and behaviors seen as effects (e.g., Watson, 1913). Behavior is directly observable, whereas internal thoughts and feelings (including intentions) can only be inferred and were therefore excluded from consideration within the behaviorism paradigm. Following Enlightenment philosophers such as Locke (1690), behaviorists treated prosocial behavior as a manifestation of morality, which was largely learned from experiences with the social environment. Despite its revolutionary fervor early in its reign, behaviorism was later challenged by other approaches within psychology. Notable among these approaches was the gradual adoption of an information processing metaphor for psychology (e.g., Neisser, 1967; Reed, 2007), and increased attention was given to internal psychological processes of cognition and emotion. It became increasingly clear that focusing exclusively on behavior would not yield the comprehensive understanding of psychological processes that was desired (Baumeister, Masicampo, & Vohs, 2011; Carlston & Graziano, 2010; Finkel, 2014; Prot, Gentile, Anderson, et al., 2014). Swept along in this cognitive revolution was prosocial behavior.

No major theorist denied that prosocial performance was influenced by rewards and incentives or that many, if not most, forms of prosocial behavior were learned either as a result of direct, personal reinforcement (e.g. Skinner, 1953) or as a consequence of observing the rewards or punishments experienced by others (e.g., Bandura, 1977). With the wisdom of

hindsight, it is possible to observe a sea change that renewed interest in internal cognitive and emotional states associated with prosocial behavior. Many theorists were still careful not to claim that thoughts actually caused prosocial behavior (e.g., Jordan & Wesselmann, 2014; Weinstein & Ryan, 2010), but cognitive activities like intent became “interesting covariates” of behavior. (The philosopher of science Wesley Salmon [2006] might describe this association as a “damn strange coincidence.”) Intention may not have moved quickly to the center of the stage, but it came back into the theater.

Can Prosocial Behavior be Explained Scientifically?

According to Allport (1985), if any one individual deserves credit for being the founder of the field of social psychology as a science, his nominee would be Auguste Comte. (As noted previously, Comte was the person who coined the term “altruism.”) Comte was credited with framing a skeptical, even antagonistic, relation between religion and the abstract sciences, and he presented his views in a series of three volumes written in 1830-1842 and 1851-1854. For Comte, the abstract sciences (e.g., mathematics, astronomy, chemistry, and physics) needed to be separated from the concrete sciences (e.g., medicine). The former deal with irreducible phenomena, whereas the latter deal with concrete entities and with applications of the abstract sciences. Comte believed that the abstract sciences emerged in a definite, invariant order as they passed through three stages of development. The first stage was the *theological* stage, in which phenomena are explained in terms of supernatural intervention. The second stage explained events in *meta-physical* terms. The final stage involved the *positivist* stage of development. For example, diseases such as bubonic plague, syphilis, or AIDS could be explained as God’s wrath for sin (theological), as a result of life being nasty, brutish, and short (metaphysical), or as natural phenomena, the results of infections from biological pathogens (positivist explanation).

The abstract sciences could emerge from sole reliance on theological explanations only in a definite order, with mathematics first, followed by astronomy, physics, chemistry, and biology.

According to Allport (1985), Comte ran into difficulties when he dealt with sciences of living things and, more particularly, in dealing with sentient life; many of these problematic phenomena lie within the domains that we would now call psychology and sociology. Comte believed that these matters would be the last kinds of individual, mentalistic phenomena to escape from theology to more objective, positive explanations. As a result, clear scientific explanations have been obscured for these domains. For our purposes, a theological explanation for prosocial behavior includes compliance with moral rules given by God or God's designated representatives. Most religions teach that prosocial behavior is laudatory: to share, to give alms to the poor, and to follow rules (e.g., Anderson, 2013; Berkson, 2010; Dorf, 2005). Behavior that is antisocial is blameworthy: to be greedy, to injure the disadvantaged, and to break rules. In this framing, persons who have not behaved in prosocial ways are guilty of sin and must bear a burden for their transgressions. If the nature of the sin is serious, then public sanctions are justified. As we shall see subsequently, however, there is more to this story than simple sanctions.

Comte's skeptical approach seems to have been influential among intellectuals, historians, and philosophers (Barzun, 2001; de Botton, 2012; Freeman, 2002). The methods used to explain events (e.g., deduction vs. induction; causal/mechanistic vs. statistical methods) were the primary concern, but its most powerful effect may have been in framing the very definition of phenomena that could and could not be explained scientifically. It seems to have fed into the historical development of the "demarcation problem" (Pigliucci & Boudry, 2013; Popper, 1957).

This problem involves how to separate scientific phenomena from those that are myths, prescientific, religious, or pseudo-scientific.

Salmon (2006) observed an interesting pattern in the evolution of modern thinking about valid scientific explanation. In the so-called “received view” that dominated the philosophy of science of the sort created by the Vienna Circle or the Berlin Circle (e.g., Feigl, 1970; Hempel & Oppenheim, 1948), the logical positivists saw part of their mission “to expunge from science any contamination of super-empirical factors” (p. 4), such as super-natural beings, teleology, entelechies, deference to religious texts, and vital forces. These philosophers focused on physics, and this allowed them to sidestep the kinds of problems that troubled Comte with regard to social behavior (e.g., Feigl, 1970; Meehl, 1978).

Many of the variables linked to morality and prosocial behavior have uncanny surface similarities to elements the logical positivists hoped to expunge, namely purposes, goals, teleology, religion, and even vital forces. Salmon (2006) notes that there are two sorts of facts: evidentiary facts, and explanatory facts (Carnap, 1962). Salmon illustrates this distinction using Velikovsky’s (1950) attempt to explain various Old Testament miracles, singling out Joshua causing the earth to cease to rotate during the siege of Gibeon (Joshua 10: 13-14, *New King James*). Velikovsky assumed an evidentiary fact that this miracle actually occurred. In Joshua’s case, however, suspension of earth rotation, even if time-limited, would be in violation of the well-established Newtonian physical law of the conservation of angular momentum. As an evidentiary fact, therefore, this biblical event is unlikely to have occurred, and, thus, it requires no scientific explanatory account. The counter argument is that we define miracles as the time-limited suspension of established physical laws, but this explanation requires still more assumptions not favored by logical empiricists. These problems arise with theological stage

explanations. The alternative is to say there is some small probability that the miraculous evidentiary event happened literally as described, and even a low probability is not the same as certainty it did not occur. Nevertheless, the prior probability of the miraculous event is vanishingly small in light of the nomothetic reliability of Newtonian mechanics (Meehl, 1978).

