The Ties That Bind Us: Ritual, Fusion, and Identification

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The Ties That Bind Us

Ritual, Fusion, and Identification

by Harvey Whitehouse and Jonathan A. Lanman

Most social scientists endorse some version of the claim that participating in collective rituals promotes social cohesion. The systematic testing and evaluation of this claim, however, has been prevented by a lack of precision regarding the nature of both "ritual" and "social cohesion" as well as a lack of integration between the theories and findings of the social and evolutionary sciences. By directly addressing these challenges, we argue that a systematic investigation and evaluation of the claim that ritual promotes social cohesion is achievable. We present a general and testable theory of the relationship between ritual, cohesion, and cooperation that more precisely connects particular elements of "ritual," such as causal opacity and emotional arousal, to two particular forms of "social cohesion": group identification and identity fusion. Further, we ground this theory in an evolutionary account of why particular modes of ritual practice would be adaptive for societies with particular resource-acquisition strategies. In setting out our conceptual framework, we report numerous ongoing investigations that test our hypotheses against data from controlled psychological experiments as well as from the ethnographic, archaeological, and historical records.

Social scientists have long appreciated that collective rituals serve to bind groups together. The fourteenth-century scholar Ibn Khaldūn referred to this as *'aṣabīyah*, which, roughly translated from the Arabic, means "social cohesion" or "solidarity" (Ibn Khaldūn 1958; Turchin 2006). Khaldūn believed that *'aṣabīyah* was rooted in kinship but could be extended to tribes and nations through the sharing of ritual and ideology, a view that anticipates at a general level some of the key arguments developed here. Pioneers of social theory in the nineteenth century similarly accorded to ritual a pride of place among the various cultural practices that promote camaraderie and coalition formation (e.g., Durkheim 1995 [1912]; Frazer 1922; Fustel de Coulanges 1980; Robertson-Smith 1889). This theme runs through the most important works in social and cultural anthropology of the twentieth century, amply illustrating the view that rituals bolster the social order. A particularly influential idea was that it is the social function of rituals to rejuvenate commitment to collective goals and to ensure acquiescence to the will of the group and deference to figures of authority (Kertzer 1988). This theme lay at the heart of not only the many varieties of functionalist thinking (e.g., Malinowski 1944; Radcliffe-Brown 1952) but also various forms of structuralism (e.g., Douglas 1970; Leach 1954), Marxism, and neo-Marxism (e.g., Bloch 2004; Sahlins 1974) and is even detectable in many post-structuralist analyses of colonialism, alterity, and identity (Comaroff and Comaroff 1993; Foucault 1975).

Arguably the most important legacy of this work is the wealth of ethnographic description it has inspired, rather than its contribution to scientific theory. As a consequence, we now have a vast corpus of detailed accounts of rituals in different cultural environments and of the patterns of group formation and competition with which these rituals are associated. Unfortunately, such descriptions do not furnish us with many precise and testable hypotheses concerning the mechanisms allegedly connecting ritual participation with particular forms and intensities of group cohesion and cooperation, and for decades there was no systematic effort to formulate and test hypotheses of this kind.

The situation, however, is beginning to improve. Progress has recently been made on understanding ritual and cooperation by focusing on the effects of synchronized movement (a common feature in collective rituals), costly signaling (rituals often incur heavy costs in terms of material resources, time, and physical effort or suffering), and displays of commitment to particular belief systems (such as religious traditions). Efforts to investigate the effects of synchrony on in-group affiliation and commitment to communal goals have focused on such behaviors as synchronous marching (Wiltermuth and Heath 2009), rowing (Cohen et al. 2006), and

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musical performance (Tomasello 1999). A potentially complementary line of research considers the possibility that rituals inspire trust and cooperation by signaling commitment to the group (Irons 2001; Sosis 2006). A somewhat similar proposal is that rituals affect our cognitive tendency to believe the pronouncements of others to the extent that they practice what they preach. On this view, rituals serve as "credibility enhancing displays" for the group ideologies underlying them (Henrich 2009; Lanman 2012).

The hypotheses advanced by these new approaches have prima facie plausibility, and efforts have been made to test them scientifically, for instance using carefully controlled psychological experiments (Wiltermuth and Heath 2009) and economic games (Sosis and Ruffle 2003). Further, these efforts demonstrate the need for and benefits of fractionating (Boyer and Bergstrom 2008) the folk category "ritual" into distinct, empirically tractable phenomena with particular effects on cohesion and cooperation. Nevertheless, this work has not applied the same rigorous procedures to the category of "cohesion" and has not yet become grounded in a more encompassing theory of the relationship between ritual, cohesion, and cooperation. Why should synchrony lead people to affiliate or cooperate? Why should we regard ritual as a signal of trustworthiness or conviction when we also know that there are strong social pressures driving participation and often sanctions for failure to participate in the proper fashion? Here we are seeking a fuller explanation of ritual and cohesion that encompasses but also goes significantly beyond the hypotheses so far advanced, by fractionating "cohesion" alongside "ritual" and situating what is currently known about these topics within an overarching evolutionary framework.

Ritual

Anthropologists may be intrigued by the specific findings of recent cognitive and evolutionary scientists, but unsure as to how they help explain anything about "ritual" and its effects on cohesion. Some rituals involve synchronous actions, but a great many do not. Some rituals appear quite costly in terms of time and effort, others much less so. Further, such work seems to ignore anthropological scholarship in recent decades, questioning whether "ritual" constitutes a stable object of analysis in the first place (Asad 1993; Bell 1992; Humphrey and Laidlaw 1994).

Like the categories "religion" (W. C. Smith 1962; J. Z. Smith 1998) and "kinship" (Needham 1971; Schneider 1984), "ritual" is a folk category dragging along with it the baggage of a peculiarly Western history (Asad 2007; Bell 1992). Under this folk category, however, are numerous cognitively and behaviorally universal patterns that are normally associated with the term "ritual," including such phenomena as synchronic movement, causally opaque action, and both euphoric and dysphoric arousal. These phenomena have distinct causes and effects, including different consequences for cohesion and cooperation. Any attempt to answer the question of how "ritual" as a monolithic entity produces cooperation is therefore misguided. The fractionating strategy adopted here, however, opens the door for a more precise account of how various phenomena normally associated with the folk term "ritual" affect thought and behavior.

While existing cognitive and evolutionary work on ritual and cooperation discusses the effects of synchrony, signaling, and arousal, it has only recently begun to examine one of the most central components of what has traditionally been called "ritual": causal opacity (Herrmann et al. 2013; Legare et al., forthcoming; Nielbo and Sorensen 2011; Watson-Jones et al., forthcoming; Whitehouse 2011, 2012). Ritual behaviors are assumed by participants and observers alike to lack a specifiable causal structure and have no knowable instrumental connections to end goals, if indeed any are imputed to them (cf. Humphrey and Laidlaw 1994). Since rituals are not tightly constrained by ordinary causal reasoning, they can assume a potentially infinite range of forms and involve numerous distinct processes, such as aforementioned elements of synchrony (Hove and Risen 2009; Bulbulia and Sosis; 2011; Fischer et al. 2013; Reddish et al. 2013) and emotional arousal (Konvalinka et al. 2011; Xygalatas et al. 2013*b*). Given this diversity, rituals can also serve as admirable group markers (Henrich and Henrich 2007; Richerson and Boyd 2005).

Cohesion

While cognitive and evolutionary studies have considered how various fractionated elements of the "ritual" category affect cooperative dispositions and behavior, less discussion has been devoted to the psychological processes through which these phenomena accomplish their effects and whether the psychological notion of "cohesion," like the category "ritual," should also be fractionated to understand the effects of collective rituals on cooperation.

The term "social cohesion" suggests that people can become attached to each other so as to think and act as a group. But the metaphor of social cohesion, however intuitively appealing, is somewhat vague. Building on earlier scholarship (e.g., Tönnies 1887), Emile Durkheim (1995 [1912]) famously attempted to characterize two broadly contrasting forms of social cohesion, which he labeled "mechanical" and "organic" solidarity. Mechanical solidarity prevails in small societies organized into equivalent segments (like the rings of an earthworm; Durkheim 1997 [1893]). Durkheim described the psychological glue binding together members of these segments as the "*conscience collectif*," reproduced and strengthened through the performance of collective rituals. He contrasted this with "organic solidarity," which prevails in much larger societies divided into specialized organs rather than functionally equivalent segments, united by mutual interdependence in an elaborated division of labor, rather than by likeness. Durkheim's ideas seemed to make sense of certain differences between social life in small, relatively egalitarian

communities, on the one hand, and large complex societies, on the other.

Many social theorists have since discussed and updated Durkheim's conception of the two basic forms of solidarity, producing a plethora of dichotomous theories along similar lines (Haidt and Graham 2009; Peel 2004; Whitehouse 2013*a*). But however inspiring the metaphor, Durkheim's theories of mechanical and organic solidarity and their derivatives have proven difficult to test empirically or, if taken too literally, would seem to be false. For instance, would Durkheim's theory predict that the collective conscience is really stronger in a band of egalitarian hunter-gatherers than in a highly stratified complex society such as Nazi Germany? Clearly, something akin to what Durkheim described as a strong "collective conscience" can be intensely felt in modern states (Whitehouse and McQuinn 2013) whereas even the quite low levels of cohesion needed to accomplish community goals may be lacking in many small-scale traditional societies (Lee 1979).

Another issue facing classical typologies of cohesion is their conflation of sociological and psychological phenomena. Durkheim's model of mechanical solidarity, for instance, accords a role to both social processes (e.g., repressive sanctions) and psychological ones (e.g., collective consciousness) without clearly differentiating their respective contributions. We argue that these issues of testability and conflation in much social theory can be addressed by employing a distinction in contemporary social psychology between two forms of cohesion: identity fusion and group identification. These two forms, we argue, capture more precisely the underlying psychological processes assumed by the dichotomies of Durkheim and others. Moreover, the effects of fusion and identification have been extensively documented experimentally, and different modes of ritual practice can be shown to produce these distinct bonds.

Identity fusion occurs when a social identity becomes an essential component of our personal self-concept (Swann et al. 2012). Identity fusion has a number of downstream behavioral outcomes. For instance, when another group member is threatened, it prompts the same defensive reactions as a personal attack or an attack on one's kin (Buhrmester et al., forthcoming; Swann et al. 2010*a*). Further, since social identities are essential parts of fused individuals' personal self-concepts, physiological arousal of the individual translates into pro-group action (Swann et al. 2009). And perhaps most importantly, fused individuals demonstrate a significant willingness to sacrifice themselves for their groups (Swann et al. 2010*b*). This form of cohesion, we argue, captures much of what Durkheim called "mechanical solidarity" and Tönnies dubbed *Gemeinschaft*; it fits with our most up-to-date understanding of psychology, it is testable, and it helps answer the enduring question of what makes individuals sacrifice themselves for imagined communities.

