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Evaluating ritual efficacy: Evidence from the supernatural

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ABSTRACT

Rituals pose a cognitive paradox: although widely used to treat problems, rituals are causally opaque (i.e., they lack a causal explanation for their effects). How is the efficacy of ritual action evaluated in the absence of causal information? To examine this question using ecologically valid content, three studies ($N = 162$) were conducted in Brazil, a cultural context in which rituals called *simpatias* are used to treat a great variety of problems ranging from asthma to infidelity. Using content from existing simpatias, experimental simpatias were designed to manipulate the kinds of information that influences perceptions of efficacy. A fourth study ($N = 68$) with identical stimuli was conducted with a US sample to assess the generalizability of the findings across two different cultural contexts. The results provide evidence that information reflecting intuitive causal principles (i.e., repetition of procedures, number of procedural steps) and transcendental influence (i.e., presence of religious icons) affects how people evaluate ritual efficacy.

1. Introduction

> "The problem of ritual is the familiar 'rationality problem' in a new guise—old wine in a new bottle" (Sax, 2010, p. 4).

Ritual is often interpreted in both popular scientific discourse and in ritual studies as action that is ineffective, irrational, or purely conventional (Sax, Quack, & Weinhold, 2010). Although some have argued that rituals are expressions of inner states of feeling and emotion, symbolize theological ideas or social relations, or represent psychophysical states, conceptualizing ritual exclusively in this way neglects the fact that the use of rituals for protective, restorative, and instrumental purposes is a pervasive feature of human culture (Sax et al., 2010; Sørensen, 2007). Using rituals to solve problems presupposes reasoning about their efficacy, a topic of longstanding interest and debate in anthropology (Csordas, 2002; Sax, 2004; Sax et al., 2010).

Rituals pose a cognitive paradox: although widely used to treat problems, they are cultural conventions and lack a causal explanation for their effects (Legare & Whitehouse, 2011). They are the result of "a positive act of acquiescence in a socially stipulated order", and thus are not the product of individual innovation. "The peculiar fascination of ritual lies in the fact that here, as in few other human activities, the actors both are, and are not, the author of their acts" (Humphrey & Laidlaw, 1994, p. 5). Rituals, which we define as conventional, causally opaque procedures (Legare & Whitehouse, 2011), present a challenge to theoretical accounts of causal reasoning because they are both socially stipulated (Humphrey & Laidlaw, 1994) and not reducible to causal mechanisms (Bloch, 2004; Boyer & Liénard, 2006; Whitehouse, 2001). Even when rituals are explained in the context of a certain belief, there is often not an expectation of a direct causal connection between (ritual) actions and outcomes (Sørensen, 2007). We propose that rituals are *irretrievably causally opaque* because they (1) are not bound by the same kinds of intuitive physical–causal constraints that characterize non-ritualistic actions and (2) lack an intuitive causal connection between the specific action performed (e.g., rubbing a ceramic pot) and the desired outcome or effect (e.g., making it rain).

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For example, rituals intended to have particular effects (e.g., rituals promoting crop fertility or healing the sick) are not expected to do so by causal mechanisms that are transparent or even in principle knowable (Legare & Whitehouse, 2011). This raises a conceptual question: how do people evaluate the efficacy of ritual action in the absence of causal information?

Our objective is to examine the 'hidden logic' of ritual (Sax, 2010) experimentally, integrating and applying cognitive anthropological and cognitive psychological approaches to the study of ritual cognition. Rather than evaluate the efficacy of ritual by examining outcomes or experience (Csordas, 2002), we seek to examine the kinds of information that influence perceptions of the efficacy of ritual action.

We propose that the structure of ritual can be interpreted in light of intuitive causal beliefs about action efficacy or potency. In particular, rituals used for problem-solving purposes reflect intuitive beliefs about causal reasoning and the efficacy of goal-directed action sequences.

Consider Tambiah's (1979) classic definition of ritual as practice: "Rituals are patterned and ordered sequences of words and acts, often expressed in multiple media whose content and arrangement are characterized in varying degrees by formality (conventionality), stereotypy (rigidity), condensation (fusion), and redundancy (repetition)". We argue that the characteristics of ritual described by Tambiah (1979; i.e., rigidity, repetition) are the product of an evolved cognitive system (Atran & Norenzayan, 2004; Boyer & Liénard, 2006; Sørensen, 2007; Humphrey & Laidlaw, 1994; Whitehouse & McCauley, 2005) of intuitive causal principles. Rather than conceptualize ritual as a process of intensive symbolic communication (Tambiah, 1979), we suggest that the process of ritualization tends to evacuate actions of meaning through goal-demotion and redundancy (Humphrey & Laidlaw, 1994). Thus, we predict that intuitive causal reasoning, not content familiarity, is driving how ritual efficacy is evaluated.