The logical positivists would probably question the legitimacy of a claim that preferential prosocial action to kin over non-kin had the “purpose” of putting an individual’s genes into the next generation. Similarly, they would question the legitimacy of the question “Does a person’s intent to benefit another person cause prosocial behavior?” But what is at issue with this question is not evidentiary but explanatory. That is, the evidentiary facts in this case would be that ratings of self-reported intent to benefit another person, which may be reliably correlated with observed helping behavior. Explanatory facts would require non-observed inferences to theoretical processes such as purposes and goals. Purposes and intent are extra-empirical variables, so in Comte’s terms, their interrelations are meta-physical at best and theological at worst. One consequence of this approach is to give the impression that scientific explanations for prosocial behaviors involving sentient persons may be beyond the pale of sound scientific explanation.

Explaining Morality and Prosocial Behavior in Sentient Beings Historically

The logical positivists like Hempel and Popper were reacting to limitations *in* centuries of theological explanations (Israel, 2001; Pigliucci & Boudry, 2013). For at least 3000 years, most explanations of prosocial behavior were tied to morality and ethics. They had clear religious and theological content. Canto-Sperber (2000) noted that for 25 centuries, writers, moralists, and thinkers kept returning to ethical issues first raised in ancient Greece. The ethics that evolved in the work of philosophers like Plato, Aristotle and the Stoics, however, was less about immediate

moral experience than about rational reflection on broader moral issues, such as “How should I live?”; “What is virtue?”; “How do I find happiness?”; and “What is the good life?”

Substantively, Canto-Sperber noted an especially important historical development that has implications for the contemporary view of prosocial behavior. It was the gradual emergence of a spiritual principle, psyche (the soul), during the 6th century BCE. This soul was no longer just the departure of breath from the body at death but the indicator of an independent being that persisted past death. Until that time, immortality was seen as the privilege of the gods, not as a characteristic of humans. This idea of a soul promotes the notion that the individual is the locus for intentional actions for which that person is ultimately accountable. After death, the individual could be punished or receive retribution in a cycle of reincarnated lives. A picture begins to emerge here: In Christian theological and philosophical accounts, individuals’ intentions make people accountable for their actions, good or bad. The existence of an individual soul implies that prosocial actions could be rewarded not only in the present world but also in the world to come. Conversely, failure to engage in prosocial acts could be conceptualized as sin, which creates a burden and a need for restitution.

How can we explain the fact that parts of our moral, ethical, and, specifically, prosocial experiences are tied to a world that ended 2000 years ago? Le Boulluec (2000) offered the idea that Greek moral and ethical thought gained its influence in part through early Christians’ efforts to communicate the gospels. The oldest Christian writings, letters of Paul, were written in Greek; whatever origins they had in oral tradition, the canonical gospels were composed in Greek. Those scholars skilled in language for doing such communication could be expected to have used the substantive ideas and literary styles they encountered in Greek texts and to have adapted them to the Christian message. For example, Le Boulluec observed that these scholars adapted

the Greek philosophical concepts of allegories for understanding the gospels. There is a major difference, however, between Greek allegories and those used by the Christians. Greek allegories offered by Homer and other poets did not contain the historical entelechies and aims characterizing Christian allegory. Christian history is Providential; it had a purpose and direction, as demonstrated by prophecies and events from the history of the chosen people of Israel. This melding of styles produced not only a new theology but also a cosmology and anthropology that deeply influenced the early church (Bickermann, 1988).

During the early years in the emergence of Christianity, Palestine was at the heart of a “new world” of Hellenism created by Alexander and his Macedonian followers. In Palestine, the numerically small but powerful elite wrote and spoke Greek, but ordinary people used Aramaic. Gradually a core of educated families gave their children a Greek education of high quality. Without this educated class, it would have been difficult to construct the Septuagint, the translation of the text of the Pentateuch from Hebrew into Greek. According to Bardet (2000), the translation of sacred texts from one language into another is contrary to most traditions in the Levant and Near East. Apparently the Jewish society, largely in the Diaspora, perceived a need for the Greek text because they were unable to read the original Hebrew version. Bickermann (1988) observed that the translation fixed the text from a philological as well as a theological perspective, increasing the importance of the words at the expense of actual living practice. Here we see how both history and language affected the framing of Abrahamic and Judeo-Christian ideas about prosocial behavior.

In what ways have sociopolitical history and language shaped the Judeo-Christian ideas and norms about prosocial behavior? An important part of the answer lies more in the linguistic evolution of ancient Hebrew and Aramaic texts than in the Greek speculations on the good life.

From a theological perspective, sin may be the primary cause of evil in the world, but its recognition may be the cause of prosocial behavior. How is this possible? Anderson (2009) reports careful linguistic analyses of religious texts that track the transformation of the concepts and language used to describe sin. One of the oldest descriptions appeared in Leviticus (1000-580 BCE). In it, the Day of Atonement (Leviticus 16:21-22) was described in terms of the removal of the sins of all of Israel by a priest putting his hands on a goat that then assumed the weight of Israel's sins as it escaped into the desert. The desert was seen as beyond the reach of God, and the sins of the Israelites would thus disappear from God's view. Repentance for sin was not enough, as the physical thing that was sin rested on the head of every Israelite, and it had "to be carted into oblivion" (Anderson, 2009, p. 6). Almost half a millennium later however, in the Gospel of Matthew, Jesus speaks of sin using a very different metaphor, namely one of debt: "Forgive us our debts as we forgive our debtors." Scholars have noted that the sin-as-debt metaphor was derived from contemporary Hebrew and Aramaic idioms of the time. If a person was not able to settle his debts, the creditor could have the debtor sold as a debt-slave, along with his wife, children, and all his property in payment of the debt.