Identity fusion contrasts sharply with group identification. Rather than a feeling of shared essence with the group, identified individuals merely feel that they share certain prototypical features with other group members that are not essential to their individual, personal identities (Gómez et al. 2011). We all have a sense of personal identity, in the form of unique personal histories and personality traits that define us as distinct from other people, but we also all have social identities, as members of groups that make us similar to others. Social identity researchers have argued that personal and social identities are normally like oil and water—if one is activated, the other is not, and the more one prevails in the individual's social life, the less prominently the other features (e.g., the more I think of myself as an American, the less I am thinking about my personal self and the more I am thinking about the prototypical qualities of American-ness; Tajfel and Turner 1979). For people who are identified but not fused with the group, external threats to the community are not seen as threats to one's family, and physiological arousal does not produce pro-group action (Swann et al. 2009). Further, increased levels of group identification fail to predict extreme self-sacrifice in Trolley Dilemmas (Gómez et al. 2011; Swann et al. 2010*b*) and offer less power for predicting individuals' expressed willingness to fight, sacrifice, and die for one's social group (Swann et al. 2012). These findings regarding the different nature and effects of fusion and identification suggest that they are quite distinct phenomena and that, as we argue below, the mechanisms underlying them may well have different evolutionary histories.

Psychological Kinship and Fusion

We hypothesize that two psychological processes underlie identity fusion and its ability to explain costly altruistic action: (1) the construction of self-concepts through episodic memory, (2) kin detection through phenotypic matching. We argue that episodic memories play a central role in the construction and essential constitution of individual self-concepts, such that experiences and particular elements of those experiences, such as identities, persons, and objects, can become defining, essential aspects of one's personal identity. Further, we argue that the perception of essential elements of one's personal self-concept in another individual triggers our evolved but fallible kin recognition systems. Consequently, for a fused individual, group members are not perceived as mere cooperators; they are psychological kin.

Evolutionary biologists have long puzzled over altruistic behavior in social species, where an individual pays a lifetime fitness cost to perform a behavior that enhances the fitness of another. Many such cases of altruistic behavior can be explained by inclusive fitness theory, which shows that self-sacrifice can evolve under natural selection if it produces an increase in the frequency of the altruist's genes. For this to occur, the degree of genetic relatedness of the altruist multiplied by the benefit to the recipient must be greater than the reproductive cost to the altruist (Hamilton 1964). One way to ensure the altruism is directed toward relatives is for the would-be altruists to have some way of detecting their

kin. Since the genetic makeup of individuals cannot be observed directly without sophisticated scientific apparatus, evolved solutions to this problem are likely to involve cues that reliably correlate with genetic relatedness (Park et al. 2008; Penn and Frommen 2010).

In the case of humans and many other species, perceptions of phenotypic similarity, along with familiarity, serve as kin recognition heuristics and play an important role in governing altruistic behavior. For example, psychological experiments using morphed faces have shown that we behave more altruistically, and are less sexually attracted, toward individuals who look more like ourselves (DeBruine 2004, 2005). Similarly, in humans, as in many other species, odor is also used to detect kin (Gerlach and Lysiak 2006; Weisfeld et al. 2003). Humans, however, may not be limited to physiological cues; perhaps uniquely, humans also appear to use shared mental attributes, such as certain attitudes, to detect and favor genetic relatives (Park and Schaller 2005).

Not all mental attributes, however, are created equal in their ability to distinguish close genetic kin. An innate tendency to perform more costly altruistic acts toward individuals who are mentally similar to you without discriminating between domains of similarity carries a great risk of exploitation. Humans, as a result of our evolved ethnic psychology (Henrich and Henrich 2007), are very adept at imitating the body decorations and fashions of others and learning the beliefs and behavioral conventions of those around them. Any kin-detection system that relied on perceiving shared beliefs and values could easily end up mistaking all group members for genetic relatives.

We argue that while perceiving shared social norms, which are acquired through instruction and stored in semantic memory, will result in intuitions of shared group membership and trustworthiness via the workings of ethnic psychology (Henrich and Henrich 2007; Richerson and Boyd 2005); it will not trigger kin recognition and the resulting state of "psychological kinship" (Bailey and Nava 1989; Park et al. 2008). What will trigger psychological kinship is the perception that one shares with others episodic memories that are essential components of one's autobiographical self-concept (Boyer 2009; Bruner 1990; Conway 1996; Damasio 2010; McAdams 2008) since sharing such essential, self-defining experiences serves as a fairly reliable marker of genetic relatedness.

Humans have a highly developed capacity for episodic memory, the capacity to recall distinctive events in the past (Tulving 1983). Although there has been some debate about whether episodic memory is a uniquely human capacity, it is a much more complex system in humans than in other primates (Schwartz and Evans 2001). Episodic memory is commonly contrasted with semantic memory, which stores facts about the world (such as the knowledge that Paris is the capital of France) and social norms (such as the belief that one should pray before eating) that are not tied to a particular event or sequence of events. The ability to recall salient life experiences as unique episodes in the past plays a central role in the construction of a person's autobiographical knowledge and highly valued narrative self-concept, the sense of "who they are" (Bloch 2012; Conway 1996; Damasio 2010; Dennett 1992). Further, evidence suggests that human beings view some elements of these narratives as more essential than others (Singer and Salovey 1993; Wilson and Ross 2003). Crucially for the notion of identity fusion, we hypothesize that essential components of one's autobiographical self, resulting from significant life events stored in episodic memory and ranging from the formative experiences of childhood to sharing the traumas of front-line warfare, can be perceived as shared with others in a group. We hypothesize that for humans, with our enhanced episodic memory and narrative selves, the "self" template used in phenotypic matching may involve not only cues of facial resemblance and similar major histocompatibility complexes (Villenger and Waldman 2012) but also cues of shared experience and personal essence. The perception that one shares with another important, self-defining experience encoded in episodic memory, we argue, produces a powerful sense of psychological kinship. q3

While a variety of experiences can become essential elements of one's autobiographical self-concept, a significant body of evidence suggests that highly dysphoric experiences, one of the fractionated elements of the category "ritual," are especially powerful (Conway 1995). Recent research suggests that highly dysphoric experiences, such as front-line combat (Whitehouse and McQuinn 2013) and "rites of terror" (Whitehouse 1996), work to rewrite individual self-concepts and produce psychological kinship among those undergoing such experiences together. For example, in a survey of fighters in the 2011 revolution in Libya, we found that degree of shared dysphoria in battle predicted strength of fusion with brigade (Whitehouse 2012); Matthews et al. (forthcoming) found that veterans of the Vietnam War who witnessed comrades being killed or wounded became more fused with the identity "Vietnam veterans" but not more identified; in a recent survey of over 450 Spaniards, Gómez et al. (forthcoming) found that thinking about shared dysphoric experiences with other Spaniards predicted greater willingness to fight and die for Spain.

Moreover, people spontaneously describe fusion using the language of kinship and familial relatedness. Buhrmester and colleagues (forthcoming) found that fused Americans were much more likely to offer help to the 2013 Boston Marathon bombing victims and to report a willingness to sacrifice their lives to ensure that the bombers would be caught—and crucially that this effect of identity fusion on altruism was fully mediated by feelings of psychological kinship with all Americans (as evidenced by support for such statements as: "members of my country are like family to me" and "if someone in my country is hurt or in danger, it is like a family member is hurt or in danger"). In addition, McKay et al. (forthcoming) have found preliminary evidence that, when individuals who are fused with a national identity think explicitly about that identity, they find sexual words less accessible than those who are not fused with that national identity, suggesting that the

psychological kinship produced by fusion affects both altruism and incest avoidance. Our hypotheses require further investigation, but initial research suggests that dysphoric experiences often work to construct individual self-concepts in such a way that elements of those experiences, such as social identities, become essential elements of personal selves. Our research suggests that perceiving these essential elements in other people triggers the phenotypic matching process resulting in psychological kinship.

Coalitional Psychology and Identification

While fusion may have evolved as part of our kin psychology to promote altruism among small bands of genetic relatives, group identification seems to have emerged as a bonding mechanism for larger assemblages of more distantly related individuals alongside other "tribal social instincts" (Richerson and Boyd 2005) designed to allow the individual to reap the benefits of group living.

Group identification is the perception that one belongs and is committed to a social group (Mael and Ashforth 1992; Tajfel and Turner 1985). According to social identity theory, individuals have not only personal self-concepts but also social self-concepts, used to classify themselves and others into groups. These social identities are defined according to prototypical characteristics, such as the group's beliefs, practices, and values (Turner 1985). Consequently, group identification involves categorical rather than relational ties with others (Brewer and Gardner 1996); when one is identified with a group, one is not relating to other members as unique individual persons, but simply as anonymous members of the same social category who share the prototypical beliefs, practices, and values of the group (Tajfel and Turner 1979). This anonymity is demonstrated in studies using the minimal group paradigm, in which participants become biased in favor of in-groups defined by trivial criteria and containing individuals whom they have never previously encountered (e.g., Billig and Tajfel 1973).

The psychological mechanisms underlying group identification have little to do with autobiographical self-concepts and kin recognition. Rather, group identification appears to be a product of our evolved coalitional psychology (Henrich and Henrich 2007; Kurzban and Neuberg 2005) that allows us to learn, follow, and enforce the social norms of larger, more anonymous communities and benefit from the cooperative dividends such norms provide, especially in times of uncertainty and threat. While humans could rely on kin altruism (Hamilton 1964) and reciprocity (Trivers 1971) to reap the benefits of cooperation in small, face-to-face social groups, new psychological adaptations were required to benefit from cooperation and accumulated cultural knowledge in larger communities defined by symbolic identity markers (Henrich and Henrich 2007; Richerson and Boyd 2005). One possibility is that through the process of gene-culture coevolution, human beings evolved biases to preferentially learn and commit to beliefs, behaviors, and values from prestigious individuals (Henrich and Gil-White 2001), from the majority of members in their groups (Boyd and Richerson 1985), and from those individuals who demonstrate commitment to these social norms through their actions (Henrich 2009). Moreover, mathematical models and cross-cultural experimental studies suggest that humans evolved further biases to preferentially cooperate with individuals sharing these prototypical group norms (Richerson and Henrich 2012), to punish altruistic group members violating these norms (Bowles and Gintis 2011; Gintis 2000), and to commit more strongly to these norms in the face of threat (Navarrete et al. 2004; Sosis 2007). While a variety of domain general and motivational accounts of group identification have been proposed (Greenburg, Solomon, and Pyszczynski 1997; Tajfel and Turner 1979), the coalitionary psychological roots of group identification are clearly apparent in minimal group paradigm studies in which participants actually favor out-groups (Rabbie, Schot, and Visser 1989) or demonstrate fairness across groups (Karp et al. 1993) when their task payoffs come from other sources besides the in-group (Kurzban and Neuberg 2005). In these studies, shared identity is meaningless without the collective benefits such identities are designed to provide.