1.1. Evaluating ritual efficacy

Although there is written record of rituals used for problem-solving purposes dating from ancient Egypt (The papyrus ebers, 1931; 1937) the use of rituals to treat problems as diverse in etiology as asthma and unemployment is widespread in contemporary cultural contexts such as the United Kingdom (Hutton, 1999), the United States (Crowley, 1989), Brazil (Cohen & Barrett, 2008; Souza & Legare, 2011), and South Africa (Ashforth, 2001; Legare & Gelman, 2008). Despite the seeming variability in the content, practices, and artifacts used in rituals around the world and over historical time, we propose that the way in which ritual efficacy is evaluated is predictable and constrained. For example, compare the following rituals used as remedies in Ancient Egypt and in present day Brazil. First consider this ritual, taken from the Papyrus Ebers, 1550 BCE, that was used to treat blindness: "Crush, powder, and make into one the two eyes of a pig [remove the water therefrom], true collyrium (i.e., mineral eye salve), red-lead (i.e., red oxide), and wild honey [in a clay bowl]. Inject [mixture] into the ear of the patient. When thou hast seen properly to this mixing repeat this formula: 'I have brought this thing and put it in its place. The crocodile [god Sobek] is weak and powerless'. Repeat twice. Thereby he will at once recover" (The Papyrus Ebers, 1931, p. 104).

Now consider a ritual used to find a partner in Brazil: "Buy a new sharp knife and stick it four times into a banana tree on June 12th at midnight (i.e., Valentine's day in Brazil, Saint Anthony's day is on the 13th). Catch the liquid that will drip from the plant's wound on a crisp, white paper that has been folded in two. The dripping liquid captured on the paper at night will form the first letter of the name of your future partner" (Scharf, 2010).

On the surface, there are many differences between these rituals. They involve different substances (e.g., red-lead vs. sap from a banana tree), different practices (i.e., mixing vs. paper folding), incorporate different artifacts (i.e., clay bowl vs. a knife), and treat different problems (i.e., blindness vs. attracting a partner). Yet, there are also many similarities. They involve information such as procedural repetition (i.e., repeat twice vs. twice a day for two weeks), a large number of procedural steps (i.e., seven vs. six), time specificity (i.e., early rising vs. June 12th at midnight), high levels of procedural detail (i.e., mixing wild honey vs. buying a new sharp knife and sticking it four times into a banana tree), and the presence of supernatural agents (i.e., Sobek, an ancient Egyptian deity vs. Saint Anthony, a Catholic marriage saint).

We hypothesize that information reflecting intuitive biases in causal reasoning (i.e., repetition, number of procedural steps, and the specificity of procedural detail) is used to evaluate the efficacy of ritual action. Although biases in causal reasoning are used to evaluate the efficacy of all action, their influence on action efficacy judgments may be especially salient or influential when information about causal mechanisms is unavailable. Whereas some of the intuitive causal principles hypothesized to influence perceptions of ritual efficacy examined in the present studies are likely to be related to previously documented biases in causal reasoning (i.e., repetition), others have not been well studied (i.e., number of procedural steps and specificity of procedural detail).

We propose that repetition of similar actions (e.g., pressing a button repeatedly to call an elevator) is perceived to be causally efficacious. A long-standing philosophical tradition supports the claim that beliefs about causal connections arise from impressions (projections of the mind) of repeated instances of similar relations (Hume, 1740). Converging psychological research has demonstrated that repetition may also influence reasoning about a variety of behaviors by making information more psychologically available (Oppenheimer, 2008), familiar (Scott & Dienes, 2008), and attractive (Zajonc, 1968).

The number of procedural steps and procedural specificity of the action sequence may also influence perceptions of causal efficacy. A larger number of procedural steps (e.g., seven steps) may increase the perception of causal efficacy over a smaller number of procedural steps (e.g., three steps) by giving the impression that multiple actions may have the capacity to produce a particular