Anderson (2009) observed that a major shift in thinking about sin — from weight to debt — was seen during the era of Persian rule (538-333 BCE). This period was associated with the rising prestige and influence of the Aramaic language, the official language of the Persian Empire. When the Babylonians sacked the first temple in Jerusalem (587 BCE), the Israelites were sentenced to years of captivity in Babylon. The prophet Isaiah explained why the temple was sacked, using descriptions suiting Comte's most basic theological level: It was due to the great sinfulness of the people of Israel. During that exile, Jews in Babylon became bilingual in

both Hebrew and Aramaic. In Aramaic, but not in Hebrew, sin was construed as “debt,” and a person in debt had to raise currency to repay it.

Anderson (2009) described a critical and revolutionary change in thinking as a result of shifting from Hebrew to Aramaic language use. *In the idiom of Rabbinic Hebrew*, following the Jews’ return from their Babylonian captivity, the semantic opposite of sin-incurred “debt” was “credit.” Before the sacking of the Temple (587 BCE), however, the idiom of “bearing the weight of one’s sins” did not have a natural opposite. For the first time, Jewish thinkers had a means for describing and encouraging positive, virtuous behavior. Just as sin brought debt, virtue brought merit. Accordingly, humans could build credits for themselves through good works (i.e., prosocial behavior). These credits were duly noted by God and deposited as treasure in a heavenly bank. In this approach, human agency becomes a force for counteracting the ravages of sin. Daniel (Daniel 4: 27) tells King Nebuchadnezzar, the Babylonian who destroyed the first temple in Jerusalem, that he can redeem himself by giving away money to the poor. According to Anderson, this represents one of the most important developments in early Judaism, namely that almsgiving became widely seen as the prime commandment (Dorf, 2005). The Rabbinic literature made further distinctions. Almsgiving to the poor was especially commendable. Deeds of loving kindness were superior to charity, because the former can be done to both the poor and the rich and apply to both the living and the dead. The Rabbinic literature valued acts of loving kindness for the objective good they do, regardless of the motive that prompted them. (*Babylonian Talmud*, reported in Dorf, 2005). The early Christian church inherited this view of prosocial acts from the Jews. In Matthew (25: 34-40), Jesus is reported to have said that at the end of the world, the sheep will be separated from the goats based on their good works directed to the needy (“...for I was hungry, and you gave me food, I was thirsty...”).

As Anderson (2009) noted, these issues of sin, debt, and good works reemerged with special vigor during the Protestant Reformation. Can a penitent's almsgiving and prosocial acts cancel the debt of sin and restore that penitent to good graces? Can the benefits be transferred by the penitent to another person, thereby reducing the debt of a dead relative in Purgatory? The sale of church-authorized indulgences in particular drew criticism from Martin Luther for its promise that money could repay the debts of sin. Such repayment was not only for the self but could be transferred to other persons (MacCulloch, 2003, pp. 12-13). Luther's position was that charity, almsgiving, and helping the poor were all admirable acts, but good works alone could not guarantee salvation. Perhaps good works and almsgiving genuinely motivated by an underlying faith were the keys (Anderson, 2013, pp. 8-9).

In terms of our focus here, the merit of good works and prosocial behavior depended on their intent and underlying motivation. The theological issues are complex and nuanced (see Anderson, 2009, pp. 160-163), but from a psychological perspective, given these Reformation controversies, ambivalent reactions toward people in need of help may be common, then and now (e.g., Cohen & Rozin, 2001; Regnerus, Smith & Sikkink, 1998). For example, are mental illnesses like schizophrenia and depression better regarded as diseases or as the wages of sin, for which the sufferer must atone before receiving help (e.g., Wesselmann & Graziano, 2010)? The Reformation Protestants no longer accepted the Mass as a celebration of a sacrificial act that remitted sins. Once the sacramental aspects of almsgiving were removed, the donor had no need to meet the needy in person, and alms to the indigent could be delivered by civic organizations (see also Dijker & Koomen, 2007). Whatever else this might be, the Reformation set into motion a perspective on prosocial behavior that was different from the ~~previous~~ Judeo-Christian heritage that preceded it (Israel, 2001; MacCulloch, 2003, "Outcomes," 645-683).

Evolution of Morality and Prosocial Behavior Norms as a Defense

For better or worse, historical processes shaped us as a species. One historical process is species-wide adaptation to the “hostile forces of nature” (Kropotkin, 1885). Just as our species evolved adaptations to the threats of extreme heat and cold, we also evolved adaptations to threats of a smaller size. In 1990, anthropologists Marcia C. Inhorn and Peter J. Brown published an influential paper in the *Annual Review of Anthropology*, “The Anthropology of Infectious Disease.” In it, they synthesized what was known about the contributions of genetics, epidemiology, and anthropology to the understanding of the transmission and spread of infectious diseases. Historians have commented on the impact of diseases since the earliest written records (e.g., Thucydides’ account of the plague of Athens during the Peloponnesian Wars, 431-404 BCE). Geneticists and anthropologists moved past idiographic military and social histories to observe that infectious diseases were a major contributor to natural selection and human physical and evolution (e.g., Haldane, 1949). Inhorn and Brown (1990) observed that diseases like malaria, smallpox, and bubonic plague have probably killed more humans than all wars, noninfectious diseases, and natural disasters combined. Beyond Comte’s theological attributions to the wrath of God for our sinful ways, how do we explain these afflictions? An acceptable scientific explanation would include descriptions of what causes and spreads these diseases. Such knowledge is important for science and theory, but it also has a pragmatic/applied value in that it would allow us to help the victims and perhaps even prevent the diseases.