Group identification can be amplified by perceptions of threat and uncertainty (Greenberg et al. 1990; Kay et al. 2008; Navarrete et al. 2004) and, we predict, by witnessing others displaying strong commitment to the prototypical norms of the group (Henrich 2009). Identification with a group can produce prejudice and preferential cooperation (Tajfel et al. 1971). Yet, evidence suggests group identification is relatively weak in producing the extreme pro-group behaviors we see in war, suicide terrorism, and other forms of costly altruism (Swann et al. 2010*b*). Without the power of fusion and psychological kinship, group identification produces committed citizens but not extreme self-sacrifice. Willingness to sacrifice self to further the interests of large-scale anonymous communities, such as nation or world religion, has been described as "extended fusion" (Swann et al. 2012). There may be multiple ways in which extended fusion comes about, but recent empirical research suggests that the priming of familial sentiments and the sharing of dysphoric experiences, such as wars and national disasters, "pulls people together," motivating altruistic behavior even toward strangers (Buhrmester et al., forthcoming).

Ritual and Cohesion

We hope to have made clear that ritual and cohesion are not unified objects of analysis amenable to empirical investigation, making the question "How does ritual produce social cohesion?" misguided. Rather, beneath these commonly used terms are a diverse set of phenomena including causally opaque conventions, synchrony, dysphoric and euphoric arousal, identity fusion, and group identification. With the precision provided by this process of fractionation, we can

take a fresh look at the question of ritual's impact on group cohesion, considering how the different elements of "ritual" affect fusion and identification.

Scrutiny of the ethnographic and historical record (Atkinson and Whitehouse 2010; Whitehouse 1995, 2000, 2004; Whitehouse and Laidlaw 2004; Whitehouse and Martin 2004; Whitehouse and McCauley 2005*a*) suggests that collective rituals come in two main packages of ritual elements, with one package working to produce fusion and the other to produce identification. The fact that there are two modes of ritual cohesion is no accident. Viewed within an evolutionary framework, different societies require higher or lower levels of fusion or identification to fulfill their basic material and economic needs in diverse resource environments (Whitehouse and Hodder 2010; Whitehouse and McQuinn 2013), and the two ritual packages evolve, through a process of cultural group selection, to produce the required levels of fusion or identification (Turchin et al. 2012).

One of these packages, based on what have become known as "imagistic practices" (Whitehouse 1995), involves a combination of causally opaque conventional actions and high levels of dysphoric arousal. These features work together to produce fusion among participants, binding them together as psychological kin and preparing them to participate in high-risk activities such as hunting dangerous animals and going to war. The other package, based on so-called doctrinal practices (Whitehouse 1995), involves frequently repeated causally opaque conventional actions with low levels of dysphoric arousal but heavily emphasizing credibility-enhancing displays for beliefs, ideologies, and values. This package works to produce at least baseline levels of group identification and thus sufficient trust to cooperate with strangers or relative strangers in ways required by centralized and often expansionary systems of governance, trade, and agriculture.

Ritual, Shared Dysphoria, and Fusion

Some rituals involve such extreme forms of torture that it would not be an exaggeration to describe them as "rites of terror" (Whitehouse 1996). Rites of terror abound in small-scale traditional societies engaged in raiding and warfare but also in modern armies and rebel groups. The kinds of ordeals inflicted on participants in such rituals are no less traumatic than those associated with medieval torture or the world's most repressive dictatorships. In Melanesian initiation cults, for example, boys undergoing initiation rites may be extensively burned, permanently scarred and mutilated, dehydrated, beaten, and have objects inserted in sensitive areas such as the nasal septum, the base of the spine, the tongue, and the penis (Allen 1967; Barth 1975; Tuzin 1980). Often these agonizing procedures are deliberately rendered more terrifying through the use of threats, humiliations, or the use of extreme forms of punishment for incompetent or disobedient behavior (Whitehouse 1996). Such examples of dysphoric rituals are legion and can be found in virtually any region of the world given sufficient historical and ethnographic information. Consequently the need for a general theory of rites of terror has long been recognized.

There have been several anthropological theories of how such rites work to produce cohesion, including Turner's theory of "communitas" (1969, 1974) and Bloch's theory of "rebounding violence" (1992). One of the most striking limitations of these anthropological theories, however, is that although they might seem to capture some common underlying patterns in the symbolism of rites of terror, they fail to explain why these kinds of practices are actually so painful and potentially harmful (Whitehouse 1996). To accomplish the desired effects symbolically should require only that participants act out the narrative of separation and reincorporation as a sort of victory for society but not that people should actually be wounded, maimed, or even killed. The costs of participation seem to be out of all proportion to the imputed symbolic value.

By contrast, psychologists and evolutionary scientists have attempted to tackle the costly nature of rites of terror head-on, with Festinger's theory of cognitive dissonance explaining why paying a more severe cost for joining a group should produce increased "liking" of that group and its members (Aronson and Mills 1959; Festinger 1957) and the theory of costly signaling (e.g., Bulbulia 2004; Sosis 2003), suggesting that participation in such costly acts should serve as a reliable signal of group commitment and allow group members to trust one another enough to cooperate.

Although these theories directly address the puzzle of ritual dysphoria, they all assume that participation is voluntary. If participants in initiation rituals freely chose to undergo acute traumas in order to join the group, this might indeed lead them to conclude that group membership is worth the price. Likewise, to serve as a convincing signal of commitment to the group, participation would have to be freely undertaken. And yet in all or most of the initiation rituals described by anthropologists, participation is coerced (Cimino 2011). If the penalties for flinching or running away are certain death, the prospects of suffering but surviving the ritual ordeal are comparatively attractive (Whitehouse 2004).

A further limitation of many previous theories of dysphoric ritual is that they are only applicable to initiations. Rites of terror, however, constitute a much wider category including vision quests, cargo cults, millenarian rituals, possession cults, and rites of contrition, expiation, and penance (Atkinson and Whitehouse 2011). In principle, it would be desirable to have q4
an encompassing explanation for all rites of terror rather than one that only applies to an arbitrary subset of them.

The limitations of previous theories of rites of terror can be overcome by viewing shared ritual dysphoria as part of an imagistic complex that generates identity fusion via the perceived sharing of memorable and personally salient experiences. We believe the key to the process lies in combining the causal opacity of ritual with the autobiography-shaping effects of negatively valenced experiences. When people undergo

painful or frightening experiences, they remember them as life-shaping episodes (Conway 1995), or what Singer and Salovey call "self-defining memories" (1993). Such experiences prompt considerable reflection afterward, and this process generates richer representations of the episode and its significance, strengthening the impression that only those who have experienced the same thing can possibly understand how it feels and what it means. Adding the causal opacity of ritual to this heady mixture of ingredients likely amplifies the effect, producing a particularly robust and enduring state of psychological kinship among coparticipants (Whitehouse 2004).

In a series of experiments using artificial rituals and varying levels of arousal (intensity of fear and anxiety), we have shown that, after a time delay, the volume and specificity of interpretive reflection on the rituals are greater among participants in a dysphoric condition than for controls (Richert et al. 2005; Russell, Gobet, and Whitehouse, forthcoming). Similar effects have been found using field studies, by systematically comparing the interpretive richness of people's accounts of rituals involving variable levels of dysphoria (Xygalatas 2007). Dysphoric ritual fuses us to fellow participants as part of a complex we describe as "imagistic practices" because of the salience and memorability of the imagery they evoke, leading us to feel a deep and enduring sense of kinship with those who have shared the same experiences (Whitehouse 1995, 2000, 2004).

Ritual, Routinization, and Identification

Routinized rituals are obviously a widespread feature of the world religions, but high-frequency, low-arousal rituals are also commonplace in many traditional societies as well (Atkinson and Whitehouse 2011). Examples may be found in Africa (e.g., the Mbuti of Cameroon and the Masaii of Kenya), Asia (e.g., the Himalayan Lepache and the Ifageo of the Philippines), North America (e.g., the Iroquois and Hopi), Polynesia (e.g., the Trobriand Islanders and the Tikopia), and many other regions.

Efforts to explain the link between repetitive rituals and social complexity have a long history in the social sciences (Whitehouse 1995), much of it influenced by Max Weber's early writings on "routinization," the process by which a newly established religious group becomes embedded institutionally, its beliefs and rituals standardized and subject to the authority of a priestly hierarchy (Weber 1947). Weber's contrast between routinized and charismatic authority has inspired many others like it: Ernest Gellner's pendulum swing theory of Islam, which proposed an oscillation between urban orthodoxies and the more emotional rituals of rural tribes (Gellner 1969); Victor Turner's distinction between structure and "communitas" (Turner 1974); Ruth Benedict's distinction between "Appolonian" and "Dionysian" religions (Benedict 1934); and Ioan Lewis's distinction between central and peripheral cults (Lewis 1971). This list could be elaborated almost indefinitely (Peel 2004), but none of these dichotomous theories adequately specifies the cognitive mechanisms and evolved functions of modes of religiosity necessary to explain why they exist in the first place (Whitehouse 1995, chap. 8).

The key to understanding the cognitive consequences of routinization lies in the effects on memory of regular participation in collective rituals and the ability of these rituals to produce and enhance identification with the group (Whitehouse 2004). Repetition of rituals and beliefs makes them easier to remember accurately. They become a stable part of worshippers' semantic memory, their general knowledge about the world as opposed to their memory for particular episodic experiences. As the procedural rules for participation in collective rituals are transformed into familiar and automatic habits, reflection on their meaning and significance declines. And high-frequency repetition also makes it easier to detect and punish deviations from the orthodoxy. Routinization is one of the hallmarks of the "doctrinal mode of religiosity" (Whitehouse 1995, 2000, 2004), a way of codifying and transmitting creeds that leads to identification with large, centralized, hierarchical traditions.

