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**Evolution and Human Behavior** 

journal homepage: www.ehbonline.org



### Original Article Discerning devotion: Testing the signaling theory of religion

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#### ARTICLE INFO

Article history: Initial receipt 11 April 2016 Final revision received 14 July 2016

Keywords: Signaling theory Religion Reputation Communication India

#### ABSTRACT

Religious rituals often entail significant investments of time, energy, and money, and can risk bodily harm. Instead of being evolutionarily inexplicable, such costly religious acts have been argued to be honest signals of commitment to the beliefs and values of the community, helping individuals establish good reputations and foster trusting, cooperative relationships. Most tests of this hypothesis have evaluated whether religious signalers are more prosocial; here I investigate whether signal receivers actually perceive religious signalers as such. I do this with data collected over 20 months of ethnographic fieldwork in two villages in South India, where Hindu and Christian residents engage in different modes of religious practice, including dramatic acts of firewalking and spirit possession as well as the more subtle but consistent act of worshipping at a church or temple each week. Each mode of religious practice is found to be informative of a distinct set of reputational qualities. Broadly speaking, in the long term, individuals who invest more in the religious life of the village are not only seen as more devout, but also as having a suite of prosocial, other-focused traits. In the short term, individuals who perform greater and costlier acts in the annual Hindu festival show a slight increase in the percent of villagers recognizing them as physically strong and hardworking. These results suggest that people are attending to the full suite of religious acts carried out by their peers, using these signals to discern multiple aspects of their character and intentions.

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#### 1. Introduction

In recent years, a number of evolutionary scientists have posed for themselves a sizable question: with all the costs (physical, monetary, emotional, psychological) associated with religious belief and behavior, what accounts for its ubiquity? Some of these researchers have sought to explain religion by delineating how certain aspects of our cognitive architecture may predispose us to believe in certain kinds of supernatural agents (e.g. Atran, 2002; Barrett, 2004; Boyer, 2001). Others have looked at how those beliefs may alter people's behavior, making them act less selfishly (e.g. Bering, 2011; Johnson & Krüger, 2007; Shariff, Willard, Andersen, & Norenzayan, 2016). Religious practices, especially collective rituals, have also been argued to be important in fostering social cohesion and cooperation (e.g. Durkheim, 1995; Whitehouse & Lanman, 2014). Ultimately, many of these scholars suggest that religious beliefs and practices played a crucial role in the emergence of complex societies (e.g. Cronk, 1994; Irons, 2001; Norenzayan et al., 2016; Purzycki et al., 2016; Rappaport, 1999; Shariff, Norenzayan, & Henrich, 2010; Watts et al., 2015; Wilson, 2003).

As a part of this new evolutionary focus on religion, some researchers have suggested that religious practices, particularly those that place costly demands on the individual, can be signals of commitment to the prosocial tenets of the community (Atran & Norenzayan, 2004; Bulbulia, 2004; Henrich, 2009; Irons, 2001; Sosis & Alcorta, 2003). Drawing on signaling theory (Akerlof, 1970; Bliege Bird & Smith, 2005; Grafen, 1990; Spence, 1973), they suggest that the costs entailed in carrying out religious acts mean that only those who are truly committed will be willing and able to perform them. Costly religious acts can therefore be seen as reliable, honest signals of commitment, allowing religious communities to establish trusting, cooperative relationships.

Applications of the signaling theory of religion tend to evaluate signal honesty, testing the hypothesis that religious signalers are more cooperative. Sosis & Ruffle, (2003) found that members of Israeli kibbutzim who attended synagogue more regularly were more cooperative in a common-pool resource game than others, and that they were especially cooperative toward other kibbutz members (Ruffle & Sosis, 2006). Working with Afro-Brazilian Candomblé groups, Soler (2012) found that members who expressed greater commitment to and involvement in the group not only played more generously in a public goods game, but also reported helping other group members more often than less committed members. Xygalatas et al. (2013) gave Hindu festival participants in Mauritius an opportunity to donate money to the temple, and found that those who participated in high ordeal rituals donated significantly more. Across these disparate settings

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and denominations, each of these projects has found that individuals who expend more time and energy in religious practice are more generous, suggesting that costly religious acts can be interpreted as honest signals of commitment and prosociality.

For such acts to truly be seen as "signals," however, researchers need to consider not only the signaler, but also the receiver. While researchers may be convinced that a signal is honest, they also need to establish that signal receivers are able to discern the signal and respond to it (Lachmann, Számadó, & Bergstrom, 2001; Maynard Smith & Harper, 2003; Rendall, Owren, & Ryan, 2009). Given the consistency of the literature in asserting that religious signals convey commitment to the beliefs and values of the group, the question arises whether this is indeed the information that the audience perceives. Lab experiments provide some preliminary evidence that signals of religiosity are associated with greater perceived trustworthiness. For example, McCullough, Swartwout, Shaver, Carter, & Sosis, (2015) found that American undergraduates viewed individuals as more trustworthy and gave more to them in the trust game if they displayed a Christian religious badge (Ash Wednesday ash or a necklace with a cross), and Hall, Cohen, Meyer, Varley, & Brewer, (2015) found that American Christian undergraduates viewed individuals as more trustworthy if they donated money to religious charities and if they adhered to religious dietary requirements, regardless of whether they were a fellow Christian or a Muslim. In-depth ethnographic studies have not yet been undertaken to see if similar patterns are borne out in the messiness of real life. And, studies have not yet investigated the particular qualities that are imputed from religious signals, beyond general categories of prosociality and trustworthiness. To address these gaps, I draw on data from two South Indian villages to establish the signal content that people discern from the religious action of their peers.