A wide range of biological agents including microscopic viruses, bacteria, fungi, protozoans, and helminthic parasites are associated with infectious diseases, and their modes of transmission between organisms may vary. Facing this kind of diversity, epidemiologists sought

to identify general patterns in infectious diseases by sorting and classifying them; as of this writing, the 10th edition of *International Classification of Diseases (ICD)* sponsored by the World Health Organization describes a comprehensive classification system and its rationale. Brachman (1985), as well as others, have noted that exposure to a given pathogen will not necessarily lead to an illness. Other potential contributors include the state of the potential victim's nutrition, vulnerability of the individual's immune system, opportunities to be exposed to the vectors of transmission, and even beliefs about the illness. For example, schistosomiasis is a debilitating, life-threatening water-borne disease associated with parasitic worms in contaminated water. It is probably the fastest spreading and most dangerous infection now known (Heyneman, 1984). Inhorn and Brown described an extensive program of research conducted in Egypt by Farooq et al. (1966) who found that Muslims were infected at higher rates than were Christians. One possible explanation was that the differential prevalence rates were due to differences in the social behavior and cultural practices of the two groups. For example, the Islamic practice of *wudu*, ritual ablution before prayer, brings Muslims into more frequent contact with contaminated water than Christians. Similarly, May (1958) reported that in China, hookworm infections were associated with work locations. Rice growers who worked partially immersed in fields of mixed mud and contaminated water were often seriously infected, whereas silkworm farmers who spent their time out of the water and instead on ladders tending mulberry leaves did not.

These are straightforward explanations, and one might be tempted to trade one simplistic single-level explanation for another: Contaminated water causes schistosomiasis. Instead of a single agent as the sole cause of the disease, a multi-level matrix of physical, political, and social circumstances should be seen to surround each illness. Parasitic worms cause schistosomiasis in

people who have exposure to the water that spreads the worms and whose immune systems cannot fight the parasite. Hookworm requires not only a parasitic agent but also exposure to the water vector in the work environment that spreads it. It would be more accurate to say contaminated water is one part of the nexus of causes promoting and inhibiting elements that contribute to these illnesses. In this sense, then, infectious illnesses are like social behavior in that they are end-products of the constellation of necessary but not sufficient dispositions, antecedent events, and immediate situations (Shadish et al., 2002).

If social structures and cultural practices contribute to illness, then it is plausible that human populations showed different patterns of disease as our species made the transition from hunting-gathering to the more sedentary life of agriculture. Inhorn and Brown (1990) note that there is evidence of some infectious diseases in prehistoric populations; for example, paleopathology studies of the kidneys of Egyptian mummies found evidence of schistosomiasis. Inhorn and Brown raised the possibility that infections may have been a primary agent of natural selection, especially in the last 5,000 years, due to pressures associated with these cultural changes (e.g., Richerson & Boyd, 2005). Compared with more advanced agrarian societies, ancient hunter-gathers were relatively free of acute, epidemic infectious diseases due to small population sizes, relative isolation, and frequent moves. In early food foraging groups, with populations no more than 200-300, it would have been difficult to sustain a chain of infectious transmission.

In terms of natural selection of pathogens, agents (e.g., typhoid, amoebic dysentery) that lived in long-term connection with hosts would have been favored. Pathogens like measles, which spread rapidly and immunize most of the population in a single epidemic, would have been rare. As humans made cultural transitions from hunting-gathering to small, scattered

agricultural villages, and then to preindustrial cities, these moves changed the relations between humans and infectious diseases. This was induced by changes in amount of contact with humans and other animals, both of which are potential disease vectors, through changes in the sizes of human aggregation and movement among them. Epidemic diseases that could not get a foothold in small hunter-gather groups could virtually depopulate an urban center like Athens or London.

Inhorn and Brown (1990) observed that geneticists and anthropologists have a longstanding interest in the hypothesis that specific genotypes may confer an immunity or resistance to infections. The underlying idea is that a relatively common genetic condition might be adaptive in one context but maladaptive in another. Allison's (1954) "textbook example" is the heterozygous condition for the sickle-cell trait. This condition appears with greater frequency in Africa where life-threatening forms of malaria are also present. Allison's hypothesis was that individuals with the heterozygous state had a resistance to malaria, and, concomitantly, they were not at risk for sickle-cell anemia. Livingston (1971) argued that the spread of the heterozygous sickle-cell state in Africa corresponded with the introduction of iron agricultural tools. These tools led to settled agricultural communities, deforestation, and, coincidentally, increases in breeding zones for mosquitoes. This in turn led to greater selective advantages for the heterozygous individuals to malaria but ironically resulted in the spread of the heterozygous sickle-cell pattern as a secondary consequence.

A fair question at this point is what does any of this have to do with the end product of morality and prosocial behavior? This prologue was necessary to lay the foundation for new multi-level, consilience-oriented ways of thinking about prosocial behavior. How might this work? Infectious diseases qualify as a "hostile force of nature" and are major threats to human survival. Exposure to or even infection by a particular pathogen does not necessarily cause an

end-product of illness, because a constellation of elements is necessary for an illness to occur. Some of these elements may involve physical aspects of the environment (e.g., contaminated water), but human social activities can be contributory elements as well. The human immune system functions as a defensive adaptation that is useful for resisting infections and has evolved as a result of differential selection pressure. Is it possible that a behavioral immune system might also have developed as an enhancement and adjunct to the infection-resisting physiological immune system? If so, might such a system have implications for the development of local patterns of prosocial behavior?

From Epidemiology to Geographically-Situated Psychology

Building on the epidemiological and anthropological theory and research outlined here, Mark Schaller and Damien R. Murray (2008, 2010, 2011) offered the hypothesis that pathogen prevalence led to the development of “behavioral immune systems” to supplement the physiological immune system. The physiological immune system uses mechanism within the body to identify pathogens and to marshal biochemical and cellular defenses. This system, however, is costly to operate. Murray and Schaller (2014) note that the body’s inflammatory response to pathogens produces fever that helps fight infections. To raise the body’s temperature a mere 1 degree C (a low grade fever), the body requires a 13% increase in metabolic activity. In addition to metabolic costs, the immunological responses can also have detrimental behavioral consequences such as lethargy, which block other adaptive responses like acquiring food or caring for kin. To minimize the costs of fighting pathogens, the physiological immune system should be engaged only when absolutely necessary.