The beliefs and practices of doctrinal religions tend to spread through the pronouncements of authority figures (such as priests, gurus, prophets, and messiahs) and artifacts (such as sacred texts) rather than being the outcome of personal reflection and experience. Likewise the emblems, clothes, and body decorations that demarcate religious identities in the doctrinal mode are bestowed upon adherents from the outside through a "trickle down" process of cultural transmission and not experienced as resulting from a "bubble up" process from within. Expressions of group identity in a routinized cultural tradition do not strongly activate core aspects of the personal self because for the most part they do not feature in personal autobiography and do not arise out of internal reflection on salient life experiences. For the same reason, activation of the personal self makes the social self less salient (Swann et al. 2012).

Although doctrinal practices provide an effective method of standardizing beliefs and practices and producing group identification among a large population, the creation of large anonymous communities presents problems of cooperation that our ethnic/coalitional psychology is not sufficient to address. These are largely problems of how to monitor the reputations of others and decide whom to trust. Sharing the same beliefs and practices may not always be a sufficiently reliable indicator of trustworthiness, since the insignia of group membership can be faked, and declarations of belief could be insincere. Our fractionation strategy allows us to distinguish a number of culturally evolved mechanisms for addressing these kinds of problems, including external mnemonics (e.g., writing and record keeping), the postulation of morally concerned and punitive deities, and the spread of more costly credibility enhancing displays.

External mnemonics have taken ever more sophisticated forms as societies have grown in size and complexity. Perhaps the most revolutionary of these developments was the advent

of writing as a means of recording economic transactions that would otherwise have been hard to remember or that could have been subject to deliberate manipulation for personal gain (Whitehouse 2004). Over time, record keeping came to assume a wide variety of other functions such as storing information relevant to reputational standing, like criminal records, genealogies, and census data (Goody 1968). Most importantly, literacy provided a way of further stabilizing ritual systems so as to encompass ever larger populations as part of increasingly complex systems of centralized governance and stratification (Mullins, Whitehouse, and Atkinson 2013). There has been some debate about the first emergence and relative contributions of ritual routinization and literacy to the standardization of religious creeds and other ideologies (Goody 2004; Johnson 2004; Whitehouse 2004), but it now seems evident that routinization came first and literacy served to extend its effects (Mullins, Whitehouse, and Atkinson 2013; Whitehouse and Hodder 2010).

As societies grow in size, problems of monitoring become increasingly acute. If you cannot personally know all the other members of your community, then you cannot track their histories and reputations. One culturally evolved mechanism designed to make people more honest in large anonymous societies is thought to be the emergence and spread of beliefs in a supernatural watcher: "eyes in the sky" endowed with the capacity to observe and punish transgressions. Thus, the postulation of all-knowing moralizing gods may serve to deter antisocial behavior beyond the reach of secular institutions (Atran and Henrich 2010; Norenzayan and Shariff 2008), and this may help to explain why moralizing high gods are most prevalent in large and complex societies (Johnson 2005; Norenzayan 2013).

Nevertheless, the spread of beliefs in morally concerned and punitive deities only increases levels of prosociality and trust necessary for cooperation if those beliefs are held sincerely, motivate behavior, and are signaled reliably to others. The credibility-enhancing display (CRED) model (Atran and Henrich 2010; Henrich 2009) proposes that the transmission of otherwise difficult-to-accept beliefs, such as the existence of omnipresent supernatural watchers, is facilitated by the performance of seemingly costly behaviors by models or teachers. These are behaviors that a model would be unlikely to engage in unless sincerely committed to the belief in question. Such an evolved bias, allowing learners to avoid manipulation by teachers, is harnessed by doctrinal religions by virtue of routinization—frequent attendance as religious ceremonies is in itself an influential CRED. When doctrinal traditions compete, routinization alone may not be sufficient to provide the "edge" in between group competition, possibly leading to the evolution of ever more costly CREDs (e.g., fire walking, sacrifices, circumcision, and celibacy). We are currently conducting both survey and experimental research to examine the role of credibility-enhancing displays in the acquisition of religious beliefs and identification with religious groups, with initial results showing that exposure to CREDs significantly predicts both theism and religious affiliation among American Christians while controlling for measures of religious socialization (Lanman and Buhrmester, forthcoming).

Ritual and the Evolution of Divergent Modes of Cohesion

We have argued that different kinds of collective rituals produce different kinds of group cohesion. Life-changing, emotionally intense (especially dysphoric) rituals produce identity fusion and a durable sense of psychological kinship with other group members. This psychological kinship motivates relatively extreme forms of altruism, especially when the group is threatened. By contrast, routinized rituals produce identification that serves to enhance prosociality, trust, and cooperation toward the members of potentially very large groups comprising anonymous others, at least when salient social cues are present and when the group's prospects are healthy. The cross-cultural recurrence of the two ritual packages is no accident. Rather, we argue, imagistic and doctrinal practices have evolved to produce the cohesion necessary for societies to be successful in different resource ecologies.

The world's ritual traditions are drawn to the attractor positions of the imagistic and doctrinal "modes of religiosity" (Whitehouse 2004; Whitehouse and Laidlaw 2004; Whitehouse and Martin 2004; Whitehouse and McCauley 2005*a*). Other packages of fractionated ritual elements, such as causally opaque actions combined with low emotional arousal and infrequent performance or casually opaque actions combined with high dysphoric arousal and daily performance, are quite infrequent in the ethnographic record (Atkinson and Whitehouse 2011). Rather, the more rarely a collective ritual is performed, the more likely it is to incorporate extremely dysphoric ordeals. This prediction has been confirmed by analyzing data on 645 religious rituals from 74 cultures around the globe, extracted from the Human Relations Area Files (Atkinson and Whitehouse 2011). Controlling for a wide range of other variables, there exists a strong inverse correlation between ritual frequency and dysphoria.

This strong pattern in the ethnographic record raises the question of what selective force is driving cultural rituals toward the imagistic and doctrinal ritual packages. A crucial clue is the discovery of an inverse correlation between rare, dysphoric rituals and levels of agricultural intensity, suggesting a link between a society's mode of resource acquisition and the frequency and emotionality of its rituals (Atkinson and Whitehouse 2011). Our claim is that the two ritual packages evolve to support particular resource-acquisition strategies perhaps through a process of cultural group selection (Henrich 2004; Richerson and Christiansen 2013; Whitehouse 2013*b*). Some resource-acquisition strategies require (or are greatly facilitated by) fusion. Others require (or are greatly facilitated by) group identification. Societies may develop the ritual packages necessary to produce the levels of fusion and/

or identification required for their resource-acquisition strategies to function or they stand a much lower chance of survival.

Some resource-acquisition strategies present individuals with strong reasons to defect and free-ride on the risky actions of others. Hunting large and dangerous game and warfare are two prime examples of such strategies (Whitehouse 1996, 2004; Whitehouse and Hodder 2010; Whitehouse and McQuinn 2013). Big-game hunting and warfare require steadfastness for success and, if a society dependent upon such strategies is to flourish, it must possess some method by which to produce intense, kin-like cohesion among the individuals engaged in these strategies.

Other resource-acquisition strategies present a rather different problem. Taxation, large-scale farming, and a complex division of labor may reduce certain risks of defection while increasing others that require a sense commitment to the imagined community (Anderson 1983). If individuals with no experience of one another are to trust each other enough to cooperate, then shared beliefs, values, and other identity markers are required. If societies dependent upon such strategies are to flourish, they must possess some method by which to transmit these shared norms (Henrich and Henrich 2007).

Our prediction is that societies that survive and flourish through these resource-acquisition strategies will possess rituals of the appropriate "package" (imagistic or doctrinal), a view originally supported by analysis of ethnographic data extracted from the Human Relations Area Files (Atkinson and Whitehouse 2011) and now being further tested using archaeological, historical, and contemporary data.

Archaeological research is showing that the transition from small-group living to larger, more complex societies may have involved a transformation in the frequency and emotionality of ritual and accompanying changes in the nature of group cohesion (Whitehouse and Hodder 2010). A key hypothesis is that ancient hunter-gatherers needed to be bound into tightly cohesive units as a defense against predation and an insurance against hard times in challenging environments and that this required imagistic practices and bonds of psychological kinship among groups of warriors and hunters. This hypothesis is currently being tested based on systematic quantitative analysis of large data sets (Whitehouse et al. 2014; Mazzucato et al., forthcoming). The focus of this work has been primarily on the transition from foraging to farming in central Anatolia and the Levant, spanning a period from the end of the Paleolithic to the beginning of the Chalcolithic. The broad picture that has emerged from this research is that, in this region at least, ancestral hunter-gatherers lived in small bands fused by hunting-feasting cults involving arduous and dangerous rituals, but as populations settled and expanded with the advent of agriculture, the imagistic mode declined, and more routinized beliefs and practices spread across the region as a basis for identification with larger ethnic groupings.

Efforts to establish the extent to which patterns in the Anatolian and Levantine material can be generalized are now being pursued through the creation of a global historical database capable of quantifying changing patterns of ritual frequency and emotionality and correlating these with social complexity variables on a global scale (Turchin et al. 2012). Beginning as part of the ESRC-funded "Ritual, Community, and Conflict" project, and later extended through additional large grants from the SSHRC in Canada and the John Templeton Foundation in the United States, historical database construction promises to deliver radically new tools for historical analysis. Traditional forms of historiography provide detailed information about closely delimited time periods in particular places or regions. But to examine the evolution of social complexity in a rigorous fashion, we need to reorganize what we know about the past so as to facilitate statistical analyses showing what correlates with what on a global scale. For example, what kinds of rituals correlate with what kinds of social organization? This approach can also tell us if certain kinds of rituals precede particular types of social morphology. For example, does the historical record show that an increase in the frequency of collective rituals typically (or invariably) precedes and accompanies processes of state formation? Many other hypotheses can be tested in this way. The creation of a database of information about the human past worldwide, searchable using statistical tools, is analogous to the way that GenBank has allowed the biosciences to organize and store our knowledge about gene sequences.

Even in the absence of precise and detailed information about global historical trends, it seems clear that the first emergence of the doctrinal mode was gradual, perhaps responding to incremental changes in modes of production. But following that quantum leap in sociocultural evolution, the blueprints for building these alternate modes of group cohesion have facilitated the rapid emergence and spread of both imagistic and doctrinal traditions, especially when cultural group selection pressures are intense. Contemporary rebel groups are a good case in point. Roughly half of all such groups disband within 6 months of their first appearance, but those that endure (in some cases for decades) rapidly develop patterns of ritualization and group formation that are optimally adapted to the challenges of resource extraction and protection that prevail in their particular political environment (Beardsley and McQuinn 2009). The pace of ritual innovation and adaptation may be accelerated in rebel groups due to the intense evolutionary pressures created by government military and political campaigns. In such groups, imagistic formations create tight-knit relationships among a defined group of individuals. In contrast, larger rebel organizations use routinized rituals to codify political and ideological commitments in a standardized fashion across entire ethnic groups. Rebels may also pursue both methods of group formation, although preliminary research suggests that groups usually rely more heavily on one or another modality (Whitehouse and McQuinn 2013).

