

Additional work from the field of moral psychology can shed light on why an individual might engage in – or, at the very least, report a strong urge to engage in – these acts of extreme self-sacrifice. People typically consider the rights and well-being of entities at the center of their moral circles to take precedence over other considerations. It is likely that these perceived obligations are held with such deep moral conviction that they become “moral mandates” (Skitka et al. 2005). Indeed, moral convictions have been identified as a potential antecedent of allyship, as they provide powerful motivation for a call to action (van Zomeren et al. 2011). Such deeply embraced moral convictions go beyond mere attitudes or beliefs; rather, they are held with extreme significance and certainty, and produce visceral emotional responses with high action potential (Mullen & Skitka 2006). Therefore, moral conviction may serve as a catalyst for these extreme self-sacrificial acts beyond the bounds of the group.

In sum, Whitehouse’s work offers a compelling theoretical account of why individuals may be willing to lay down their lives for the sake of their groups and the crucial role of identity fusion in this process. We offer an extension, highlighting the powerful and unique role an expansive sense of moral obligation can play in the occurrence of extreme self-sacrifice beyond the boundaries of shared markers.

Identity fusion and fitness interdependence

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Abstract

Fitness interdependence is the degree to which two or more organisms influence each other’s success in replicating their genes. Identity fusion may be a proximate mechanism that aligns behavior with fitness interdependence. Although identity fusion may usually lead to behaviors that are fitness enhancing, in evolutionarily novel environments, it may be hijacked in ways that are highly detrimental to fitness.

Humans are highly social animals, and, since our evolutionary beginnings, our fitness outcomes have been deeply interdependent with those around us. From parent–child relationships to war parties, to mating relationships, our ability to transfer our genes to the next generation is often tied to others’ success. Here, we suggest that the idea of identity fusion, which Whitehouse describes as “a visceral sense of oneness with the group” (abstract), may be a proximate mechanism for aligning human behavior with degrees of fitness interdependence.

Fitness interdependence can be defined as the degree to which two or more organisms influence each other’s success in replicating their genes (Aktipis et al. 2018; Brown 1999; Brown & Brown

2006; Kelley & Thibaut 1978; Roberts 2005). Fitness interdependence can arise for many reasons, including genetic relatedness (Hamilton 1964a; 1964b), mating, having common descendants (Dow 1984; Hughes 1988), food sharing, risk pooling (Aktipis et al. 2016; Cronk et al. 2018), and, perhaps most importantly for the concept of identity fusion, intergroup competition and conflict. The concept of fitness interdependence applies to human interactions including many that Whitehouse describes, but it also applies to other interactions in the biological world. Any organisms that have positive impacts on one another’s survival and reproduction, for example, in biological mutualisms, can be considered to have fitness interdependence.

Whitehouse proposes that extreme self-sacrifice – for example, altruistic suicide – is possible because of the process of identity fusion. Extreme self-sacrifice of this kind is seen in many biological systems where there is an extremely high level of fitness interdependence. For example, cells in clonal multicellular bodies are highly fitness interdependent, and these cells are equipped with the ability to undergo apoptosis – cell suicide – if they are malfunctioning and potentially threatening the viability of the multicellular organism of which they are a part (Aktipis et al. 2015). Perhaps even more relevant to the idea of identity fusion is the biology of the slime mold *Dictyostelium discoideum*, which has a unicellular life stage, but which can also join together into a multicellular slug when resources are low, moving along the forest floor and then turning into a stalk and spore (Strassmann et al. 2000). The cells that end up in the stalk are engaging in the kind of extreme self-sacrifice that Whitehouse describes, and the *D. discoideum* cells literally fuse together during the multicellular stage. Therefore, identity fusion is not a uniquely human phenomenon, but one that has parallels in biological systems where fitness interdependence is very high.

If identity fusion is indeed a mechanism for aligning motivation and behavior with fitness interdependence, then identity fusion would be expected to occur in those situations characterized by high fitness interdependence and, in particular, during transitions to situations in which fitness interdependence becomes so high that it is practically at unity (i.e., a one-to-one correlation of fitness between the involved parties). In looking at human relationships, we see that some physical interactions, such as sexual intercourse and nursing, can increase oxytocin and subsequent feelings of bonding. These are both situations where there is a potential shift from lower to higher fitness interdependence of the involved parties. Similarly, in situations of intergroup conflict, there can be a shift from lower to higher fitness interdependence, which may facilitate the process of identity fusion, as with the “band of brothers” phenomenon in combat units during wartime (Shakespeare, *Henry V*, Act IV, scene iii [Ambrose 1992]).

Whitehouse also suggests that rituals may play an important role in the procession of local identity fusion. This idea corresponds well with thinking among cooperation theorists that rituals are important for social coordination more broadly. Rituals help create both the common knowledge and the common meta-knowledge (i.e., common knowledge that there is common knowledge), among both participants and observers, that is needed for solving coordination problems (Chwe 2003; Cronk & Leech 2013). In the small-scale, highly interdependent societies in which our ancestors lived, the process of local fusion, perhaps enhanced through the use of rituals to create common knowledge and the use of kin terms to indicate fitness interdependence, may have routinely led to behaviors that, although very costly to the individual actor, were

worthwhile in an evolutionary sense, thanks to the underlying fitness interdependence among the individuals within the group.