One means to limit the activation of the body’s immune system is to avoid contact with potentially infectious agents before they can infect. Analogous to the physiological immune

system, the behavioral immune system might detect potential pathogen threats but in the larger, external environment. Once detected, the behavioral immune system could generate specific behavioral, emotional, and cognitive responses that would reduce the risk of infection (e.g., use of only fast moving water, avoidance of others with flushed complexions, vigilance for harmful insects). This system would be far less costly to operate (i.e., “an ounce of prevention is worth a pound of cure”), at least in terms of taxing physiological resources. Furthermore, because different regions on the globe have different rates of pathogen prevalence, there will be corresponding differences in behavioral immune systems as expressed in differences in sociopolitical structures and attitudes. The differences are regional and geographic because the diversity and prevalence of pathogens is greater in warm, wet ecologies than in cooler, drier climates. Conceptually, ecological factors like pathogen prevalence present challenges to human groups which can respond by evolving coordinated patterns of thought, feelings, and behaviors. Social psychologists might be inclined to call these variables attitudes, but when patterns of attitudes are coordinated into systems and norms, they might be more appropriately labeled as social structures. Variations in challenges across geographical locations in turn support and maintain regional cultural beliefs, attitudes, preferences, and ways of dealing with problems in their specific ecological niches (e.g., Talhelm, Zhang, Oishi, Shimin, Duan, Lan, & Kitayama, 2014).

Murray and Schaller (2014) reviewed a set of variables that would support a behavioral immune system in pathogen-intensive environments. First, consider a key variable that is close to the core of evolutionary theory, namely sexual activities (Neuberg et al., 2010). There are significant individual differences in tendencies toward restricted versus unrestricted sexual behavior (e.g., Schaller & Murray, 2008), and sexual activities provide fertile opportunities for

the transmission of infectious diseases. In pathogen-intensive ecologies, the costs of unrestricted sexual activity would be higher than in lower pathogen-prevalent ecologies. To measure differences in pathogen prevalence, Schaller and Murray constructed estimates of country-level pathogen prevalence across 29 countries based on old epidemiological atlases. They included indicators of nine common infectious diseases prevalent at the end of the 19th Century (e.g., such as malaria, schistosomiasis, leprosy, tuberculosis, dengue, and typhus) and then applied this composite measure to Schmidt's (2005) large cross-national data set.

Consistent with their hypothesis, they found that both men and women reported significantly more restricted attitudes towards sexual relations in regions with a history of pathogen prevalence than in less pathogen-intensive ecologies. This effect was stronger for women than for men. Murray and Schaller (2014) made it clear that the predictor was not current pathogen prevalence but rather the historical prevalence of pathogen risk for the geographic region. Presumably, current social structures, roles, attitudes, and beliefs are more strongly influenced by the historical past than by the immediate present because social transmission of cultures operates through the relatively slow and conservative process of socialization (e.g., Harris, 1968; see also Talhelm et al., 2014). Research on simulated model cultures suggests that even arbitrary, nonfunctional norms can be perpetuated for many generations (e.g., Jacobs & Campbell, 1961; Weick & Gilfillan, 1971).

Our concern here is with morality and prosocial behavior, so we will now focus on helping-relevant social structural variables and their associated attitudes, beliefs, and preferences. Specifically, what forms of behavior might be part of a behavioral immune system but also potentially relevant to morality and prosocial behavior? Any cognition, affective reactions, or behavior norms that promoted or inhibited contact with other people who might be

carriers of serious infections, especially strangers and “outsiders,” would be prime candidates for consideration. We have already discussed socio-sexual attitudes. Murray and Schaller (2014) discuss several additional social-structural variables, but here we will focus on only five of that set, each of which is potentially relevant to prosocial norms and attitudes. These are (1) individualism and collectivism, (2) strength of family ties, (3) “binding moral ties” (Haidt & Graham, 2007), (4) psychological openness to experience, and (5) psychological extraversion.

The hypothesized explanatory sequence runs like this: Variations in the history of pathogen prevalence in an ecology (A) will induce the development of adaptive behavioral immune systems (B) that will supplement the physiological immune system. This behavioral immune system will be expressed in terms of cultural/ecological differences in some or all of the five variables listed previously. These differences will in turn be related to variations and patterns in the end product, prosocial behavior (C). The B-to-C links are reasonably well established in the empirical literature on helping; each of the five variables listed has been found to be related to variations in prosocial behavior. Individualism/collectivism is related to the range of persons receiving aid. People assign a higher priority to helping family and kin than strangers. Binding moral ties are related to who is regarded as worthy of respect, loyalty, and, ultimately, assistance. Psychological openness is related to willingness to try new ideas (e.g., new foods, new sociopolitical arrangements, meeting new people) and is inversely related to authoritarianism. Extraversion is associated with greater frequency and variety of interactions with others.

Given that the B-to-C links are reasonably well established, the critical question is how strong are the links between A-to-B and A-to-C? Ultimately, we will want to know not only if there is a sequence from A-to-B-to-C but also whether B operates as a mediator between A and

C. For example, does a history of pathogen prevalence (A) induce norms for greater ingroup favoritism and concern (B), which in turn leads to more care being given to similar others as soon as risk cues are discerned and, concomitantly, reductions in infection rates (C)? Does B (e.g., psychological processes of ingroup favoritism) mediate the link between pathogen prevalence (A) and specific protective behavioral actions and reductions in infection rates (C)?

Murray and Schaller (2014) conducted multiple tests of the A-to-B and A-to-C links using three different cross-national surveys. These data sets provided opportunities to examine convergence and to control statistically for the effects of confounds. Overall, the A-to-B links generally corroborated the hypotheses. Historical pathogen prevalence was negatively correlated with psychological openness and extraversion, as predicted, but not to the other three major dimensions of the Big Five (i.e., Agreeableness, Conscientiousness, or Neuroticism). Historical pathogen prevalence was significantly negatively correlated with individualism, and positively correlated with collectivism. Pathogen prevalence was also positively correlated with an index of strength of family ties (Fincher & Thornhill, 2012).