Conclusion

Ritualized behavior is rooted in our evolved psychology, closely linked to our natural propensity to imitate trusted others. Collective rituals have some striking affordances for group building, hijacking our kinship psychology by fusing us to fellow ritual participants or exploiting our coalitional psychology by enabling us to identify with potentially vast imagined communities. These processes are crucial to understanding the evolution of social complexity.

Participation in collective dysphoric rituals has been linked to fusion with the group and parochial altruism. Dysphoric rituals are remembered as distinctive episodes in a person's life experience. When people recall such experiences, they reflect on their significance, over time developing highly elaborated webs of interpretation that they assume resemble the thoughts and feelings of others who have undergone the same experiences. The result is a fusion of self and other. Personal and group interests and destinies are aligned, and threats to the group are experienced as threats to self. In the course of cultural evolution, collective rituals involving shared dysphoria hijacked this mechanism favoring the survival of groups with an "imagistic mode of religiosity" facing collective actions problems (e.g., on the battlefield or hunting ground) involving high risk and strong temptations to defect.

With the invention of agriculture, larger and denser populations no longer needed costly dysphoric rituals to bind together bands of brothers for the purposes of defense, bride capture, or hunting. Instead the groups that flourished and spread were those that could overcome local divisions by eliminating or tamping down imagistic tendencies and cultivate instead a sense of shared identity on a much larger scale. When an individual identifies with a group, the social but not the personal self is activated, producing much weaker expressions of cohesion and cooperation. Rituals can play an important role in identification with groups, not by activating lasting episodic memories and private reflection but rather through the routinization of traditions, activating procedural and semantic memory for conventional practices shared by communities too large for their members to know each other personally—a complex we refer to as the "doctrinal mode of religiosity." In western Asia, the doctrinal mode emerged gradually during the Neolithic, eventually shaping the great Bronze Age civilization of the Levant, Mesopotamia, and the rise of empires in Egypt and Rome. Current efforts to construct a database of world history will reveal whether similar processes accompany the evolution of social complexity on a global scale.

In developing these arguments, our general strategy has been to fractionate the imprecise folk categories of "ritual" and "social cohesion" into a series of components, the distinct causes and consequences of which can be investigated by specifying precise and testable hypotheses. Our overarching evolutionary framework suggests that the fractionated components are related to two broadly divergent paths to group bonding, one that blurs the boundary between self and other, promoting fusion and psychological kinship, the other that activates coalitional thinking and group identification. Although there remains much to learn about the relationship between ritual and social cohesion, the new empirical research reported here takes us much closer than we have been to understanding the core processes by which collective rituals bind us together.

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Comments

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Whitehouse and Lanman refine a model that Whitehouse has been arguing for since *Inside The Cult: Religious Innovation and Transmission in Papua New Guinea* (1995). Specifically, they focus on links between ritual and group solidarity, arguing that two modes of ritual—routine, repetitive "doctrinal" rites and emotionally charged, dysphoric "imagistic" rituals—produce either group identification or a stronger form of identity fusion. As in earlier discussions on modes of religiosity, these two phenomena are said to be underwritten by separate systems of declarative memory—episodic and semantic—and they coincide with particular social structures and modes of production due to evolutionary processes.

Theirs is a sweeping theory, bold and engaging. The contrast between imagistic and doctrinal rituals, and the work that Whitehouse, Lanman, and various collaborators have made toward testing these hypotheses on a grand scale, are significant contributions to anthropology. They seek to combine evolutionary, psychological, social, and cultural perspectives, including classic work in our field. Any critique has to at least acknowledge the enormity of the undertaking; their work sets a high bar for any critique to match their empirical scope and theoretical ambitions. What is new in this particular iteration of the modes of religiosity theory is the discussion of psychological mechanisms underwriting solidarity, especially the contrast between group identification and identity fusion.

As with any sweeping theory, however, the problem is what goes under the carpet. Although Whitehouse and Lanman are careful to limit the scope of the problem through "fractionating," they simultaneously raise a host of contentious issues as they quickly sketch out quite lengthy chains of causation, including controversial assertions about cultural evolution. Moreover, the contrast between doctrinal and imagistic rituals does not contain all ritual, as earlier work outlining these two "attractors" in the "cultural morphospace of ritual" makes clear (Atkinson and Whitehouse 2011). Discarded from the theory are euphoric rituals of any sort, a difficult absence given the importance of euphoria in cognitive and evolutionary debates about the origin of religiosity. That gap also undermines the query about what "selective force is driving cultural rituals toward the imagistic and doctrinal ritual packages," if the two-point distribution is an artifact of the analysis.

From the perspective of a theorist interested in neuroanthropology, however, one key issue is the way that the modalities of religion theory makes reference to neurological mechanisms that might subserve ritualized behavior. The focus on the two declarative memory functions appears excessively narrow, locating the key to a broad cultural and psychological phenomenon in a single cognitive system, while ignoring other plausible and nonexclusive explanations (such as a link between doctrinal rituals and the rise of a specialist class of religious specialists in agricultural societies).

This single-system cognitive account is inconsistent with the baroque and heavily interconnected nature of most complex cognitive activity (see Downey and Lende 2012:28). Even Tulving (1972), who originally distinguished semantic from episodic memory, argued that the two were intertwined; more recent neurological research suggests that semantic memory underwrites episodic recall, even that the two systems overlap (see Greenberg and Verfaellie 2010). In fact, in some of their discussion of doctrinal rituals, Whitehouse and Lanman offer descriptions of what sounds like procedural, not semantic, memory, like reference to nondeclarative "automatic habits." By definition, semantic memory is declarative. But highly automated processes likely *can* underpin ritual social cohesion, including synchronous action (like dance) or even individual habit (like handling prayer beads), suggesting a role for nondeclarative types of memory.

The point is not to discard the overarching contrast between doctrinal and imagistic forms of ritual, or even the argument that identity fusion may be the outcome of ritual activity in specific conditions, which I find persuasive. The point is that there is no reason why an important process like social solidarity reinforcement would make use of only a single cognitive system. There may be multiple ritual roads to fusion.

For example, the role of dysphoria is central to Whitehouse and Lanman's account of imagistic ritual, but this generates two significant problems. First, some infrequent, highly emotional rituals are not dysphoric, as the earlier work by Atkins and Whitehouse (2011) clearly shows (and this article acknowledges). Rituals like ecstatic and possession trance, rites of passage involving ingested psychotropics, and carnivalesque rituals all potentially provide powerful imagistic grist for the mill of social identity. Not all "flashbulb" memories are produced by trauma. In fact, as psychological research clearly shows, traumatic events can lead to suppressed memories. Quite likely, traumatic rituals are recuperated into powerful memories, in part, through social reinforcement, such as staging the same rituals for later generations, not just private reflection and consolidation.

Finally, ritual activity does not simply make use of existing neurological resources; disciplined religious practice, including religious skills and trained patterns of cognition and attribution, are themselves likely to shape cognitive capacities and biases (see Luhrmann et al. 2010; Schjoedt 2009). Any comprehensive account of the relationship between ritual activity and human cognitive capacities must acknowledge a two-way chain of cause and effect.

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In this remarkably rich and thoughtful article, the authors introduce a bevy of provocative ideas. As identity researchers with a specific interest in identity fusion, the ideas that most intrigued us involved the mechanism through which rituals increase fusion. Exactly how is it that rituals work their magic? The authors put their money on the tendency for dysphoric rituals to trigger exceptionally rich episodic memories. Once formed, these memories are repeatedly activated and further consolidated, eventually culminating in group representations that figure prominently in the emotional landscape of group members.

Although we would have preferred to see more details regarding how these processes unfold, the rough outlines seem plausible enough. At the same time, as the authors implicitly acknowledge, rival mechanisms must also be considered. Cognitive dissonance theory seems like an obvious candidate. The authors argue that dissonance theory cannot adequately explain the impact of ritual experiences on identity fusion because dissonance requires that actors undergo the dysphoric activities freely. The authors contend that this is not always the case. In some tribes, for example, failure to endure the traumatic ritual is punishable by death, yet participation in ritual foments attachment to the group. Fair enough. But dissonance is merely one of several consistency theories. Other consistency theories would not require that the actor freely engage in the ritual behavior. Consider Heider's (1960) balance theory. The theory suggests that people work to resolve discrepancies between relationships between themselves, other actors, and a third element (e.g., a behavior). In instances of

dysphoric rituals, the actor would work to reconcile the fact that the tribal elders (for whom he has respect if not liking) are forcing him to engage in awful behaviors to become a group member. To resolve the inconsistency created by the positive valence toward the elder and negative valence toward the dysphoric ritual behaviors, the actor decides that enduring a bit of anguish is worthwhile because the group is so worthwhile.

The larger point here is that rituals occur in social contexts and the relationships between the actors in such contexts may figure prominently in the impact of such scenarios. Moving slightly beyond the focus of the authors, it seems likely that the consequences of rituals extend to all of the participants, including the persons who orchestrate the ritual (e.g., the elders in tribal initiation rites). In fact, we wonder if rituals may be just as important in fostering fusion among those who oversee the ritual as they are in fostering fusion among the actors in the rituals. Insofar as fusion involves coming to see other members as "family," perhaps seeing new group members relive the pain one experienced may augment the meaningfulness of the original experience. Perhaps this overstates the capacity for human empathy (the authors contend that imagined suffering is not as potent as actual suffering), but this possibility could be readily explored. For example, in a military context, one might explore whether soldiers' fusion levels intensify as they put others through the hellish training that they themselves endured.

We were also curious about the authors' emphasis on the role of episodic (as compared to semantic) memory in the effects of ritual. Although we agree that episodic memories can exert powerful impact on phenomena such as group alignment, we would be surprised if semantic memory systems do not sometimes produce similar effects. This possibility could also be readily investigated.

Clearly, the authors are in the early stages of what should prove to be a long and interesting journey. We look forward to hearing more from them.