Large-scale societies, on the other hand, create the possibility of mismatches between perceived and actual fitness interdependence. This possibility may sometimes be exploited by the process of extended identity fusion that Whitehouse describes. As with local identity fusion, kin terms as markers of fitness interdependence may sometimes play a role in this process. As Whitehouse notes, such terms as “brother,” “sister,” “fatherland,” and “motherland” are common in political rhetoric, and such usage increases the persuasiveness of such rhetoric (Salmon 1988). In addition, people are more tolerant of violence toward out-group members if those who act violently use kin terms such as “brothers” and “family” among in-group members (Abou-Abdallah et al. 2016). Kin terms are also routinely employed by groups that demand such extremely fitness-reducing behaviors from their members as celibacy and suicide. Consider, for example, Roman Catholics’ use of terms such as “mother,” “father,” “sister,” and “brother,” and the fact that organizations that train suicide bombers use kin terms to manipulate and motivate their recruits (Qirko 2004; 2009).

Identity fusion may be one of the proximate mechanisms that motivate us to behave in ways that are consistent with our fitness interdependence with others. In other words, we may have a “visceral sense of oneness” with others when our fitness interests are highly aligned, perhaps even completely aligned. The identity fusion mechanism may be designed to be triggered only in extreme circumstances, characterized by high degrees of fitness interdependence. As with the cells of the slime mold *D. discoideum* that join together as a self-sacrificial slug only when their ability to survive and thrive as single cells is compromised, humans might join together in a self-sacrificing group when their fitness literally depends on it.

Self-sacrifice as a social signal

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Abstract

Self-sacrifice can be modeled as a costly social signal carried to the ultimate extreme. Such signaling may be evolutionarily stable if social status is, in part, inherited.

Self-sacrifice remains an evolutionary puzzle in a species like ours in which individuals live in large groups composed of unrelated or loosely related individuals. Whitehouse considers various evolutionary accounts to explain voluntary self-sacrifice: kin selection, multilevel selection, and – through various references – gene-culture co-evolution. All of these accounts pose difficulties, many of them being mentioned by the author. He does not, however, mention an important alternative, social signaling, or mentions it only in passing when discussing costly rituals.

Social signaling (Dessalles 2014; Gintis et al. 2001) is a special case of the theory of costly signaling introduced by Zahavi (1975)

and Grafen (1990). By definition, the purpose of social signals is to attract friends. Costly social signals are evolutionarily stable if they are correlated with some definite qualities that increase the fitness of friends (Dessalles 2014). For example, if having friends that are courageous or generous increases one’s fitness, then courageous or generous individuals are socially in demand. As a consequence, displaying costly signals correlated with courage or generosity becomes a valid strategy to attract friends.

Social signaling provides robust explanations for a variety of pro-social behaviors, such as competitive helping and overt food sharing (Bliege Bird & Smith 2005). More generally, altruistic acts toward non-kin can be favored by natural selection if they are used to advertise some quality that may be valuable to the signaler’s actual or potential friends. The real targets of an altruistic act are its witnesses, who are not necessarily the recipients.

Competition for signaling can lead to extreme costs. This is consistent only if costs (e.g., death probability in risk-seeking behavior to prove one’s bravery) are compensated by even greater potential benefits. Social signaling offers such high-benefit situations. The best signalers get high social status, as the emerging result of the will of many to become their friends. Achieving higher social status is known to provide a variety of material and reproductive advantages.

The underlying motivation of men to undertake the somatically risky behaviors associated with warfare is not some form of group altruism; rather, it is a form of enlightened self-interest in which the benefits are measured in terms of personal status, which on average has led to reproductive advantage in the environments of our evolutionary past. (Patton 1996, p. 7)

Social signaling offers an elegant explanation of extreme bravery (and, correlatively, of cowardice avoidance), as far as it is advantageous to be friends with such a person (rather than with a coward). Similarly, being acquainted with someone who is committed to the group is expected to be desirable in situations of intergroup conflict. The explanation does not hold for self-sacrifice, however, because performers do not survive to enjoy the advantages of having earned high status. An additional hypothesis is needed. The missing element may be that social network and social status are highly heritable in our species. The high status of an individual “raises the status of every member of his family above ordinary families” (Service 1971, p. 140). Such an advantage may be sufficient to make martyrdom an evolutionarily stable strategy as long as it remains a low-frequency behavior (the fewer the heroes, the higher is their status). Martyr candidates do not need to consider, or even be aware of, the positive material consequences for their family (Ginges & Atran 2009), as long as they are sensitive to the future glory of their name.

One aspect of this account is left unexplained. Why would it be profitable to become acquainted with a hero’s brother or daughter? Having courageous friends makes sense for protective reasons, but courage is not supposed to be heritable. Why do heroes’ family members become socially desirable? One answer is that social status spreads through the social network: Being close to high-status individuals automatically increases one’s own status. This would be true for the heroes’ kin, for their friends, and for their kin’s friends.

Another hypothesis may provide a further reason why heroic acts are especially likely to benefit heroes’ families. Honoring heroes and heroes’ families appears to be a second-order social signal, that is, a signal about a signal. Those who pay tribute