Most relevant to our considerations is the influence of pathogen prevalence on the “morality of binding moral ties,” which is an aspect of Moral Foundation Theory (Haidt & Graham, 2007). This theory proposes that morality rests on five different foundations, each of which can be categorized as either individualizing or binding. Binding moral ties rest on a foundation of authority/loyalty, which meet the adaptive challenge of forging beneficial relations within hierarchies. Also associated with binding ties is the moral foundation of sanctity/degradation. Triggers would include waste products and diseased people, a characteristic emotion would be disgust, and characteristic virtues would be temperance, chastity, piety, and cleanliness. It is not difficult to see how this approach to morality would be related to a range of

prosocial behaviors beyond helping. These include the identification of those who would be regarded as worthy of respect, loyalty, and assistance. One of the theory's other core values is "purity" and concerns with contamination (cf. *Good Samaritan Parable*). Van Leeuwen, Park, Koenig, and Graham (2012) used a sample of 120,000 people in 47 countries to test the hypothesis that "morality of binding ties" was related to pathogen prevalence. Again, historical pathogen prevalence was correlated positively with binding moral values but not with individualizing moral values.

If the introduction of a novel pathogen into a specific geographic region could be shown to lead directly to personal and social changes of the nature predicted by this theory, that would be better evidence for Murray and Schaller's proposition than showing general correlations between location and prevalence. A concrete example to that effect is, in fact, available. In the 1490's, a new infectious illness, syphilis, arose in Italy and spread throughout Europe; there is arguable evidence that it was brought to Europe from the America's by Columbus's crew. Consistent with the Murray and Schaller theory, MacCulloch (2003) notes that the infection brought about a most remarkable set of social changes. Europeans quickly realized the infection was due to sexual activity, so it brought stigmatization on its victims. There were large scale closures of licensed brothels that were such a feature of European medieval city life. Public bath houses disappeared. To the populace, the epidemic was God's punishment for sin. Public statements about the rationale for closures were moral, not epidemiological. At an interpersonal level, personal manners, gestures, and codes of conduct changed to avoid too much physical contact with people. MacCulloch noted that the increase in this infectious disease brought about major changes in European public and private behaviors and in social norms, and it seems doubtful that the people of the time, including the policy makers, had a clear understanding of

the forces influencing their decisions and how those decisions affected the protective behavioral immune systems.

Murray and Schaller (2014) did not present their work as a model or approach to prosocial behavior. Their primary focus was on personality and individual differences. Nor did they explicitly mention prosocial behavior or helping in their section on implications and future directions. Instead, they offered a more general analysis, which links macro-level evolution (E2) to a variety of meso-level processes in individuals. Their work is still new, with many questions still open, and, as Murray and Schaller note, it is necessarily correlational in its nature. Nevertheless, the implications of their model for a more comprehensive, integrative approach to prosocial behavior are clear. The pattern that emerges is one in which the demands of a pathogen-prevalent ecology elicit social structures and attitudes leading to (a) restricted social interactions; (b) stronger family ties; (c) sharper in-group/out-group distinctions; (d) xenophobia; (e) wariness of unusual people, practices and foods; and (f) more introverted and less open psychological processes. Virtually all of these processes could influence the patterns of prosocial behavior expressed. Stronger family ties and greater in-group favoritism are most clearly related to the promotion of more prosocial relations; caring for family members are most in line with serving the demands of the “selfish gene.” Although restricted social interactions, xenophobia, introversion, and wariness of unusual people may appear to be antithetical to benefiting others, the resources saved by refraining from interacting with strangers (including preserving one’s own health) may be resources devoted to care for one’s kin. There may be no overall decrement in the amount of prosociality displayed.

Within this context, morality and prosocial behavior are end products of the processes that are undertaken in response to pathogen threats. They are resultant outcomes of a constellation

of necessary but not sufficient elements. This idea can be elaborated further. Murray and Schaller's model suggests that prosocial behaviors are elements of a large nomological network of variables, some of which may be explicit and consciously accessible and others which may be neither. If certain prosocial behaviors evolved as part of a system to resist contagious diseases, it is possible that different aspects of morality and prosociality could be activated by different components of the behavioral immune system. For this reason alone, tight coherence among prosocial thought, feelings, and behavior may be an illusion. The prosocial behaviors studied so extensively at the meso-level in North America may be but a small part of a much larger macro- and micro-level picture (e.g., Henrich, Heine, & Norenzayan, 2010). Here is a case where questions of external validity raise more basic questions about construct validity. The theorist Kropotkin (1885) in particular argued that cooperation was most conspicuous in people living in harsh environments; at the most basic level, prosocial behaviors are survival adaptations (see Gould, 2002, pp. 1229-1231). The questionnaire ratings of helping, the willingness to chaperone children to the zoo or to share class notes, and the contributions to public goods are among the classic measure of prosociality in research conducted in North America and Europe and are perhaps manifestations of larger systems that had their evolutionary and social origins in the adaptive challenges from infectious diseases in the warm, wet equatorial zones of the world. Our meso-level prosocial behaviors may have evolved in part from the need to care for the sick, especially kin, and at the same time to balance that need with needs to protect the self from illness. Finding evidence relevant to these speculations will not be easy. At least conceptually, the approach suggests that prosocial research could be profitably directed toward the crucial mediators (such as social structural systems) that have evolved and stand between pathogen prevalence and overt prosocial behavior. There is no reason to assume, however, that the

evolved behavioral and institutional structures could not (and would not) change further as a result of new or different selection pressures. That being said, natural selection operates on existing structure through “adaptive workarounds” (Eastwick, 2009), and predispositions to act in particular ways would be slow to change as they must build on top of existing adaptations rather than being built *de novo* toward some sort of optimal design.

The final point to be made is that this future exploration will help to provide a more comprehensive understanding of the prosocial construct that includes not only the immediate determinants of prosocial action but also the fuller background that provides the distal background of the phenomenon.

From Distal Norms to Psychological Processes

The norm-centered approaches outlined previously tell us more about “when” than about why.” They tell us about the kinds of social norms that have evolved and the explicit and implicit rules and behaviors we could expect from groups of people. They tell us little, however, about psychological processes operating within individuals. One step toward integrating these divergent issues and building a model of morality and prosocial behavior may be found in work by Dijker and Koomen (2007). Substantively, they focus on stigmatization and the biased threat individuals can receive when they violate group norms. Dijker and Koomen note that the same person can show strong bias against one class of “deviants” (e.g., drug addicts), yet show almost loving concern for a different class of deviants (e.g., homeless children). Such variability in bias is not easily explained by a single personality variable or a single norm.