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In August 1973, Janne Olsson set out to rob the Kreditbanken located at Norrmalstorg Square in Stockholm, Sweden. Police were called, and Olsson took hostages and retreated into the bank vault. Olsson and his hostages lasted 6 days before police, on their second attempt at flooding the bank with gas, forced him to surrender. During those 6 days, Olsson submitted the hostages to both cruelties and kindnesses. He hung nooses around their necks, a threat that they would die after the police first tried gas. He choked one hostage, forcing her to scream, as he talked by phone with the Swedish prime minister. But he also let negotiators bring in food and spoke with the hostages about their lives. Some of the hostages later reported feeling grateful for these kindnesses. One hostage even called the prime minister to berate him for how he was handling the situation, and said she wanted to go with Olsson when he left the bank. Nils Bejerot, the Swedish psychiatrist who helped the police during the standoff, labeled the hostages' identification with their captor as "Stockholm Syndrome."

I highlight this example because ethnographic reality is complex. In contrast, Whitehouse and Lanman present a simple approach to understand how we feel connections with others outside our immediate family. They propose that ritual shapes social cohesion in two separate ways: identity fusion and group identification. Fusion works through emotion, in particular pain and trauma that bind people together. Group identification relies on cognition, largely through doctrinal repetition of shared beliefs.

This approach has its strengths. Their evolutionary approach brings important perspectives to cultural questions. Evolved biases can provide insight into how we might answer questions about learning and the elaboration of cultural forms. Their population perspective highlights potential attractor states, such that culture is not entirely arbitrary but might differentially emphasize imagistic or doctrinal modes of ritual action.

This piece also helps keep alive ideas formulated by Durkheim and Weber. They mention Durkheim's collective consciousness, that sense of shared belief and identity derived from ritual, but not his collective effervescence, where the shared energy felt in groups often comes to focus on ritual objects. Similarly, they draw on Weber's work on routinization, such that doctrine becomes standardized and enforced through a religious hierarchy. However, Weber's emphasis on charisma and its alternating paths to shorter-lived personality cults and longer-lived religious traditions does not enter the picture.

Whitehouse and Lanman also highlight important unanswered questions. Why do so many rituals utilize dysphoric states? Answering that question has to go beyond asserting symbolic power to address the question of learning and enculturation. And why do doctrines need repetition to be causally effective? That question again focuses on how people learn, recognizing the different ways that culture can become embodied.

But the paper also has weaknesses. Their psychology comes across as too simple. Stockholm Syndrome also needs reinforcement, or kindnesses, to promote a sense of fusion with captors. On the identification side, psychological research points to a more complex scenario. Roth and Steffens (2014) examined preference for in-groups over out-groups using the minimal group paradigm approach cited by Whitehouse and Lanman. They found that "associative self anchoring" matters even in group identification. In other words, categorization is not enough; rather, the bias comes as one's own self-eval-

uation gets spread to in-groups (but not out-groups). Thus, memory and meaning are also used to buttress social identities.

Whitehouse and Lanman also do not push their approach to "fractionating" far enough. It is important to acknowledge that "ritual" is not a monolithic entity, and that Western theorizing can reflect as much our folk theories about other people as actual science. Recognizing that broad concepts often lump together different phenomena, with a need to look at the potentially different causal processes, is to be applauded. But this nascent critical approach does not go far enough. Evolutionary and cognitive approaches also carry their own problems that drag along "the baggage of a peculiarly Western history," such as the emotion/reason split that Whitehouse and Lanman utilize.

Whitehouse and Lanman seem too captured by a line of theorizing that has created both dysphoria and doctrine within anthropology. For example, an understanding of the neuroscience of memory—where research has shown how memory recall leads to the reinterpretation of memory—enhances our understanding of how ritual does what it does (Hay 2012). Similarly, work on trauma and war highlights a more complex approach to understanding the links between ritual, self, and identity (Collura and Lende 2012; Finley 2012). The field of neuroanthropology has been built to answer the sorts of questions that Whitehouse and Lanman propose (Lende and Downey 2012). This approach pushes the critical and processual approach forward, while also adding needed elements of neuroscience to our anthropological understanding of how learning and enculturation happen for both individuals and groups.

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Scientific Fractionation: Breaking the Ties That Bind Us

Frustration with their central concepts plagues inquiries concerned with cultural matters. The study of ritual is no exception. That frustration engenders interminable debates about concepts and definitions. Occasionally, those debates introduce some clarity locally, but, usually, they just elicit protests about proposals' failures to capture hard-won details from another locale.

Sooner or later students of culture must recognize that scientists' strategy of fractionating phenomena to analyze them more precisely and to construct relevant testable theories is probably the most dependable means not only for breaking these intellectual ties that bind us but for spawning new and deeper explanatory insights. Whitehouse and Lanman capitalize on earlier fractionating studies of ritual (e.g., Neilbo and Sorensen 2011) and apply their collaborative research in social psychology (e.g., Swann et al. 2012) to fractionate social cohesion too—all to great advantage.

The result is a dichotomous account of the connections between distinctive patterns of both collective rituals and social cohesion, as mediated by considerations of group scale, social psychology, and memory dynamics and as shaped by the processes of cultural evolution in the face of diverse resource environments. With a few minor adjustments (e.g., focusing exclusively on dysphoric ritual in the imagistic mode) and additions (e.g., incorporating CREDs into the doctrinal mode [Henrich 2009]), the resulting account squares well with the view Whitehouse (1995, 2004) has defended for two decades. Whitehouse and Lanman correctly note that this substantially elaborated version of that theory with its detailed and integrated specification of "the cognitive mechanisms and evolved functions of modes of religiosity" possesses considerably greater explanatory power and promise than any of its dichotomous predecessors, including earlier versions of the modes theory itself (McCauley and Lawson 2002).

Whitehouse and Lanman work hard to distinguish between identity fusion and group identification and between the two constellations of social and psychological conditions that undergird them. They state, for example, that "personal and social identities are normally like oil and water—if one is activated, the other is not, and the more one prevails in the individual's social life, the less prominently the other features." Although the doctrinal mode generating group identification is the predominant pattern in agriculturally sustained, large-scale groups, imagistic dynamics can operate as well, eliciting psychological kinship and identity fusion—for example, in the small units of modern armies. Exactly how all of this works in individual psyches, particularly when the orientations of identity fusion and group identification are the same, deserves further consideration.

Their illustration of group identification concerns the national identity of "American-ness" and thinking "of myself as an American." Subsequent claims they offer about the role that dysphoric experiences play in identify fusion, however, complicate this picture. Whitehouse and Lanman talk about "individuals who are fused with a national identity" and about "fused Americans." Who are fused Americans? How did they get that way? More specifically, who were the participants in the study reporting on their willingness to help the victims of the Boston Marathon bombing? What determines which among their Southie, their Bostonian, their Massachusettsan, their New Englander, their American, and, possibly, their Christian identities is operative? How widespread and how lasting are these effects?

More fundamentally, though, what is the relationship between the psychological processes underlying fused Americans' group identification and their identity fusion as Americans? Does identity fusion *displace* group identification psychologically? Or are the Americans in question simulta-

neously fused *and* identified with the group, exhibiting either some blend of those two conditions or symptoms of one or the other depending upon the circumstances? If the latter, what circumstances elicit each, and how does their coexistence play out in individuals' mental lives and behavior? Whitehouse and Lanman's ensuing comments about obtaining "extended fusion" by means of nothing more than priming "familial sentiments," even among those who have shared dysphoric experiences, suggest that even if fusion does not replace group identification, it trumps it, in the ways that study after study demonstrates that fast intuition trumps slow, deliberate thought (Kahneman 2011; McCauley 2011). Those comments also lend some poignancy to questions about the controls in these studies.

Whitehouse and Lanman state that "what will trigger psychological kinship is the perception that one shares with others episodic memories that are essential components of one's autobiographical self-concept," and they especially stress episodic memories of collective dysphoric experiences. I suspect that neither claim is airtight. The perception of shared episodic memories, even of collective dysphoric events, is unlikely to trigger psychological kinship for the time necessary to invigorate cooperative communities, let alone altruistic acts among players, without the support of at least periodic interactions that reinforce those perceptions and of shared narratives that presume, describe, or exemplify those perceptions. On the other hand, fulfilling *those* conditions may render episodic memories of collective experiences possessing positive valences comparably effective.

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As well as having a great number of stimulating insights, this rich text provides a window into the way that Whitehouse's fascinating ideas have been recently developing. It is equally interesting in that Whitehouse and Lanman explicitly situate their article within that historical trend in British anthropology that posits a relationship between social cohesion and ritual, albeit one that they feel needs to be cast in new ways.

I write then from the perspective of someone who likes and admires this approach. By way of requesting some modest clarification, however, I should be interested in ascertaining the authors' thoughts on several related issues. The first, and perhaps most significant, is this. What role are they permitting causality to hold within their framework? Albeit in a sophisticated way, they characterize the division of social life and ritual into two broad streams: that which is associated with doctrinal forms, often part and parcel of proximity with literacy, governance, and the state, and that more likely to be imagistic, the latter less integrated into a state system, and more likely to be associated with the agricultural cycle. I find this utterly convincing. Where I work in Anatolia, this contrast precisely marks the difference between Sunni and Alevi communities (Shankland 2003). There, Alevi collective rituals take place only after the harvest is in, and before ploughing may restart. Just as the authors suggest, the Alevi rituals may take place only occasionally, and are expensive in time and money to hold. Contrariwise, the Sunni villages worship routinely weekly in a mosque, and their ritual calendar has become lunar, always moving out of sequence with the natural cycle, and exerting domination over it.

Yet, if we look for an underlying cause for this contrast, economics does not appear to be the answer. Both are typical peasant communities adopting semitranshumant animal husbandry. In both, the household owns the land that it ploughs, and very little more. The Alevi communities are rather smaller and dispersed, and the Sunni bigger and collected together, but (until modern development and migration became a factor) equally dependent on subsistence agriculture, and very little trade. Rather, historically, it would appear that an Alevi community would flip and convert to becoming Sunni if it became more proximate to the state. For example, many villages were said to have converted when the Ottoman Sultan's army passed by on an imperial mission to conquer Iran. In doing so, the Alevis move from a hierarchical system with hereditary holy men who are mediators within the community, to a Sunni system which is egalitarian among men, accepts the rule of law of the state, but is markedly hierarchical toward women. The underlying cause, as to whether to move from one way of life or another, appears to lie in the form of social order that the villagers adopt, a choice dependent partly on immediate, local pressure, but also their weighing up of their place in the wider social unit, whether empire or, subsequently, nation-state.