#### 1.1. Predictions

Researchers from a variety of disciplines and theoretical backgrounds have forwarded what can generally be termed the "signaling theory of religion," arguing that religious acts can honestly communicate information about the individual's commitment to the religious tenets of the community. Different researchers have emphasized different aspects of the religious system that facilitate this process of communication and discernment. Religious acts often evoke heightened emotional states, which are inherently hard to fake (Alcorta & Sosis, 2005; Frank, 1988). Further, many religious acts entail sizable costs (whether they be physical, psychological, monetary, or opportunity costs), which skeptical individuals are likely unwilling to bear; only those people who truly believe should be willing to carry them out (Sosis & Alcorta, 2003). If the perceived costs of a religious act are more for those who are not committed to the belief underlying it than for those who are, then observers can see such acts as credible displays of the belief commitment of those carrying out the religious act (Henrich, 2009). By carrying out such religious acts, individuals demonstrate their willingness to adhere to the social norms and values that are at the core of so many rituals (Rappaport, 1999). For these varied reasons, numerous authors (some grounded in economics, some behavioral ecology, and some cultural evolution) have suggested that costly religious acts can be seen as honestly conveying information about the religious signaler's commitment to the religious and moral precepts of the community. Costly religious actions should therefore help an individual establish a reputation for devotion and for prosociality. Such reputations and the consequent trust it engenders can then help religious signalers establish supportive relationships. Ultimately, these researchers argue that this helps to create cooperative, cohesive communities that can resist skeptical free-riders who are unable to give the costly signals and unwilling to bear the costly requirements often demanded of religious adherents (Iannaccone, 1994; Irons, 2001). This cohesiveness may facilitate cultural group selection, promoting a stable system of beliefs and costly religious practices (Henrich, 2009; Wildman & Sosis, 2011).

Drawing on these varied arguments, we can derive the following predictions to be tested here:

- 1. People who invest in more and costlier ways in the religious life of the village will be perceived as more devout and more prosocial.
- Participating in more and costlier ways in the festival for the goddess Mariyamman will lead to increased recognition as devout and prosocial in the days immediately following the festival.

#### 1.2. Research setting

The neighboring villages of "Te<u>n</u>patti" and "Alakāpuram" (pseudonyms) are located in the South Indian state of Tamil Nadu, near the Vaigai River. Barring a drought, its sporadic waters allow most villagers to spend a few months each year growing rice on small plots of land and the rest engaging in wage labor. The villages are comparable in size, with 164 households in the former and 201 in the latter. Each has a mix of caste groups ( $j\bar{a}ti$ ) and religious denominations—Hindu, Roman Catholic, Church of South India (CSI, a mainline Protestant denomination), and non-denominational evangelical Christian. The Catholic and Protestant communities each comprise a single caste, whereas the Hindu residents represent a number of distinct castes (see Table A.6 in the Supplementary Material for a full breakdown). All residents are ethnically and linguistically Tamil.

Religious practice is an intimate part of daily life in these villages. Most Christian households have images of Jesus and Mary adorning their walls, and Hindu households typically have a small area with images of deities for offering a quick prayer and taking tarsan, the mutual viewing of the deity and devotee (Eck, 1981). The Catholic and Protestant churches hold weekly services on Sunday (often lay-led), and a handful of residents read from the Bible early each morning at the Catholic church in Tenpatti. With the many temples and shrines in each village, Hindu residents have more choice in how (and to whom) to direct their devotion. In Tenpatti, many Hindu residents make a quick visit to the temple for the goddess Mariyamman on Tuesdays and Fridays. Each month on the full moon, the local priest (*pucari*) carries out an elaborate worship  $(p\overline{u}jai)$  at the temple, seeing to the needs of Mariyamman and making offerings (*piracatam*) to her, which are then shared out among the many attending villagers. In Alakapuram, Hindus may visit the temples for Vishnu or the guardian deities Ayyanar and Karuppacami. About a third of the residents of the two villages worship at a church or temple at least once a week.

Auspicious days and religious holidays entail more involved worship. Christians celebrate Christmas, New Year's Eve (considered a Christian holiday, as it follows the Gregorian, rather than Tamil, calendar), and Easter with new clothes, elaborate meals, games, and formal services. In both villages, the Catholic communities organize an annual festival in which statues of the church's saint are carried in a procession through the village on a palanquin (*capparam*). In Tenpatti, the Hindu festival for the village goddess Mariyamman each summer is an important event requiring long preparation. Mariyamman is a form of the goddess often found in Tamil villages, sometimes referred to as the goddess of smallpox; she is a powerful, vengeful goddess who protects and defends the village (Beck, 1981; Trawick, 1984; Younger, 1980). The proper carrying out of her festival is seen as ensuring the continued growth and vitality of both the village and its villagers. This growth is represented by the *mulaippari*, pots containing bright green sprouts, carried by village women in a procession held during the festival.<sup>1</sup> These processions, both for the Catholic and Hindu communities, mark off the domain of the deity and the social boundaries of the village (Jacobsen, 2008; Mines, 2005; Raj & Dempsey, 2002).

Often as a part of these festivals, people voluntarily choose to fulfill ritual vows (*nerttikkatan*), acts of devotion carried out in thanks for di-

<sup>&</sup>lt;sup>1</sup> It is worth noting that Dalit (also known as Untouchable or Scheduled Caste) women are not permitted to carry *mulaippari*, an example of continued caste discrimination.

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