Dijker and Koomen proposed an innovative, integrative approach to stigmatization that included two evolved, preverbal systems of motivation. Each system reflects human evolutionary history. The older component is a Fight/Flight system that we carry as part of our Paleoreptilian

heritage. Encounters with “unusual cases” (“deviance” in Dijker & Koomen) activates this system without conscious deliberation, priming a system that impels individuals to flee from danger or to fight if forced to do so. The second system is newer in evolutionary time and is part of the parental care system associated with kin selection (e.g., Hamilton, 1964; Trivers, 1972). Furthermore, the two motivational systems have the capacity to elicit characteristic emotions when exposed to certain specific environmental triggers. Because humans evolved in small groups of genetically related individuals, aggressive reactions to unusual cases had to be inhibited. Some of the unusual cases probably involved kin, for whom repair of deviance would be more beneficial than aggression or exclusion. The Care system has the capacity to suppress the Fight/Flight system.

The theoretical system presented by Dijker and Koomen (2007) may be expanded further toward morality and prosocial behavior. Let us assume that prosociality is the psychological manifestation of the Care system. If this is correct, then prosociality may not only relate to sympathetic care giving to the weak and disadvantaged but may also operate to suppress the responses associated with the more primitive Fight/Flight system. Put differently, some prosocial phenomena may be fairly direct expressions of Care, and others may be a product of Care-based suppression of Fight/Flight. Furthermore, persons with prosocial predispositions (e.g., persons high in agreeableness) may feel empathic concern directly for victims of misfortune (Graziano, Habashi et al., 2007), but they may also suppress (perhaps effortfully) negative reactions to traditional targets of prejudice generated by their Fight/Flight system (Graziano, Bruce et al., 2007).

Taking the system beyond the level of description, let us assume some connections between the Fight/Flight and Care systems of potential relevance to prosociality. If we assume

that both Fight/Flight and Care systems are present in almost all people (albeit at varying strengths) and that Fight/Flight occurs faster than Care upon exposure to an environmental oddity, the two may operate as opponents to each other's preponderate responsive activation tendencies. If so, we can generate explanations for apparent paradoxes and anomalies. In helping contexts similar to those studied by Batson (1991), personal distress aroused by seeing another in need may inhibit prosocial acts because it is part of Fight/Flight, not Care. Empathic concern, however, promotes helping because it is part of Care. Despite having opposite effects on helping, both personal distress and empathic concern are present in most people, explaining the positive correlation. Personal distress is the first response to a victim because it is connected to the faster Fight/Flight system. If there is an opportunity for easy escape from the victim when personal distress is high, then the victim will not receive help. If escape cannot occur quickly, or if the observer must remain in proximity to the victim, then enough time may pass for the slower empathic concern system to become active. This empathic concern would suppress the Fight/Flight system and increase chances the victim would receive help. This account would explain why outcomes of research on Ease/Difficulty of Escape are unstable. The key variable—the time interval between exposure to the victim and the window of opportunity for escape—is unmeasured.

Graziano and Habashi (2010) have taken this approach one step further. They proposed that the system we describe may be a case of the opponent process model of motivation presented by Solomon and his colleagues (Solomon, 1980; Solomon & Corbit, 1974). In a search of the published literature, Graziano and Habashi could locate only two applications of the Solomon opponent process model to either helping or prejudice (Baumeister & Campbell; 1999; Piliavin et al., 1982). In both cases, the focus of attention was primarily on Solomon's opponent

explanation for cycles of addictive behavior. The Graziano and Habashi version of the opponent approach is presented in Figure 1. In keeping with Solomon, the first process activated is labeled State A. Its activation is virtually automatic, a kind of unconditioned response to the onset of an environmental stimulus. It remains active while the evocative stimulus is present and ends when the stimulus is removed. The second process activated is an opponent, labeled State B. It is slower to come on line but persists well after State A ends. Because A and B are opponents, but A occurs first and more quickly in response to an environmental event for some brief part of the sequence, State A operates in almost pure form (without an opponent). Concretely, if State A is personal distress and State B is empathic concern, then the first response to a victim should be unopposed personal distress. If escape is possible in this interval, the victim will not receive help. By the same logic, initial reactions to unusual cases (e.g., victims of misfortune) as well as to members of out-groups would be personal distress and avoidance. With time, however, State B can be activated, opposing the processes of State A. These opponent processes may be what Pryor et al. (2004) index in their behavior correction research. Initial negative reactions are replaced by more positive ones.

The Solomon opponent process approach offers several additional insights relevant to prosociality. Repeated exposure to the evocative (unconditioned) stimuli produces systematic changes in the relative strengths of State A and State B. State A becomes weaker, and State B becomes stronger. The prototype is drug addiction, in which repeated exposure to substances like cocaine create smaller and shorter states of euphoria and longer states of withdrawal. In the present application, repeated exposure to victims of misfortune should lead to smaller and shorter periods of personal distress and, at least in theory, to longer states of empathic concern. This connection might explain why there are individual differences, and why they appear in the form

that they do. In most of these cases, the kinds of individual differences in motivation for helping reported by Oliner and Oliner (1988) and by others reflect the fact that the helpers had repeated exposure to various kinds of “unusual cases” of people earlier in their lives.

The Solomon approach also raises important questions about the conceptual status of large individual differences like agreeableness, the decomposition of molar social behavior into constituent components, and the role of time in the expression of complex social behavior. Regarding the first of these questions, at some level each individual is born prepared for a life trajectory by a set of inherited tendencies and motivation systems. Evolution may have left us with two powerful motive systems in Fight/Flight and Care (Dijker & Koomen, 2007), but there are probably individual differences in the relative strength of these two motivations. Observers might detect and label these socially important behavioral differences as neuroticism and agreeableness, respectively. At this point, we might be satisfied to build structural models or collect data showing intercorrelations among variables like Care, agreeableness, and some other dispositions like self-esteem. Such an approach would grossly underestimate the dynamic quality of the major dispositions and probably the range of influence of the individual difference under consideration. That being said, repeated exposure to certain kinds of environmental events alters the basic parameters of the inherited dispositions and motives.