Translated back into the immediate claims of the article, then, this example would imply that the prime cause, that from which so much else flows, is the means by which a community achieves social control. Associated with that social order, reinforcing and congruent with it is a distinct ritual pattern which resonates with identifiable aspects of human perception and memory. This presumption would indeed take us back to African political systems (and to precisely the distinction which Ibn Khaldoun—cited by the authors—drew in his great work between Makhzen and Siba). It may serve as a rival theory to any economic theory that places primacy on class and the means of production as an underlying explanatory proposition of the forms of social life. My reading of Whitehouse and Lanman's paper is therefore that, in readdressing or revisiting the comparative theory of social order and culture through their reanalysis of ritual, they are in fact reinvigorating precisely that area of early structural-functionalist anthropological thought that has become unfashionable, and doing so in a way that forces it to be reconsidered.

This reading may be quite wrong, but I should welcome the authors' clarification. In conclusion, I do have two small

questions. In using the HRAF, are the authors absolutely convinced that the data which they have available to them are sufficiently robust and nuanced, and that their differentiation therefore valid? Finally, and this is more personal, I should be most interested to ascertain whether the authors have met with praise or skepticism from the wider anthropological community in presenting this work. Are, in fact, colleagues able to identify with this approach? Or are responses sometimes uneasy, accusing them of revisiting the ghosts of anthropology's past?

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Fractionizing or Dichotomizing?

Whitehouse and Lanman start their article by briefly reviewing the assumption that rituals promote social cohesion. While defended by an earlier, Durkheimian theoretical tradition, this claim is no longer maintained in contemporary ritual theory (Brosius, Michaels, and Schrode 2013; Grimes 2014; Kreinath, Snoek, and Stausberg 2006, 2007). The thesis Whitehouse and Lanman want to make testable, then, is not a current academic theory of ritual, but a widely reported nonacademic popular claim, or folk theory—were it not for the one major contemporary theory of ritual that actually defends such an argument, but which is curiously not mentioned by Whitehouse and Lanman, namely that by Roy A. Rappaport (1999), for whom ritual is the basic act that grounds religion and society, and that thereby links humanity to ecology in an evolutionary scenario of adaptation. So, contrary to Whitehouse and Lanman, the ritual creates social cohesion thesis has not only inspired ethnographic description but also contributed to current "scientific theory," even if this particular theory may well overstep its mark and ultimately result in a new variety of theology (Segal 2009), dominated by an implicit or explicit religious agenda (Wiebe 2004), resulting in the creation of a new "scholarly myth" (Grimes 2014:300).

In order to make the ritual > social coherence folk theory testable, Whitehouse and Lanman suggest that folk categories need to be fractionated, that is, split "into distinct, empirically tractable phenomena" with separate causes and effects. The agenda to demonolithize ritual is indeed part of reflexive theorizing (Stausberg 2006). Whitehouse and Lanman paint a rather optimistic scenario of progress into this direction. It remains to be seen how far this carries us. For example, the idea that rituals are causally opaque tends to be formulated (e.g., by Lagare and Herrmann 2013) in terms of a monothetic trait that would distinguish ritualistic from nonritualistic action per se and thereby remonolithizes the notion of ritual or ritual action, even though causal opacity may probably be considered characteristic for all complex social phenomena (and that is what many rituals are after all). This kind of theorizing goes against the aim of (reflexive) demonolithizing the category; yet, Whitehouse and Lanman treat rather speculative and immature bits of theory such as causal opacity (or the proposed evolutionary fusion-kin psychology-altruism complex) as if they already had been established as factual evidence.

This paper adopts a specific strategy: it fractionizes by dichotomizing. Whenever the paper draws distinctions, it suggests two units. Social cohesion is fractioned into either identity fusion or group identification, memory falls into either episodic or semantic, self-concepts fall into personal and social, and there are two "packages" of ritual elements or practices that are connected to distinct socio-psychological processes. The paper extends Whitehouse's earlier distinction between imagistic and doctrinal modes (of ritual/religion) to the following two lines of homologies: *imagistic-episodic memory-shared dysphoria-fusion-sense of psychological kinship* and *doctrinal-semantic memory-routinization-identification-ethnic psychology*.

Whitehouse and Lanman claim that both packages amount to two different evolutionary strategies of coping with different social ecologies, or "resource-acquisition strategies," developed by societies (not by people, but drawing on psychological mechanisms) in order to function for their evolutionary survival in a process of group selection. This evolutionary narrative/theory dichotomizes types of rituals and types of society: there are exactly two of each. For societies, Whitehouse and Lanman seem to think (they are not crystal clear here, though) that there are two main ecologies: large-scale, densely populated societies with largely anonymous transactions, which developed as the result of the affordances provided by agriculture (which in turn might have required new forms of cooperation to develop in the first place), and small-scale pre-agriculture groups mainly based on direct transactions. I have two concerns with this: (*a*) the anthropological record provides a greater evolutionary and sociological variety of scale in societies than two main types only, so that one is left wondering whether two main types of ritual packages are really sufficient to serve the needs of the different types of human societies; and (b) the account seems contradictory on the dimension of persistence/time. On the one hand, Whitehouse and Lanman argue that the imagistic/dysphoric ritual package was no longer needed "to bind together bands of brothers for the purposes of defense, bride capture, or hunting," but on the other hand they refer to contemporary warfare experiences or other high-risk behavior as part of the evidence provided for the social-psychological phenomenon of identity fusion. It would rather seem that facing and coping with high-risk situations might still make certain forms of ritual actions more attractive and efficient than others.

This brings me back to ritual. In the scenario outlined by Whitehouse and Lanman, the ecological needs of enhancing

cooperation and trust in large-scale agriculture-sustained densely populated societies can be satisfied by the package characterized by routinization, the doctrinal mode, authority figures and artifacts, external mnemonics, and so on. Here again I would like to address two concerns: (*a*) even in large-scale societies kinship persists, and so do kinship-psychology and related experiences and practices. Accordingly, marriages, that is, rituals that establish or reaffirm kinship bonds, continue to affect core aspects of the personal self and often feature in personal autobiography. So do funerals. Probably Whitehouse and Lanman will not deny this, but then they will need to develop a more nested scenario of societal composition. And (*b*) even in (some) societies where one finds the doctrinal ritual package, there tend to be other types of ritual practices such as feasts or festivals. These well-known celebrations are typically characterized by a high degree of aesthetical pageantry, have ludic qualities and are held in a subjunctive mode, and enact inversion or reversal, parody and virtuality (Bell 1997; Grimes 2014; Maurer 2004). Rather than dichotomizing ritual into two categories, a fuller ecological scenario of societies would probably need to take account of a broader spectrum of ritual layers, modes, performances, or packages.

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Ritual and Cohesion: What Is the Place of Euphoric Arousal?

In this target article, Whitehouse and Lanman present "a general and testable theory of the relationship between ritual, cohesion, and cooperation." They frame their theory in terms of empirically verifiable hypotheses by fractionating key concepts like "ritual" and "cohesion" and examining the relationship between certain of their constituent parts. This is an admirable and ambitious undertaking and an approach that constitutes a welcome contribution to ritual studies, a subdiscipline which has been known for neither the precision nor the testability of its claims. Although I agree with much of the overarching argument and most of the specific hypotheses put forward, I worry that the breadth required by a general theory is often at odds with the narrow focus of a fractionating strategy, which is by definition selective. One example of this clash is related to "dysphoria," which is the most discussed concept in this paper.

The authors talk of two culturally evolved modes of ritual cohesion, which they call the "imagistic" and "doctrinal" mode. More specifically, they argue that highly dysphoric arousal (and low frequency) in the imagistic mode works to induce a feeling of psychological kinship among participants, while frequent repetition (and low arousal) in the doctrinal mode results in a qualitatively distinct type of cohesion which they call "group identification." What immediately strikes me about this dichotomy is the conspicuous absence of euphoric rituals, which are cross-culturally abundant and possibly more common than dysphoric ones. Why do the authors choose to restrict the scope of the model to dysphoric arousal? No reason is provided for that omission, and the cited literature only relates to dysphoric arousal, which is not to say that euphoric rituals could not have similar effects.

To the contrary, Whitehouse's own research (Atkinson and Whitehouse 2011) suggests a very similar pattern for euphoric and dysphoric rituals (e.g., both are inversely correlated with ritual frequency, although more so for dysphoric rituals). Furthermore, while cognitive dissonance (Festinger 1957) and costly signaling (Sosis 2003) might play an important role in strengthening cohesion and cooperation (as the authors acknowledge), different psychological processes like excitation transfer (Zillmann 1983) may operate with similar results in euphoric rituals.

After all, wedding ceremonies, possibly the most universal of all rituals (so much that their existence is a typical prerequisite for legal recognition as a religion), are also among the most euphoric ones. In addition, they are among the most memorable, infrequently performed and highly arousing experiences, which are precisely designed to establish formal and enduring kinship relationships—in fact so compelling that many contemporary incest laws ban sexual relations or marriage between fictive (step) relatives. Should we not expect such rituals to play a major role in promoting social cohesion? And if the authors are willing to exclude weddings and baptisms, enthronements and coronations, collective singing and dancing, Catholic fiestas, Chinese spring festivals and Hindu rituals of light—not to speak of secular events like sports competitions, parades, concerts—and numerous other highly arousing and entertaining collective rituals from their model, are we indeed dealing with a general theory of ritual and social dynamics, or with a more restricted theory of ritual dysphoria?

If the authors wish to argue for a special role for dysphoria (which is of course their prerogative), and given their call for testable predictions, I would urge them to conduct studies comparing the effects of euphoric and dysphoric rituals on cohesion. This in itself is not an easy task, as there is no perfect measure of dysphoria and euphoria (not to mention cohesion). Traditional anthropological research has relied on a combination of firsthand phenomenological accounts of participants and secondhand subjective judgments derived from anthropologists themselves; quantitative historical studies have used thirdhand judgments obtained from independent raters (Atkinson and Whitehouse 2011), while more biological approaches have examined participants' physiological responses (Xygalatas et al. 2011). Yet, not only is there no

consensus on the precedence or one method over the others for determining the emotional quality of ritual experiences, but their respective results can often be contradictory. For example, performers of the *kavadi* ritual in Mauritius scream and shed tears of agony as they are pierced with needles and skewers, but upon being asked, they typically deny having felt any dysphoria. Physiological measurements of painful rituals have shown extreme levels of arousal while the performers themselves might be oblivious to those states (Xygalatas et al. 2013*a*) or even experience the event as pleasant (Fischer et al. 2014). Furthermore, the same event can have radically divergent emotional quality for different types of participants based on their ritual role, bringing pleasure to some and suffering to others (Bulbulia et al. 2013).

