Gods, Games, and the Socioecological Landscape

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1 Introduction

Many have suggested that religious beliefs and practices can be adaptive inasmuch as they optimally resolve or reduce the costs of general social dilemmas [5, 16]. Some have focused on modelling specific religious systems by examining payoffs ranging from ritualized management of the slaughter of competing livestock and outgroup conflict in Papua New Guinea [13] to the spiritually sanctioned field burning that yields greater returns in the form of edible monitor lizards in Australia [2]. Others have employed simple game theoretical models to examine the social dilemmas that people face in situ and have tested whether or not religiously-inspired coordination resolves those dilemmas [7]. Inspired by these approaches and examples, I briefly discuss three scenarios in my own field site and note their correspondence with well-known social dilemmas [11, 12].

2 Scenarios

I illustrate these three scenarios in Figure 1. In this idealized world, there are two yurt encampments (A and B) that are separated by mountains. By necessity, both camps live by water sources. In addition to a river, one camp lives by a natural spring, marked with 3. These two camps recognize their established territories, marked by a devotional cairn at 2. One area is the spirits’–marked by a cairn at 1–where hunting is forbidden. Each number represents a different scenario/game.

![Figure 1. Scenarios discussed herein.](image)

Scenario 1 appears to manifest itself in a variety of ways, though the spiritual mediation of hunting practices is expressed around the world. Scenario 2–religious and/or ritual significance on important borders or boundaries–are found around the world including Inner Asian groups, American Southwest Pueblos, African groups, among others. Such practices appear to be associated with herding practices specifically, suggesting a convergent relationship between herding territory and the sacralization of borders [15]. Scenario 3 echoes any system where outsiders are expected to pay their respects to spirits before extracting renewable resources on others’ territory. Such practices have been documented among the Ainu, the Evenki, Tyvans, among others.

2.1 Hunting Practices and Managing the Commons

Scenario 1 seems to represent a dilemma that revolves around overexploitation [4]. In this area of Figure 1, hunting is off limits because this is the “spirits’ land.” It is in individuals’ interests to hunt there anyway, especially considering it is difficult to monitor others’ behavior (or determine where gunshots are coming from, if they’re audible at all). One person could easily defect and get a deer, only to effectively wipe out the population. Two people hunting would quickly wipe out the deer population. However, if both people agree to not hunt there–particularly on the grounds that a spirit is going to punish you if you do–it may ultimately have more reliable returns down the road (since deer migrate too).

2.2 Territory and Cooperation

Scenario 2 indicates a pattern of sacralizing territorial borders. Territorializing has long been recognized as optimal for reducing costly conflict between individuals and groups who have a clear interest in expansion. As it is in both parties’ best interests to grow, territorial borders might keep people out (and in). But territory requires maintenance. A rich literature suggests that one mechanism that can reduce costs associated with maintenance are landmarks; physical–but non-obstructive–indices of borders can function as both reminders conflict and reduce the likelihood of engagement. In the context of human territories where borders are not always easy to monitor, the presence of a powerful deity in the form of an agent can be a strategic way of maintaining borders in the absence of readily available secular punishment.
2.3 Religious Signalling and Cooperation

In Scenario 3, Camp A’s primary source of water is sullied by recent rains. Because Camp A knows Camp B has a fresh water source from a natural spring, they can opt to go into Camp B’s territory and take some water, but there very presence indicates a breach of protocol; people should generally stick to their own territories, lest they be seen as a threat. One possible way of gatekeeping resources is to require a reliable signal that one really needs the resource and they mean no threat (see [1, 8]). Conveniently enough, throughout Inner Asia, natural springs are associated with spirits who are paid offerings of money, silk, and/or tobacco before taking water.

3 Discussion

Despite the details that would inevitably complicate matters, these three scenarios contain strong hints of social dilemmas and corollary game theoretical elements: commons problems (Scenario 1) have been modelled with a modified prisoner’s dilemma [3]; conflict over land and its subsequent sharing might be framed as a Hawk/Dove game (Scenario 2; [9]); and religious communication has clear signals and costs and they are associated with access to resources that others gatekeep, much like the Philip Sydney game (Scenario 3; see [8, 14]). Of course, many other religious systems exist that may correspond to different issues (e.g., conformity to a norm might be framed as a game of chicken, etc.), but formal attention to the evolution of beliefs in spiritual third-party punishers has only just begun [6].

Religious systems appear to systematically conform to and even address such challenges, but consideration of how to model extant systems by imagining likely outcompeted alternatives would dramatically enrich evolutionary-minded ethnographic research and bring it closer to integration with the evolutionary sciences. Moreover, such work would go beyond appealing to such dilemmas as interpretive frameworks. Rather, useful models would generate tractable predictions. Typically, researchers have to rely on proxies or use informal evolutionary theory to interpret results, but too few are drawing their research directly from sensible games that are specified enough to guide empirical work and intuitions, but not so overspecified as to tax model-making ventures.

References