Regarding the second question, the expression of complex social behavior like helping is almost certainly the outcome of several different but related systems. When these systems operate at the same time, one system may reduce the influence of another. In the opponent process model, the influence of State A is much reduced once State B is activated. From observing a single episode of helping or prejudice, a researcher might conclude that a single

process is operative, but it is likely that the process is better studied only by observing the operation of the components over time.

The opponent process model linking multiple motives to interpersonal behaviors and to more general self-regulatory processes (Graziano & Tobin, 2013) is novel, so many unanswered questions remain. Are personality dispositions related to prosociality (e.g., empathy, agreeableness) tied to the Care system only or to Fight/Flight as well? Are they tied to both personal distress and empathic concern, to both prejudice and the suppression of prejudice, or to just one of these elements in each pair? We believe that the opponent process approach allows us to anticipate phenomena that cannot be found elsewhere.

To the best of our knowledge, no empirical research has addressed the issue of delayed helping (but see Penner et al., 2005). In general, a common assumption is that the influence of a manipulation of victim need, mood state, or empathic concern will dissipate for most or all people over time. That is, rates of helping are affected by the interval between provision of information and the request for help and the opportunity to provide it. Note the analogue to the correction of prejudice outcomes reported by Pryor et al. (2004). If the opponent process system operates roughly as described here, then some forms of helping may be greater after a short delay than they are following an immediate request. The initial Fight/Flight reaction may come under the control of the opponent Care system, in effect disinhibiting helping with time. Undoubtedly, we would also see characteristic emotions, such as relief at finally having an opportunity to provide assistance. Based on the previous rationale, we would also expect those with more frequent exposure to victims in need to offer more help sooner and with less influence of delay, than persons with fewer exposures to victims. These are experience-produced, quasi-personality

predispositions, emerging as a result of social learning. At this point, such conjectures are speculative.

Concluding Thoughts

Understanding the social characteristics of moral decisions and behavior has been a major challenge to thinkers since the first written records of human activities were created. Social psychology can make contributions to our understanding of current moral judgments and behavior, and, in turn, our conceptions of morality can inform social psychological theories and research. This paper focused on prosocial behavior, a potentially rich source of information about the contextual connections among morality-related thoughts, feelings, and behavior. In this chapter, we placed social norms at the center of the analysis. Then we worked backwards from overt prosocial behavior to examine contextual influences and multiple causes. The key idea is that prosocial behaviors are often influenced by social norms, which stand at an intermediate meso-level position, between macro-level, social variables such as language and geographic patterns of infections at one end and micro-level variables including physiological and evolutionary processes at the other end. We offered a multi-level approach with the goal of integrating processes operating at different levels of abstraction. The evolution of the concept of sin influenced corresponding changes in prosocial norms and in acts presumed to redeem sinners from the stain and guilt of their normative (moral) transgressions. Building on work by Schaller and Murray (2008), we proposed another historical force influencing prosocial norm evolution, namely cultural differences in reactions to pathogen prevalence and infections. Both language and pathogen prevalence represent macro-level contextual variables that contribute to the evolution of morality and prosocial norms. By themselves, norms provide an incomplete picture of prosocial behavior; links are needed to the micro-level. Basing ideas on previous social

psychology work on stigmatization (Dijker & Koomen, 2007), we proposed an opponent-process, social learning mechanism that could help explain patterns of prosocial behavior, including differences in willingness to aid victims.

The ideas we proposed are synthetic, in that they are built as extensions on top of ideas found outside the traditional literature of prosocial behavior (e.g., Dovidio et al., 2006; Schroeder & Graziano, 2015). But we feel that the introduction of these novel approaches provides opportunities to take new, fresh looks at prosocial behavior phenomena and to suggest relevant processes in need of further explanation. How well they will fare in the long run is largely an empirical question.

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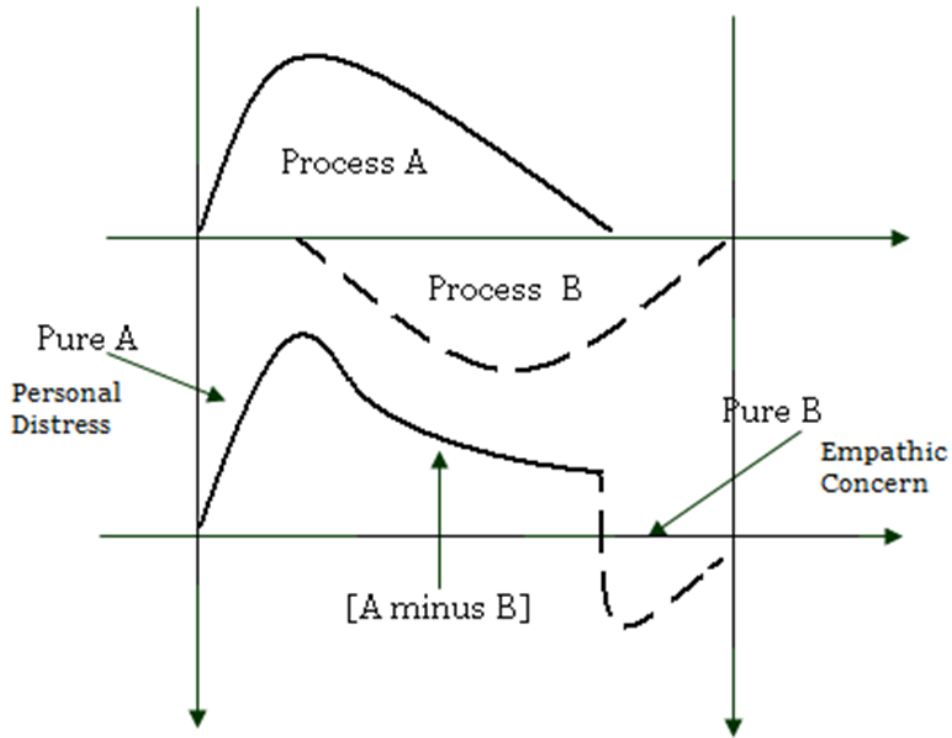


Figure 1. Opponent process model of motivation (adapted from Solomon & Corbit, 1974).