Methodological issues aside, the matter can only be resolved empirically. The challenges outlined above do mean that the authors have a tough climb if they are willing to pursue this path. But in my view, this is a path worth climbing, as it might allow them to enrich and expand their current model.

Reply

We feel very fortunate to have received several well-argued and thought-provoking commentaries and would like to thank all for their contributions. In our paper we attempted to summarize a substantial body of collaborative research involving scores of scholars and scientists over more than two decades. We argued that it is possible to test numerous theories of "ritual," including the theory that it can and often does produce social cohesion, by fractionating both "ritual" and "cohesion." We also argued that there is evidence in the archaeological, historical, and ethnographic records of a tendency for collective rituals to come in one of two distinctive "ritual packages" that serve as cultural adaptations to distinct resource-acquisition problems. Along with many generous remarks on our efforts, some of the commentaries suggested that our account was too simple, raised unanswered questions, and neglected alternative perspectives. We respond to these criticisms in turn.

Several commentaries argued that our account did not do justice to the complexity of "ethnographic reality" or the connections between personal and social selves (Lende), memory (Downey, Fredman and Swann), or the "fuller ecological scenario of societies" (Stausberg). Our overall response is as follows. Explanations of cross-cultural and historical patterns, while being implicit in the work of nearly all anthropologists, are often found to be overly simple and even irrelevant by those who are more focused on understanding the ethnographic reality of particular case studies. This is not so much a criticism of a proposed explanation as a declaration of different interests. An explanation of a trend in ritual packages and social forms is not a deterministic claim about particular cases. Moreover, an explanation of a trend is not meant to be an exhaustive explanation of a whole domain. For example, Lende comments that we present a simple, dichotomous approach to understanding how people feel connected with nonkin. It was not our aim to give a comprehensive account of all the types of connections people might feel toward others but to explain a trend in these connections throughout time and across cultures. Only if one of the other types of human connection were in some way responsible for the trend we are attempting to explain would this criticism be valid.

Some commentaries suggested that our account of the role of memory in group alignment was too simple. We proposed that episodic and semantic memory underwrite fusion and identification respectively, but according to Downey these two systems of memory are "intertwined" and "overlap." What remains unclear, though, is how any intertwining and overlapping would affect our main argument that shared episodic memory can lead to fusion and psychological kinship while semantic memory for normative beliefs and practices underwrites social identity and ethnic psychology. Would a more nuanced account of the relationship between episodic and semantic memory have substantive consequences for our argument or merely demonstrate greater mastery of the memory literature? Fredman and Swann suggest the former when they argue that even if shared episodic memories lead to fusion, the same could be true of shared semantic memories. It is an interesting point and well taken: could sharing a historical narrative about the group, for example, motivate fusion in much the same way as sharing lived experiences with the group? This question would need to be resolved empirically, but in the absence of experimental evidence our hunch is that historical narratives are more likely to motivate identification rather than fusion with the group. Since historical narratives are acquired through the testimony of others rather than through personal experience, they activate the social but not the personal self, whereas a hallmark of fusion is that it activates both together.

Similarly, Lende argues that our psychology as a whole is too simple, citing a study by Roth and Steffens (2014) showing that "associative self anchoring" plays an important role in group identification and that, consequently, our claim of a separation between personal and social selves is undermined. We never argued, however, that the personal self is not involved in any way in group identification. Rather, we argued that (1) following a substantial body of literature on social identity and social categorization theory, there is a "hydraulic relationship" between the personal and social selves in terms of their activation at any particular time (Levine and Crowther 2008; Turner et al. 1987) and (2) there is an important difference between a personal self-concept being merely "involved" or connected to a social identity in some way (which nearly all work in social psychology shows) and a social identity becoming *an essential component* of a personal self-concept. This difference has major consequences for our expla-

nation of the historical trend in ritual packages and social forms.

As well as comments suggesting more nuanced versions of our argument, several commentaries raised broader issues that they thought our paper neglected or excluded. For example, both Lende and Xygalatas wondered why we devoted so little consideration to the role of euphoria in rituals and its effects on group bonding. Stausberg echoed this point and also pointed out that some rituals are neither doctrinal nor imagistic, and what of those? In fairness, we are not attempting to present a theory of all phenomena that have been traditionally labeled "rituals" but nor are we in principle opposed to studying euphoric rituals. Indeed, we are currently in the midst of exploring the effects of both euphoria and synchrony in ritual settings hypothesizing that both can temporarily increase fusion and identification without producing the lasting effects on fusion associated with shared dysphoria. Yet, since we do not see any evidence or analysis suggesting that euphoria can explain the historical trends we focus on in our paper, we set that topic aside.

McCauley also raised a host of searching queries about the nature of identity fusion, some of which are addressed in a wider literature that we cited and chose not to discuss in any detail, such as how fusion is measured (via a validated 7-item scale) and whether it displaces group identification (it does not; Gomez et al. 2011) and how participants were recruited for a study concerning responses to the Boston Marathon bombings (via Amazon's Mechanical Turk) (Buhrmester et al., forthcoming). McCauley also asks whether particular circumstances might differentially elicit the effects of group identification and fusion with a given identity. Swann and colleagues (2010*b*) have provided evidence that personal arousal triggers the effects of fusion but not identification on self-sacrifice (as there is a weaker connection between the personal and social selves in group identification). They had Spanish participants in three separate studies exercise before completing scales on willingness to fight and die for Spain or make donations to a fund for needy Spaniards. Arousal level interacted with fusion to increase endorsements of extreme pro-group behavior and donations while no such interaction with identification was found, suggesting again that for fused individuals, there is an especially strong relation between the personal self and the social self.

Another question that at least one commentator thought was raised but not answered by our paper was: What causes a group to adopt doctrinal or imagistic dynamics? According to Shankland, the answer appears not to lie in economic factors. When comparing imagistic Alevi and the doctrinal Sunni groups in Anatolia, Shankland observes that both practice semitranshumant animal husbandry and there is little to distinguish the two communities in terms of wealth, class, or other economic features. Shankland's preferred explanation is that people decide whether to adopt a doctrinal or imagistic system based on "immediate, local pressure, but also their weighing up of their place in the wider social unit, whether empire or, subsequently, nation-state." This strikes us as plausible (although more precision and detail would be needed to evaluate the claim), but it also pushes back the question of why we have doctrinal and imagistic modes in the first place.

Our argument is that the modes emerge as ways of addressing different kinds of collective action problems necessary for survival. To the extent that they succeed, the cultural groups adopting these practices flourish. Does that make us old-fashioned functionalists, as Shankland asks? Yes, but with a difference. We see the connection between resource-acquisition strategies and ritual packages as a matter of selectionist rather than mechanistic causation. We do not claim that a society adopting a particular resource-extraction strategy will automatically adopt a functionally adaptive mode of religiosity. It is perfectly possible that our selectionist account of ritual trends is correct but that the case of Alevi and Sunni groups in Anatolia bucks these trends.

Another critical response to our paper was that it neglected alternative explanations for dysphoric rituals. Fredman and Swann, for example, while accepting our grounds for rejecting dissonance theory as a sufficient explanation for dysphoric initiations, nevertheless argued that other consistency theories are not so easily dismissed. Applying Heider's (1960) "balance theory," they observe: "To resolve the inconsistency created by the positive valence toward the elder and negative valence toward the dysphoric ritual behaviors, the actor decides that enduring a bit of anguish is worthwhile because the group is so worthwhile." It is not clear exactly what is being explained here, however. If it is the decision of the initiate to endure anguish, then a more compelling explanation, consistent with our theories, presents itself: the initiates participate because of coercion (in many traditional societies, failure to submit would have meant summary execution). Nor is it clear that regarding the group (or the anguish required to join it) as worthwhile should help to resolve the dissonance occasioned by liking the tormentor while hating the torment. In principle, though, we regard consistency explanations (including dissonance theory) to be potentially valid and complementary perspectives rather than stark alternatives to our own approach.

Fredman and Swann also wonder if our explanation of dysphoric rituals is overly focused on the psychological effects of participating in the role of patient. They ask whether it might be equally productive to focus on those who conduct and oversee the rituals. We agree that this would be an interesting and complimentary perspective and something to consider in future empirical research.

As Lende pointed out, yet another approach that we could have considered is the love-of-the-oppressor paradigm associated with so-called Stockholm Syndrome. Again, this is an interesting point although our primary concern has been to explain the bonding that occurs among coparticipants rather than with a leader figure. The latter may or may not be a feature of imagistic rituals—indeed in many cases the

focus is much more on the ordeal itself (e.g., walking on hot coals, removal of the foreskin) rather than on those who conduct or facilitate it. Indeed, initiators—if they have any role at all in carrying out dypshoric procedures—may be masked and anonymous. This is not to rule out the possibility of Stockholm Syndrome being at play in some dysphoric rituals, but it cannot serve as a general theory of dysphoric rituals in the same way that we are attempting to provide.

In general, we found little to disagree with in the commentaries and, quite the opposite, plan to draw on the many helpful suggestions and observations they provided as we progress with our empirical research. Nevertheless, there was one criticism in Stausberg's commentary that we would particularly wish to parry. Stausberg appears to believe that the idea that rituals can and often do produce social cohesion is a "popular folk theory" rather than a "current academic theory" and that "current academic theories" are necessarily better than "popular folk ones." We disagree. First, this would be a small "academy" indeed, as the theory that collective rituals produce social cohesion is present throughout both the social and cognitive anthropology of religion, including not only the numerous social and cognitive anthropologists and psychologists mentioned in our paper, but also in several of the contributions (e.g., Harth, Rao, and Bloch) to the volume Stausberg references as representative of "contemporary ritual theory" (Kreinath et al. 2006). Second, Stausberg seems to be under the mistaken impression that claims about rituals producing social cohesion are necessarily deterministic claims asserting that such effects will be plain to see in every context no matter what other forces are at work, such as "how participation is negotiated and subordination resisted" (Rao 2006:151). This is a misunderstanding of causal claims. Few hypothesized effects in the human sciences are thought always to overpower the innumerable other causal effects in particular circumstances. Rather, nearly all claims are ceteris paribus claims about the influence of a single or small group of factors (e.g., dysphoria, synchronic movement, causal opacity). Third, whether a theory comes from a popular or academic source has precisely zero relevance to its truth value, which can only be ascertained by evidence and analysis. That said, we reiterate our thanks to all the commentators, who provided new evidence and analysis to consider in our ongoing efforts to advance the scientific understanding of ritual and its causes and consequences.

—Harvey Whitehouse and Jonathan A. Lanman

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